upplement to this day's issue.

"Step after step the ladder is ascended."—George Herbert, *Jacula Prudentum.*
"Agriculture is the most healthful, most useful, and most noble employment of man."—WASHINGTON.

THE TROPICAL AGRICULTURIST:

(ESTABLISHED 1881.)

A MONTHLY RECORD OF INFORMATION FOR PLANTERS

OF

TEA, CACAO, COFFEE, PALMS, RUBBER, CINCHONA, SUGAR, FIBRES, COTTON, TOBACCO, SPICES, CAMPHOR, RICE,

AND OTHER PRODUCTS SUITED FOR CULTIVATION IN THE TROPICS:

Circulating in India, Ceylon, Burma, Straits, Java, Sumatra, Borneo, Northern Australia, Queensland, Fiji, Mauritius, Natal, East and West Africa, West Indies, South and Central America, California, Southern States, and throughout Great Britain.

BRITISH MUSEUM

EDITED BY

J. FERGUSON,
of the "CEYLON OBSERVER," "CEYLON HANDBOOK AND DIRECTORY," *&c.*

"It is both the duty and interest of every owner and cultivator of the soil to study the best means of rendering that soil subservient to his own and the general wants of the community; and he, who introduces, beneficially, a new and useful *Seed, Plant or Shrub* into his district, is a blessing and an honour to his country."—SIR J. SINCLAIR.

VOL. XX.

[Containing Numbers I. to XII.: July, 1900, to June, 1901.]

CEYLON: A. M. & J. FERGUSON, COLOMBO.

LONDON:

JOHN HADDON & CO.; KEGAN PAUL, TRENCH, TRUBNER & CO., LTD.; LUZAC & CO., &C

MADRAS: HIGGINBOTHAM & CO. CALCUTTA: THACKER, SPINK & CO.
BOMBAY: THACKER & CO., LTD. AUSTRALIAN COLONIES: GORDON & GOTCH.
WEST INDIES AND CENTRAL AMERICA: C. H. CALDERON, ST. THOMAS.
STRAITS SETTLEMENTS AND EASTERN ARCHIPELAGO: JOHN LITTLE & CO., SINGAPORE.
HONGKONG AND YOKOHAMA: KELLY & CO. JAVA: MESSRS. JOHN PRYCE & CO.
BATAVIA: G. KOLFF & CO.

1901.

9 OCT. 1901

TO OUR READERS.

In closing the Twentieth Volume of the "**Tropical Agriculturist,**" we would as usual direct attention to the large amount of useful information afforded and to the great variety of topics treated in the several numbers. From month to month, we have endeavoured to embody in these pages the latest results of practical experience and scientific teaching in all that concerns tropical agriculture ; and our ambition has been to make this periodical not only indispensable to the planter, but of service to business-men and capitalists, never forgetting that agriculture trenches upon every department of human knowledge, besides being the basis of personal and communal wealth.

While directing our attention chiefly to the products prominently mentioned on our title-page, we have always taken care to notice minor industries likely to fit in with sub-tropical conditions ; and our readers have an ample guarantee in the index pages before them, that, in the future, no pains will be spared to bring together all available information both from the West and East, the same being examined in the light of the teachings of common sense as well as of prolonged tropical experience in this, the leading Crown and Planting Colony of the British Empire.

Special attention has, during the past year, been given to the introduction and extension of an industry in rubber-yielding trees (more especially in the planting of Para and Castilloa trees), and much literature on the subject will be found throughout our pages ; also on cacao in Central America and the West Indies as well as in Ceylon ; to "Spices" of various kinds (nutmegs, camphor, &c.) ; to palms, especially "coconuts" in different districts ; to coffee and allied products in Brazil, Mexico, Costa Rica, East Java, Nyassaland, British Central Africa ; Liberian coffee in Sumatra, Java, the Straits Settlements ; and to other new developments in palms and tobacco planting, &c., in the Malayan Peninsula, Sumatra and North Borneo, as well as in this Island.

The Tea-planting Industry has sprung into so much importance in India (South as well as North) and Ceylon, as also in Java, that a considerable amount of space is naturally given to this great staple ; and with reference to all Companies' Reports, to Sales and Prices, as well as to hints for economising, we think it will be admitted by impartial judges that the *Tropical Agriculturist* should be filed, for the convenience of planters, in every Tea Factory in this Island, in India and in Java.

A full and accurate Index affords the means of ready reference to every subject treated in this, the Twentieth Volume, which we now place in our subscribers' hands, in the full confidence that it will be received with an amount of approval, at least equal to that which has been so kindly extended to its predecessors.

To show how fully other Products besides Tea are treated in this volume, we may mention the number of entries under several headings as follows :—Coffee (including Liberian) 44 ; Cacao 28 ; Indiarubber 70 ; many to Gutta Percha ; to Coconuts and other Palms, Rice and other Grain, Cinchona, Camphor, Cloves, Fibres, Tobacco, Fruits and Miscellaneous Products nearly 1,000. In the 20 volumes, the references to Rubber, Cacao and Coffee number many thousands, as also to Coconuts and other Palms.

A "Topical Index" to the twenty volumes is in course of preparation.

We are convinced that no more suitable or useful addition can be made to a Planting Company's Library or gift to a tropical planter or agriculturist, whether he be about to enter on his career, or with many years of experience behind him, than the twenty volumes of our periodical which we have now made available. They are full of information bearing on every department and relating to nearly every product within the scope of sub-tropical industries.

In conclusion, we have to tender our thanks to readers and contributors, and our wish that all friends may continue to write instructively and to read with approval ; for then, indeed, must the "**Tropical Agriculturist**" continue to do well.

J. FERGUSON,

COLOMBO, CEYLON ; 5TH JULY, 1901.

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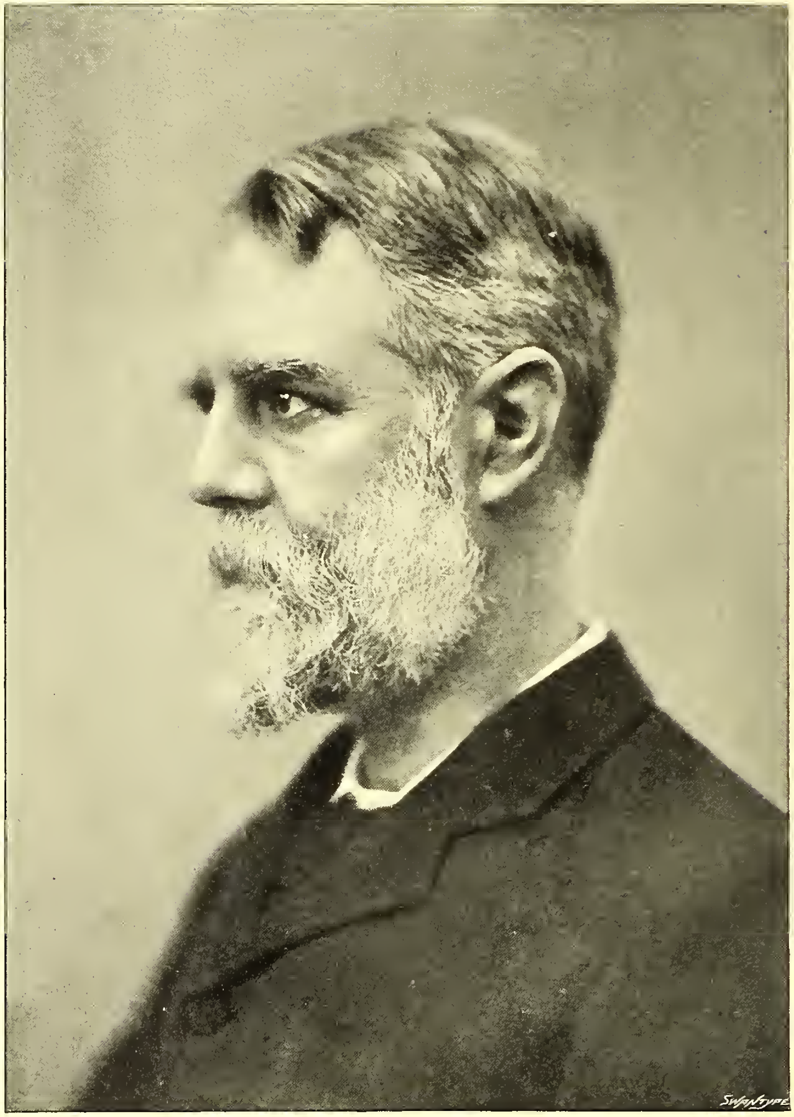

HENRY TRIMEN.

The TROPICAL AGRICULTURIST

MONTHLY.

Vol. XX. COLOMBO, JULY 2ND, 1900. No. 1.

"PIONEERS OF THE PLANTING ENTERPRISE IN CEYLON."

(Third Series.)

THE LATE HENRY TRIMEN, F.R.S., F.L.S., M.B., &C.

THERE can be no difference of opinion as to the claim of the late "Dr. Trimen"—to quote the title by which he was universally known and esteemed in Ceylon—to a place in the portrait gallery and biographical series of our *Tropical Agriculturist*. His predecessor, Dr. Thwaites, has already been duly noticed; but Dr. Trimen, while an equally accomplished scientist, did far more in the direction of economic botany in Ceylon, and it was his fortune to watch the decay of *Coffea Arabica* and to encourage the succeeding industries in Cinchona and Cacao, and above everything to do all in his power to promote the success of our present staple Tea. The Annual Reports on the Royal Botanic Gardens, for which he was responsible, were models of what such Reports should be, and especially were they full and practical in their treatment of new economic products as may be judged from the many extracts we have embodied in the Planting and Agricultural Review of our "Ceylon Handbook and Directory." He was also a frequent contributor to our monthly periodical, the convenience and usefulness of which he much prized, and he never failed to give a prompt reply to the many letters of enquiry as to plant troubles, or experimental culture, made to him by us on behalf of planters up and down, and even from beyond, the Island. A more obliging official, more attentive correspondent, or more pleasant friend and genial man than Dr. Trimen never came to Ceylon. Apart from our own personal experience, we are simply echoing the very high opinion entertained by such competent judges as the late A. M. Ferguson, C.M.G., and W. Ferguson, F.L.S.; which his subordinates—native as well as European—were deeply attached to him.

With so much by way of preface, we will now proceed to extract from the "Jonrnal of Botany" for December, 1896, the brief but appreciative memoir written by the editor, Mr. James Britten, F.L.S., Senior Assistant Department of Botany, British Museum (Natural History) South Kensington. Dr. Trimen himself had been editor of this Botanical periodical at one time and it was very fitting therefore that justice should have been done to his career and memory in its pages, as follows :—

IN MEMORY OF HENRY TRIMEN.

(WITH PORTRAIT.*)

Henry Trimen was born on October 26th, 1843, a 3, Park Place Villas, Paddington, London. He was educated at King's College, London, firstly in the school and subsequently on the medical side of the College. Very early in life he showed a strong animals and plants with much ardour. His elder

* We are indebted fo: a supply of this portrait to the printers of the "Journal of Botany."

liking for natural history, and collected specimens of brother Roland was devoted to the same pursuits, and well remembers how, when it became a matter of necessity to make a choice among the "omnium gatherum" of organic objects amassed, it was solemnly decided that Henry should restrict himself to the study of plants, while his senior was to devote his attention to insects. Holidays and half-holidays were almost always occupied by collecting excursions in the environs of London; and school vacations, with the annual visit of the family to the seaside, gave golden opportunities for field-work which were never neglected. While he was still at King's College School he had begun to form an herbarium, and frequently visited the Botanical Department of the British Museum for the determination of his collections. He was than a steady and careful worker, and a careful observer of all the conditions of plant-life.

He began his medical studies at Kings's College in the autumn of 1860. The winter of 1864 he spent at Edinburgh University, where, besides attending to his medical studies, he acted as clinical assistant to Prof. Bennett. He joined the Edinburgh Botanical Society, and secured the friendship of Prof. Balfour and many of the younger botanists of Edinburgh. He graduated M.B. with honours at London University in 1865, and for a short time he acted as district medical officer in the Strand district during an epidemic of cholera.

It was in 1864 that I made Dr. Trimen's personal acquaintance. The Society of Amateur Botanists, which had been established in 1862 and of which some account will be found in this Journal for 1864, p. 287, was then in the best period of its not very long existence, and Mr. Newbould took me to one of the meetings and introduced me to Mr. Trimen and to Mr. Dyer—two names which were then, like their possessors, intimately associated. To a lad of eighteen, strange to public meetings and shy of strangers, these young men of twenty-one seemed superior beings—an impression intensified by a certain loftiness of tone which, in Trimen's case, soon disappeared upon more intimate acquaintance. Trimen and Dyer were the leading spirits of the Society, which, however, also numbered men who have distinguished themselves in botanical work during later life (of whom Mr. W. G. Smith is a conspicuous example), as well as others whose attachment to botany was but temporary.

At this period, and for many years after, Trimen took a prominent part in the work of the Botanical Exchange Club, and this brought him into frequent communication with Mr. J. G. Baker, which developed into personal friendship when the latter came to town in 1866. Somewhat later than this he formed the acquaintance of the Hon. J. Leicester Warren (afterwards Lord de Tabley), who, with Mr. Newbould and Mr. Dyer, were his chief botanical friends. With the last of these he projected in 1866—in which year he added *Wolffia arrhiza* to our British list—the *Flora of Middlesex*, which, on its publication in 1869, was at once recognized as an epoch-making book in the history of British botany, and has formed a model for subsequent compilers of local floras. It is unnecessary to speak at length of a book so well known and so deservedly admired. It has always been supposed that Dr. Trimen was responsible for the larger portion of the undertaking; and the interleaved copy of the *Flora*, which, on going to Ceylon, he left in the Department of Botany, is full of MS. notes which will interest future investigators of the plants of the county.

Although he had completed his medical course with distinction, it was manifest that Trimen's vocation lay in the direction of botany. He was well acquainted with Mr. Bennett and with Mr. Carruthers, the latter of whom had shown every encouragement to him and to Mr. Dyer at the beginning of their botanical career, and had thus contracted a warm personal friendship with them, which in Trimen's case was never broken. Mr. Dyer had also a desire for botanical work, and, as I have said elsewhere,* it was only after much deliberation that Trimen was chosen to fill the post of Assistant in the Department of Botany in the British Museum. It is curious to speculate on the turn that events might have taken had the choice been otherwise. In 1877 Trimen became botanical lecturer to St. Mary's Hospital—a post which he retained for many years.

Although it was not till 1870 that Trimen's name appeared on the title-page of this Journal in the capacity of assistant-editor, he had for some time had much to do in its management. During Seeman's frequent absences from England, Mr. Carruthers had acted as editor, although his name never appeared in that capacity; but from 1870 onwards Trimen was responsible in every way for the conduct of the Journal, although his name did not appear as editor until after Seemann's death in 1871. He at once reduced the price of the Journal and introduced many new features, the result being an increased circulation and a much improved table of contents. The pecuniary loss entailed, however, was considerable, although towards the end of his editorship the Journal paid its way. The Journal has from the first been unofficially associated with the British Museum. Dr. Seemann found the Botanical Department a convenient place of reference, and subsequent editors have been members of the Museum staff, so that, although the Museum is in no way responsible for what may appear in its pages, it has furnished a convenient medium—more needed, perhaps, formerly than at present—for keeping the botanical world *au courant* with what is done in the National Herbarium. Dr. Trimen, as a loyal servant of the Trustees, systematically recorded the progress of the collections, and the importance of the records thus published is shown by the fact that in

* *Journ. Bot.* 1895, 183.

such works as De Candolle's *La Phytographie*, this Journal is frequently cited as the source whence information regarding the Museum collections has been derived. Besides the work of editing, Dr. Trimen enriched the Journal with numerous communications dealing with British plants from various aspects, bibliographical and other matters, descriptions of new genera and species, reviews of books, and the like. His work throughout is characterized by extreme care. He did much to elucidate the British species of such critical genera as *Polygonum* and *Rumex*, and in the latter genus he commemorated his friend Mr. Warren by naming in his honour a form subsequently identified with *R. Knafii.** He also contributed to the Linnean Society's Journal and to other periodicals; fifty papers stand under his name in the Royal Society's *Catalogue of Scientific Papers*.

In 1872-3 Trimen took a leading part in the promotion of certain reforms in the Linnean Society, of which body he had become a Fellow in 1866. The bringing about of these was attended by a period of excitement rare in the annals of a learned body. Some account of what took place may be found in the Journal for these years; and the result was in every way beneficial, although in the course of the proceedings necessary to secure reform, certain regrettable incidents occurred. Those who remember the formal meetings of pre-reformation days will agree that the contrast between then and now is nothing short of startling. It is to Trimen that we owe the small but important regulation by which the dates of publication of each part of the Journal are printed on the back of the title to each volume.

In 1875 began the publication of what was in some respects Trimen's most noteworthy work—*Medicinal Plants*—which he undertook in collaboration with Prof. Bentley. This was not concluded until 1880, the last part having been published in February of that year, after Trimen had left England for Peradeniya. This important change in his career occurred in December, 1879, to the great regret of his colleagues in the Museum.

This seems a fitting place in which to pay a tribute to those personal characteristics which made Trimen popular among a large circle of friends. Bright and cheerful in manner, with a sufficient sense of humour and a good acquaintance with general affairs and literature, be was an extremely pleasant companion; while as a Museum official he was always courteous and helpful to enquirers, and both ready and willing to impart the knowledge he possessed. "His kind-hearted and cheerful nature," writes his brother, "with his unflagging zeal and activity in the pursuit of his favourite science, won him many faithful friends and associates—espeeially when he held the post of Lecturer on Botany at St. Mary's Hospital, and led his class in the field no less ably and enthusiastically than he did in the lecture-room. I think that his life," he adds, "was, until quite lately, a very happy one. He was able to give himself unrestricted to the work he loved best, and in its practical application to the tropical gardens of which he was in charge for sixteen years was unquestionably most successful. He was free from family cares or pecuniary anxieties, and up till two years ago enjoyed unusually good health, while he had the happy gift of winning the affection and respect of all those with whom he had to do."

On his arrival in Ceylon, Trimen threw himself with characteristic energy into the various branches of his work. This involved an entire rearrangement of the Gardens—a task the need and execution of which are well set forth by M. Treub, of Buitenzorg, a highly competent judge in such matters. The Garden, he says, was "for many years under the direction of Dr. Thwaites, a man of real merit, but who thought a botanic garden in a tropical country should be in some manner a reduced copy of the virgin forest. This system, more original than meritorious, excludes any methodical arrangement of plants and necessarily restricts the number of specimens. Dr. Trimen, as soon as he arrived in Ceylon, realized the disadvantages of the plan of his predecessor. To distribute over an area of sixty hectares, without any order, a great number of plants, for the most part not labelled, was fatally to embarrass the scientific use of the rich collections that had been brought together. So Dr. Trimen did not hesitate to adopt a new arrangement of plants according to the natural system, and to label them as far as it was possible for him to do so. With branch establishments upon the plain and upon the mountain, the garden of Peradeniya has before it a brilliant future."*

His life in Ceylon was very pleasant, any feeling of isolation being greatly modified by the visits of other botanists, such as Dr. Marshall Ward and Mr. H. N. Ridley, or of other scientific men, such as Prof. Ernest Haeckel, who, in his *Visit to Ceylon*, speaks warmly of Trimen's genial hospitality and "valuable instruction"—"the seven days I spent in his delightful bungalow were indeed to me seven days of creation." In such company Trimen would take expeditions into parts of the island hitherto unexplored by him, never failing to discover some interesting novelties.

This is not the place in which to consider Trimen's services to economic botany; his annual reports show that he developed the resources of the Garden in every direction, and his contributions to quinology were important. But something must be said about his botanical work in Ceylon. As soon as he had settled down, he became conscious of the need of a flora of the island. In 1885 he issued a catalogue of the plants, with the vernacular names and references to Thwaites's *Enumeratio*; and in this Journal for the same year he published a series of notes on

* See *Journ. Bot.* 1896, 79.

* *Annual Report of Smithsonian Institution*, 1889-90, p. 390.

Ceylon plants, in which were included many novelties: a further list of additions will be found in the volume for 1889. During a visit to England in 1886, he went carefully through Hermann's Ceylon Herbarium, the basis of Linnæus's *Flora Zeylanica*, and published in the Linnean Society's Journal (vol. xxiv.) a list of the plants therein contained, with the modern equivalents of the Linnæan names. The short preface to this is an excellent example of Trimen's work, giving as it does a history of the herbarium, and general notes upon its contents.

These of course were but preliminaries to what was to have been the great work of his life—which alas! he was not destined to finish. In 1893 appeared the first volume of the *Handbook to the Flora of Ceylon*—a work which as I said when reviewing it in these pages,* occupies towards colonial floras a position similar to that which the *Flora of Middlesex* holds with regard to that of this country. To that review readers must refer for an account of the work. Had the author been spared, it was his intention, as soon as this large undertaking was completed, to compile from it a Handbook of Ceylon Plants, analogous to Babington's *Manual*.

But it will cause no surprise to those who saw him when he was home last year that Trimen was unable to complete his enterprise. He had for years suffered from deafness, and this had become total, so that he was only able to carry on conversation with the aid of a pencil and paper. One leg was then entirely paralyzed, and although in spite of these and other troubles he maintained his old cheerfulness of demeanour, it was very painful to his old friends to see the state to which he had been reduced. We had hoped that he would not go back to Ceylon, but there were reasons—among them that anxiety to complete his Flora which, as we shall see, was with him literally to the last—which induced him to do so; and I think no one expected he would ever return to England.

I am indebted to his elder brother, Mr. Roland Trimen, a distinguished entomologist, for the following account of the closing scene of Trimen's earthly career:—

"After the attack in August last, which deprived him of all power in his left leg, my brother seemed to rally somewhat, though confined almost entirely to his room, being only taken out into the Gardens at his own request two or three times. On Wednesday morning, October 14th, he was suddenly seized with a feeling of chilliness and violent shakings of the hands and arms, his voice being at the same time somewhat affected. This he himself did not regard seriously, but Mr. Freeman at once went to Kandy to summon the doctor. He lay helpless all the day, and had to be fed with what little nourishment he was able to take. In the later half of the night he slept well, and on Thursday morning his first words were that he felt rather better, and must get up and do a little work at the 'Flora.' This he actually did in the afternoon, and with great effort made a few notes, which, Freeman writes, are scarcely decipherable. This pathetic endeavour still to work on seems to have been the last flicker of his strength; for during the sleepless night of Thursday, the 15th, his attempts to speak were almost inaudible, and on Friday he rapidly passed into a state of coma, though sometimes looking up and smiling when anything was done for him. He was evidently sinking all the afternoon and evening, but was as evidently free from any pain. Between nine and ten in the evening Mr. Freeman was called away for a little, and the hospital attendant on his return reported a change. As Mr Freeman entered the room Henry turned his head towards him, and then lay quietly back, and passed away without a tremour or movement of any kind.

"The funeral took place at Kandy on the morning of Sunday, October 18th, and was attended by two hundred of the European community and by a great number of natives. both headmen and Garden employes. Henry's old servant, Bob Appu, never left the back of the hearse throughout the route from Peradeniya; and on the previous day my nephew writes that he had about 400 applications from natives (old servants, village headmen, &c.) to see 'the old master.' The burial took place in the Mahaiyawa Cemetery, Henry's body being laid not far from the resting-place of his predecessor, Dr. Thwaites."

[The portrait here reproduced was taken by Messrs. Cameron during Dr. Trimen's visit to England in 1887.]

JAMES BRITTEN.

* *Journ. Bot.* 1893, 375.

We may supplement the above with a few "notes" from a series of letters on local Botanists which recently appeared in the *Ceylon Observer*:—

The present state of knowledge of Ceylon Botany undoubtedly owes more to Dr. Trimen, who succeeded Dr. Thwaites in 1880, than even to the labours of his illustrious predecessors. Assuming the duties of head of our Botanical Department at the age of 39,* with an already established reputation in Europe as a botanist, he by his great acquirements and steady devotion to science rendered yeoman service to the botanical world generally for 16 years, his death, while truly in harness, occurring in October 1896. From the outset the reorganisation of his department upon more modern and utilitarian principles received his special attention, simultaneously with the investigation of the local flora, collecting and describing new species and elucidating ones hitherto imperfectly understood. He was an authority on Quinology, and in 1883 was engaged by the Madras Government to report on certain problems connected with the Cinchona industry of the Nilgiris. In 1886 he issued his Systematic Catalogue of *Flowering Plants and Ferns Indigenous to Ceylon Svo.* now out of print; whilst in 1888 he published his *Hortus Zeylanicus*, being a clasified list of plants grown in

* Really in his 37th year.—ED. *T.A.*

the Royal Botanic Gardens at Peradeniya. As co-author of the voluminous and standard work, *Medicinal Plants* by Trimen and Bently, he was *au fait* in medical botany, which he turned to good purpose by establishing in Peradeniya Gardens a botanical Museum, containing collections of native and foreign drugs, fibres, timbers, grains, curiosities &c. Branch-garedns were founded by him at Anuradhapura and Badulla, in 1883 and 1886 respectively. The pages of various scientific journals, more particularly the *Journal of Botany*, of which he himself was editor from 1870 to 1880, were frequently enriched by Trimen's contributions on Ceylon Botany, and "no less than fifty papers" stand under his name at the Royal Society, of which he was a distinguished Fellow. His *magnum opus* is however, his *Flora of Ceylon*, which, unfortunately for the Colony, he did not live to finish. The completion of this work has, happily, been undertaken by the veteran Sir Joseph Hooker of Kew, Dr. Trimen having completed the first three volumes, with an atlas of plates, which bring the book as far down as Balanophoraceæ in the order of Bentham and Hookers Genera Plantarum. Sir Joseph has creditably accomplished his task, the fifth and last volume being now finished. The plan of Trimens's Flora is acknowledged to be a model of what such floras should be, it being, as far as completed by him, characterised by the critical insight and terse lucidity which always distinguished the author. Though the real value of Dr. Trimen's "Flora" cannot well be estimated, more especially as Thwaites' "Enumeratio"—though superseding preceding works—is of use to botanists only, an idea of its merit may be "inferred from the fact that, according to the preface one principal object of the work is to enable the observers to ascertain the name of any plant they may find growing wild;" afterwards learning "all that may may have been written about it, appreciating its relationship with other plants, tracing its geographical limits, and intelligently investigating its properties and uses." In 1896 shortly before his death, Dr. Trimen contributed to the "Journal of Botany," vol. XXXIV, *A preliminary List of Maldive Plants*, with notes, based on a collection of plants sent him from the Maldive Islands, it being his intention to write later a Flora of these islands. Trimen's name is perpetuated in *Ficus Trimeni* (and others); a tree of this species forms a handsome object in Peradeniya Gardens. Vol. XXXIV of the "Journal of Bombay" is dedicated to this *savant*, and the same volume contains a memoir and a portrait of him.

Still further we may give the closing passage of a brief notice by G. S. Boulger, F.L.S., F.G.S., Professor of Botany, City of London College, appended to Vol. V. of the "Ceylon Flora":—

The zeal with which, on his appointment as Director at Peradeniya in 1879, he took up Thwaites's work was seen in the thorough rearrangement of the plants in the Gardens in scientific order, in much work at economic botany, especially quinology, recorded in his annual official reports, and in a diligent exploration of the island for materials for the present work. He published 'Hortus Zeylanicus: A. . . . List of the Plants . . . . in the Royal Botanic Gardens, Peradeniya,' in 1888; a Catalogue of the Library . . . . in 1899; and a Hand-Guide to the . . . . Gardens,' in 1890, of which the last-named reached a fourth edition in 1894, whilst reference has also been made to his careful work upon Hermann's herbarium whilst in England in 1886. The climate of Ceylon, however, seems to have proved fatal to him. He aged prematurely, became totally deaf, and was partially paralysed; but, after being again in England during 1895, he insisted returning to Ceylon, hoping to finish the 'Handbook,' the publication of which had begun in 1893. Trimen died at Kandy, October 16th, 1896, and was buried near his predecessor in the Mahaiyawa Cemetery. His name was given by Dr. King, Calcutta, to the magnificent Singhalese banyan *Ficus Trimeni*. The memoir by Mr. James Britten in the 'Journal of Botany,' for 1896 (pp. 4-9-491), from which most of the above is taken, is accompanied by a portrait from a photograph; but his best memorial in the history of botany in Ceylon, is undoubtedly the present work, though he did not live to complete it. —G S. BOULGER.

In conclusion, we give a couple of extracts from the *Ceylon Observer*. The first is part of an article written by us while absent in England, in defence of our friend against ignorant and impatient local criticism:—

'DR TRIMEN'S WORK IN CEYLON AND—LOCAL CRITICISM.

(From "*Ceylon Observer*," June 30th, 1896.)

"On the eve of the final departure of the Director of the Botanic Gardens, it may seem a little unkind and invidious to enter on controversy as to the merit and usefulness of his administrative, economic, and scientific services to the community. But to compare Dr. Trimen's work with that of Mr. —— of ——— —useful officer as the latter is in his own sphere—as was recently done by a planting correspondent of the *Observer*, is simply absurd. Take Dr. Trimen's latest work: "The FLORA of CEYLON" in three volumes—why, it is impossible to overestimate the value of this work for practical, educational, and scientific purposes in the Colony. For thirty years, we had been accustomed to listen to the late Mr. A. M. Ferguson's earnest desire that such a work should be prepared for the benefit of all who took an intelligent interest in the vegetation of the island. Dr. Thwaites' great work on Ceylon plants might well be complained of by any "practical planter" as above his head—being essentially a scientific botanists's book. But Dr. Trimen, while taking care to serve the purposes of science, and to be as full and correct as any reasonable botanist could desire, has added a series of most useful economic notes which simply makes his work a treasure house to the ordinary intelligent reader,—to all in fact who wish to know what can be said about each of our plants (useful and ornamental) and especially about the timber trees and economic products of the Island. That the highly accomplished and worthy Director should have persisted in this important undertaking to the sacrifice of his health, if not of all that makes life worth living, speaks highly for his conscientious devotion to duty and deserves the grateful acknowledgement, not only of the Government, but of every right-thinking man in the community. So much for the most important single work, perhaps, which has marked Dr. Trimen's Administration. But we are equally clear that never before in the history of the Island has more attention been given in our Botanic Gardens to every question bearing on the economic as well as scientific side of planting, and tropical agriculture generally, than during the past fifteen years. We speak of that we do know; for as editor both of daily and monthly issues, we have continuously been made the medium of requests for information, of puzzling questions, of plants forwarded for identification by planters—not to speak of our own many editorial queries—and we have never failed to receive the most prompt and satisfactory attention from Dr. Trimen."

Next we have the closing scene:—

"DEATH OF DR. TRIMEN.

(From "*Ceylon Observer*," Oct. 19th, 1896.)

"We regret to have to announce the death of Dr. Trimen, late Director of the Royal Botanic Gaadens, which event took place on Friday

night at Peradeniya. The news of Dr. Trimen's death will be received not only in Ceylon, but in all scientific circles at home and abroad, with regret. His work was well-known and appreciated throughout Europe as an authority on many botanical questions, and it was in connection, with the completion of his Hand-book to the "Flora of Ceylon," that, after retiring from the active work of the position which he had held with so much distinction, he recently returned to Ceylon. When most men would have rested from labour Dr. Trimen, in face of trying deafness and weakness, bravely gathered his remaining strength to endeavour to finish the work he had taken in hand, "to enable observers in Ceylon to ascertain the name of any plant they may find growing wild...and to intelligently investigate its properties and uses." This work we hope, has, if not entirely, been almost completed. Dr. Trimen has died in harness, amidst the surroundings which marked a busy though quiet life. Our Kandy Correspondent writes:—"It is with deep regret that we chronicle the death of Dr. H. Trimen, late Director of the Royal Botanical Gardens, which occurred at the Director's bungalow, Peradenia on Friday night at ten o'clock. The deceased gentleman was in his usual health on Wednesday and was able to pay a visit to the Botanical Office, but he was seized with another attack of paralysis on Thursday, losing the use of his hands and his power of speech. In this state he remained till he expired on Friday night. The sad intelligence was received here on Saturday and came as a surprise to many. The deceased Director had served sixteen years under the Ceylon Government and his death is a very heavy loss to the island. Dr. Trimen even while ill and in bed was busily engaged on his monumental work, the Flora of Ceylon. The arrangements for the Funeral were made by the late Doctor's nephew Mr. Roland Trimen."

"THE FUNERAL.

"The Funeral cortege started from the Botanical Gardens, Peradeniya, at 7-15 on Sunday morning for St. Paul's Church, where the first portion of the funeral service was read. A large number of leading residents met the remains here. From the church the remains were conveyed to the General Cemetery, at Mahaiyawa, where a service was read by the Rev. E. A. Copleston who officiated. The coffin was covered with wreaths of flowers, which were afterwards placed on the grave. The Hon. A. C. Lawrie Puisne Judge, came specially for the funeral. Among those following the remains were the Hon. Allanson Bailey, District Judge de Saram, Messrs. Roland Trimen, Freeman, H. F. Macmillan (Curator), Vaughan, Munton, Ward, Fretsz, Bishop, Lowe, Alexander Philip, Caldecott, Gibbon, Siebel, Rix, Campbell, Skeen, Gray, Ralston White, Major Tranchell, Messrs, Tranchell Way, Sproule, Webb, Dove, De Lemos, Maddock, Gordon, Ferdinandus, Fleming, Captain Murray, Drs. Dias, Hardy, Anderson-Smith and Keith, Mrs. and Miss. Rouse, Mrs. and Miss Algernon Jonklas, Mrs. Skeen, and the Rev. Mr. Beven. Besides these there were following immediately behind the remains all the coolies, watchers and servants employed at the gardens. Dr. Willis, the Director, and Mr. Nock, Superintendent of Hakgalla Gardens were not present being engaged at Hakgalla, and a wire which was sent did not arrive in time to enable them to be present."

We take the following from *Men and Women of the Time*:—

"Trimen Henry, M.B., F.R.S., F.L.S., was born in London, Oct. 26, 1843, and was educated at King's College. He graduated M.B. at the University of London, 1865; was Curator of the Anatomical Museum of King's College, 1866-7; and Lecturer on Botany at St. Mary's Hospital Medical School 1867-72 He entered the Botanical Department of the British Museum, as Senior Assistant, May 1869, and held that appointment till Dec., 1879. He was appointed Director of the Royal Botanic Gardens, Ceylon, Jan. 1880, which post he still holds. He was editor of the *Journal of Botany*. 1872-79; and author of "Flora of Middlesex" (with Mr. Thiselton-Dyer), 1869; of the botanical portion of "Medicinal Plants," 4 vols., 1875-80; of a "Systematic Catalogue of the Plants of Ceylon," 1885; and of numerous papers on various branches of botanical science in the publications of the learned societies and scientific periodicals. Dr. Trimen has paid special attention to the economic aspects of Botany, particularly to the sources of drugs and other products, especially of tropical countries. In 1883, he was employed by the Madras Government to report on the botanical and cultural problems presented by the cinchona plantations in the Nilgiri Hills; and he has been the means of introducing into cultivation in Ceylon many useful and valuable products of other countries."

In conclusion we may quote the words of one who worked under him:—"I know nothing about Dr. Trimen but what is good, and I never had one single angry word from him. He was an excellent chief and a good and true friend, and I always felt as though I could do anything for him." Similar testimony is borne from all sides, and we may well say that in Dr. Trimen Ceylon lost one of its most distinguished, accomplished and useful public officers; while not a few officials, as well as Colonists and Ceylonese, lost a loyal and warm-hearted friend.

OVERHEAD NETTING FOR TOMATOES.

A correspondent of the *Garden and Field* says on this subject:—this is a plan I have not tried, but I know where it is used with success. A number of stakes 2 inches or so in thickness, and from 18 inches to 24 inches long, are prepared and driven in the ground at intervals along the row of plants, thus:—

```
o     o     o     o     o
   o     o     o     o
o     o     o     o     o
   o     o     o     o
o     o     o     o     o
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The stakes are driven so that the tops are even and about 12 inches out of the ground; and over the whole a piece of wire netting of 2 or 3 inch mesh is stretched and nailed to the tops of the pegs. The plants are allowed to grow up through the netting and spread over the upper surface. I believe the plan answers well, and has the merit of being no trouble after being put up. In this case the growth of the plants is not regulated. I describe it for the benefit of readers, and am trying it on a row of plants. I shall, however, use a less number of pegs, and put crosspieces of batten to support the netting.

If the tomato plants show signs of disease by an unhealthy appearance of leaves, or scabby fruit, they should be at once sprayed with Bordeaux mixture of a strength of 4 lb. of bluestone, 4 to 6 lb. of quicklime, and 40 gallons of water.—*Queensland Agricultural Journal.*

PINK LILY OF THE VALLEY.—Dr. Houseman, of Houghton-le-Spring, sends us a spike of Lily of the Valley, in which the flowers are very small, but of a distinct rose-pink colour. The variety is now rarely met with, but in the time of our fore-fathers it was more frequent, though never abundant.—*Gardeners' Chronicle.*

AGRICULTURAL EDUCATION IN GREATER BRITAIN.

PAPER READ BEFORE THE FOREIGN AND COLONIAL SECTION OF THE SOCIETY OF ARTS, ON TUESDAY FEBRUARY 27, 1900.

By R. HEDGER WALLACE.

(Continued from Vol. XIX., page 801.)

The two factors that must influence all efforts in the West Indies are the problems of tropical cultivation and the wants of a native peasantry. The first step taken, therefore, in what might be termed the new era of agricultural education in the West Indies, was the establishment and development of the institutions known as botanic stations. These are small and inexpensive gardens devised in order to afford practical instruction in the cultivation of tropical crops and were first intended to meet the special requirements and develop the agricultural resources of the smaller islands in the West Indies. The first stations started were at Grenada and Barbados in 1886. Since then stations have been started at Antigua, Bermuda, British Honduras, Dominica, Montserrat, St. Kitt's Nevis, St. Lucia, St. Vincent, and Tobago. There are now in all eleven stations in the West Indies and they are in close relationship with Kew.

The next step taken to advance the interests of agricultural education was the establishment at Barbados of an Imperial Department of Agriculture for the West Indies, with Dr. Morris as Commissioner. As regards agricultural education this Department has three objects in view:—

"(1) To start industrial schools for training boys in agricultural pursuits. (2) To encourage the theoretical (and to some slight extent the practical) teaching of agriculture in elementry schools. (3) To promote the teaching of scientific agriculture in college and schools."

I have been favoured with an advanced proof of the second West Indian Agricultural Conference which was held at Barbados on 6th January, 1900. In his opening address I note that Dr. Morris says:—

'The scheme of agricultural instruction suggested to meet the immediate requirements of elementary schools aims first of all at rendering the existing teachers competent to give simple object-lessons bearing on agricultre and illustrate them by experiments and actual specimens. Examples of growing plants should be grown in pots and boxes under the eyes of the children, and every stage of their growth as well as the conditions favourable for rapid and successful development should be clearly explained. This much is within the reach of the poorest school in the West Indies. All, however, depends on the amount of knowledge and the interest thrown into the subject on the part of the teachers. It is proposed to assist the teachers at present in charge of schools by affording them the means of attending courses of lectures during their holidays. While attending these lectures all out of pocket expenses (except in British Guiana, Trinidad, and Jamaica) are paid by the Imperial Department of Agricultnre. Lectures to elementary teachers were started last year at Trinidad, St. Lucia, and Barbados—in each case with singular success. They will be continued next week (January. 1900) at Tobago, Grenada, St. Vincent, and Dominica. The teachers so far have shown themselves most anxious to acquire knowledge of the principles of agriculture, and it is anticipated that during the next two years most of the existing teachers throughout the West Indies will have passed through the initial course of training. The teachers now at the training colleges and all future students passing through such colleges should be fully instructed and be competent to teach agriculture before they are placed in charge of schools. For the present Blackie's "Tropical Readers," Books I. and II., are recommended for use in schools, but great care is required to prevent mere book knowledge, which is worthless, taking the place of the intellectual education and the hand and eye-training necessary for agricultural pursuits."

Dr. Morris further states that—

"As a higher stage in agricultural education it is proposed to maintain agricultural schools—the first at St. Vincent, St. Lucia, Dominica, and St. Kitts. The boys will be fed, clothed and trained free. Admission to these schools will be offered as an exhibition to boys in elementary schools of about 14 years of age who have passed the IV. standard and who show moral and intellectual aptitude for such instruction. We have next the scheme of instruction in agriculture to boys in Secondary and High Schools assisted by the special lectures in agriculture provided by the Imperial Department. At the same schools scholarships are offered to boys from the country districts, the sons of planters in moderate circumstances, who intend to devote themselves to agricultural pursuits. Lastly, there are lectures to the younger generation of planters and others engaged in agricultural pursuits to afford information and assistance in elucidating the scientific problems which undertake the practical work in which they are daily engaged"

So far then this describes what has been done generally in the West Indies in the interests of agricultural education. The work done specifically in some of the islands might also be mentioned. For instance in Jamaica there is now a Lecturer in Agricultural Science, and at the Hope Industrial School practical lectures in agriculture are given by the Superintendent of Hope Gardens. The Jamaican Education Department also offer, by grants, assistance to elementary schools for the teaching of agriculture as a special subject, and a practical elementary text book of tropical agricultnre for use of the schools in Jamaica has been published. In addition it is stated all country schools are expected to teach the elementary principles of agriculture as a part of the general course. Two Jamaica readers—"tropical readers"—have been brought out by the Board of Education, and a supplementary reader in tropical agriculture is in contemplation. In the training colleges for teachers, the principles of agriculture are required to be taken up in the second year's course The question of providing higher agricultural education for those who may become proprietors and managers of estates have not yet been touched in Jamaica.

Coming next to the Leeward Islands, there is a botanic station at St. Kitts Nevis, but no attempt is made to teach agricnlture in the schools there or at Anguilla.

Antigua, I find, has an officer who is called the agricultural superintendent of sugar-cane experiments. Formerly there was here a department of agriculture for the Leeward Islands nuder a scientific superintendent. It was founded in 1891, and abolished in 1894.

At Dominica there is an agricultural instructor attached to the botanic station, also an agricultural school with a qualified officer in charge. There is also an agricultural instructor attached to the botanic station at Montserrat.

St. Lucia is another island which has an agricultural instructor, and there is one also at St. Vincent. The latter island has in addition an agricultural school in charge of a separate officer.

At Barbados there is a Lecturer on agricultural Science at Harrison College, Bridgetown, who also holds the position of island Professor of agricultural Science. Agriculture is also taught practically at the boys' reformatory school at Dodds.

At Grenada efforts are being made to teach agriculture theoretically in the elementary schools, and to start school gardens, and also to utilise the services of the Curator of the Botanic Station to give lectures and demonstrations.

Tobago has a cacao instructor attached to the Botanic Station, but agriculture is not taught in the schools. Neither is it taught in the elementary

or insdustrial schools of Trinidad. It is stated, however, that lectures on agriculture are given at the Victoria Institute, Port of Spain. According to Mr. Moore, instruction in fruit and banana cultivation is also given in this island, and the school teachers are provided with various agricultural publications.

In British Guiana there is an agricultural assistant attached to the Botanic Gardens at Georgetown; and the Royal Agricultural Society in this colony, I am informed, approached the Governor in Council in 1898, with the view of having an agricultural school and experimental farm established and also of having plots of land attached to country schools, where pupils would spend a portion of their time daily in learning practical agriculture.

Leaving the islands of the West Indies, and the Crown colonies on the mainland, I now proceed to notice the several self-governing colonies which form the Australasian section of Greater Britain.

In the mother colony of New South Wales, agriculture is taught in the state schools, either under object-lessons or natural science. It is also an optional subject for teachers in the series of examinations they undergo to obtain promotion from one grade to another. An agricultural text book, for use in the schools, has also been published by the Department, and an itinerant lecturer on garden and farm work visits the more important schools.

Under the scheme of technical education, also carried out in Sydney and various country towns, courses of instruction in agriculture, sheep and wool-classing, wool-sorting, and veterinary science are provided.

Agricultural education, pure and simple, is however, in the hands of the Department of agriculture. There is, under this department, the Hawkesbury Agricultural College, with experimental farm attached located near the town of Richmond. The complete course of instruction at this institution covers a period of two years of four sessions, and the subjects taught are "practical agriculture, principles of agriculture, agricultural chemistry, botany, geology, entomology, farm-book keeping, veterinary science and practice, arithmetic and English, elementary surveying and mechanics." The practical work at which all students have to engage in is noted as follows:—

"(1) Milking cows, making butter, use of dairy appliances. (2) Killing and dressing sheep. (3) Carpentering work, such as mortising and cutting tenons, setting out roof. (4) Blacksmith's work, welding iron, making bolts, fitting and putting on horse-shoes. (5) Fencing, mortising posts, putting up wire or other fences. (6) Yoking up and driving bullocks, horse work, hay loading, farm implements, engine work."

Though the Hawkesbury College is the only one in the colony where the whole science and practice of agriculture is taught, the scheme of education originally formulated embraced the establisement of "certain farms and orchards typical of the most important climatic regions of the colony, where those who did not desire to undertake the comprehensive training of the college might be instructed pure y in the practice of the various branches of agriculture."

For such experimental farms have now been established. The Murrumbridgee, or Bomen Experimental Farm, near the southern town of Wagga-Wagga, represents the comparatively dry Riverina region; the Woollongbar Experimental Farm, in the Richmond River district, is in the sub-tropical region; the Bathurst Experimental Farm represents the western plains and colder portions of the colony; while the experimental farm at Coolabah, in the Bogan Scrub, has been established for experiment in the arid portion of the colony.

In all these experimental farms lectures on agriculture are given, and the course is for a year of two sessions. Students at the central college are advised to continue their course at one of these farms, for the student there is "afforded some practical experience of the cultivation of land in a climatic region typical of that in which he intended to settle." According to the Minister for Agriculture, "training at college would provide him with a general and practical acquaintance with farming in all its branches, but to enable him to become (for example) a successful western New South Wales cultivator a little practical experience of dry country method, is absouletely necessary."

Additional means of imparting information and instruction is further afforded by the employment of a dairy expert, a fruit expert, a viticultural expert and a travelling agricultural instructor, who for a number of years, was principal of the Agricultural College. An *Agricultural Gazette* is now published, which in value approaches some of the publications issued by the United States Department of Agriculture —a department which is generally admitted to be the best organised and most practical of any Government in the world. In passing, I may note that I find it stated in the Report of the the New South Wales Under Secretary for Agriculture, 1899, "that amongst the 130 odd young men undergoing the full course (at Hawkesbury College) are several from England, Cape Colony, the neighbouring colonies and Japan."

Respecting Queensland, the Agent-General for the colony has been good enough to reply to my enquiries as follows:—

"1. Agriculture is not taught in the elementary schools of the colony, but

"2 Four State bursaries are granted, giving free board and instruction to resident students for three years at the Government Agricultural College at Gatton. Admission is by competitive examination in reading, writing, arithmetic, English composition geography, mechanics, and drawing to scale. Candidates for these bursaries must be between 16 and 18 years of age, of sound constitution and good health, and themselves must have resided in the colony two years and their parents three years preceding the examination.

3. The agricultural College at Gatton was established in July, 1897. The college farm or ground comprises an area of 1,692 acres. Dormitory accommodation is provided for 56 students. The buildings include a chemical laboratory and lecture room, The fees, which cover instruction, board, washing, room rent and lights, are £25 per annum. The students are engaged for one half the time at manual labour, a day of out-door work alternating with a day of study.

"4. Experts in dairying and other subjects are employed by the Department of Agriculture to travel throughout the colony and give personal instruction to farmers. Bulletins on various subjects of interest to farmers are also issued by the Department, which with the *Queensland Agricultural Journal*, are freely distributed."

EXPERIMENTS TO PRESERVE TIMBER.

Years ago experiments were made at Geisenheim, by Professor Giseyius, of Koenigsberg, with 6 feet long poles from pines, to be used for vines, and it was found that several fluids were better for preserving than merely burning the ends. Oil of tar and carbolineum were found useless, inasmuch as the creosote in them gave that taste to plants growing near, and other fluids were too expensive. But a solution of 2 lb. or 3 lb. of bluestone was found to be cheap, easy to use, and well preserving. Later experiments were made in the Agricultural School at Dahme, and at the hop garden at Sussenthal with pine and fir poles, 24 feet long, and with fencing posts. The solution impregnates, and rises within three or four days to the top if you remove the bark from freshly cut stems and place the lower end into it. In trees cut some days before they are peeled and put into the solution, it rose only from 3 feet to 6 feet high. If it freezes this method cannot be used; the warmer it is better. The casks must be very strong, and have to be filled up twice a day. For 90 hop poles, about 24 feet long, it required 6 lb. of bluestone.—*Queensland Agricultural Journal.*

TEA COMPANIES (LONDON-CEYLON): —AREA PLANTED AND CAPITAL.

One of the most complete lists of Ceylon Tea Companies registered in England, is that compiled by Mr. George Seton, of the Indian Tea Share Exchange, Bishopsgate Street, and it especially shows very clearly, the contrast between the area planted and the amount of capital raised, as also of debentures if any. The latest of these lists, made up to December 1899, is before us, and we have had the "capital" plus "debentures" divided by the "planted acres" in each case, in order to see at a glance how the several Companies work out. We need not tell Ceylon readers that, several other matters, besides the proportion of planted area to capital outstanding, have to be taken into account in appraising the actual value of a Company's properties. So much depends on district, soil, planting and jât of tea, that it is quite possible for a Company with a heavy capital outlay per acre, to be in a sounder position than another with not much more than half the same ratio of capital outstanding. Nevertheless, for a rough and ready test of the position and prospects of a Company —with certain important exceptions which can be allowed for—the capital outstanding per acre, is a very convenient form of reckoning.

First of all, we may mention that in the list before us, there are 68 Companies specified with an aggregate planted area of 137,657 acres (over one-third of the total in Ceylon) having a subscribed capital of £4,940,699, besides £1,244,353 of debentures—thus working out to an average of £45 per planted acre. If we now look for the two extremes in the list, we find the Lindoola Company on the one hand with 320 acres ("planted" will always be understood) and £39,000 capital, which works out at £122 per acre; and next to it "Gartmore," 454 acres and £48,000, making £106 per acre. At the other end of the scale, we have the "Ceylon Land and Produce," 4,038 acres, £68,300 capital plus £19,125 debentures, working out to £21 per acre; next to this Namunakula Estates Company 1,160 acres with £25,000 capital, also the Scottish Trust and Loan Co. 2,025 acres with £45,000 capital, both making £22 per acre; and then the "Ceylon Plantations," 10,820 acres with £248,460 capital, making £23 per acre.

Going on from the minimum side, we find nine more Companies which stand at under £30 per acre, namely "Ederapolla"—1,030 acres, £25,500 and Tyspane 778 acres, £19,500 capital and debentures:—both making £25 per acre; "Poonagalla," 1,149 acres, £30,000 capital and debentures, making £26; "Standard," 2,487, acres, £69,500 capital and debentures; "Rangalla," 782 acres £22,000; "Battalgalla," 677 acres and £19,000; "Burnside," 1,138 acres, £32,100; and "Kelani," 1,236 acres, £34,965:—all five Companies working out to £28 per acre; then there is the Scottish Ceylon with 1,720 acres against £50,000, working out to £29 per acre.

Next between £30 and £40 per acre, we have thirteen Companies, namely, Abbotsleigh; the Consolidated Estates (3,834 acres against £127,400 capital); Digalla, Midland and Eastern Produce and Estates Co.:—each of which works out to about £33 per acre. The New Dimbula Company (with 2,345 acres cultivated and £78,954 capital) makes £34 per acre. The Goomera Company gives the same ratio of £34; while Bandarapolla equals £35; and both Carolina and Hunasgiriya work out to £36 per acre. Then three Companies—Ouvah, Craighead and Panawal—show an average of £38 per acre against capital.

Next we come to those between £40 and £50 per acre, of which there are nine Companies, namely, Ceylon Estates Investment, £40; Alliance, Anglo-Ceylon, and Kellie Companies, each £41; Duckwari, £43; Yatiyantota, £45; Central Province, and Ceylon and Indian P. A., each £47; and Sunnygama, £48 per acre.

Between £50 and £60, we find sixteen Companies, namely, Haputale and Central of Ceylon, £51; Lanka, Spring Valley and Nahalma, each £52; Imperial, South Wanarajah, Tea Corporation and United Planters, each £53; Ceylon Proprietary and Highland, each £54; Galaha, Mayfield and Ragalla, each £55; Associated Estates, £57; Punduloya, £58.

Finally, we have fifteen Companies from £60 to £91 per acre, namely, Caledonian £60; Korale Company, £61; Hornsey, £63; General Ceylon and Augusta, each £65; Vellekellie, £70; Maturatta, £71; Kandapolla, £73; Kintyre, £74; Portmore Company, £77; Dimbula Valley and Talawakelle, each £78; Balmoral £85; Nuwara Elliya, £88; and Bogawantalawa, £91; while we have already specified Gartmore £106 and Lindula £122 per. acre.

SOME USEFUL MEASUREMENTS.

For estimating the areas of paddocks and cultivated plots, the following figures will be found useful:—

60 feet	by	726 feet	...	...	1 acre
110	,,	396 ,,	...	...	1 ,,
129	,,	363 ,,	...	...	1 ,,
220	,,	198 ,,	...	...	1 ,,
240	,,	181½ ,,	...	...	1 ,,
440	,,	99 ,,	...	...	1 ,,
5 yards	by	968 yards	...	...	1 ,,
10	,,	485 ,,	...	...	1 ,,
20	,,	242 ,,	...	...	1 ,,
40	,,	121 ,,	...	...	1 ,,
70	,,	69½ ,,	...	...	1 ,,
80	,,	60½ ,,	...	...	1 ,,

A British halfpenny measures exactly 1 inch in diameter. Laid on a map drawn to a 1-inch scale it will just cover 500 acres.

SIZES OF BOXES OF DIFFERENT MEASURES.

	in. long		in. wide		in. deep			
A box	24	by	16	and	28	will contain		3 bushels.
,,	24	,,	16	,,	14	,,	,,	1½ ,,
,,	16	,,	16	,,	8 2-5	,,	,,	1 ,,
,,	16	,,	8 2-5	,,	8	,,	,,	½ ,,
,,	8	,,	8 2-5	,,	8	,,	,,	1 peck
,,	8	,,	8	,,	4 1-5	,,	,,	1 gallon.
,,	7	,,	4	,,	4 1-5	,,	,,	½ ,,
,,	4	,,	4	,,	4 1-5	,,	,,	1 quart.

CUBING TIMBER.

To measure square timber: Multiply the length, width, and thickness together, and divide the product by 12.

How many square feet in a joist 2 x 8, 18 feet long?

2 x 8 x 18 = 288 ÷ 12 = 24 feet. Ans.

—*Queensland Agricultural Journal*, April 1.

CEYLON TEA PLANTATIONS COMPANY, LIMITED.

STATEMENT SHEWING RESULTS OF WORKING FOR THE 13 YEARS ENDING 31ST DECEMBER, 1899.

Year.	Acreage of tea bearing.	Yield per Acre.	Rate of Exchange per Rs.	Sale Price of Tea London.	Estate Tea.	Bought Leaf Tea.	Tea manufactured for others.	Total.	Capital Issued. Ordinary.	Capital Issued. Preference.	Net Profits.			Additions to Reserve.			Depreciation. From Profits.			Depreciation. From Premiums on Shares issued.			Depreciation. Total.			Dividends. Ordinary.	Dividends. Preference.
	Acres.	lb.	d.	d.	lb.	lb.	lb.	lb.	£	£	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.		
1887	1,251	403	1/5 14-32	13·00	504,380	84,268	10,131	598,779	75,090	...	13,257	12	3	..	...	...	..	..		..	..	..	..	..	..	15	None issued.
1888	1,405	394	1/4 28-32	10·50	554,235	193,208	102,909	850,352	76,190	...	10,258	1	10	..	...	...	12	9	3	..	..	..	12	9	3	15	
1889	2,773	338	1/4 28-32	11·00	937,407	799,779	277,148	2,014,334	122,040	..	23,370	14	5	3,000	0	0	1,867	2	3	..	..	..	1,867	2	3	15	
1890	3,947	387	1/6 24-32	11·00	1,503,102	598,427	838,237	2,939,766	143,970	30,000	31,002	3	6	5,725	0	0	4,010	15	9	..	..	..	4,010	15	9	15	7
1891	5,168	414	1/5 19-32	9·27	2,086,291	886,565	1,318,735	4,291,591	146,590	70,000	31,233	3	9	5,493	8	0	..	..	..	..	..	..	..	..	..	15	7
1892	6,584	376	1/3 20-32	9·38	2,481,938	796,766	1,387,995	4,666,699	147,140	73,440	37,146	1	11	10,781	12	0	..	..	..	6,275	7	3	6,275	7	3	15	7
1893	7,167	419	1/3 8-32	8·85	3,009,055	539,615	1,418,258	4,966,928	167,380	81,080	43,986	12	7	10,000	0	0	2,500	0	0	4,984	6	11	7,484	6	11	15	7
1894	7,879	372	1/1 18-32	8·84	2,971,987	616,692	1,236,819	4,825,498	167,380	81,080	48,603	1	4	15,000	0	0	3,500	0	0	..	..	..	3,500	0	0	15	7
1895	8,073	437	1/1 15-32	8·09	3,530,737	665,603	1,110,564	5,306,904	167,380	81,080	51,926	10	10	20,000	0	0	2,000	0	0	..	..	..	2,000	0	0	15	7
1896	7,998	470	1/2 37-64	8·14	3,763,167	505,586	1,214,843	5,483,596	167,380	81,080	48,986	10	8	15,000	0	0	4,000	0	0	..	..	..	4,000	0	0	15	7
1897	8,067	495	1/3 13-32	7·85	4,000,516	503,840	1,019,789	5,524,145	167,380	81,080	42,199	3	0	5,000	0	0	5,000	0	0	..	..	..	5,000	0	0	15	7
1898	8,067	460	1/4 3-16	8·24	3,714,316	355,571	1,005,294	5,075,181	167,380	81,080	41,381	4	4	5,000	0	0	5,000	0	0	...	...	...	5,000	0	0	15	7
1899	8,199	485	1/4 19-64	8·10	3,973,820	566,664	517,663	5,058,147	167,380	81,080	48,062	17	1	5,000	0	0	5,000	0	0	..	..	..	5,000	0	0	15*	7

* A bonus of 3 per cent.

A FARMER'S EVERY DAY LIFE.

(By Cosmopolite.)

No. V.

The first great step that has to be taken, when about to commence a farming life, is to be sure that you have succeeded in leasing the sort of farm you wish for, and that you have it at

A FAIR RENT.

When a farm comes into the market, now a-days many outsiders enter the list of competitors for it, and such men as retired merchants and Ceylon planters, having no idea of the value of land, but only wishing to procure a home in the country for themselves, offer a much higher rent than a practical farmer would care to give, and so rents have been forced up to such an extent that I know several cases of professional farmers who are paying more rent for their farms than they consider them to be worth, simply because they feared to be left out in the cold, without a farm at all. I have seen the whole of the best land in Scotland, from the Howe o'Buchan to that wonderful pear garden, formerly the property of the monks of Jedburgh, and said to be the richest piece of soil in the whole of Great Britain, but there is not an acre of it that I would be inclined to give more than £1 a year of rent for, so long as I know that there are millions of acres, of far better land than anything that we have in this country, lying idle at the antipodes—land which is waiting to be purchased right out by any one, at a price varying from 5s to £2 an acre. It may be said that these acres lie too far from a market, but to that I reply that such is not the case, for the market of London is the market of the world, and thanks to steam, low freights and this parental Government of ours, which, to the best of its ability, fosters and encourages foreign agriculturists, whilst it tries in every way to discourage the native producer, The grain and mutton grown in Australia can be laid down at a cheaper rate, in London, than the same commodities can be which have been grown on the farms of Aberdeenshire. I make, of course, exceptions in the cases of

FARMS CLOSE TO TOWNS,

which can be utilized for dairy purposes and market gardening, and our merely referring to such as lie some miles from any town or village, and which would likely be taken on lease by retired East Indians. I have no hesitation, therefore, in stating that, for such a farm, a rent of £1 an acre, per annum, is the highest that anyone should pay, and expect to hold his own, or perhaps make a little profit, and this, I may remark, is the figure I pay for my own farm. One thing however I would caution an amateur farmer against, and that is—taking a farm because it is low rented. For example; I know one man, afar from practical farmer, who had leased a place at 25s an acre, but found, in the course of a few years, that he was losing money, so, having succeeded in breaking his lease, he went to the other extreme and rented one at 11s; but the farm he threw up used to give him six quarters of oats to the acre,

whilst the one he took so cheaply only gave him three to four quarters, and so the last stage of that man was worse than the first. A very low rented farm is, generally, one that is not worth taking in at present, and only farms that can be worked up to the highest state of cultivation are worth taking on lease now-a-days. The low prices ruling for grain, beef and mutton compel one, not only to secure a good farm at a fair rent, but also to cultivate it at high pressure, in order to pay the labour bill and have something over. Farming on the cheap won't do at all, and, if high farming won't pay, certainly low farming will not do so.

Having secured the farm that he wishes, or perhaps has been obliged to take, for want of a better, the next step of greatest importance is the securing of the proper kind

OF LABOURERS,

and this is not such a difficult thing after all, in spite of the out cry about the scarcity of labour. The ordinary course is to go to a fee-ing market, and there engage the number of hands required, and these are engaged for six months, during which time their faults and failings are discovered, and a fresh lot is engaged at the next term. That has not been my policy, and I find my own way to work fully better than the usual custom of the district. I have never been at a fee-ing market yet. I engaged my men by their looks and the characters I had heard given to them, and these men have been with me ever since I came to this farm. I treat them well, and they treat me in the same way in return. They will work extra time and out of all hours without a grumble, and, when they want a day's leave, they know that they only have to ask for it, and they will get it. These men were in the habit of changing their places every six months, like other hands, before they came to me, but now they appear to have settled down for the term of their natural lives, and cultivate their bit of garden, as if they own it, and had no fear of its being taken from them. In New Zealand and Australia my servants never left me, after being engaged, and my coolies in Ceylon remained with me the whole time I was there; whilst my dressing-boy was with me during the whole time of my stay in your island.

Now I would recommend others to adopt the same policy with their hands, remembering that the frequent changes made by servants is accounted for, not so much because they are incapable, as because their masters are unreasonable. Many so-called gentlemen farmers think it degrades them to speak

IN A FRIENDLY WAY

to their hired servants, and so these can never have the same regard for their master's interests as they would, if treated in a more friendly way. My men have been so long with me that they can fit themselves to the work more systematically than could others, who are changed every six months; and so I know that I get much more work done, for my money, than my neighbours do. The labour bill is the bugbear of farmers; not only do they find a difficulty in getting hands, but they find a greater difficulty in getting as much work out of them as will pay their wages.

The custom which obtains, in Ceylon, of taking creepers at a high premium, and professing to teach them the noble art of tea planting is not singular in its conception, as a somewhat similar means of livelihood is indulged in, by farmers and even landed proprietors in this tight little island, who, for a tidy consideration, take

MUD-STUDENTS

into the bosom of their families, and make a pretence of teaching them to be practical farmers. There are no mud-students in this district of Scotland, but on the borders as many as three and four are to be found on various farms, paying from £300 to £400 per annum, which entitles them to keep a hunter, and to follow the hounds as often as their horse can be found capable of the exertion. Most of these young men, that I have come across, served in their salad days as soldiers, and consequently are quite unfit for any other profession, especially one that requires as much commonsense as farming does; but they live a rollicking life and no doubt get a full value of amusement in return for the premiums they pay. The hardest work that any of them does is executed to the strains of the "Blue Danube" or "Pas de Quatre;" and when the hunting season is past, they spend their time sitting on a log smoking extra strong tobacco. At fairs and sheep sales, on the borders, the mud-students assemble from far and near and are easily known because they are ever the horsiest in their outward appearance, just as you find the very plain young person is always keenest at the Sunday-school class. Military men don't look well on horseback; there is an old saying—"Riding straight up and down, like an officer"—which exactly expresses the attitude peculiar to the military rider. It has been truthfully said that riding seems a physical impossibility for sailors, tailors and dragoon officers; yet I have seen military men ride well to the front, both on the flat and over the sticks, although this might be accounted for, as a friend of mine once pertinently said, because the great art of jockeyship was in being on the best horse. The system of taking mud-students on, at high premiums, has helped to keep the ancestral roofs on many family mansions, and no doubt the creeper has been the means of enabling many a hard-up planter to pace his mortgaged verandah for some years longer than he otherwise might have done.

POULTRY FANCIERS

have been sadly depressed lately, owing to a sudden drop in the price of eggs, which fell, with a bang, from 18d to 6d a dozen. One of my neighbours had tears in her eyes as she told me the fateful news, and asked me if I could account for the sudden fall in price of her principal market staple. I tried to comfort her by saying that probably the quality had something to do with the matter for I believed that, at this season of the year, hens were frequently not very

well, and often laid bad eggs; but she refused to admit of any such suggestion. Another neighbour openly vowed that rather than sell at such a figure, she would have all the eggs from their poultry yard eaten in the family circle, and as they have about 500 able-bodied hens on the premises, they appear to have undertaken a pretty heavy contract.

NO. VI.

(*By Cosmopolite.*)

The worst kept part of a farm is generally the garden, which only receives attention when no other work of a remunerative nature has to be attended to. Pleasure is all that can be derived from a garden, and profit is conspicuous by its absence, and thus the farmer—the poor but honest agriculturist—can ill-afford the time and expense of keeping his garden in order. Some cranks—like the late Mr. Gladstone—rave about the possible profit from

FRUIT-GROWING

and jam-making, but this idea has, long since, been exploded, and my own practical experience may serve to explain the reason why. One year I put on pickers to clean up my fruit trees and bushes, and sent the result of their labour to the town, where I got the highest price agoing for it, the sum total of which, however, amounted only to a few shillings, *less* than it had taken to pay the wages of the pickers, to say nothing about the cost of manuring, pruning and general upkeep of the garden. Since that date my policy is to use as much of the fruit as I possibly can, in my own establishment, the balance being given to any of the neighbouring working-men's wives who care to come and take the trouble to pick it. When I came here, I found the black-currant bushes, in appearance, much like the coffee trees in the back fields of some of the old *totums*, of my own planting days. I promptly went in for a heavy pruning, and have used the knife freely, every year since, with the result that I see no black currants at all able to compare with my own in size and quality. I may here mention that I do my own gardening, and, as the ground extends to two acres besides lawn tennis green, &c., to be kept in order, those of my readers who know anything about gardening will understand that I have a good deal of work to do in my spare time, to say nothing of the fact that I feel the stooping and digging more exhausting than I did, before the microbe of corpulency laid its grim claws upon me.

GARDENING,

now-a-days, is a stiffer job than it was in the garden, of Eden before weeds had sported to any great extent, and when dockens and carlie-doddies were unknown. Beside that, my illustrious ancestor Adam never got into trouble with his wife, for spoiling his clothes, or making the knees of his trousers baggy through kneeling in the flower beds, as I find it necessary sometimes to do. In my planting days we were all great on hand weeding, and I, naturally, adopted the same policy in my own garden, but, although I kept my ground remarkably clean, I found my gooseberry, raspberry and currant bushes becoming, year by year, less productive. At once I jumped to the conclusion that it was from want of air at the roots, so I proceeded to dig up the ground as deep as I could with a grape, the result being like magic: the bushes took a new lease of life; the crop doubled itself and the actual labour of weeding was reduced to about one half. I remember once applying cattle manure to a coffee field, in Rangala, and having the whole surface dug over with grapes, and from that field, I got, by far and away, the best crop of the year. At that time I attributed this to the manure, although I wondered why the other fields, that had had the same sort of manure applied to the roots of the bushes, had not responded so well; but now I cannot help thinking that the digging, and the letting of the air into the ground, had more effect than the manure itself; perhaps some planter will try digging, on a portion of his estate, and report results. To me this season of the year, in the garden, is the most enjoyable, when the place fairly blazes with lilies, auriculas, primroses, wall flowers and others of like sorts, for these good old-fashioned flowers are the ones I most admire. Some people there are who can't get on without their begonias, orchids and ageratums; but these flowers are so associated, in my mind, with weeding contracts and ghastly outlays of rupees to keep them down, that I cannot go into ecstasies over their beauties.

OUR VILLAGE

was once again *en fete*, when, the other evening, the Episcopal Church social gathering took place, in the Church Hall situated at the east end of what the sanguine inhabitants denominate the High Street, a delightful break in the boundless monotony of farm life, and at which many members of other denominations put in an appearance, because it has become an understood thing that it is always the most enjoyable entertainment of the year in our village of sweet auburn. We—I speak for myself and the other soges of the parish,—hold this opinion at any rate. After the company had listened to songs and music galore, had drunk blashes of tea and eaten variety biscuits to their heart's content, the seats were cleared away, and, to the inspiring strains of a string band of excellent calibre, we tripped the light fantastic toe till "the sma' oors ayont the twal" began to ring. Patti, Albani and other people have a good record as singers, and it would be hard to compete against them, but our village nightingales gave a wonderfully good account of themselves. One girl struck me all of a heap, and I fain would have danced with her; but she was so sought after by the young bloods that I felt convinced that an old buster like myself would have no chance, so I sat and gazed upon her from afar. The Johnnies, admiringly, christened her "The Rose of St. Fergus," and the name fitted her like a glove whilst she appeared to enjoy herself to the mast head. Perhaps she may come again, to our next social gathering, but alas! I won't be any younger than I am now, and so I will have no more chance of getting

A DANCE

with her, than I had this year. Some of the other girls were amazingly unattractive, and they also did as I gaze upon from afar, although I doubt not but what they would have gladly pranced through "The Flowers of Edinburgh" or the "Pas de Quatre" with one who, twenty years ago, was known by his coolies, in Rangala, as the *Kelavan dorai.* Some of my own past time partners were looking younger than ever, although approaching the dangerons and susceptible age of sixty, when a woman really begins to need looking after; But, let me change the subject lest, like King David, in my haste I might say things not palatable to my venerable contemporaries. Some of those gay old girls tootled on the piano themselves, and added much to the enjoyment of the evening. Several clergymen also took part in the entertainment, both with songs and speeches, and, as they put on no frills but were plain genial speakers, they went well with the audience. It is the parson whose oratory is pure pulpit oratory, of the unmistakable kirk type, that goes far to depress an audience at such an entertainment as this was, and we rejoiced that no such parson had been able to pass the door keeper. Unstinted applause was the order of the day, and I always think there is something intensely inspiriting to a nervous performer in the thump of a heavy stick or the clapping of a pair of large hands.

Easter brings with it a great boom in

SCHOLASTIC MATTERS,

the election of members of school boards being on the tapis, and so the public have had, at this time, the opportunity placed in their power of inflicting one worse degradation on a man than making him a Parish Councillor. They can make him a member of a School Board. Just as a Cardinal is made Pope because he is old, infirm and imbecile, so a member of a School Board is made such, because he is either worse educated or more wanting in common sense than his neighbours, and thus the only people who can be persuaded to stand for the doubtful honour of being made members of School Boards are clergymen and idlers, with a sprinkling of the less educated farmers, whose minds are thoroughly parochial, and who have sons old enough to look after the work at home, whilst they sit in solemn state, making fools of themselves as members of a Board that dare do nothing of their own free will, but who lie under the heel of a despotic educational visiting agent. The British Isles, now-a-days, seem to be dotted over with school buildings, and inhabited only by members of School Boards and school teachers, the latter a most useless class of girls, of electro-plate culture,—a process which throws a brilliant film of education over a foundation of ignorance, and who would be far more useful in the world if they had some slight knowledge of clear starching and pie-making. To see a teacher of the old school type is a rare thing indeed, and such an one would be pointed out, much in the same way as would be the sole survivor of the Balaclava charge or the last of the Mohicans. These triennial elections always remind me of the time when people paid no taxes for freely educating those who wished to remain ignorant. Oh! happy time. Oh! for the days that used to be. Oh! the dear dead past! The columns of the Agricultural Press have lately been crowded with questions and answers on the subject of "Gowk aits," the consensus of opinion being that these are oats sown on or after the first of April—that is gowk's day.—Farmers who take no trouble to observe things connected with their work, but go on, year by year, believing in old sayings and silly theories, dread being compelled, by a backward spring, to sow oats later than the first of April, as they are sure to be great sufferers thereby. This, however, is but a wild idea of our forefathers, and, as an ounce of practice is worth a pound of theory, I may mention that I seldom finish sowing before the 23rd of April; and yet I am generally about the first to begin harvesting in the district. On one occasion I sowed a field on the 3rd of May, and it was the first cut in the neighbourhood, and gave me the heaviest crop I have had in Buchan. So much for believing implicitly in old sayings.

THE CROW

—the farmers greatest enemy—is now busily engaged in building up rookeries wherever any one is foolish enough to grant him permission to do so. When I leased this farm the trees around my house were laden with nests, and the noise made by the colony, night and day, was deafening, presently the destructive wretches took to digging up my potato seed as fast as it was put in the ground, and I bore with them, because of the aristocratic associations connected with a rookery. When they killed my chickens and pulled my young turnips up by the acre I still stayed my hand; but when they took to killing my lambs, by digging out the poor creatures eyes, then I arose in my might and sent for all the boys in the district, who plumed themselves on their climbing abilities, and had every nest torn down, and this—my lead—has been followed by every owner of a rookery in the district, except one, and he, it is hoped, may yet learn wisdom, and clear his lot out also. Crows are very suspicious of man, yet, strange to say, they never live far from him; and it is said of them that they prefer the neighbourhood of aristocratic families. A story is told of an ancient mansion having changed hands, and a report reached the crows that the new proprietor bore the name of Smith, so the colony determined to depart. One curious bird, however, examined the labels on the luggage, and, finding the name spelt with a *y*, the crows unanimously agreed to postpone their departure. I don't mean to say that every rookery I have seen was owned by a family of blue-blood or of Vere-de-Vere extraction; some of these proprietors, indeed, were "too proud to care from whence they came," and, perhaps, it was just as well, for their pedigrees would not bear looking into.

THE TEA CLEARING HOUSE COMMITTEE have intimated their intention to increase the discount allowance on charges from ten per cent, to fifteen per cent on all rates, except that for "bulking and taring" which was reduced from March 1st last.—*Grocers' Journal* May 5.

NOTES ON THE CRUDE RUBBER INTEREST.

RUBBER PLANTING IN THE WEST INDIES.—At the second West Indian agricultural conference held on January 6 in Barbados, the president, Dr. Daniel Morris, C.M.G., who is the commissioner of the imperial department of agriculture for the West Indies, said in his inaugural address: "A regular plantation of India-rubber trees, the first in the West Indies, is being established at Tobago by Mr. Esmè Howard. The species selected is Central American rubber tree, known locally as 'ule' or 'caucho' (*Castillao elastica*). It was recently reported that this tree was found wild in Cuba. This is evidently an error. Rubber trees are being planted in small plantations and in isolated groups also in Trinidad and Jamaica. The cultivation could be successfully established in some localities in British Guiana where, already, one or more valuable species are found in a wild state."

RUBBER FROM GERMAN AFRICA.—The exports of India-rubber from two of the German colonies in Africa have been as follows in the last two fiscal years, in English pounds:

	1897-98.	1898-99.
Togo	194,918	389,530
Kamerun ...	969,738	1,328,536

The rubber exported from Kamerun was valued at 1,177,715 marks in 1897-98 and 1,928,080 marks in 1898-99.

RUBBER PLANTING IN COSTA RICA.—Mention has been made from time to time in the *India Rubber World* of the experiments in India-rubber planting made in Costa Rica by Minor C. Keith, a former resident of Brooklyn, N. Y., and now first vice president of the United Fruit Co., who are interested so largely in the banana trade in Central America. Mr. Leith has more than once taken the liberal cash prizes awarded by the Costa Rican government to promote the planting of rubber in that republic. The *India Rubber World*, in response to an inquiry, has received a letter from John M. Keith, manager of the Costa Rica division of the United Fruit Co., from which the following extract is taken:

"We have a large number of rubber trees on our properties that have actually been planted and are in a most flourishing condition. The only difficulty that presents itself, in the way of securing lucrative results, is the impossibility of preventing poaching. We planted our trees when rubber was still at a low price, and scattered them throughout all our farms, and the greater part of the rubber yield has since been stolen, although every year we collect a considerable quantity. I have no doubt, however, that should any one plant thickly on land that could be easily guarded, the difficulty above referred to could be overcome. As you are aware, the greater part of the rubber in these parts is cut on government (or unclaimed) lands. Consequently the rubber cutters, who are, as a rule, a lawless set of men, disregard any proprietary rights to a rubber tree anywhere."

A RUBBER PLANTATION IN MEXICO.—La Zacualpa Rubber Plantation Co., a California corporation with a plantation at Tapachula, in the state of Chiapas, Mexico, where O. H. Harrison is resident director, have favored the *India Rubber World* with considerable printed matter of interest in relation to the results of their work and their prospects. A recent pamphlet contains a copy of a letter by Percy Christy, a son of Thomas Christy, of London, recounting his impressions on visiting the plantation. It appears that the former owner of the estate, José M. Pelaez, for several years collected and sold a considerable amount of rubber from the native trees found there. Mr. Christy, in his letter, mentions the native trees as still standing, besides which he was shown a number of trees represented to him as having been planted ten years ago. He was told that these were about 5,000 in number and he found them "most healthy looking trees, with a trunk diameter of 10 to 12 inches; these trees have been tapped for some years, and in talking it over with some of the Indian rubber gatherers, they assured me that each of these trees would produce from 2 to 3 pounds per year. . . . From this we visited a plantation of last year's planting, entirely in the open and without shade, and these all looked strong and healthy. I understand that there are 30,000; also I noticed that along the fencing of the property rubber trees had been planted. This idea pleased me exceedingly, as it will be a saving of labor, as the trees will serve as posts as well as being a source of profit.

THE "THIRTY COMMITTEE."

Minutes of proceedings of a meeting of the "Thirty Committee" held at the Victoria Commemoration Buildings, Kandy, on Saturday, the 12th day of May, at half-past seven o'clock (7·30 a. m.) in the morning. Present:—Mr. Edward Rosling (Chairman) Mr. A. Philip (Secretary), Hon. Mr. J. N. Campbell, Messrs. Stanley Bois, J. B. Coles, G. H. Alston, R. A. Galton, A. J. Denison, Hugh B Roberts, T. C. Huxley, J. A. Burmester, G. K. Deaker, Joseph Fraser, W. D. Gibbon, A. Melville White, Edgar Turner, James Westland, James Ryan and A. C. Kingsford.

The notice calling the meeting was read. The Minutes of proceedings of a meeting of the "Thirty Committee" held at Kandy, on Saturday, the 17th day of March, 1900, were submitted for confirmation. Resolved:—"That they be and they hereby are confirmed." Read letter from Messrs. Capper & Sons.

CORRESPONDENCE &C. CIRCULATED.

CEYLON-TEA IN AMERICA.

Letters from Mr. William Mackenzie to Mr. Lane, dated 21st Feb., Mr. Larkin to Mr. Mackenzie, 17th Feb., *Journal of Commerce and Commercial Bulletin* to Mr. Mackenzie, do. Mr. Wm. Mackenzie to Mr. Lane, 25th Feb., do. 27th, 2nd March and do. 6th. Mr. P. C. Larkin to Mr. Wm. Mackenzie, 27th Feb., Mr. Wm. Mackenzie to Mr. Rosling 5th April. Table of revised tea statistics, Mr. Wm. Mackenzie to Secretary, 15th April.

UNIVERSAL INTERNATIONAL EHIBITION TO BE HELD AT PARIS, 1900.

Letters from Mr. Renton to Mr. Rosling, dated 9th March, 23rd March, 6th April.

CEYLON TEA (NEW MARKETS) FUND.

Sketch statement giving the yearly totals expended in each country from the commencement of operations as per abstracts to 31st December, 1899. Sketch memo. showing credits opened, payments made, and available balances as at 30th April.

MEMBERS OF COMMITTEE.

Read letter from Mr. W. Saunders stating that as he is leaving for England he tenders the resignation of his seat on the "Thirty Committee." Read letter from the Secretary, Ceylon Chamber of Commerce, intimating that Messrs. G. B. Leechman, G. F. Traill, and H. Tarrant, had been elected members of the "Thirty Committee" in place of Messrs. J. A. Henderson, J. H. Renton and E. M. Shattock. The members representing the Chamber at present are Messrs. G. B Leechman, E. C. Skrine, G. F. Traill, G. H. Alston, H. Tarrant and Stanley Bois. Read letter from Mr. George Kent Deaker. Read letter from Mr. Gordon Pyper resigning his seat on the Committee as he is leaving Ceylon. Resolved:—"That Messrs. E. H. Hutchinson and Robert Morison be elected members of the 'Thirty Committee' vice Messrs. W. Saunders and Gordon Pyper."

MINUTES OF PROCEEDINGS.

Read letter from Government acknowledging copy of minutes of proceedings of a meeting of the "Thirty Committee" held at Kandy on Saturday, the 20th January, 1900.

FINANCES.

Submitted letters from the Treasurer of the Colony. Submitted memo. showing credits payable and available balances as at 30th April, 1900.

CEYLON TEA (NEW MARKETS) FUND.

Considered various memoranda showing the position of the Fund. Submitted statement giving the yearly totals expended in each country from the commencement of operations. Read letters from the National Bank of India, Limited, Colombo. Submitted sketch summary of receipts and expenditure Ceylon Tea (New Markets) Fund as per audited abstracts from 1894 to 31st December 1899. Resolved:—"That it be appended to the minutes."

COMMISSIONER ON THE CONTINENT OF EUROPE.

Read letter from Mr. J. H. Renton, dated Paris, 20th April, received since the circulation of previous correspondence. Read letter dated, Paris 9th March, *re* finance, and a consignment of tea regarding which he had been making enquiries.

PARIS INTERNATIONAL EXHIBITION, 1900.

Read letters from Messrs. Lipton, Limited, and submitted connected correspondence.

CEYLON TEA IN AMERICA.

Read lette from Mr. Mackenzie, dated London 17th April, received since the circulation of earlier correspondence. Submitted letters from the National Bank of India, Limited, and connected papers.

CEYLON GREEN TEAS.

Read correspondence. Intimated that payments had been made as under:—

March			
1900	4,700 lb.	Dewalakanda Green Teas	R470·00
Do.	8,175 ,,	Brunswick	817·50
April			
1900	668 ,,	Laymastotte do	66·80
Do.	5,240 ,,	Ceylon Green Teas per Whittall & Co.	524·00
Do.	4,470 ,,	do.	447·00
May			
1900	6,960 ,,	Brunswick Green Teas	696·00
Do.	5,450 ,,	Ceylon Green Teas per Whittall & Co.	545·00
Do.	4,906 ,,	Dewalakanda Green Teas	490·60
add total as per previous statement	110,089 lb.		11,008·90
	150,658 lb.		R15,065·80

Leaving the balance of R14,934·20 still available at date. Submitted printed card giving the process of the manufacture of green tea on Brunswick estate as drawn up and approved by Mr. A. E. Wright. Resolved:—"That copies be made available on application to the Secretary." Considered matters relating to the grant for green teas. Resolved:—"That the question of continuing the grant on Ceylon green teas be considered at next meeting of the 'Thirty Committee.'"

PROTECTION OF CEYLON TEAS IN PACKETS.

Discussed the present position of this question. Resolved:—"That reference be made to the Ceylon Chamber of Commerce *re* the practice of transhipment of Travancore teas at Colombo to London and Australia."

REPORT ON CEYLON TEA SOILS BY MR. KELWAY BAMBER.

Read letters from Government and Messrs Capper & Sons. Resolved:—"That the sanction of the Governor in Executive Council be obtained to an appropriation of R800 for printing and circulating the Report." The "Thirty Committee" then adjourned.

A. PHILIP,
Secretary to the "Thirty Committee."

SKETCH SUMMARY OF RECEIPTS AND EXPENDITURE CEYLON TEA (NEW MARKETS) FUND.

(As per audited Abstracts from 1894 to 31st December, 1899.)

RECEIPTS.

	1894 to 31st December 1897 as per statement previously published. (12th July, 1893.	1898.	1899.	Total.
	R. c.	R. c.	R. c.	R. c.
Ceylon Tea (New Markets) Fund	684591·29	241074·86	255693 50	1181359·65
Ceylon Tea Fund	11428·93	—	—	11428·93
Interest	7402 84	2056 72	1725·83	11185·39
Ceylon Tea in Russia (Refund)	—	583·11	—	583·11
Coolgardie Exhibition, 1899.	—	—	2540·86	2540 86
Coolgardie Suspense a/ (Refd:)	—	—	790·56	790·56
Telegrams (Refund)	—	—	186·30	186·30
Wm. Mackenzie, Rep: in America	—	32·19	—	32·19
				Rs. 1,208,106 99

EXPENDITURE.

AMERICA				
Wm. Mackenzie	467481·55	194684·96	149695·60	811862·11
Canada ...	—	7500·00	—	7500·00
Miscellaneous..	8518 31	—	—	8518·31
Presentation to Adml Dewey	—	—	1451 60	1451·60
Russia ...	61203·9	5580 02	40930·19	107714 20
Germany ...	—	18194·08	17310 84	35504·92
Coolgardie Exhibition ...	—	26 00	9755·01	9781·01
do Suspence a/ ...		—	790·56	790·56
Austria & Hungary ...	3476·81	4935·66	—	8412·47
Continent of Europe ...	7852·76	—	—	7852 76
Belgium & Holland ..	1005·32	3084 33	—	4089·65
Norway ...	967·29	1174 31	1009·24	3150·84
Sweden ...	4093·81	—	332·41	4426·22
Switzerland ...	3590·94	—	—	3590·94
Transvaal ...	116·59	—	—	116·59
Agricultural Chemist ...	—	3750·00	11250·00	15000·00
Ceylon Green Teas ...	—	1330·20	8632·70	9962·90
Times of Ceylon Art Supplement	—	—	650.00	650·00
Bamber's Dietetic Pamphlet	—	—	460 35	460·35
Secretariat & Management ...	10000.00	6000·00	6000 00	22000·00
Miscellaneous ...	2205·48	844·25	2075·00	5124·73
Stationery ...	400·04	615·68	551·90	1567.62
Telegrams ...	372·20	92 30	244·80	709·30
Printing ...	1356·91	569·22	703·42	2629·55
Charges &c ...	2330·94	698 15	675 87	3704·90
Auditor ...	—	100 00	100 00	200·00
Petty Cash ...	—	—	—	94·44
National Bank of India Ltd. ...	—	—	—	31240·96
				Rs. 1,208,106,99

SALE OF AN ESTATE.

We hear from Gampola that Messrs. Walker, Sons & Co., Ld., have sold the Bodawa estate for R25,000 to Mr. J. C. de Silva who owns a property adjoining it. Bodawa belonged to the bankrupt estate of Mr. de Vos. It is 122 acres with 50 in cultivation, tea, etc.

PRODUCE AND PLANTING.

INDIAN TEA CROPS.—"In commenting on the prospects for Indian tea a twelvemonth ago, we said that 'the more remunerative prices now current cannot fail to stimulate the Indian planters to still greater exertions' than in previous years, and the truth of this prediction is seen," says *The Grocer*, "in a materially larger production during 1899-1900 than the most sanguine of importers and dealers had anticipated. The particulars as just given by the Indian Tea Association (Calcutta and London) show that the actual yield of the crop for the season now drawing to a close reached the unprecedented total of 174,856,400 lb. (details of which are inserted in our usual market report), which was 21,956,200 lb. in excess of that in 1898 99, when a crop of 152,900,200 lb. was raised. For years past there has been an almost continuous expansion in the cultivation and importation of Indian tea. True, the crops in 1896-97 and 1897-98 were of similar extent, say a little over 148,000,000 lb., but that in the following season (1898 99) was increased to 152,900,000 lb.; and when we call to mind the fact that the entire crop in 1895 96 yielded not more than 135,479,000 lb., and also that in 1894-95 it was only about 127,100,000 lb., it is quite evident that remarkable progress has been made in the British tea industry of our Indian Empire within a comparatively short period."

DETAILS.—"Out of the above total of 174,856,400 lb., as representing what may now be considered as last season's crop, it is interesting to note that the amount reserved exclusively for shipment from Calcutta to Great Britain was scarcely, if at all, less than 149,000,000 lb., against 135,500,000 lb. 1898 99, and here alone appears an increase of 13,500.000 lb; all of which statements conclusively prove, if further proof were necessary the full magnitude of the scale on which the general operations in Indian-grown tea are conducted. In touching specially upon the character and outturn of the late season's crop, it may be remarked," says the journal we quote, "that its rapid augmentation was mainly due to the much more favourable weather experienced in the Sylhet and Cachar districts—the very districts where the drought was most severely felt in 1898—and likewise to the new system of coarser plucking, so that these two causes have combined to produce a larger make of common and inferior teas than has been known in any former seasons. Although the proportion of really fine and choice qualities has been less than usual, the 1899-1900 crop has undoubtedly been a very useful one in many respects to blenders and consumers, consisting of a desirable kind of leaf, of strength and colour in cup, with richness and flavour amongst the more delicate kinds sent from the Southern parts of India; and prices on the whole have been at a reasonable level for all parties. Alluding to the recent advance of 2d in the tea duty to 6d per lb, Messrs. George White and Co., brokers, observe that 'its effect is difficult to foresee; but should it lead to the extended use of medium and fine sorts, the former of which have been unduly depressed for months past, it will be a boon to many tea planters, both in India and Ceylon,' adding that 'the prospects, therefore, seem favourable to expansion in the sale of good liquoring descriptions, while that for very common may be partially abandoned, and the prevailing lowest retail price be 1s 4d per lb. If the purveyors to the public can induce their customers to purchase a slightly better blend than they have lately perhaps been accustomed to they would not only benefit themselves, but also the trade generally.'"—*Home and Colonial Mail*, April 13.

QUEENSLAND PRODUCTION FOR EXHIBITION.

The Queensland Department of Agriculture has prepared and shipped to the care of the Agent-General in London six boxes of specimens of the produce of the colony for exhibition in the museums at Stockholm and Christiania—three boxes to each place. The exhibits have been applied for by the authorities in the cities named, and the samples comprising them are made up in small bottles. There are included specimens of wool, sugar, wheat of various varieties, cornflour, arrowroot, sorghums, and millets, earth nuts, beans of different kinds, maize, and other grains. They have all been grown in Queensland, principally on the experimental farms. The department has also nearly completed the preparation of an exhibit for use in England by Mr. Randall, the Immigrant Agent. The hay is now awaited, and when that is secured the butter and cheese to be sent from the Gatton Agricultural College will be at once sent in and the exhibit will be complete. It is fully expected that it will be one well worthy of the colony. Some splendid samples of wheat and barley have been procured, and among the many articles included there will be preserved fruits, jams, jellies, candied fruits and others. The hay will be made into small bales, and will include oaten, wheaten, rye, lucerne and panicum. It may be mentioned that Queensland is the only colony apparently which is taking this means of placing the colony before people in Great Britain.—*Sydney Mail* April 14.

MANUFACTURE OF CRUDE QUININE.

The *Batavia Nbl.* learns from a well-informed quarter that two of the principal Java cinchona planters propose to set up on their grounds factories for the production of crude sulphate of quinine, which will subsequently be refined at the Bandong works. It is expected that this will result in an increased profit—quite twenty-five per cent—over that obtained from the sale of the bark in Amsterdam. The most important point, however, appears to be that it would have the effect of withdrawing something like ten or twelve tons of quinine from the European market, and that other planters will probably, in their own interest, follow the example, and in course of time erect similar works. Another advantage in connection with the proposed works is that inferior bark with one and half or two per cent of quinine-content, which is now either sold at a loss or simply thrown away, can then also be worked at a profit. It is stated that such an installation is not only inexpensive (costing not more than about £500 to £800 for a plant capable of dealing with five to ten cwt of bark per day), but moreover, the work is very simple and requires no great skill or experience. These details are based upon data obtained from similar works which have already been in operation for three years, and in which bark is used of such low quality that it would not pay the expense of shipment to Europe.

CURING OF LIBERIAN COFFEE.

One of the drawbacks to the use of Liberian Coffee has been a strong unpleasant taste, and various remedies have been suggested.

It has now been successfully overcome on the Borneo Coffee Co.'s estate in Marudu Bay by washing the coffee after pulping and before fermenting. The washed coffee is in this way cleaned from all the minute bits of pulp which doubtless imparted an unpleasant taste and before being placed in the fermenting cistern it is thrown into large baskets—"coal baskets"—for a few minutes to allow the surplus water to drain off and is then fermented in a comparatively dry state. To increase the heat, sacks are placed on the top of the coffee and after some hours the top layer is turned in below so as to ferment the parcel equally. Liberian Coffee, properly cured has a splendid flavour which is well known by the trade, who value it highly owing to the amount of chicory it can assimilate. As an after dinner coffee nothing comes up to pure Liberian Coffee if properly cured.—*British North Borneo Herald*.

A BATCH OF CEYLON TEA COMPANIES RESULTS.

(*Investors' Review*, April 21st.)

The reports of the smaller Ceylon Tea Companies so far published show

MUCH MORE SATISFACTORY RESULTS

for 1899 than for the preceding year. Generally speaking, there is a good deal of variation in the experience of these lesser companies, their plucking area being so small that they are more likely to be influenced severely by accidents and climatic conditions than the larger concerns, whose wide area enables the principle of averages to come into stronger play. On this occasion, however, the trend has been almost entirely in one direction, and that favourable, as the following figures will show :—

	Plucking Area.		Crop.		Price per lb.	
	1998.	1899.	1898	1899.	1898.	1899.
	acres	acres.	lb.	lb.	d.	d.
Bandarapola	478	576	395,270	524,259	6⅛	6⅝
Burnside	*	1,134	356,455	378,608	6¾	7 3-16
Ederapolla	853	996	447,026	466,149	6⅝	6 15-16
Highland	603	585	212,415	259,233	9	8½
Kelani Valley	1,200	1,211	578,169	575,255	6½	7
Panawal	577	590	293,933	334,922	6⅜	6½
Poonagalla	—	1,180	261,164	302,614	8 1-16	7½
Portmore	474	483	241,686	242,740	9⅞	8⅞
Yatiyantota	2,249	2,376	1,135,794	1,343,387	5⅜†	5 11-15†

* Not stated. † Net prices ; in othere cases prices are gross sale prices.

According to this statement, almost all the companies showed a much larger output, partly owing to larger plucking areas and partly to a better yield per acre. Movements in the average prices obtained varied to a greater extent, but only three out of the nine companies saw their average prices reduced, and in two of these cases the reduction in price was more than compensated by the increased quantity produced. We ought to lay stress on the fact that the prices obtained by the

YATIYANTOTA COMPANY

are strictly net prices, as that company only returns its average price in that form in consequence of the fact that it disposes of a large part of its crop in Colombo. Freight, dock charges, insurances, and other forms expenditure are not included in this price, and this represents quite ⅜d to ⅝d per lb. at the lowest estimate. Little has been heard of the Yatiyantota Company until lately, but it promises to become an important concern later on. With 2,990 acres under plant, its revenue last year had to bear the cost of 636 acres not in full bearing and yet it fully earned a dividend of 7 per per cent, although its selling price was so low.

THE SECRET OF ITS PROSPERITY

is to be found in its low cost of production, which did not exceed 3½d per lb last year, which if ⅞d per lb. is added for London charges, would bring up the cost of production to 4⅜d per lb., a figure that should make many of the older managed concerns squirm in their hide-bound system of management.

We are particularly glad to be able to note that almost with one accord these

SMALL CEYLON COMPANIES

have taken the opportunity presented by larger profits to increase their accumulations, a statement borne out by the following table :—

	Net Profits.		Sums put to Depreciation, &c.		Dividend.	
	1898.	1898.	1898.	1899.	1898.	1899.
	£	£	£	£	per ct.	per ct.
Bandarapola	1,488	3,924	432	1,823	5	10
Burnside	395	1,276	43	300	2	5
Ederapolla	2,068	2,921	793	800	5	8
Highland	1,879	3,006	125	766	5½	7
Kelani Valley	1,478	2,167	541	291	5	10
Panawal	1,814	3,208	750	1,135	4	10
Poonagalla	820	902	—	—	4	5
Portmore	5,405	4,559	489	159	12	11
Yatiyantota	7,666	12,117	1,639	3,200	4	7

In this it will be noted that all the companies excepting one—the Portmore—pay higher dividends, and that company, which produces a high-priced tea for Ceylon, suffered severely from a reduction in its average price, but even then its distribution is at the high rate of 11 per cent. Its attention, however, to depreciation and reserve was very slight. One other company, the Kelani Valley, did less in this respect, although it doubled its dividend. But it is relatively a strong company having a reserve of £4,500 invested outside the business. In other cases there is a most satisfactory

GROWTH IN THE SUMS PLACED TO RESERVE,

written off new extensions, or devoted to extinction of buildings and machinery accounts. This goes to show that the experience of the last few years has not been without its lesson to the boards, and consequently we may hear less of fluctuating dividends in the future. The level of the dividends declared is really good, and if profits can only be kept up to the record of last year, shareholders should not have much to grumble about. These Ceylon companies have certainly met the rise in exchange

FAR BETTER THAN THE INDIAN TEA COMPANIES.

Apart from one or two notorious examples, the companies were not usually over-capitalised, as many of the Indian companies have been ; and then there is less leakage in profits through poor management and exaggerated agency charges. The low charges of the Colombo agents is all the more remarkable, as their control is much more real than that of the Calcutta agents over Indian plantations. The distance from Colombo to the plantations is less, and this probably accounts for the manner in which the gardens are regularly visited by representatives of the agency firms. There are

TWO WEAKNESSES IN THE FINANCIAL MANAGEMENT

of these small Ceylon companies that must be mentioned before be leave the subject. The first is the large proportion of debenture capital which they have issued. Debenture apital may seem a cheap way of financing

a concern when everything is prosperous, but in a plantation industry this seldom occurs, while now and then one finds everything unpropitious. Debenture interest has to be met all the same, unless the company is prepared to lose its property, and the drain thus experienced sometimes leads to the shareholders receiving on the average lower distributions than the debenture holders. Shareholders should therefore impress upon their boards the need of reducing these debenture issues as quickly as possible. The other matter is one we have grumbled about before, viz., the manner in which profits are anticipated. Take, for instance, the Ederapolla Tea Company; its balance-sheet last December showed that it owed £4,200 on bills payable, £295 to creditors, and proposed to distribute £1,275 in dividend, against which it held £416 in cash, £2,952 of unrealised tea, and had investments and sundry debtors amounting to £1,544. Without drawing bills as fast as its tea is shipped, this company would have no funds out of which to distribute the profits it claims to have made, so that it is always eating its cake before it is fully baked. The same remark applies to many others, and the policy is the direct progenitor of the debenture issues.

MAYFIELD DIMBULLA TEA COMPANY.

Report of the Directors of the Mayfield (Dimbula) Tea Company of Ceylon, Ltd., to be submitted at the third annual general meeting, to be held at the Offices of the Company, No. 9, Mincing Lane, E.C., at 12-30 o'clock, on Tuesday, May 8.

The Directors herewith beg to submit their third annual report and balance sheet for the year ending 31st December, 1899.

The nett yield of Tea from the estates for the twelve months ending the 31st of December last was 459,098 lb. or an increase of 59,639 lb. over last year, which sold at an average price of 8·02d in the case of Mayfield, and 7·12d. in the case of Nicholaoya, or a combined average of 7·62d. per pound gross.

The nett cardamon crop was short of estimate by 1,406 lb. being 3,594 lb. as against 5,000 lb. estimated for, and sold at an average of 2s. 2d. per pound gross.

The profit and loss account, after providing for general expenses, writing off the remaining one-third of the preliminary charges, and charging all expenditure on capital account to revenue, shows a profit of £3,608 1s.; this, together with the balance brought forward from 1898 of £29 18s 1d., makes a total of £3,637 19s. 1d.

Of this, the preference dividend for 12 months ending 31st December, 1899, has absorbed £1,980, leaving a balance of £1,657 19s. 1d. still to be divided.

It is now proposed to pay a dividend of 5 per cent. on the ordinary capital, amounting to £1,531, leaving a balance of £126 19s. 1d. to be carried forward, which is subject to superintendent's commission for the year 1899.

The estates are reported to be in a greatly improved condition, and a further increase in crop may be looked for during the present season. Great credit is due to Mr. Cantlay and the staff in Ceylon for their conduct of the Company's affairs

Under clause 86 of the articles of Association of the Company, Mr. F W Jamieson one of the Directors, retires and, being eligible, offers himself for re-election.

Mr. J F Kane MacGwire, Chartered Accountant, also offers himself for re-election. JAMES SINCLAIR, Chairman.

No 9, Mincing Lane,
London, E.C., April 23rd, 1900.

CEYLON TEA COMPANIES:

A REVIEW OF THE BEST.

(*Financial Times*, May 4th.)

Most of the Ceylon Tea Companies which make up their accounts to December have now issued their reports, and under the circumstances they must be considered surprisingly good. There are one or two companies, such as the Consolidated Estates of Ceylon, the Dimbula Valley and the New Dimbula, whose financial year ends in June, the reports being consequently published in the autumn, but the majority adopt the Indian system, and follow the calendar year, although their reports are, as a rule, brought out considerably in advance of those of the Indian companies. It is not too much to say that even experts were agreeably disappointed by the results shown for 1899. The year was by no means altogether a favourable one as regards prices, particularly for high-class teas, and the fact that several of the companies have been able to increase their dividends, while adding to their allowances for reserve and depreciation, must be attributed mainly to more careful and economical management, which has led to savings in working charges. A general view of the results obtained by the leading companies during the year is presented in the subjoined table:—

Company.	Net Profit.		Appropriations for Reserve and Depreciation.		Dividend per cent.	
	1898.	1899.	1898.	1899.	1898.	1899.
	£	£	£	£	pc.	pc.
Ceylon Tea Plantations	41,380	43,664	10,000	10,000	15	18
Eastern Produce and Estates	27,913	28,615	nil	nil	7	7
Standard Tea Company	9,774	10,780	1,000	1,700	15	15
Nuwara Eliya	15,667	17,290	nil	2,300	6	7
Scottish Ceylon Tea	4,235	6,960	nil	1,400	10	12
Alliance Tea	5,205	7,900	300	1,000	7	8
Yatiyantota	7,666	12,120	1,000	1,000	4	7

It will be seen at once that out of the seven companies included in our list five have increased their distributions and four have increased their appropriations for reserve and depreciation. Taking the companies seriatim, we find the first in our table—the Ceylon Tea Plantations—occupying a very strong financial position. It has a reserve fund of £100,000, mainly accumulated during the past eleven years. From 1887 to 1898 inclusive it has paid regular 15 per cent. dividends, while for last year the distribution was raised to 18 per cent., and the carry forward amounted to £6,356. Adequate amounts have also been set apart out of revenue for depreciation the appropriations during the past three years being £5,000 per annum. The Company has no Debentures and the issued capital is only £248,460, of which £81,080 is in Seven per Cent. Preference and £167,380 in Ordinary shares. A portion of the reserve is invested in coconut plantations, which

have proved very remunerative, the sales last year bringing in £17,591. The Company is to be commended for publishing with its report a tabular statement showing the results of working for thirteen years, a plan which might with advantage be adopted by other companies. Naturally, the £10 Ordinary shares stand at a considerable premium, the present price being about 26¼, but the yield at this figure is still 6⅝ per cent.

The Eastern Produce and Estates Company, the next on our list, cannot boast such a brilliant record, but within the last seven years it has gradually increased its dividend, and for three years past the shares have been on a seven per cent basis. The reserve fund, it is true, appears small, being only £25,000 for an issued share capital of £299,800, and it has not been added to for some years. But the Company has reduced its Debentures debt from £195,200 to 80,000, the amount so applied last year being £7,500. In reality, therefore, it has accumulated a considerable reserve fund, and it should be noted that when the Debentures are reduced to a total of £50,000 the sinking fund may cease. The balance carried forward from last year is the very considerable one of £9,800. A reference to our usual table of Indian and Ceylon Tea Planting Companies, shews that the shares can be purchased to yield about 6¾ per cent. The Standard Tea Company, our next selection, has an excellent record as a dividend payer, the distributions rising from 10 per cent. in 1893 and 12½ per cent, in 1894 to a level of 15 per cent. in 1896, which has been maintained ever since. The Company, though not paying more for last year, has set aside £700 additional for reserve and depreciation, and slightly increased the carry forward The paid-up capital is small, amounting to only £59,500 so that the reserve, which now reaches £11,000, is not altogether inadequate. Some objection may be taken to the fact that the majority of the £10 shares and those the most freely dealt in, are only £6 paid. But this state of things has its advantages, since, owing to this liability on the shares, the Company has no prior charges, and is able to borrow on very favourable terms. The good results shown by last year's working are the more creditable, as the Company produces a considerable quantity of fine teas, and the prices obtained for such qualities were, on the whole, unfavourable. The fourth concern on our list, the Nuwara Eliya, is rather heavily capitalised, having a subscribed share capital of £200,000, in addition to £30,000 of Debentures. It is a comparatively new undertaking, only registered in 1895, and so far has accumulated no reserve fund. The Directors, however, have been conservative in their distributions, and have only raised the dividend to 7 per cent. after maintaining it at 6 per cent. for the previous three years, while £2,599 is this time carried forward. The Company produces tea of fairly high average quality, and the report sets forth the profits made by the various estates very clearly. On the whole, the Nuwara, notwithstanding its capitalisation, may be said to occupy a sound position.

The Scottish Ceylon Company shows a large increase in profits last year, and after distributing 10 per cent. dividends for the past few years is now enabled to pay 12 per cent. It has also written off £1,000 from the estates account and £402 from capital expenditure, which was not done in the previous year. The issued share capital of this concern is only 50,000, of which £9,000 is in Seven Per Cent. Preference and the balance in Ordinary shares, and there are no Debentures. The reserve fund is £7,000. This Company made a very considerable stride forward last year, and the shareholders are to be congratulated on the improved position. The weak point about the Alliance Tea Company is that it has not succeeded in putting anything to reserve except a sum of £4,600, representing the premiums received on shares and Debentures. The issued share capital, it is true, is only £65,250, but the Debenture debt is close upon £45,000. Possibly instead of increasing the dividend from 7 to 8 per cent last year, it might have been more advantageous to have set apart something towards the formation of a reserve fund. However the Directors write off £1,000 for depreciation and carry forward £2,180, so it cannot be said that they have divided the profits absolutely up to the hilt. Our last Company, the Yatiyantota, is quite a young concern, only dating back to the end of 1896. Commenceing with a 2 per cent dividend for 1897, it increased its distribution to 4 per cent for 1898, and pays 7 per cent for the past year. The property consists of lowland gardens, producing large quantities of lower-grade teas, and the Company benefited considerably last year by the high prices ruling for common teas, especially in the spring. That cannot, of course, always be the case, but an excellent feature of the working of this undertaking is the extraordinarily low cost of production, so that even on a less favourable market the Company should still be able to realise its produce at a good profit. The Company's issued share capital is £135,000, of which £45,000 consists of six per cent. Preference shares. The Ordinary share capital was issued at a high premium, so that although the Company has from this source a reserve of £45,000, it was provided by the shareholders themselves, and was not obtained out of revenue. Speaking generally of the Tea share market, it may be said that although there has been a moderate recovery from the lowest prices touched since the boom time, there is still a fair margin for further improvement, and many of the good shares, such as those indicated, are worth attention. As regards the future, the horizon is not quite free from the cloud of over-production, yet it is brightening. All large extensions of gardens are now practically stopped, while the foreign markets for Indian and Ceylon teas are steadily developing year by year. The Indian exchange question is now practically eliminated; producers have become habituated to a stable rupee and one element of uncertainty is thus abolished. The Ceylon Companies, as a whole, in addition to those dealt with the above, show excellent results for the past year, and they are the more creditable as they were achieved under conditions by no means entirely favourable.

UNDEVELOPED TIMBER WEALTH.—The *Bangkok Times*, in dwelling upon the restricted output of teak timber in Siam, points out that there are immense quantities of hard woods in the forests of the Siamese Malay Peninsula. But there are considerable difficulties in the way of obtaining leases to work these forests. Another difficulty is the uncertainty regarding the amount of the transit tax to be levied on woods.

SCOTTISH CEYLON TEA COMPANY, LTD.

ANNUAL REPORT.

The Directors have now the pleasure to submit to the shareholders the Accounts and Balace-sheet for the 12 months ending 31st December, 1899.

		£ s. d.
The net profits for the year amount to £6,959 6s 2d, to which has to be added £456 4s 7d brought forward from previous accounts, giving a total to be dealt with of ..		7,415 10 9
An Interim Dividend on the Ordinary Shares of 5 per cent (free of Income Tax) paid in September, 1899, absorbed ..	2,050 0 0	
Dividends on the 7 per cent Preference Shares have also been paid, amounting to ..	630 0 0	
It is now proposed to pay a Final Dividend on the Ordinary Shares of 7 per cent (free of Income Tax, making 12 per cent for the year ..	2,870 0 0	
To write off the Capital Expenditure incurred during 1899 ..	402 14 9	
To write further off Estates Account ..	1,000 0 0	
		6,952 14 9
Leaving a balance to carry forward to next account of		£462 16 0

The total crops secured from the Company's properties during the year amounted to 819,704 lb., being 28,704 lb. over the estimate, and 60,705 lb. more than the previous year's outturn, which the Directors consider a satisfactory increase.

In addition to the foregoing, 121,716 lb. of tea were manufactured for others giving a total output from the Company's Factories for the year of 941,420 lb. made tea.

The average yield per bearing acre was 480 lb. against 445 lb. for 1898, the rate of exchange was 1s 4⅜d per Rupee, against 1s 4¼d, and the average prices realized in the London and Colombo markets respectively were 7·707d and 35 cents against 7·869d and 32 cents for the previous year.

No additions have been made to the Company's acreage, which remains unaltered at 1,963 acres, including 1,720 acres under tea cultivation.

The eylon Manager, Mr Kerr, who is now on his way home on short furlough, reports that all the ompany's estates are in good heart, and his estimates for the current year point to a continuance of satisfactory returns.

The Directors would again take this opportunity of recording their appreciaton of the services of the staffs, both in eylon and London.

In accordance with the articles of Association, Mr. G G Anderson retires from the Board, and, being eligible, offers himself for re-election.

Mr. J B Laurie, C.A., also offers himself for re-election as Auditor.

MAYFIELD (DIMBULA) TEA COMPANY OF CEYLON (LIMITED.)

ANNUAL REPORT.

The report for the year 1899 states that the profit and loss account, after providing for general expenses, writing off the remaining one-third of the preliminary charges, and charging all expenditure on capital account to revenue, shows a profit of £3,608. This, altogether with the balance brought forward, makes a total of £3,638. It is proposed to pay a dividend of 5 per cent on the ordinary capital, leaving a balance of £127 to be carried forward, which is subject to superintendent's commission for the year 1899.—London *Times*, April 30.

OUVAH COFFEE COMPANY, LIMITED.

ANNUAL REPORT.

Presented to the fifth ordinary general meeting of the Company at No. 5, Dowgate Hill, London, on Wednesday, the 16th May, at noon.

Since tea has become the staple product on our estates it has been found that it will be more convenient to terminate the financial year on the 31st December in place of on the 31st July. Accounts are now therefore presented for a period of seventeen months, viz. :—

Balance sheet made up to 31st December, 1899.

Profit and loss account for seventeen months ended 31st December, 1899.

The receipts from the sale of produce were as under :—

	lb.	£ s. d.
Tea from the Company's own Estates ..	953,150	
Tea made from bought leaf	136,341	
Total ...	1,089,491	34,330 1 6
Coffee 841 cwt. 1 qr. 19 lb. ..		3,178 3 7
Cocoa 77 cwt. 2 qr. 2 lb. ..		213 9 0
Cinchona 41,878 lb. ..		814 10 5
Plumbago 643 cwt. 3 qr. 7 lb. ..		1,157 2 9
Sundry sales in Ceylon ...		61 9 8
Total receipts ..		£39,754 16 11

The total expenditure in Ceylon and London amounted to £32,031 15s 5d, and deducting this from the value of the produce, a profit is shewn of £7,723 1s 6d. to which has to be added the balance of £409 4s 9d, brought forward from the previous year, making a total of £8,132 6s 3d.

From the above profit the Directors have transferred to the credit of Badulla Factory Account £1,030 6s 6d and to the credit of Plumbago Mining Account £700 0s 0d. The interim dividend of 2½ per cent paid on 23rd November, 1899 absorbed £2,500 and Income Tax £177 8s 0d, leaving a balance of £3,724 11s 9d, out of which it is proposed to pay a further dividend of 3½ per cent, making six per cent in all, and to carry forward to next account the sum of £224 11s 9d.

Drought and unfavourable weather continued to adversely affect the yield of tea. The seventeen months' crop, estimated at 1,025,188 lb., only realised 953,150 lb. of made tea; the yield per acre for the twelve months ended 31st July 1899, being 404 lb. against 438 lb. and 475 lb. respectively for the two preceding years.

The better prices secured during the early part of 1899 were not maintained, and our selling prices over the seventeen months averaged 7.56d per lb. as against 7·78d for the previous year.

The cost of planting an additional 18 acres of tea and the up-keep of 463 acres of young tea not in bearing are included in the ordinary expenditure.

In the month of June 1899, an outcrop of workable plumbago was discovered on the Company's land, and plumbago to the extent of 643cwt.

3 qrs. 7 lb. has been mined and sold for £1,157 2s 9d at a cost of £473 19s 5d.

We are advised that the veins now being worked are only off-shoots, and it is expected that a larger and more valuable body of mineral will be reached.

The plumbago already secured has been cheaply obtained as our tunnels are only as yet driven some 150 feet into the face of the hill. The working as it becomes deeper will be more expensive, and it is possible that pumping plant may be required later on.

The Directors have therefore determined to reserve the profit made on the plumbago already mined, to enable the Company to thoroughly prospect what may become a valuable source of revenue,

The tea crop for 1900 is estimated at 812,100 lb. Favourable weather has so far been experienced, the crop secured to the 7th April being 301,950 lb. or 123,560 lb. in excess of the crop secured during the same period last year.

The acreage of the Company's property is now as follows :—

			Acres.
Tea, over 5 years old		..	1,740
Do planted Nov.—Dec.		.. 1895	117
Do	do	.. 1896	151
Do	do	.. 1897	133
Do	do	... 1898	23
Do	do	.. 1899	18
Area under Tea		..	2,182
Area under Coffee and Cocoa			424
Area under Fuel		..	367
Forest Patna and Waste		..	515
Total Area		..	3,488 acres

Mr. P C Oswald, a member of the Board, retires on this occasion, and being eligible, offers himself for re-election.

Messrs. Deloitte, Dever, Griffiths & Co., the Auditors, also offer themselves for re-election.—
By order, J. ALEC ROBERTS, Secretary.

SPRING VALLEY COFFEE CO., LD.

ANNUAL REPORT

Presented to the Thirty-sixth Ordinary General Meeting of the Company to be held at No. 5, Dowgate Hill, London, on Thursday, 17th May, at 12·30 p.m.

In accordance with the announcement contained in the last Annual Report, the Company's financial year will, for the future, terminate on the 31st December of each year in place of on the 31st July, and in order to bring this into effect and to comply with the provisions of the Companies' Acts, Accounts are now presented to Shareholders, viz. : Balance Sheet made up to 31st December, 1899 ; Profit and Loss Account for the five months ended 31st December, 1899.

The result for this incomplete period is a loss of £131 16s 3d, which falls to be deducted from the sum of £372 6s 7d brought forward from the previous year leaving £240 10s 4d to be carried forward to the current year.

Expenditure during the latter months of the year is always heavy in proportion to the crop secured, and this result must not therefore be accepted as a true index of the working of the property.

The unfavourable climatic conditions referred to in the two preceding Annual Reports continued without improvement to the end of the year, but the Directors are glad to be able to report that since then much better pluckings have been secured. Our Manager, writing on 9th April, states that fine showers had fallen, and that flushing will be heavy for some time. Crop secured to the 7th April shewed an increase of 42,540 lb. over that secured at the same date last year.

Mr. Leon Famin, a member of the Board, retires on this occasion, and, being eligible, offers himself for re-election. Messrs. Deloitte, Dever, Griffiths & Co., the Auditors, also offer themselves for re-election. By order,
J. ALEC ROBERTS, Secretary.

THE MIDLAND (CEYLON) TEA PLANTATIONS CO., LTD.

ANNUAL REPORT.

Report of the Directors, to be submitted to the Shareholders at the Ordinary General Meeting, to be held at 30, Mincing Lane, E.C., on Friday, 25th May, 1900, at 12 o'clock noon.

The Directors beg to submit the accounts, duly audited, for the year ending 31st December, 1899.

The Receipts for the Season are ..		£9,670 16 11
Less Working Expenses in Ceylon..		7,011 8 0
Leaving Gross Profit ..		2,659 8 11
From which has to be deducted .—		
Debenture Interest—6 per cent. per annum on £15,000 ..	£900 0 0	
Interest on Loans ..	172 7 11	
Fees to Trustees and Auditors, Office Expenses in London, &c.	97 0 7	
Preliminary Expenses, Balance written off ..	133 5 6	
Depreciation on Machinery, &c. ..	400 0 0	
		1,702 14 0
		956 14 11
And the Balance of Loss at 31st December, 1898, being also chargeable ..		497 10 3
There remains a sum of		459 4 8
From which the Directors recommend a Dividend of 6 per cent. per annum on the Preference Shares, £2,000, amounting to ...		158 18 0
And propose carrying to the next Account the Balance of		£300 6 8

The results of the year's trading enable the Directors to write off all arrears, both for Preliminary Expenses and the balance at debit of Profit and Loss at 31st December, 1898 amounting together to £630 and also to recommend a dividend on £2,000 Cumulative Preference Shares from the dates of allotment. The London Agents have charged only a nominal sum for office rent and secretarial work, and the Directors, who have again waived their fees are glad to be able to place a sum of £400 to the credit of a Depreciation Fund.

The Tea sales for the year amounted to 386,313 lb., being an excess of 6,313 lb. over the estimate, and the net average price was 5·91d. per lb., or nearly ½d. per lb. higher than that for the previous year. The Rupee exchange showed a slight advance, the average rate being 1s 4·31d per Rupee.

The acreages under cultivation are—

Over four years old.	Under two years old.	Total.
938	80	1,018 acres,

and the crop for the current season is estimated at 385,000 lb. Under the advice of Mr. Tatham, the Visiting Agent, the Directors have sanctioned the application of manure to a further 147 acres, the

outlay under this heading during last year having been well repaid by the vigorous growth of the Tea.

The Directors have authorised the opening into Tea of a further 30 acres of jungle, and the work was begun at the end of January. The new clearing opened last year is doing well and is in good order. A small field of about 30 acres will be partly abandoned, as the returns are not sufficient to warrant its being permanently retained in cultivation; but for a few years it will still yield a certain amount of crop, and eventually will be more than replaced by the 30-acre clearing of last year.

In his last Report the Visiting Agent writes that the group of Estates has improved during the year, and he looks for larger crops in the future, care and attention having been bestowed on the property by the Superintendent.

Under the Articles of Association, Mr. R. C. Aitken retires from the Board, and, being eligible, offers himself for re-election.

The Auditors, Messrs. Brown, Fleming and Murray, also retire, and their re-appointment remains with the Shareholders.

GREAT WESTERN TEA CO. OF CEYLON, LD.

THE REPORT

of the directors for the past year was submitted Report as follows:—

The Directors submit their annual report and accounts for the season ending 31st March, 1900.

The yield of tea has been 415,975 lb. being an increase of 102,550 lb. on last season's crop; the price realized on 330,175 lb. for which account sales have been received is 48·96 cents per lb. against 48·74 cents last season and 40·47 cents in 1897-98.

The cost F. O. B. Colombo is 31·27 cents per lb. (including 4·23 cents for manuring) against 35·98 cents (including 3·56 cents for manuring) last season.

Estimating the unsold portion of the crop at a safe figure, the amount available for distribution, after setting aside R5,291·65 for depreciation, is R70,176·10, out of which the Directors recommend the payment of a dividend of 10 per

cent absorbing	R58,400	00
To place to Reserve Account a sum of	10,000	00
and to carry forward the balance of	1,776	10
Total ...	R70,176	10

The estimated crop for the current season is 440,000 lb. to cost R134,872·39 being at the rate of 30·65 cents per lb. tea inclusive of 4·06 cents for manuring.

In terms of the articles of Association Mr. A Cantlay retires by rotation and being eligible offers himself for re-election.

It will be necessary to appoint an Auditor for season 1900-1901.—By order of the Directors,

(Signed) J. M. ROBERTSON & Co.,
Agents and Secretaries.

Colombo, May 28th.

FORMOSAN CAMPHOR-MONOPOLY.

The interest of the drug-trade this week has been centred in camphor, news having come to hand that the Japanese Government have at last accomplished something definite with regard to the Formosan output. It was in June last that the Government definitely assumed control of the industry, and in August they framed regulations with regard to its working. Since then nothing but vague rumours have transpired as to what they were doing, it no doubt being a fact that they found the whole situation bristling with difficulties. Now, however, they appear to have awakened from their apparent lethargy, as it was announced on Monday that the monopoly had been put in the hands of one firm only—viz., Messrs. M. Samuel & Co., the well-known merchants of London and Japan, who have paid £250,000 for the concession. It appears that they were about twenty foreign firms competing for the monopoly from the Formosan Administration Office, including Jardine, Matheson & Co. The firm in question are in close touch with the Japanese Government, and have had many business transactions with them, the recent Japanese loan being placed in their hands. It appears also that the monopoly to sell the crude product has been granted for a term of five years, and that the price has already been fixed at about 180s. per cwt., c.i.f., at which figure forward contracts will be made.

We are informed that the Japanese Government have for the past six months been quietly buying all they could, and that they have now secured 12,000 piculs, leaving, it is said, 900 piculs not under their control.

It is said to be their intention to deal with consumers in the fairest possible manner, and to that end they guarantee that the quotation will not be reduced below the minimum of 180s.—in fact, it is likely to go higher, as they intend to limit the output by two-thirds, and the effect of this will be felt when once they have got the grip of the market. Of course they are anxious to avoid speculation, and they will endeavour by all possible means to prevent it by having as few fluctuations as possible consistent with the laws of supply and demand. They will also endeavour to control the shipments, so that no country—say, for instance, the United States—will be able to accumulate large stocks. One London firm is already reported to have approached the controllers with the idea of taking over the whole output, but the offer has not been entertained. The Government have also decided that no camphor manufactred in Japan will be allowed to be exported, as it will be required for theif own consumption, so that henceforth all crude camphor will be known as Formosan.

Meanwhile importers and brokers are in a dilemma as to where they come in, for, as the matter now stands,

THE CRUDE-CAMPHOR BUSINESS

has been taken out of their hands. At the present time there is no business to be done except as regards spot stock, of which there is a fair quantity here, especially in second hands. It is estimated that the supply is sufficient to keep the whole consuming trade going for about six months, as there is a stock of 2,000 piculs on offer in the hands of London brokers. As it is, dealers here have already advanced their price to 185s., or 5s. over the Government price. Importers are naturally sceptical as to the working of the monopoly, and do not believe that it will put an end to speculation. They also contend that junkloads of crude camphor have been smuggled out of the island and conveyed to Hong Kong, but stringent measures have now been taken by the Government to put a stop to such actions. Refiners do not seem so awkwardly placed, as, once they have a fixed price for the crude, they will be able to regulate the refined accordingly. However, they may have the Japanese Government as a competitor, as it is their intention to refine a certain amount for their own consumption. Indeed, a parcel of refined from Formosa was offered at the drug-auctions in February, and sold at 1s. 10d. per lb. The establishment of this monopoly can have but one effect on the price of camphor, and that will be to place it at a higher figure. Were camphor simply used *per se* for domestic purposes, no advance would probably occur; but it now enters largely into the composition of celluloid and this will affect many things.

Reports which have been received from Formosa state that the island is now settling down to sound industrial development. The whole administration is being handled by experienced Japanese officials, and public works of various kinds are being undertaken. There is also a steady flow of American capital into the island.—*Chemist and Druggist*, March 31,

PLANTING NOTES.

NEW AREAS OF CULTIVATION.—913 acres were opened in tea, 49 in cacao, 358 in plantains, 92 in rubber, and 116 in cardamoms in the course of the year. The total acreage planted was 2,433. A much larger extent of land was sold in 1899 than in the previous year, when 328 acres only found purchasers.—*Mr. Hill.*

RUBBER.—The United States Government hoped to save some £6,000,000 worth of imported rubber annually by starting a new source of supply in their recently acquired Hawaii. It is said that the agents of the Agricultural Department will collect some 100,000 rubber-trees from Brazil, Mexico, and Central America, and begin planting in the island —*The Planter*, June 2.

CAMPHOR-TREES IN CEYLON.—Mr. Owen, of Lindula, has been making another experiment with camphor-tree prunings and has got about one per cent. camphor,—that is 7-lb. prunings from a 5-year old tree (from Hakgala) yielded about one ounce of solid camphor, besides oil. This indicates a paying industry, if an appreciable clearing and supply of prunings could be assured. Crude camphor realizes up to 200s per cwt.

EFFECTS OF SALT WATER ON THE SOIL.—A recent paper read before an English society deals with the chemical effect of a high tide on 30,000 acres of Essex soil. The last water injury lasts, according to various authorities, from five to twenty years. After the water had run off it was found that there was 2 per cent of the salt in the soil twenty times the normal amount, but not directly injurious. The damage seems to be chiefly due (says "Engineering") to the entire destruction of the earth-worms. The 1898 crop was very poor, and the following spring the state of the soil was also very unsatisfactory; still earth-worms began to appear, and nine-tenths of the salt has been washed out by rain. Apparently the soil has become gelatinous, owing to the action of the chloride on the silicates, the silicate of alumina remaining behind, while the other silicates are greatly reduced in percentage. The proper treatment seems to be to plough in green crops, dressing with lime and potash, and manuring.—*Exchange.*

PYTHON-BREEDING AT THE CALCUTTA ZOO.—It is not often that one has the opportunity of seeing a pythoness hatching its eggs, and those who were lucky enough to visit the Zoological Gardens last week might have witnessed the unique sight. The eggs are about twice the size of ducks' eggs, and exhibit a leathery crumpled up appearance, as if they were small bladders not properly distended with air; their colour, however, is a dirty white, and their covering might be compared to the skin of a mushroom. The pythoness which appears to be about thirteen feet in length, and whose body in its thickest part must be nearly two feet in diameter, is nursing her eggs in a curious manner. She has coiled herself up in a symmetrical heap till she resembles a basket of which the sides and the lid are her coils; and within this arrangement she has piled up the eggs, which she is so assiduously hatching. It will be interesting to see the little pythons when they make their entrance into the world, for, to judge from the size of the eggs, they should be quite six inches in length. The poor mother was so stared at by sightseers that authorities took pity upon her and covered up the glass face of the cage with a screen.—*Statesman*, May 24.

TRAVANCORE TEA.—Heavy yields are expected from various tea estates in Travancore, and in some quarters it is thought that quality as well as quantity will show improvement. We note that the North Travancore Land, Planting and Agricultural Society, Ld., has now been formally "absorbed" by the Kanan Devan Hills Produce Co., Ld. We are by no means sure that the planting industry in Travancore will gain by the steady aggrandisement of a company that has now acquired such a preponderating influence; but at least it is well that capital should be forthcoming for the development of work.—*Planting Opinion*, May 19.

REPRESENTATIVE TO PARA.—A suggestion has been made that the time has come for Malaya to send over a practical planter to Para to inquire into the condition of rubber cultivation in that country, methods of tapping in vogue, etc., and the Chairman of the United Planters' Association undertook to address a letter to the papers on the subject. This has been done and without exception the criticism evoked has been favourable, but the Committee of the Association think sufficient time has scarcely elapsed for them to give any further expression of opinion.—*Straits Times.*

A RUBBER PLANT FOR TEMPERATE CLIMES.—In a recent lecture at the Paris Académie des Sciences, says *Das Handelsmuseum*,. Messrs. I. Dybowski and G. Frou introduced a new rubber furnishing plant, a native of Northern China, which is at present cultivated with great success at the Jardin des Plantes, the Paris Horticultural Gardens. Up to the present time rubber has been extracted from trees only, and efforts have been made to acclimatise those from the Netherland East Indies in the French colonies, but, unfortunately, without any result whatever. This new plant, called *Encomia illinoides*, whose fruits, contain over twenty-seven per cent of indiarubber, has great economical advantage. It can easily be acclimatised and cultivated in countries of even a moderate climate.

THE NEW CUSTOMS ORDER IN REGARD TO TEA.—Last month there came into operation a new London Customs order introducing the weighment of tea with a half-pound weight in conformity with the agreement arrived at last year, the result of which will be a little gain to producers and buyers, we believe. On August 4th last, Messrs. Gow, Wilson & Stanton, commenting upon the agreement, said :—

The dispute concerning the overweight which growers of Indian and Ceylon Tea have formerly allowed buyers has been settled subject to the conditions being confirmed by a general meeting of importers to be held today, and the proposed method of weighing receiving the sanction of H.M. Customs. The main points of the agreement are as follows :—The 1-lb. trade draft to be allowed as heretofore. All Teas are to be weighed gross as formerly, odd ounces being disregarded and consequently given in buyers favour. The empty package is to be weighed to the ½-lb. (*a*) Should it weigh the exact even pound it is to be entered as such. (*b*) If it weighs the even ½-lb. or over it is to be entered as the next pound above. (*c*) If it weighs below the ½-lb. it is to be entered as the 1-lb. below. These regulations to come into force on the 2nd October, 1899. This agreement is generally considered, under all the circumstances, a reasonable compromise and one that growers can benefit by, if they exercise care in weighing gross and tare.

SUGAR looks strong from American news, but here people think advance gone far enough. Wheat and Corn should rise Coffee consumption is greater than supply and should rise. Iron, copper and tin are higher enough. Cotton growing crop 20 per cent. increase in acreage and fertilizers 28 per cent.—*Cor.*

MICA FROM CEYLON.—It will be a matter of interest to many that mica is becoming an article of export from this island. Small quantities are being sent now. The "City of Sparta," due here tomorrow, takes away 1 ton (23 cases) of mica. Last month 20 cases were sent. The article is sent to London. Mica is believed to exist in Ceylon extensively and should a demand for it be found, Ceylon ought to be able to supply it to any extent.—Local "Examiner."

THE ASSAM-BENGAL RAILWAY CO., are, we hear, taking the enterprising step of inducing one of the steamer companies who trade in our East Indies to provide a steamer service between Chittagong and London during the ensuing tea and jute season. It would mean 'full loads' either way, we should fancy, or at least hope so for the game to be worth the candle. Messrs. Duff Bruce & Co. are the new consulting Engineers at home to the Assam-Bengal Railway Company, in succession to Mr. William Duff Bruce.—*Indian and Eastern Engineer*, (May.)

INDIAN LABOUR APPLIED FOR FROM THE STRAITS!—We commend the following piece of Indian news to the enterprising Government that rules this land, a Government which for its size has more public works on its hands than any in the East and has as yet made no official announcement as to the steps it has taken to procure labour for those works:—

The following telegram from the Government of India was recently received by the Madras Government:—"Governor-General in Council learns that Protected States, Malay Peninsula, are anxious to recruit Indian labour this year in famine tracts Hoping to obtain better supply than in ordinary years they seek co-operation of Indian Government. Please consider whether any special facilities for obtaining labour can be given to Protected States exempted from Indian Emigration Act." In reply the Madras Government said:—"Instructions will be given to District Officers to allow the emigration agents of Straits Government to proceed with voluntary emigration without interference or obstruction."

ON THE COLLECTION OF RUBBER FROM CEARA TREES.—From the "Bulletin de l'Union Agricole Calédonienne" we translate the following:—"M. Godefroy-Lebeuf, the well-known and distinguished horticulturist, writes to us as follows: My Dear President,—I call your attention to the process for collecting ceara rubber which, Mr. Lecerf, my friend just now in Guinea, has made known to me. He soaks a sponge in lime juice or salt water, washes one side of the tree to be bled with this sponge, then makes some oblique incisions, one above the other. The milk escapes and the drops collect and form, in coagulating, a layer of rubber which is taken away the next morning. The trees used in the experiment were less than a year old Yours respectfully, Godefroy Lebœuf." Planters and others in Ceylon who freely grew the ceara tree some years ago, and then abandoned the culture as worthless, should experiment as above on some of the old trees and send us the result.

CHILLIES.—Mr. Stronach writes on another page for some practical information on the subject of cultivating chillies. Can any of our readers reply from actual and recent experience of their own?

WIPING OUT THE MOSQUITO.—Interesting experiments have been conducted in Sassari by Dr. Fermi, Dr. Lumbau, and Dr. Cossu Rocca, with the object of freeing that town from mosquitoes. The larvæ were destroyed by means of petroleum placed in the puddles and other breeding-grounds twice a month, and the mosquitoes were exterminated by means of chlorine and other destructive agents. Dr. Fermi considers it possible to free any town from mosquitoes by this method, unless its situation is exceptionally unfavourable. The expense, for a town of 50,000 people, is from £40 to £60 a year.—*Daily Mail*, May 12.

A VALUABLE TESTIMONY TO "TEA"—has just been paid by Professor Victor Horsley F.R.S., in the second "Lees and Raper Memorial Lecture" in St. James's Hall, when Mr. Augustine Birrell, Q.C., M.P., presided. The subject was "alcohol and the brain" and the reference to tea is found in the following paragraph of which "the Thirty Committee" and its agents ought to make the most:—

Now was to be considered the effect of alcohol upon voluntary movements—those performed by the central part of the great brain. It had been discovered that this part of the brain does not act uniformly and steadily, but that it gives out energy intermittently, in a tremulous way, by a rhythmic succession of impulses. Careful investigation had shown that alcohol increased this tremulousness, and also reduced the power of action. Krepelin found, in experiments with the dynamometer, that, after a small dose of alcohol, at first an additional amount of power was put out, but that it was quickly followed by a lowering effect. *He found also the interesting fact that after a dose of tea there was no lowering effect.* Further experiments had been made in which a certain amount of *thought* was combined with voluntary movements. Compositors offered themselves as subjects for this experiment, and by careful measurement it had been clearly demonstrated that small doses of alcohol had a deleterious effect. So in the case of Arctic expeditions and other undertakings experience had shown that alcohol as an article of diet should be excluded.

INDIA-RUBBER.—It is extraordinary the interest taken in this product all round the tropical world and beyond it as shown by the Indian Government deciding to open a 10,000 acres plantation on the Burma Coast. Our latest enquiry comes from Port-au-Prince, from a former Gardener at Kew, who is now engaged in Rubber Cultivation in Hayti for a large Belgian Commercial House. Besides growing Heveas, Castilloa, 'Manihot,' and 'Supinon' (*sic*) on a large scale, he intends trying a number of other rubber-yielding plants. From Paris, we have an interesting but rather puzzling letter from Mr. A. Godefroy-Lebeuf, which, written in English, we interpret in some parts as well as we can. The sample of rubber sent to us is very peculiar coarse and by no means clean—but still rubber. It can be seen at our office by anyone interested. There should be no difficulty in getting the pieces of bark for experiment, as desired by our correspondent; but he gives us no dimensions "will strips an inch wide, by a foot in length, do?

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Castilloa Elastica Cervantes.—Orders being booked for the coming crop of seeds available in June and July, selected seed from very old trees. R. N. Lyne, Esq., Director of Agriculture, Zanzibar, writes under date 24th August, 1899:—"Please send me 200 seeds of Castilloa Elastica for further trial; the seeds of Castilloa you sent me last August germinated very well." Price and particulars in our Circular No. 32; special quotations for large orders according to quantity; immediate booking necessary to avoid disappointment.

Hevea Brasiliensis (Para Rubber).—Orders being booked for the coming crop available in August and September, 1900. This is the only crop of seeds in the year. All orders should reach us before the end of July to avoid disappointment, as we have to make arrangements in time; guaranteed to arrive in good order at destination. We have already booked a large number of orders. A leading Sumatra Planter, who ordered 50,000 Hevea Brasiliensis seeds last year writes under date 27th February, 1900:—"I received your favor of the 12th instant, out of which I learn that you booked me for 100,000 Hevea Brasiliensis seeds for August and September on the same conditions as before, but at the price of—— per thousand." Plants can be forwarded all the year round in Wardian cases. Price and particulars as per our Circular No. 30. A Borneo planter writes dating, Sandakan, 17th August, 1899:—"The last lot of Para seeds turned out very well." Our shipments of Para plants last year has exceeded over 300,000 to different countries. Special terms for large orders on application.

Kickxia Africana (Lagos Rubber) —One of the staple articles of commerce in Lagos grow very vigorously, realizing over 3s. per lb. in the Liverpool market. Seeds and plants, price on application.

Hancornia Speciosa (Mangibeira Rubber).—Besides the value of rubber, it bears delicious fruits, which is a great favourite with the Brazilians, cultivated for both purposes. Seeds and plants, price on application.

Coffee Arabica Liberian Hybrid, Maragogopie Hybrid, C. Stanophylla and other varieties. Price of seeds on application.

Ficus Elastica (Assam and Java Rubber).—Seeds supplied with instructions; price according to quantity. This tree grows equally well in high and low land, in forest and grass land, its cultivation being extended largely by the Indian Government. For price of seeds with particulars as per our Circular No. 33.

Manihot Glaziovii (Ceara or Manicoba Rubber).—Fresh seeds available all the year round; price as per our Circular No. 31.

Urceola Esculenta (Burma Rubber) and **Landolphia Kirkii** (Mozambique Rubber).—Seeds and plants, both are creepers.

Cinchona Seeds.—Different varieties.

Sterculia Acuminata.—(Kolanut). Superior quality, seeds and plants; price on application, packed to stand the transit well for several months, a hardy tree, cultivation easy.

Erythrina Lithosperma.—Thornless variety, new crop of seeds ready in December, May and June. Price acccording to quantity on application.

Seeds and Plants of Cinnamon, Nutmeg, Clove, Sandlewood, Pepper, Cardamom, Vanilla. Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign Countries for 1899-1900 are now being forwarded to applicants in different parts of the world. Also Descriptive Price Lists of Seeds and Plants of Fruit Trees, Bulbs, Tubers and Yams, and Orchids.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms, &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons and Dracinas, now being prepared and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address:

William, Veyangoda, Ceylon.

Lieber's, A.1. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,

Tropical Seed Merchants,

Henaratgoda, Ceylon.

THE ADVANTAGES OF AN AGRICULTURAL DEPARTMENT.

"Camellia," who writes some of the most interesting and sagacious letters appearing in the *Pioneer*, has a communication in a recent issue from which we extract the following, as of special interest to us in Ceylon, who already have the nucleus of our coming Agricultural Department:—At the present moment it is indisputable the three great planting industries of the country—I refer to

TEA,

coffee, and indigo—have entered on a critical period, at all events financially; and I do not think the most expert of either of the above will be found venturing on any sort of confident forecast for the future of either of the above noted industries,—certainly the great palmy days of all are past. Now it is worth while briefly considering first tea, if the splendid province of Assam is due to anybody it surely is the tea planters, and British capital in the main. Assam tea has been fairly floated now over fifty years. During that time it has paid Her Majesty's Government an enormous sum in revenue, it has been the life-blood of many Calcutta firms, river companies, docks companies and created a large number of Government officials, and added very largely to Indian revenue in many ways, in short it has been one of the greatest factors of the century in India's prosperity and commercial enterprise. This being so I would maintain it is the duty of Government to assist it in every possible way, practically and scientifically, and when it is borne in mind what America, Canada, and all the Australian Governments are doing for their chief staples and have been doing for years past, it is nothing short of a disgrace that the tea industry in India at this time of day is without a mycologist, and only now just on the point of bringing out an agriculturist chemist 'tis true. Dr. Watt made a valuable investigation into the insect pests of tea no great time ago. Subsequently what did he say? That he knew of nothing so beset with empirical methods as tea; yet at this present moment

THE INDUSTRY IS ABSOLUTELY BEREFT

of a single Government Officer, systematically employed to investigate these empirical methods referred to by Dr. Watt. I do not think it is too much to say as our American cousins would certainly say,—"Guess we would made things hum differently." And I feel sure if Mr. Stebbing or any one else cares to make enquiry, he will find planters now-a-days in India have quite all they know what to do, to figure out accounts on the right side; and while I fancy none of them want charity a first rate case could be easily made out for a far more liberal and just treatment at the hands of Government, especially in the way of a searching enquiry into all things appertaining to tea. Here with an Agricultural Department, worked on Canadian or American lines, there would surely be a tea section in which experts would work out the problems and eliminate the empiricism from beginning to end. It is altogether too much to expect at this time of day when these industries have certainly got into troublesome times to expect private individuals or associations of individuals can do much. Time is required money is required, laboratory and instruments and above all

PERSISTENT CONTINUOUS INVESTIGATION

in all these things nigh every individual comes to grief in some one particular or another, and no sort of solid progress is made or possible.

Furthermore I apprehend it is extremely few among planters and agriculturist who are scientifically trained to carry scientific experiments and research very far. About two years ago the Madras planters thought to import the lady bird for their estates, and sent all the way to Australia. They spent, I believe, over R3,000 and arrived back with a perfectly dead cargo of lady birds. And the Himalayas, at all events, teeming with the lady bird, some fifteen months ago, I believe with the aid of a score of boys and R100. I could in one part of the Himalayas alone have collected easily ten to twenty thousand within a week. I mention this to show what strange things may be done from disjointed private efforts, and to illustrate how really urgent the

NEED IS FOR AN ALL-EMBRACING GOVERNMENT DEPARTMENT

that should be the planter's and agriculturist's true philosopher and friend in all things affecting soils, crops, insect pests, and remedies, and cultural methods, manures and values and so forth; and by creating a Department filled with men whose sole business were these matters, there would at once arise that fellow feeling that makes for wondrous kindness among men of the same calling: the planter and the agriculturist, would immediately be at home with his Government brother of similar instincts and aspirations. I will venture the opinion that no Civil Service, devoid of practical and scientific training, will ever induce this feeling. This is how it comes that in America, Australia, the West Indies, and Canada the same idea has just been ably taken up where quite a number of agricultural teachers have gone from England under the control and supervision of Dr. Morris, late Assistant Director of the Royal Gardens, Kew. You find the Departments and the practical agriculturalist bound mutually together in many ways, and in these countries it is conspicuously clear that the Governments very fully recognise that

BY THIS METHOD, YOU EXPLOIT THE LAND

and country, and increase its wealth, revenue, and stability. In South Australia our agricultural colonists are doing bravely under anything but Eldorado conditions; indeed when the many practical difficulties and extremely moderate crops are fully taken into account, it is surprising what they do under the generous help and guidance of their very helpful Agricultural Department. Let India do likewise and then agriculturally we shall begin to live. All through I have quoted America, Canada, and the Australian Colonies by way of example merely. We can have none of these places in India, and yet it is certain that in some things we could go better than any of them,—parodying a certain celebrated jingle I would say: "We've got the country, and the money, but we havn't got the men,"—that is in the Indian Agricultural Department.

NUTMEGS IN WEST AFRICA.—An attempt has lately been made to acclimatise the nutmeg tree in German West Africa, but only in the botanical gardens. We have not as yet heard the results of the experiments made.—*Indian Planters' Gazette*, June 2.

PLANTING LIFE IN FIJI.

BY AN OLD RESIDENT.

In the year 1867, on a fine and pleasant tropical eveninig, we dropped anchor in Levuka harbour, after a very enjoyable trip in the barque "City of Melbourne" from Sydney. After a short stay of two months in Levuka, we left for the interior of Viti Levu, to take up our residence and prepare a future home for our family. The first sight of our future home was anything but promising, on account of uncertainty of the feeling then existing amongst the natives, and the denseness of the timber land on which we had determined to settle. The nearest neighbour was at a distance of several miles. The natives were very treacherous and uncertain in those days, and you never knew how to take them until it was too late. I remember distinctly the first time we had to fire on them, when they started to destroy the cattle fences; fortunately none were ever hurt, and I have ascertained since that the shots were fired simply to frighten them, and had very little effect.

We secured the estate known in those days as Nai Vuka, the bundaries of which were two creeks running into the main river. Since then it has gradually become an Indian settlement called Illahabad. We cleared off the dense scrub and bush, and had all the land ploughed up and planted with cotton, which certainly flourished in those days, and fortune smiled on us for a very short period, until we witnessed our first hurricane. It started blowing a fresh breeze about three o'clock in the afternoon, and gradually increased in violence as the darkness came. We sat around the dining-table watching the barometor very closely and anxiously till about two in tho morning. The glass showed 27·29, and we thought it advisable to take to the hills, as the river was rising so rapidly and the house collapsing on all sides. About half an hour after leaving the dwelling, the whole building fell in, carrying destruction everywhere. When the wind subsided, we left the hills to view the damage; we had to man the whaleboat and row over the estate as far as our former habitation, which then had about five feet of water inside the remains. Out of about ten buildings not one remained standing; we took refuge under the lee of a blown-down bungalow, and prepared a meal, the first for twenty-four hours; and by night on the third day we had a temporary residence erected. The main portion of the estate was under water for about six days, the men in the meantime, some eighty of them, existing by driving for food on the plantation. It was a heartrendingsight to witness the complete destruction everywhere the eye could see. Everything looked so well and promising for a big crop, and in forty-eight hours we were, comparatively speaking, ruined,

I have witnessed some fourteen hurricanes since, but none to compare with my first hurricane. Every planter on the Riva river suffered very severely, and it took them years of hard work and economy to get their heads above water and make another start. Our first shipment of cotton, some sixty odd bales, brought us only a poor return, and barely paid the expenses of ginning, labour and freight, and left us such a small margin for profit that planters gave up cotton planting. They then went in for sugar-growing, which also proved such ruination that many growers were hopelessly in debt, and they were unable to recover themselves, mainly because the first sugar-mill ordered did not come to hand, and the crops were allowed to rot where they were grown; and then hurricane No. 2 did the rest,—it was indeed a case of the last straw that broke the camel's back.

The average cotton-planter expected to have his fortune made in first years at most. The truth is, that many a planter is a man of birth, education, and talents, a gentleman who would be an ornament to any society, but having the misfortune to have a limited supply of money, not enough to maintain him in the society to which he has been accustomed, he, with the pluck and enterprise of the Anglo-Saxon race, throws himself into a far country to battle with the soil, and wring a fortune from Mother Earth. Unfortunately Mother Earth is not always kind, and many of these gallant fellows are struggling on in debt and poverty, though still gentlemen, and keeping a firm face to the foe. Others are retired naval or military officers, who during the cotton excitement sold up, retired, and thought in a few short years to realise what a lifetime of professional exertion would never have done. Professional men abound; impatient of their slow toil in the colonies or the mother country, they too rushed to the land of promise, and drifted into the position of planters. But the majority of successful men are the canny Scotch agriculturists, who simply invested their little money here because the land was good. We have also the experienced, sturdy, but withal gentlemanly and well-educated Australians, who being disappointed by the depreciation of squatting property in their own colony, have come to woo succcss as squatters in a new country.

ROBERT CRAWFORD BENTLEY.

—*Caledonian Jottings.*

MALARIAL MOSQUITO.

AN EXPEDITION TO THE FEVER-STRICKEN CAMPAGNA.

A scheme, somewhat dramatic in its details, has been sanctioned, says Reuter's Agency, by the Colonial Office, to prove to the public at large that malarial fever is directly attributable to mosquito bite.

Two doctors who have never suffered from malaria have volunteered to live in a specially constructed hut in what Dr. Manson, of the Colonial Office, describes as one of the deadliest places on earth, for the whole of this summer. These gentlemen are Dr. Louis Sambon and Dr. G C Low, and both have made special studies of tropical diseases. Dr. Low, only a few days ago, made the important discovery that elephantiasis is distinctly traceable to mosquito bite and not to drinking impure water. Dr. Sambon has given some particulars of the expedition, which begins work on 1st June. It is intended to prove that malarial fever is caused by inoculation from infected mosquitos, and that a person who has never had malarial can live with safety in a malarial region provided he be not bitten by these insects. To this end Dr. Manson, Dr. Sambon, and a number of other doctors visited Italy and arranged a conference with the Italian doctors in Rome.

ONE OF THE DEADLIEST SPOTS.

"We then went out to the Roman Campagna," said Dr. Sambon, "and it was there and then decided that no better place could be found for

our experiment. No worse form of malaria is to be found anywhere than that which exists in this fever-stricken area. It is indeed one of the deadliest spots on the globe. There are, of course, places just as bad in tropical Africa, but in the Campagna, while it is possible to live under the worst imaginable conditions, one is within few yards of all the civilisation and resources of Rome, which is, I should add, itself perfectly healthy. The few people who live in the Campagna are the very lowest type of Italians. They suffer terribly from malaria and the unfortunate railway men and others who have to seek their living in this swamp have to be constantly changed. Even with these precautions the death rate is terribly high. A specially constructed mosquito-proof house has been designed in which we are to spend the summer, and a spot chosen for its erection. We have hit upon a locality on the line of railway running from Rome to Tivoli. The house will be put together at a spot about a mile from the little station of Cervellata, thirty minutes' run by rail from Rome, where a colony of Lombards are trying to reclaim that part of the Campagna.

PRECAUTIONS AGAINST BEING BITTEN.

"Acting on the theory that the disease is due solely to mosquito bite we must see in it that we are not bitten. So during every night, the chief time of attack, we shall see ourselves up in our mosquito-proof house. In the daytime we shall, of course, go out and pursue our work in the open air but the chances of being bitten by this special species of mosquito in the day time are very small. Our contract with the Colonial Office is to live here and not to get bitten. If we do not get fever it will be proof positive that our theory is correct, but if, on the other hand, we do get malaria it will not prove the contrary, but will be merely evidence that we have been bitten. The house in which we shall live is a specially constructed wooden building with double casements all carefully covered with special zinc mosquito proof netting. This material has also been placed under the eaves of the roof, and we have a special system of double doors and curtains in the entrance porch. There are, of course no chimneys. In addition to bedrooms for overselves and our servants and a diningroom there will be a specially fitted laboratory. Besides these precautions we shall also have mosquito nets round the beds.

INOCULATION EXPERIMENTS.

"Another part of our experiment will be the dispatch to London of live mosquitos, that have sucked the blood from cases of benign tertain fever (the mild form of the disease). These will be sent to the School of Tropical Medicine, and Dr. Manson's son and other doctors there will, by thrusting their bare arms into a box of these infected insects, allow themselves to be inoculated."

Dr. Patrick Manson, Medical Adviser to the Colonial Office, confirmed what Dr. Sambon had said, and added that malaria infected mosquitos which are to be sent home will be used to inoculate certain volunteers in England.—*Home paper*, May 5.

CEYLON PLANTERS IN THE WYNAAD.

The Wynaad correspondent of the *Times of Malabar* writes:—"The following ex-Ceylon planters are either residents now in Wynaad, or have acquired valuable properties in the taluk;—Messrs. Hugh Parry, E De Fonblanque, J S Nicolls, R Glennie, E H F Day, Stewart Robinson, and W Q Wright. Mr. Robinson, during a trip home last year, volunteered for the Yeomanry, and is reported to be in South Africa now, while illness recently compelled Mr. Wright to seek a change out of India, but we have hopes of welcoming these popular members of the community back later on."

TO BANISH FLIES.

Flies are a great nuisance in summer time around the house. They are a greater nuisance when the barn is filthy, or if it is too near the house. Where it is desired to get rid of flies, the following is recommended:—One part of benzoin and one of balsam tolu, five parts of charcoal, one and a-half of common insect powder, and one-half part of saltpetre; add sufficient water to knead a stiff paste. Roll into pastels and dry them. One will burn for some time in a room, and the fumes will destroy flies, mosquitoes, and vermin without injuring furniture or fine curtains.—"AUGUSTUS," in Park and Cemetery.—*Queensland Agricultural Journal*, April 1.

RUBBER: RANDOM NOTES FROM PARA.

The figures herewith indicate how important the ports of Iquitos and Manaos are becoming as points of shipment for rubber. The shipments direct from those ports have increased as follows:

Year.	Tons.	Year.	Tons.	Year.	Tons.
1880	... 373	1887	.. 1,688	1894	... 3,953
1881	.. 307	1888	... 2,141	1895	... 5,433
1882	... 430	1889	... 3,255	1896	... 6,827
1883	... 655	1890	... 3,693	1897	.. 7,523
1884	... 1,013	1891	... 3,991	1898	... 7,173
1885	... 1,462	1892	... 8,812	1899	... 7,853
1886	... 1,574	1893	.. 3,745		

Albert Courbain, the illustrious Belgian explorer at present on the river Jurua, writes to the Belgian consul at Para: "I have acquired some knowledge of the Indian tribes between the Jarua and the Javary, of some of whom I have taken photographs. The soil is most rich in rubber and caucho. I can affirm the existence of a new tree, of whose leaves, seeds, and plants I shall send specimens to Para. It is abundant, the milk is rich, and the rubber is similar to sernamby. After smoking, it is flexible and elastic. These regions are in a great part unknown."

GRAO PARA.

Para, Brazil, March 7th, 1900.—*The India Rubber World*.

OVERHEAD NETTING FOR TOMATOES.

Referring to an extract from *Garden and Field* in our last issue on tomato growing, Mr. W Hobart, Main Range, Toowoomba, writes: I have grown tomatoes on overhead netting for years, and I find it the best of many plans I have tried. The young stalks must be properly guided and trained through the meshes and not be allowed to fall back again. When the vines are full grown, the top of the netting is a complete mass of fruit and leaves, and all the fruit is clean. I make the frame of stout hardwood pegs, 18 inches above ground. Hardwood betens are nailed on the top, and the wire stretched across it. Such a framework is easily taken to pieces and put up again where required.—*Queensland Agricultural Journal*, April 1.

THE NEW CONDITIONS OF TEA SALE.

(Draft proposals.)

1. The highest bidder to be the Purchaser, and any dispute that may arise as to bidding to be settled by the Selling Broker.

2. Brokers must declare, in writing, their Principals (to be approved by the Selling Brokers) within 24 hours after the purchase, or be held responsible; and those who may execute orders at this Sale for parties not resident in London shall produce a known Agent here, who shall undertake to complete the Contract; in failure of which the broker so buying shall be held responsible; and if any Broker shall purchase for any person or persons under age, he shall be held responsible. In the case of teas sold for cash, the Buying Broker to be held responsible.

3. Every person who shall be declared the highest bidder shall pay to the Selling Broker a deposit of £1 per chest at the time of sale, if demanded, or on the Saturday following the day of sale, or on the delivery of the Weight Notes; the remainder of the purchase-money to be paid on or before Friday,......................... .... Interest at the rate of £5 per cent. per annum will be allowed on payment of the deposit, and on the remainder from the day of payment to the prompt day. The tea to be taken by the Buyers at the Customs landing weight, delivery in bond, with the Customs' tare. Draft as usual. The Customs' landing weight shall mean the full weight of the package as landed, and shall include the odd ounces which the package may weigh in excess of the Customs' inscribed weight. The only tea which may be taken from the packages before delivering them to the Buyers shall be that drawn for merchants' samples which samples shall not in the whole exceed two lb. in weight from each entire lot. The buyer will, however, have the option of taking up any entire lot or lots as printed by Prime Warrant, and if the buyer wishes to exercise this option he shall give notice to that effect to the Selling Broker not later than 5·30 p.m. on the day of sale, when the lot or lots notified to be taken under Prime Warrant shall be prompt on the Saturday following the day of sale, but the buyer shall be entitled to the usual five per cent. Cash Discount, calculated to the date of the three months' prompt, and, in addition, to a cash allowance equal to six weeks' rent. The seller shall pay rent on lots taken up under Prime Warrant, up to the Friday following the day of payment.

4. Before they were placed on show these teas have been bulked (in the country of production or London). They have been inspected and the packages weighed and tared, the leads, linings or lids properly fixed down, and in the case of London bulked teas they have been re-weighed and all the packages will be nailed or screwed down by the evening of the third day after the day of sale. Delivery will be given on the day after the day of sale, and, up to the delivery of the Weight Notes, on notice being given in writing the day before it is required to the selling broker and warehousekeeper. The buyer to have the option of refusing any packages as to which the above conditions have not been complied with.

5. Three clear working days are to be allowed for delivery of weight notes. The buyer to have the option of refusing to accept any lot or lots for which Weight Notes have not been delivered by the evening of the third day, by giving a written notice to that effect to the Selling Broker on the following morning, if, on application, he cannot then obtain them. Missing packages if equal to bulk, and not more than five per cent, are exempted from this condition, and are to be taken by the Buyer at the original price and prompt if tendered within fourteen working days from date of contract.

Old Clause 5.

6. No claim for difference in bulk from show or selling sample will be entertained unless notified in writing to the Selling Broker within three working days from the day of sale.

7. No allowance will be made on account of any damage, rubbish, false package, or unequal goodness, found, or alleged to be found, after the goods have been taken from the warehouses.

8. Lot money to the Selling Broker as usual.

9. All tea sold at this sale to be at tho risk of the sellers until the prompt day, unless paid for previously, but only to the extent of market value. In the event of non-delivery by loss from fire, the contract for such portion to be void, and the deposit paid to be returned. Rent to commence from the prompt day.

10. Particulars as to whether Calcutta, London or Factory Bulked, whether average or separated tare and description of the kind of package shall be printed against each lot.

11. Any dispute that may arise concerning any parcel sold in this catalogue to be referred to two arbitrators (who must be members of either the Indian Tea Association, the Ceylon Association in London, the Tea Buyers' Association, or of the Tea Brokers' Association of London) to be mutually chosen, and who are to appoint an Umpire, if necessary, the loser to pay the fees (two guineas) to each arbitrator, and two guineas to the Umpire if called in; the fee to include attendance at the warehouses if necessary.

12. If any buyer shall fail to comply with the above conditions, the vendors shall be at liberty to re-sell the teas either by public or private sale, the deficiency, if any, with interests of money, from the prompt day, warehouse rent, and all other charges and damages of every kind, to be chargeable to such defaulter, and be recoverable against him at Law.

THE PLUMBAGO TRADE IN LONDON.

Plumbago is an article which passes through such narrow channels that one might work for years in the tea trade without hearing anything about it, though its headquarters are also in Mincing Lane. So many people in Ceylon now are on the look-out for this mineral, that I thought it might be of interest to your readers to have some information from one of the few who are really in the know. I accordingly obtained an introduction to Mr. Marshall, of Messrs. Marshall and French, who kindly placed the following at my disposal. My first question related to the reasons for the recent heavy fall in price. This I understood was not due to the supply exceeding the demand or to any marked increase in the exports, but rather to buyers holding off in the belief that, with so many Companies and proprietors prospecting, there was likely to be an increase sooner or later. Mr. Marshall thought, however, that with the monsoon almost due, it was quite possible that there might shortly be a recovery, as supplies generally fell off in the wet weather. The recovery, if it came, would be most marked in the fine qualities, for which even now there was a strong demand —£70 being offered for lumps, without business following. My informant was not sanguine as to the prospects for "common lead" with which the market was rather overstocked, and in this class a further fall was almost inevitable, but, as long as the demand for crucibles and for carbon for electric lighting went on, prospects for good plumbago were bright enough. It was reported in London that native exporters in Ceylon had formed a kind of ring, with the view of maintaining rates, but their efforts had been without success. As illustrating the enormous rise which took place

not long ago, Mr. Marshall told me of a native merchant, who had offered him 700 tons at £11. No bids could be obtained at this limit, and shortly after the price went right away to £40. "There was," as Mr. Marshall said, "a fortune in it."

Efforts are being made, I understand, from information received in other quarters, to form a more open market in plumbago, and it is hinted that, sending the stuff to the brokers who do the bulk of the present business, means simply getting the price which the Morgan Crucible Company care to pay. I do not know how this may be, but Mr. Marshall told me an amusing story of the result of an attempt recently made to effect a sale through a broker who got a consignment and who had to come to Mr. Marshall to get him to value it for him. A monoply does not generally conduce to good prices being paid for any article, but the recent rise goes to show that, in the case of plumbago, the Morgan Crucible Company does not always have things its own way.—London Cor. of local "Times."

ON RICE MEAL.

A SUGGESTION FOR INDIAN FAMINE RELIEF.

(By George S. Keith, M.D., Author of A Plea for a Simpler Life, Fads of an Old Physician, &c.)

I have always believed—and this is the general belief—that rice, which is the principal food of the natives in many parts of India, is mostly a pure starch, and contains very little from which to form a strong body of muscle and bone. I was undeceived as to this when on a recent voyage to Rangoon. I had asked if brown bread was to be had on board, and was told that it was not, and that there was no wheaten flour to make it from. A few days after I was surprised to see it on the table, and of excellent quality. On inquiring of the baker, a very intelligent Scot, he told me the bread was made from white flour and rice-meal, four parts of the former to one part of the latter. He had used this for more than twelve months when brown bread was asked for. This rice-meal is got in

THE PROCESS OF CLEANING RICE

in the rice-mills of India. From the rough *paddy* the husk is first rubbed off; part of it is used in the mill as fuel, and the rest is thrown into the sea. What is next removed is the rice-meal. This is sent to England, and is given to the pigs or made into oil-cake for fattening cattle. On my return voyage the vessel brought nearly one thousand tons of it in bags to Liverpool, where it is in great demand. It is not known to any of the corn-dealers in Edinburgh. Twelve months ago it was selling at about three pounds a ton; lately, owing to the high price of all feeding-stuffs, it has been quoted at from four pounds fifteen shillings to five pounds. I brought some of it home, and it makes excellent brown bread when used in the above proportions. I have also some of the partly-cleaned rice, from the further cleaning of which the rice-meal is obtained in quantity varying from 7 to 16 per cent. In a specimen of the partially-cleaned rice which I got from the largest mill in Rangoon, a considerable portion of the rice meal has evidently been lost in cleaning off the husk, as only 10 or 12 per cent. of the grain, and this the smaller size, has retained its natural red colour, which is somewhat darker than the natural grain of wheat. Hence it is probable that the rice could give even a higher proportion of meal than 16 per cent. I have got

AN ANALYSIS

made of this meal by the chemist of Messrs. Duncan & Flockhart, Edinburgh, and, although it had lost some of its flesh-and-bone-making ingredients, it was found to contain 12½ per cent. albuminoids, and 4½ per cent. phosphoric acid, which, in union with lime, as phosphate of lime, makes up the greater part of the ash, amounting to 7¾ per cent. The meal is thus very rich in albuminoids and phosphates. On the bank of the Irrawaddy I happened to see about a ton of rice which had been freed from the husk, but still retained its red colour; and I was told in Rangoon that the natives sometimes clean the rice for themselves, and use it in the form in which I saw it. I heard recently from an engineer who has for some time been in charge of railways in Assam that red rice used by the natives, who are a finer and stronger race than the Hindus. I have also been told of a family in the West of Scotland who have been in the habit of

GETTING RED RICE REGULARLY FROM CEYLON.

In this country the value of rice as a food is reduced still further by the mode of cooking. It is boiled in a large quantity of water. This takes out most of the albuminoids, and as the water is thrown away, these are lost. In India the water used is just enough to swell the rice, and everything is preserved. Parkes gives 5 per cent. as the proportion of albuminoids in white rice, and 11 per cent. in white flour. I have endeavoured to get the Government of India interested in the rice-meal question. It is a pity that the best part of the rice should be sent to this country for cattle when it is so much needed in India, especially for the young. As a matter of pure economy it is important that it be retained in the country. Two parts of our brown wheaten bread go as far as three parts of white bread, both in satisfying the appetite and in supplying the wants of the system. If the same ratio holds as to red rice and white rice, a great money-saving would be effected by substituting the former for the latter. The price of rice-meal got in cleaning white rice for this and other countries is also less than that of white rice; but this is of small importance compared with its value as a food. It makes excellent porridge. A time of famine may be the best for introducing

A CHANGE

in the habits of the people. As red rice is already used in some parts of India, its general use should not be a great difficulty. When we consider that brown bread is so little used among ourselves, though its use is increasing among the upper classes, and that as yet for the greater quantity of wheat consumed in this country goes to the pigs, we need not be surprised that in India also this thriftless system prevails, to the deterioration of many millions of people. In this country the matter is of less importance as, overfeeding being the rule, the poor white loaf may often do less harm than the richer brown one. In a poor country like India, where the people are underfed, the case is very different.—*Chambers' Journal.*

THE CEYLON PEARL FISHERIES: SIR WILLIAM TWYNAM'S REPORT—WHAT IS TO BE DONE WITH IT?

We have now concluded our perusal of Sir William Twynam's elaborate and historic Report, of twenty-six foolscap printed pages, on our Pearl Fisheries and made special reference to some forty pages of appendices. To one who was generally acquainted with the writings of Capt. James Steuart, Mr. Thomas, of the Madras Civil Service, Mr. Houldsworth, Capt. Donnan and others, we cannot say, there is much that is new in the bulky Sessional Paper before us. But Sir William has very fully and faithfully fulfilled the task imposed on him by the Government in May, 1899, when his advice was requested with reference to the serious disappearance of 72 millions of pearl oysters from a bank where they were so promising two years before, as reported by Capt. Donnan last year. In replying, Sir William Twynam has, as we have said, gone into the whole history of our Pearl Fisheries and referred to every available writing on the subject within his reach. No man living has had a longer experience of the Fisheries than himself, Capt. Donnan coming next; and they have both had the benefit of all that the late Capt. Steuart and Mr. Vane could tell them, besides the Reports to Sir Hercules Robinson's Government of the Naturalist, Mr. Houldsworth, and to the Madras Government of the accomplished Mr. Thomas of its service on the Tuticorin Fisheries. Now there is no reason at all why we should follow Sir William through the history of the Fisheries, or the contents of the various Reports. No more concise or practical summary of the former can be compiled than that given in our "Ceylon Handbook and Directory" where, the years of successful fisheries, and of blanks, can be seen at a glance as also the number of fishing days, the receipts, as well as expenditure, the number of oysters fished and sold for Government, and the prices obtained per thousand. Sir William Twynam writes of the Pearl Fisheries having realised from first to last one million pounds sterling to the British Government in Ceylon. In our "Handbook," we state that Capt. James Steuart made out the total net revenue from 1796 to 1837 inclusive to be £524,522; but a careful statement prepared for Sir Henry Ward by the late Mr. J L Siebel, Chief Clerk of the Colonial Secretary's Office, showed a net return of £595,051 for the same period. To this we have to add the net receipts from 1838 to 1891—the year of the last successful fishery—which will be found as follows:—

Total Receipts	£614,597
,, Expenditure... ...	126,356
	£488,241
Add above	595,051
Giving net revenue from 1796 to date as	£1,083.292

—so that Sir William is well on the safe side.

Now, this "harvest of the seas" which gave the Ceylon Government, nine years ago, as much as R963,749 of revenue during six weeks' fishing, against a total outlay of about R100,000,—surely deserves the very best attention of the Executive Council, and it was quite time such a history as that of Sir Wm. Twynam should be prepared, in order that full consideration might be given to the whole subject. If we were inclined to be critical, we might complain of the tautology and repetition in the pages before us. But the fault is one on the right side, and we look rather for the facts brought to light which justify fresh scientific investigation or reference. In the first place, we are reminded that the Naturalist, Mr. Holdsworth, got out by Sir Hercules Robinson, although out here five years (1865-1869) *never saw* a *fishery* or a bank covered with mature, or even young oysters, and therefore got a most imperfect idea of the main features of the enterprise he came to investigate. This fact, of itself, in our opinion, justifies fresh scientific investigation. Mr. Holdsworth, too, seems to have been taken up with "false spat"—not the real spat of the pearl oyster—another fact which must have vitiated much of his work. Sir Wm. Twynam does not seem to favour the further interference of science. He thinks, perhaps, that Mr. Thomas has about said the last word in that direction and that another Naturalist will not be of much more practical service than was Mr. Holdsworth. But thirty years form a long period in the history of science—even of marine Zoology—and perhaps in what has been learned of all kinds of oysters, mussels and other shell fish. Sir William quotes with approval the pithy saying of Capt. Worsley, at one time Inspector, as to the sensible policy in reference to Pearl Oysters:—"Find them; Watch them; Fish them." Very practical and important indeed. But we want to know whether something cannot be done after "finding," to *conserve* or *preserve*, as well as watch the young oysters We entirely approve Sir William's one practical suggestion about more *inspections*; in fact that there should be a system of inspection all the year round or nearly constant watching, if feasible; and we trust Government will give effect to this suggestion, and vote the needful expenditure, at any rate for two or three years, so that we may know all that can be learned from "watching." We are not entering on the large subject of "enemies" of the oysters, save to say that the system of watching established, should settle the vexed question between Sir William and Capt. Donnan, as to whether muddy floods in our North-Western rivers have, at times, been responsible for the disappearance of millions of oysters from the nearest banks. Capt. Donnan does not believe the flood water can reach the Banks: Sir William holds the opposite opinion.

Here there is one useful outcome from Sir William Twynam's Report,—that a more continuous, constant system of Inspections and Watching, as to invasions of the Banks by Flood or Muddy water, Coast Currents, enemies in Skates, &c.; and that careful observations be made and recorded. Also, perhaps that a profitable Chank Fishery may well be established south of Arripu. But

we go further than this and trust the aid of science will be invoked. In our recent Lecture before the Society of Arts, in referring to our Pearl Oyster Fisheries, we said:—

Considering all that science and practical skill have done in the breeding of the edible oyster off the British, French, and Italian coasts, and of the increased knowledge of ocean currents and marine zoology generally within the past thirty years, I think the time has come for a fresh scientific inquiry into the Pearl Oyster Fisheries of the Gulf of Mannar, by calling in the most competent naturalists and experts available. In this inquiry, the Indian might well join with the Ceylon Government, because the former owns certain banks in the proximity of Tuticorin which occasionally yield a fishery.

Now, we are not asking His Excellency Sir West Ridgeway to do anything rash. The Governor may very well at the outset confine himself to asking Mr. Chamberlain to lay copies of this Report—as well as Mr. Holdsworth's and Mr. Thomas's Reports, if procurable, (if not the extracts in appendices will do) before the leading home scientists: —the Presidents of the Royal and Zoological Societies and of the British Association for Science, in order to ask their opinion as to whether further scientific investigation and experimental work on the spot is desirable. This can do no harm. It may lead to notable results. Then copies of Sir William Twynam's Report should be sent by the Ceylon Government to the Indian Government asking that their may be referred to their best authorities for any comment. Copies should also be sent to the Queensland and West Australian Governments with a request for any information on the subject of Pearl Oyster or Shell Fisheries embodied by them in Reports or other State Papers. The United States Government should also have a copy and be asked to exchange. We saw some years ago Reports on Californian and Central American Pearl Fisheries which would certainly be useful. We fear there is no authority to tell us about the Pearl Oyster Fisheries of the Persian Gulf; but no effort should be spared at this time in bringing together all the available information, appertaining to civilized Governments and their officers on this interesting and important subject; while the experience of marine Zoological stations (at Naples and in the Isle of Man, for instance) may throw light on "spat" and other problems which puzzled Mr. Holdsworth thirty years ago, and Mr. Thomas at a later date. At any rate the highly placed scientific Presidents we have mentioned, will be sure, if the matter is referred to them to give a conscentious opinion to Mr. Chamberlain for the guidance of Governor Sir West Ridgeway and his Executive Council. Meantime, Sir Wm. Twynam deserves special thanks for the important service he has added to the long list appertaining to his very meritorious career as a Public Servant in Ceylon.

NEW COMPANY.

Ramie Fibre Spinning Syndicate, Limited, (65,443).—Registered March 23rd, with capital £15,000 in £1 shares, to adopt an agreement with J. F. Woods, and to grow, cultivate, manufacture and deal in rhea and other fibre. The subscribers are:—

	Shares.
E A Fenwick, 42, Redcliffe Sq., S.W., solicitor	1
G T Simpson, 39, Oakley Sq., N W., gentleman	1
A C Carpenter, 23, Lynmouth Road, N., clerk	1
W Morgan, 56, Battledean Road, N., clerk ..	1
S M Johnson, 49, Rotherwood Road, Putney, book-keeper	1
A C Frisbee, 19, Spencer Road, Putney, reporter	1
G C Train, 41, Franche Court Road, S.W., clerk	1

The number of directors is not to be less than two nor more than seven; the subscribers are to appoint the first; qualification £100; remuneration one guinea each per board meeting attended. Registered Office. 71-2, King William Street, E. C.—*Investors' Guardian*, April 7.

JAVA GOVERNMENT CINCHONA PLANTATIONS.

The official report on the Government cinchona-plantations in Java for the quarter ending December, 1899, states that owing to the late monsoon the rainfall has been abnormally low. The drought caused much delay in the operations, which, this season, consisted principally of the planting out of the young plants reared in the nurseries. In other respects, however (such as damage caused by insect-pests, &c.), the conditions were favourable. An interesting part of the report is that dealing with the experiments made with different manures in order to ascertain their action on the content of alkaloid in the bark. It was found that the application of artifical manures, after twelve months' trial, led to no increase in the alkaloid-content, but that, on the other hand, the content had increased where stab e manure had been used. Possibly a longer trial may produce better results from the application of artificial manures; if so, it would prove a great boon for plantations situated at a high elevation and at a considerable distance from human habitations, as stable-manure is there very scarce, and an efficient and inexpensive artificial manure would be invaluable. A very useful substance appears to have been found in the residue from the castor-oil presses—*i. e.*, that derived from the *Ricinus spectabilis*, which is already known in the cultivation of sugar-cane, where it gives excellent results. This residue contains 6·7 per cent. of nitrogen (other samples obtained elsewhere contained only 5·46 per cent.) Sundry trials, in which about 5½lb. of this residue had been used per "boom," showed an increase in the quinine-content of the bark, varying from 0·82 to 0·96 per cent., but until the experiments are completed the results cannot be accepted as definite. Should they prove reliable, the cultivation of *Ricinus spectabilis* will no doubt be taken up on a large scale near cinchona-plantations.

In November an auction was held at Bandong of cinchona-seeds from the Government plantations, producing a total of about 760*l.* Twenty packets of Ledgeriana seed, containing 25 grammes (less than 1 oz.) each, were sold in the aggregate for 7,455fl (more than 620*l.*), while 60 packets of 50 grammes each Succirubra seed were sold for about 34*l.*

The number of cinchona-plants in the nurseries was 1,415,000 Ledgeriana, 267,000 Succirubra, and 25,000 hybrids, or 1,707.000 in all, and in the open ground 1,561,000 Ledgeriana, 490,000 hybrids 468,000 Succirubra, and 48,000 officinalis, a total of 2,567,000 plants.—*Planting Opinion*, May 26.

"COW TAIL HAIR."—Mr. Hamel Smith, of Fenchurch Street, London, reports on 12th April:—"The demand for Cow Tail Hair, if of good length, well-washed, and free of skin and bone, is still very good. Such hair is now selling readily at 11d per lb., against 6d or 7d a year or so ago. The hair is sent over from India, press packed in bales of 300 to 400 lb. each."

TEA CLEARING HOUSE.

CHARGES ON TEA.

To apply to all parcels by Ships reporting on and after 1st July, 1900, and to New Season's China Tea arriving prior to that date.

PER PACKAGE WEIGHING GROSS.

	lb. o 250 lb.	160 lb. to 199 lb.	130 lb. to 159 lb.	90 lb. to 129 lb.	80 lb. to 89 lb.	60 lb. to 79 lb.	45 lb. to 59 lb.	35 lb. to 44 lb.	17 lb. to 34 lb.	Not exceeding 16 lb.
	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d
Landing and Housing Rate	2 3	1 11	1 7	1 3	1 2	1 1	0 10	0 8½	0 5	0 3
Management Rate ...	2 9	2 4	1 11	1 7*	1 5	1 2½	1 0	0 10	0 6	0 3½
Bulking and Taring (as one operation) ...	1 9	1 6	1 3	1 1	0 11	0 10	0 8	0 6	0 5	0 3
Bulking, Taring, or Weighing net separately ..	1 6	1 3	1 1	0 10	0 9	0 8½	0 7	0 5	0 4	0 3
Rent ...	01	0 1	0 0¾	0 0½	0 0½	0 0½	0 0½	0 0¼	0 0¼	0 0¼

* Old rate less 15 % 1s. 6¾d.

N.B.—The whole of above charges are NET, with the exception of Rent, which is subject to 15 per cent Discount.

The rates are chargeable on the average gross weight of each break. When the fraction of the average weight is half-a-pound or more, the higher rate will apply.

Thus:—The average of a break being 79½ lb. gross, the whole break will be rated at 80/89 lb., but the average being less than 79½ lb. the whole break will be rated at 60/79 lb.

TEA CLEARING HOUSE,
21, MINCING LANE, E.C.,
30th April, 1900.

By order.
GEO. T. POCOCK,
Secretary.

HUNASGERIA TEA CO., LTD.

The following is the report of the Directors presented at the fifteenth ordinary general meeting of the Company on Thursday, May 17.

The following accounts are now presented to shareholders, viz.:—Balance sheet made up to 31st December, 1899 and profit and loss account for year ended 31st December, 1899. The tea crop amounted to 462,555 lb., of which 374,415 lb. were sold in London, at an average selling price of 6·67d. per lb. The balance of the crop, 88,140 lb., was sold in Colombo, and realised 4·91d. per lb. net. The total receipts from sales of tea amounted to £12,216 11s. 10d. The ordinary expenditure in Ceylon and London amounted to £9,769 1s. 8d., shewing a profit of £2,447 10s. 2d. on the year's working. A debit balance of £1,609 16s. 9d. was brought forward from last year, and after deducting this, there remains a sum of £837 13s. 5d. at the credit of profit and loss account. The Directors recommend the payment of the dividends due on the preference share capital for the two years ended 31st December last, which will absorb £684 17s. 5d., and that the balance of £152 16s. 0d. be carried forward to next year. On capial-account there has been expended during the past year a sum of £115 15s. 4d. This money has been spent on the completion of the lower division factory and its equipment. During the past year the tea area has been surveyed, and it is found that we possess 763 acres as against an estimated area of 789 acres; of this 732 acres are matured tea, and plucking over the remaining 31 acres will commence next year. The yield for 1899 amounted to 613 lb. of made tea per acre, comparing with 414 lb. secured during the previous year. The more favourable results are due to the higher cultivation now in force, to seasonable weather, and to the better prices realised. A system of manuring has now been established over the whole bearing area, which it is expected, will, in the course of a few years, materially increase both the quantity and quality of our crop. The estimated crop for 1900 is 460,000 lb. of made tea; and if given favourable weather it is expected that this will be secured. Mr. J G Wardrop, a member of the Board, retires from office on this occasion, and, being eligible, offers himself for re-election.

THE CULTIVATION OF YAMS.

A letter was received by the Department of Agriculture from Mr. G. Heinzman, of Albany, asking whether the department could recommend for cultivation the common yam. Mr. Cooper, the chief clerk, replied to the effect that the matter had been referred to Dr. Morrison, the botanist of the department, who stated that the yam in question was cultivated in tropical countries, and could not be expected to grow at Albany, but it might succeed in the southern districts of the colony. He recommended the cultivation of the Croscorea hastifolia, which is found growing wild from Pinjarrah to the Murchison Rivon and, according to Baron von Mueller, is the only plant on which the natives bestow any kind for

cultivation. Dry country with calcareous soil is most suitable for its growth. Dr. Morrison considers that tubers, such as the Ipomœa Batalas or Batalas edulis, which are grown with success in New Zealand and Victoria, should be cultivated in this colony. The tubers are said to be more nutritious than potatoes, and the Ipomœa Chrysorhiza, which is a native of New Zealand, has been cultivated with great success in Mildura, where tubers weighing 15lb. were produced, and an acre was found to yield 12 tons.—*Perth Morning Herald.*

THE NAHALMA TEA ESTATE CO., LTD.

REPORT OF THE DIRECTORS.

The Directors beg to submit the general balance sheet and profit and loss account for the twelve months ending 31st December, 1899, duly audited, which results in a profit for the year ending 31st December, 1899, after providing for general expenses, Directors' and Auditors' fees, interest on debentures, &c., of £244 1s. 10d., from which has to be deducted the debit balance brought forward from last year, viz. £143 7s 2d. And they recommend that the remaining credit balance shall be carried forward to the next season, in £100 14s 8d. The Directors beg to hand their report for 1899, which, though unfavourable, is somewhat better than had been expected after the disastrous season of 1898. The crop obtained was 202,943 lb. as against an estimate of 260,000 lb. Energetic efforts are still being made to combat the blight of helopeltis, which shews signs of abatement, but there are still signs that the pest has not yet been thoroughly eradicated; the latest advices from the estate are, however, hopeful. The Directors have decided to increase the annual expenditure upon manure during this season, and hope the result will be satisfactory. Two of the Company's debentures have been redeemed during the financial year ending 31st December, 1899, thus reducing the Company's liability upon its debenture debt to £9,000 or about £20 per cultivated acre. Mr. William Forsythe, the Director, retiring by rotation, being eligible, offers himself for re-election.

PRODUCE AND PLANTING.

A SUGGESTED SUBSTITUTE FOR COFFEE.—Coffee planters will not be pleased to learn that another addition to the many substitutes for coffee is in use. The "Bulletin" of the Algerian Government publishes particulars of this substitute for coffee, or at least an element of admixture with coffee, the consumption of which has already become extensive in Austria, Roumania, Bulgaria, and Servia. The commodity is known as the "Horbas fig." It is roasted and powdered, and in this state bears a close resemblance to ground coffee. The fig is largely grown in Algeria, and the exports thence to Austria are said to have reached last year the surprising amount of 120,000 quintals, or 11,785 tons. When roasted it is known as "feigan kaffe," and is very largely used by the Austrian lower middle class. It reduces the bitterness of the coffee with which it is mixed and gives it a slightly oily flavour.—*Home and Colonial Mail*, May 4.

THE CHINA TEA TRADE.—In commenting on the new season for China teas the *Grocer* says: "That it will be more fortunate than the last is the hope of many importers, for in 1899 English, Australian, Russian, and other buyers were all 'hit' by severe losses on too hasty purchases. The mistakes then made arose from the idea, generally entertained, that there was to be a shrinkage in the production of tea all round; but subsequent events proved the very reverse, and, instead of a palpable deficiency, there was an enormous and cumbersome excess. For instance, China produced 6,000,000 lb. more tea last year than in 1898; India in 1899 turned out 13,000,000 lb. beyond the quantity raised in the former season, and Ceylon shipped a larger quantity by 11,000,000 lb. than it did in the previous year. These increases in the separate sources of supply put together represented an aggregate surplus of about 30,000,000 lb., as the additional amount of tea grown in a single season, over and above the total crops gathered in the three countries named during 1898 99. The result, as may be imagined, was disastrous to the shippers, for China teas, if no other, which in May last were bought at Hankow on terms equivalent to 1s 6d and 1s 8d per lb., have lately been smashed out here at 6d to 7d per lb.—a good 1s per lb. being thus practically knock, off and lost from the prices originally paid by the China merchants at the opening of the season in 1899. The consequence is that China teas at about 9d per lb. and under show wonderful value for money, and it is rather surprising that the wholesale dealers do not purchase these growths, since they are immensely superior to others that hail from India and Ceylon. The reason of this seeming neglect of good useful China teas is, we think, to be traced to the uncertainty with regard to a constant and unfailing supply of these China teas through the season. If a plentiful and varied assortment of good common and fine medium qualities of China tea could be guaranteed and depended upon throughout the year, the blenders, no doubt, would readily respond to the call for their attention, and the London market for China tea would not suffer so much from fits of depression and prolonged flatness as it has done during the past six months."

HOW THE MARKET IS REGULATED.—"As things are the chief business in China teas too often consists of what is passing in the choice and fancy kinds, which are required only by a select class of consumers, who will have them almost regardless of price. In its general working and the course it pursues the market for China tea," continues the *Grocer*, "is not regulated so completely by the prices ruling as by the nature and extent of the demand and supply at certain critical periods of the season. The tea is invariably cheap when there is plenty on offer and more than is really wanted, and for the converse reason it is dear only when the quantity of certain sorts coming forward is too small to satisfy all purchasers for immediate use. Another circumstance that strongly affects the home market for tea is expansion or diminution in the inquiries from exporters, who operate here as agents for the continental markets, according as direct arrivals from China, India, and Ceylon flow into or fall off from the several ports of Eastern Europe. This they appear to do more frequently now than in former years, and, as the competition between shippers and the dealers quickens or flags, so the current prices of the day advance or decline. For the ensuing season quotations for new China teas, for the reasons already given, are expected to open rather moderately, as representative buyers from all quarters, having learned a lesson of caution, will fight shy of paying extravagant rates this time."

THE COCOA TRADE IN BRISTOL.—The Bristol Chamber of Commerce has issued a report on the cocoa trade in the city. It states that in the last two decades the cocoa crop has about doubled, and the biggest customers have been Great Britain, the United States, and Germany. Humboldt, a recognised authority, estimates the consumption of cocoa in Europe at upwards of 100,000,000 lb. as against 23,000,000 lb. per annum in the early years of the century. In Great Britain the consumption has risen from a quarter of an ounce per inhabitant in 1831 to 14 oz in 1887, since which date the figures have still further gone ahead; in fact, cocoa is largely displacing coffee as an article of diet. The past year has been one of the busiest known for a considerable time, and that is, of course, a matter of considerable interest locally, having regard to the important position held by the cocoa trade amongst Bristol industries.—*Home and Colonial Mail*, May 11.

TEA GARDENS IN THE SOUTH,

PLANTING AND PLUCKING AT PINEHURST—THE TEA SCHOOL—NEW PLANTATIONS.

The picturesque and profitable industry of tea-culture, whose successful prosecution has hitherto been confined to the Orient, seems to be gaining ground in this country. The introduction and progress of any occupation, affording healthy out-door work to men and women, and to little children under conditions not operating against their mental advancement, is well worthy to be chronicled in a religious journal; and *The Christian Herald* presents with pleasure some interesting facts and pictures supplied through courtesy of Dr. Charles U. Shepard, Special Government Agent in charge of tea culture investigation. Dr. Shepard may be called the father of the industry in this country, for although the problem had been under discussion for many years and several fairly successful efforts to solve it had been made, it is to the practical and persistent demonstrations afforded in his tea-gardens at Pinehurst, Summerville, S.C., that we owe renewed governmental appropriations to the project.

The experimentation at Pinehurst began about ten years ago on a small scale, gradually enlarged as results justified, until about fifty acres are now planted in tea, which should produce about 10,000 pounds in full bearing. The problem for providing labor for picking tea leaf has been solved, so far as a steady, and skilful band of nimble-fingered children goes; but its price—extremely high as compared with the price of labor in the Orient—materially effects the question of profit in home-grown tea. It was indispensable to procure a reliable corps of pickers. To meet this condition, there was built a comfortable schoolhouse and a competent teacher engaged. The colored families of the neighbourhood were then invited to send their children to the school free of charge. They would be instructed in the ordinary branches, and also taught how to pick tea, and so earn money to buy food and clothing. The offer was accepted, and now there is a good list of pupils to draw pickers from as required; only children of suitable age and size are permitted in the gardens. The older children earn from thirty to fifty cents a day in tea picking season; younger ones in proportion. In one season, the gardens were picked twenty times, or once every ten days, and it took three days for the force of children to make the rounds. The establishment of such tea-picking schools as Pinehurst's will be a moral as well as intellectual and industrial influence favorable to inhabitants of the Black Belt.

Dr. Shephard has had no difficulty in selling all Pinehurst tea (black) at one dollar a pound, retail. He says: " Without undue endeavour I sold my crop of 1898, about three thousand pounds, as also about five hundred pounds, of the previous year., altogether about three thousand five hundred pounds, at a reasonable profit, although there is no protective duty on tea."

Dr. Shepard sensibly suggests: "There is a class of people who might profitably add the cultivation of tea to that of flowers and vegetables, filling out the corners of their gardens and home fields with tea bushes, as they do in China, or substituting useful as well as ornamental hedges of that plant for fences. As one result, families would be able to supply their own tea, fresh, pure and invigorating. As another, the multiplication of little tea-gardens would mean the establishment of tea-factories in neighbourhoods where the product would be bought and sold for commercial purposes." The industry can be undertaken, however only in sections where the temperature rarely falls below 25 degrees F., and never below zero; there must be abundant water supply.

Pinehurst has a well-equipped factory. Two of the processes of manufacturing green tea is shown on this page; the fresh leaf is roasted in an iron pot and then rolled by hand on a table; no mechanical substitute for these combined operations has been invented, and the necessity for hand labor is the factor which raises the cost of green tea. The green color of the Pinehurst brand has attracted much attention. Oriental teas, lose it, and other qualities that go with it, before reaching this country. A journey through the tea-gardens of Pinehurst, when the workers are among the velvety green bushes, and over the factory where children are bringing in trout baskets filled with the leaves, and men are busy spreading these out in the drying-room, and rolling and packing tea in other departments, is quite interesting, and to the Eastern traveler somewhat like a chapter out of the Orient.—*Christian Herald and Signs of Our Times*, May 2.

TEA IN ST. HELENA.

According to official reports, that tea will grow in St. Helena is proved by the existence of some China plants which were introduced in the time of the East India Company. The experiment was tried in 1896, a native of India who had been for nine years an overseer on a tea estate in Assam was taken out. Seed was procured and a number of plants were reared, but the Governor having to return to England and recall his tea-planter, the plants were left unprotected; on his revisiting the Island, he found that the rabbits had devoured the young tea seedlings, and so ended an experiment which cost nearly a hundred pounds.—*Planting Opinion*, April 28.

CINCHONA AND QUININE.

The Java correspondent of the *Straits Budget* reports that the cinchona planters have latterly grown weary of being fleeced by bark and quinine dealers in Europe, who had combined to secure low market rates for raw material. The planters struck the first blow at the ring by starting a factory at Bandong to manufacture quinine from the bark locally produced. The quinine was sent to Europe for sale. The ring so managed matters that the planters failed to get fairly remunerative prices for the Java-made drug. The planters upon this, decided to sell their quinine at Batavia. The first auction sale proved to be a great success, and the prices realised far exceeded the limit. The continuance of quinine auction sales at that port is now a certainty. —*Chemist and Druggist*, April 14.

DENDROBIUM FALCONERI.—A very fine specimen of this graceful and showy Dendrobium is in flower at the present time in the collection of H T Pitt, Esq., Rosslyn, Stamford Hill. There were at one time no fewer than 106 fully expanded blooms on the plant. D. Falconeri, which was first described by Dr. Lindley in the *Gardeners' Chronicle*, 1856, p. 692, has, since then, been imported from various districts in the highlands of Hindostan, but owing to its requirements not being generally understood by cultivators, few have succeeded in making it grow satisfactorily for any length of time. The best position for it is said to be one that is close to the glazed end of a moist intermediate-house, or in some similar position where its slender, knotted stems can be sustained in a plump condition. Light spraying daily during growing time is also recommended. The flowers on Mr. Pitt's plant are three inches across, white, tipped with amethyst-purple; the lip having a maroon-purple disc, with orange blotches on each side.—*Gardeners' Chronicle*, May 26.

PLANTING IN MEXICO:

RUBBER—COFFEE—AND CACAO.

We direct attention to another interesting letter from Mr. E. O. Darley, well-known as a Knuckles' planter in the coffee days of Ceylon, and who, after some experience of Mexico, is full of belief in its future as a planting country. On the present occasion, however, he gives us some idea of the drawbacks to pioneers in this new planting region, although he still holds to phenomenal rates of production for our old staple coffee, as well as for cacao and rubber. As regards the testimony enclosed in his letter by Mr. Darley, we can only say it carries us back to the days when cinchona was going to make the fortune of every second planter in Ceylon and when such a result could be incontestably demonstrated by "facts and figures,"——on paper. For instance, what are we to make of the following cutting from an American paper—*The Trader*—sent us by Mr. Darley?—

The following is a copy in part of a letter written by a very prominent and competent Mexican to his brother-in-law: "I advise that at once you commence planting hule, or rubber. In order that you may have an idea of the importance of the advice which I take the liberty of offering you, I refer you to a fact which has really occurred in this State (Chiapas). In an hacienda called Dona Felipa Ortiz, in the department of Pichucalco (near El Salto) there were planted four years ago some 10,000 rubber trees to serve as shade for the cacao trees, instead of raising other trees for this purpose, which would have no value except for shade. Lately a house in Tabasco offered 50 cents per tree for the privilege of extracting the milk once, and to pay $1.00 for each tree which should be dried up by bad treatment. The proprietor did not accept the offer, believing he could realize more money by taking care not to allow any more juice to be extracted each year than ought to be. He only permitted 3 lb. to be taken from each tree, which yielded $1.25 per tree net profit. The whole expense of collection did not exceed $300. A single man can cut in a day 300 cuttings of rubber tree for planting, ⅜ inch thick and one yard long. Ten men in a day will cut 3,000 cuttings, which in a month, not including Sundays, would amount to 78,000 cuttings.

If each man receives 75 cents a day, the 26 would cost	$ 195 00
two carts with two men and two pair of oxen to carry the cuttings (where required) at $10 per day, eight days ...	80 00
One man can in a day make the holes and plant 200 cuttings, so the planting will cost, a little more or less ...	300 00
Other expenses, not provided for ...	150 00
	$725 00

Simply by planting alone, the value of the property would be enhanced as soon as the cuttings take root. The cuttings will take root in four months; three years afterwards the 78,000 rubber trees will each be worth $1.00, thus increasing the value of the property by $78,000. The trees should be planted six yards apart, so that 78,000 trees would occupy 1/10 of a league about 500 acres. A league would be sufficient for about 780,000 rubber trees, etc., etc. You thus see a single league of land, will, if well planted in rubber trees, be worth in three years (without counting its value for grazing purposes, for as soon as the young-trees are well rooted the cattle may be permitted to graze on the land) $780,000 and this result can be obtained at an expense not exceeding $7,000 without counting the cost of the land. I am aware that to persons, not cognizant with the conditions existing here, the above statements will seem exaggerated. The rubber trees may be planted on the same land as cacao, the latter being put at a distance of 12 feet apart, or 300 to the acre. These trees, at four years of age, will, with proper attention, yield from four to eight pounds of cacao, worth at present in Mexico, $1·00 per lb.; so that a league of good land should after four years produce yearly in cacao 867,676 lb.: or four pounds per tree, which is a small product. As before stated, the rubber trees, which serve as shade trees for the cacao, trees, would at the same time produce their valuable milk."

It is right to mention that the above was written some time ago, so that the conditions as to prices may have changed, though we suppose, productiveness has not fallen off. All the same, it is surely time now to hear not so much of Americans rushing into Mexico, but of some of our Yankee cousins as well as of Britishers coming back with "fortunes"—as they ought to do since the "boom" has extended back at least five, if not more, years. What can be more tempting than the following programme of products and crops grown on the lands of one American Company who invite settlers and offer for sale 90,000 acres:—

PRODUCTS OF THE GRIJALVA LAND.

Corn.—Three crops per annum. Wheat.—Two crops.

Alfalfa.—Seven cuttings. Sisal Hemp.—Four cuttings.

Potatoes.—Two crops. Indigo.—Two crops.

Cotton.—Matures in three months; plant once in three years.

Sugar.—Planted once in 10 years; matures in eight months; nets $300 per acre.

Tobacco.—Matures in four months; nets $400 to $500 per acre.

Pineapples.—Bear in two years; net $200 to $250 per acre.

Vanilla.—Matures in two years; nets $200 to $300 per acre.

Coffee.—Matures in three years; nets $150 to $200 per acre.

Cacao bears in four years; nets $300 to $500 per acre.

Rubber in six years; nets $400 to $600 per acre.

Coconuts in five years; net $250 to $400 per acre.

Most of the garden products, such as Peas, Beans, Turnips, Radishes, Tomatoes Melons, Onions, can be planted each month in the year. While of fruits, you can grow Oranges, Lemons, Bananas, Granadas, Zapotes, Mangoes, Pears, Peaches, Plums, Grapes, Guavas, Dates and Figs, Walnuts, Almonds, Peanuts, Chestnuts and Pecans can also be grown.

Instead of being housed by sleet and snow during the winter season, you can serve fresh vegetables from your garden every month in the year.

There is a very great profit in raising Cattle and Hogs for market. A steer can be fattened in ninety days on one acre of land set in para grass, and mast for hogs is abundant.

Note.—The above estimates are in Mexican money.

Now, the wonder to hard-headed as well as stay-at-home Ceylon planters must be, how there can be an acre of such marvellously productive land left in the open market. Look at coffee, realizing in three years £30

(or to be quite safe in allowing for depreciation in Mexican money, let us say £15) per acre *nett*; cacao double that profit in four years; and if the planter only goes in for rubber and waits six years, a still higher income per acre is promised. Can Mr. Darley tell us if he has ever seen the coconut palms, which, in five years, bear so heavily as to net from 250 to 400 dollars per acre, that is from 3 to 5 dollars per tree? We should much like to see a photograph of such palms with their heads of nuts. Meantime, will Mr. Darley kindly keep us and our readers apprised as to results, and we should much like to know what acreage of each product he has under his own care; what number of labourers he has to aid him; their cost per month, and the amount of work done by them; and the actual crops gathered. It is quite possible that exact information on these points would draw men with some capital and experience from the East, because it is evident that competition is running too keenly out here and in India with tea.

A FARMER'S EVERY DAY LIFE.

No. VII.

(By Cosmopolite.)

FARMING

is the only business that I know of, in which a man, who gets ahead of his neighbours, may become a general benefactor. If his crop excels, the agricultural eye of the district is upon him. The sort of stock he keeps is carefully noted, and how he treats that stock is the theme of his neighbour's conversation. They watch for him to begin ploughing, sowing and harvesting, and they follow closely in his wake. When he tries to hide his light under a bushel, they lift it up and expose him to the glare of the whole world, and would fain throw a calcium upon him and play slow music, whilst they save money by following his successes. But they neither pay him nor thank him for the good his example furnishes them, and no one loses by his success. He has hobbies, no doubt, has the successful farmer, principally of an agricultural turn; and he is merciless when once he gets hold of a listener; but his name is a byword for success in the district, and he is an authority in the pages of the agricultural press. He works hard, seldom goes from home, takes few pleasures and only rejoices in the thought that

"One crowded hour of glorious life
Is worth a world without a name."

Even Sunday brings no rest to a farmer, for many works of necessity and mercy may happen on a farm, and the master's eye and hand must always be ready, if success is to be attained. Although he may go to church, wearing

THE WHITE BELL TOPPER OF A BLAMELESS LIFE,

he probably returns home, not to rest his weary limbs by idly thinking over the sermon he has just listened to, but to find some of his stock ill, and which must be doctored; the hydraulic ram may have struck work and his water supply be cut off; or a hundred different things which he, and he only, can attend to; and, be it remembered, you can never keep up with the work on a farm if you ever put off till tomorrow what can be done today. His only consolation is that he is no worse off than other people who wish to set aside the sacred day for rest, but who never get it. What rest, for instance, has the small tradesman who spends Sunday in struggling with his books, and trying to strike a balance, the labour of which is the weightiest burden of all to the white man? What rest has the owner of a bicycle, who wears out more tissue in trying to break records, on Sunday, than he does in working hard during the other six days of the week? What rest has the policeman who risks his life trying to catch scorchers,—or the parson who has to preach three sermons,—or even the common labourer who slaves away greasing his boots, oiling his hair, and dressing himself in his best clothes, in which attire he is more uncomfortable than words can express? So, after all, if the British farmer has not one day of rest in the week assured to him, he is no worse off than residents in towns, and he has one advantage over these, namely, a more healthy life. It has been said that the British farmer would live for ever, such is the healthiness of his occupation, did not a mysterious Providence impel him to establish a muck-heap opposite his back door: but to these heaps I have a very strong objection, and I have broken in all my men to hold the same extreme views on the subject, so that no such heaps exist on my farm, propagating germs, bacilli and all the other terrible things that doctors and scientists try to frighten us to death with.

There are many things in Nature that we still cannot account for, however clever we may fancy ourselves, and one of these is the coming and going of our

SUMMER BIRDS.

Take the swallow, for instance; during the past 18 years I find, by reference to my diaries, that these birds arrived 16 times on the 27th of April, once on the 28th, and this year on the 29th. They have, during these years, invariably left us on the 28th of September, with the exception of last year when, owing, no doubt, to the extraordinary warm autumn, they postponed their departure till the 2nd of October. It must be a surprise to any one, who takes thought of the matter, that they should know, to a very day, when they are due to migrate from one place to another, and one can only put it down as being one of those things that "no fellah can understand."

FARMERS AND THE WEATHER.

Sailors and others, whose business compels them to go down to the sea in ships, are supposed to be more skilful in the signs of the weather than any others; but why this is so I cannot understand, for no men are more dependent on the weather than are farmers, and yet, I am bound to confess, these are not as a class gifted with any great knowledge in this respect, nor do they seem ever to attempt to read or forecast the signs of the weather. It had been said that

the biggest fool in the village is always the weather prophet, and there may be some truth in this: for to prophesy a year in advance what the weather is to be is a bold undertaking, indeed, especially in a country like Scotland that has such a lot of climates and which all keep so close together, there being sometimes as many as five varieties in one day. There are too many orange-peels, so to speak, on the pathway to success, for one to prove a successful prophet in a country of such climatic variety. We have our Zadkiel, Raphael and Falb annually prophesying for all they are worth with regard to the weather and proving themselves false prophets all along the line, so that farmers have long since lost all confidence in them. I have always had a weakness for checking off the weather in whatever part of the world I happened to be living, and since coming here I have made a study of the deplorably erratic climate of this district. Mine, however, is not a policy of prophecy, but of average, and after having carefully noted the various changes for twelve years, I proceeded to strike an average taking into consideration the phases of the moon and other astronomical particulars; and with this data to go upon, I tried to forecast the weather of the coming year. Every year adds some more information to my stock of knowledge, and so I find that I can now hit off a wonderfully accurate forecast. Stimulated by success I once published in a local weekly, an account of the probable weather to be endured by the residents of the district in the coming year, and so remarkable were the results that I might without fear have set myself up as a prophet of the first degree. I will give two examples out of many scores, just to show my readers the superior claims of average over prophecy.

THE DISTRICT PLOUGHING MATCH

was held in one of my fields, and meeting the secretary one day, shortly before the event, I asked him why he had advertised the match for the 18th of December, when had he taken, the trouble to keep a copy of the paper in which my forecast had been published, he would have seen that the 18th of December is *always* a rainy day in Buchan. He laughed at my remark, but his mirth was changed to gloom when, although we had had lovely open weather up to the night of the 17th, the rain then began, and it poured like a S.-W. monsoon all through the 18th, after which it cleared up for another spell of fine weather. Of course, the match was a failure, only the half of those who had entered having put in an appearance. On another occasion, the steam mill had arrived—in a gale of wind—to thrash my crop, and my grieve suggested that we might put off the thrashing for a day in hopes that the wind might fall. I told him, however, that we had better not delay, because in my forecast I had it entered that there would be "heavy snow" that evening. He smiled as he pointed to the bright, cloudless sky, but went away and got the mill started to work At 5 o'clock that evening there were three inches of snow all over the country and I did not get another chance to thrash for a month and would have been badly off for straw to feed my stock, had I not insisted on thrashing when I did. Need I say that my men have the utmost belief in my forecast now, and I have been saved from a good many climatic annoyances by my own belief in it. And, let me add, I believe that anyone could make as useful a forecast for the district he lives in, if he would only take the trouble to check off the weather for a considerable number of years before striking the average.

BOUND TO THE FRONT.

The only function of importance that has occurred in our rural district since I last wrote, has been the "send off" to a member of our village rifle corps who has volunteered for the front and who was presented by his brother citizen soldiers with a pipe and some tobacco, to say nothing of a real silver match-box. A deputation from the Company went to the county town to make the purchase in preference to patronising the local tobacconist, at whose shop the choice of pipes was considered to be somewhat limited; and in presenting the testimonial, the commanding officer hoped that their gallant brother in arms would never disgrace the colours of the regiment in which he was to serve. He hoped also that their comrade, as he lay smoking his pipe behind some kopje, or spreading himself across the veldt in search of the enemy, would sometimes call to mind those he had left behind, struggling to make themselves proficient in the hands of the sergeant-instructor; and with his blessing and these few articles of considerable intrinsic value, he wished his gallant private a pleasant voyage, a glorious round of fighting and that he might come back, safe and sound, to marry the girl who had reached his heart. Tremendous applause followed and everyone began talking about Majuba Hill, Spionkop, Magersfontein and other battles which required to be explained away. In this age of presentations, if one was to limit his acquaintance to men who had not for some reason or other been presented with a Waterbury watch or a pipe and tobacco, he would have to be contented with a very small circle of friends. So common has the habit become and so monotonous the deadly uniformity of the gifts, that in our district, at least, men who wear watches or smoke pipes of their own buying are beginning to feel themselves *très distingués.*

THE ROYAL PALM.

Our illustration for which we are indebted to Mr. H F Macmillan, shows the avenue of noble Palms in the Peradeniya Botanic Garden, Ceylon, constituted by Oreodoxa regia. The magnificent gardens at Peradeniya, have been presided over by such men as Gardner, Thwaites and Trimen, all old friends of the *Gardners' Chronicle*, and of its editors, and are now under the direction of Mr. Willis, who is endeavouring with success to rival the Buitenzorg Botanical Institute under the direction of Prof. Treub. We hope shortly to publish other illustrations of this noble tropical garden.—*Gardners' Chronicle*, May 12. [The illustration is beautifully clear and distinct,—Ed. *T.A.*]

THE CACAO INDUSTRY IN TRINIDAD:

"THOUSANDS OF ACRES OF YOUNG CULTIVATION."

We gather some interesting information from the address of the Chairman at a meeting of gentlemen interested in this product, held in the Trinidad Council Chamber. We extract as follows:—

Trinidad had now from 200,000 to 225,000 acres of land in the hands of large and small proprietors. For the last ten years there has been an immense quantity of land purchased from the Government and laid out for planting cacao trees. All of that land is intended to be put in cacao cultivation and the greater portion is already covered with young cacao trees. Trinidad had shipped last year a good crop—150,000 bags; in making out his figures, he had taken an average of six bags of cocoa per 1,000 trees. It was well known that an acre contains only 250 trees; therefore it would take four acres for 1,000 trees, which would bring it to a bag and a half per acre, so that 150,000 bags [168 to 180 lb. each?—Ed. *T.A.*] represent the 225,000 acres stated above. He had also prepared a return to show how the production had increased and to be able to give reliable figures he had obtained the following from the Customs officers.

In 1890 the value of cocoa exported was £531,545; in 1891 £439,786; in 1892 £648,103; in 1893 £535,055; in 1894 £509.808; in 1895 £620,634; 1896 £452,131; in 1897 £532,123; in 1898 £705,956; in 1899 £780,000.

The figures, as you will observe, show how rapidly the Cacao Industry was increasing in Trinidad, and, taking into account the thousands of acres of young cultivation, which will be increasing the return every year (he wished to mention here that a cacao estate in full bearing gives an average of 12 bags per 1,000 trees) there would be nothing astonishing in the near future —say 20 to 25 years hence—to see Trinidad export as much cocoa as any other large cocoa producing country. With the population increasing every year from the neighbouring islands, coupled with the assistance of cooly immigration, Trinidad must in the very near future export more than Guayaquil, the largest country exporting cocoa, as it must be remembered that we still have fully one-third more land in high forest, good virgin soil admirably adapted for cacao cultivation. He would be pardoned if he made a small comparison in order to show the rapid progress of the cacao industry with what was once the most important industry of the island, namely sugar. He has already told them that the value of cocoa exported last year (1899) amounted £780,000; well, from figures he had been able to obtain of sugar exported in the same year 1899 (58,000 to 60.000 tons), the value would be about £730,000 to £750,000; therefore it is seen that cocoa has topped sugar by fully £25,000 to £30,000. If these figures were wrong, he would be glad to be corrected. He only made this comparison *en passant*, simply wishing to show that the Cacao Industry had made a stride and, what was very certain that it would not remain at the present figures but would push rapidly forward.

A discussion followed which brought out some interesting facts:—

Mr. Rene de Verteuil, who followed the Chairman, said that our agricultural industries were to be gauged almost entirely by the value of the exports, because the local consumption, both of sugar and cacao was very small indeed as compared with the export, and he thought he was safe in saying that the proportion of the two staples consumed in the island was very much the same. He was inclined to think that the Cacao Industry was more important to us here in this island than the Sugar Industry. It was because the Cacao Industry here was in the hands, chiefly of the residents of the island. Such a large majority of the estates were held by residents who were descendants of the old families of the island either before or after the capitulation, that they considered it a home industry altogether, and consequently the value of the produce, such as it was whether exported or consumed locally, was really our own, that was to say, that the residents spent the value of that industry in the island, and consequently contributed to a much larger extent than, for example, sugar, on account of the indirect taxation which the people interested in, and carrying on that industry contributed towards the general revenue —because if they took, for example, say that of last year, the value of the sugar exported was some £50,000 or £60,000 below that of cocoa, they saw the only part of the money which had remained in the country was the amount which had been spent in wages and salaries, because the interest paid on the capital was chiefly to return to England—the commission also went to England, and whatever profits—and he was sorry to say they had not been great of late, but whatever profits there had been had gone to England and had been spent there, whereas nearly all the value of the cocoa they had produced and which they could not estimate exactly, had been spent in the island—even the interest on the capital which had worked those cacao estates remained in the hands of local capitalists because all the moneyed men here and those who claimed to be capitalists invested their money in the cacao properties of the island. Not only that, but, as Mr. Leotaud had remarked, the Cacao Industry was an industry that was developing very fast in the island. The whole country was being opened up and he thought he was safe in saying that four-fifths of the land now alienated was being planted in cacao, so that within a very short time the value of cacao would considerably exceed that of sugar and would probably top in importance the Sugar Industry by as much as in past days, the Sugar Industry topped the other industries of the island. It was to be borne in mind also that there were two classes of cacao proprietors—the larger and the smaller proprietors. The smaller proprietors, even more than the larger proprietors, spent the value of the cocoa they produced, in the island, and it was greatly due to those small proprietors that the trade of the island had prospered to the degree it had in past years; and he thought this was a sufficient explanation why, whilst other colonies such as Demerara, Barbados and the Leeward Islands especially, had suffered so much from the sugar crisis, Trinidad had been able to bear up with it without our revenue falling off and without, he might say, the consequences of the great depression in the Sugar Industry. That alone, he considered secured for cocoa a paramount place amongst the industries of Trinidad. Now, it might be asked whether the Cacao Industry had been favoured by the Government in the same way that the Sugar Industry had been. Evidently we could not expect that it could have been so, because sugar had been a settled industry and an important industry long before cocoa, but now that the Government was selling so fast the Crown lands of the colony, and those Crown lands were being taken up to be planted in cacao he thought they should look round, and it was their duty to communicate with the West India Committee to the fullest extent and explain to them the position in that respect—that the cacao properties were in the interior of the island, and that the interior of the island, although it had been opened up for many years, was still entirely void of proper means of communication. There were properties established for the last twenty-five or thirty years, to which there was hardly a track today, or if there was a track, it was a track over which you could only convey your produce on mule back or donkey back. Very few places in the interior were favoured with cart roads. It is true they had railways already in the country but with the exception of the Sangre Grande and expenditure was in excess of the revenue. He (Mr. de Ver Caparo) Valley railways, they were of use chiefly to the Sugar Industry. The Arima railway tapped some part of the eastern district, and so did the San Fernando railway tap part of the Montserrat, but that was nothing at all compared to the new districts to which the new lines of railway were destined. He thought they might arrive at some arrangement by which the immigration tax was to be distributed

—say two-thirds amongst the producers of sugar and the remaining one-third amongst the producers of cocoa and coconuts and that would come to a fair distribution. Some time ago when they called attention to the necessity of helping to put down

THE ADULTERATION OF COCOA,

the West India Committee in London wrote back and told them that they had better keep quiet and leave people as they were, because in England people were accustomed to drink a certain mixture which they called cocoa or chocolate and were altogether in favour of that description of beverage and consequently if they tried to force people to consume pure and unadulterated cocoa probably we would find that we would be losing our best customers. He (Mr. de Verteuil) did not know how far that was correct. He did not himself see why, if some persons preferred to take cocoa mixed with arrowroot and sugar, they should not be shown some other substance in which there was no arrowroot and sugar and in which there was simply cocoa and sugar—he did not see any harm in it, and he thought they would remember that some years ago when the beet producers brought into the English market an imitation of Demerara crystals, the West India Committee very keenly exacted that the composition called "Demerara Crystals" had no right to be so called and could not be sold as such, and he believed an action was brought in the Courts and it was held that the beet sugar so sold should be labelled as an imitation of Demerara Crystals. That was the result of a prosecution instituted, he believed by the West India Committee.

Mr. Aspinall said he thought the prosecution was due to private initiative, but he remembered the circumstance.

Mr. R. de Verteuil said that at any rate if the West India Committee took up their interest a great deal could be done. He preferred chocolate to pure cocoa, but those who had a taste for pure cocoa ought to have the pure article and not the adulterated article which was being sold in a great many instances now.

Mr. A. Warner said he had proposed to say a few words at this meeting but Mr. de Verteuil had left him little to say. He fully endorsed everything said by Mr. de Verteuil, and thought it would be a very happy thing if they could get the West India Committee to help them, especially in the question of roads and railways in developing the island. The particular point he proposed to refer to was known to all of them—that there was a penny a pound import duty levied in England, which was 14s or 15s a bag. There was also a similar tax on tea. The two taxes were, he believed, the survival of a very long time ago and had remained on because no one had had the energy to try and get rid of them, and he believed if they made representations to the West India Committee it would not be long before these taxes were removed. He had been told the removal would principally benefit the consumer, but it seemed to him that as cocoa was bought in bond into England the removal of a tax which had to be paid by the purchaser before he could get what he bought out of bond would go almost exclusively to benefit the producer, because the purchaser by bidding so much would have a margin of 15s a bag to buy on, and therefore a very large proportion of the tax would go into the planters' pockets, but even if it went into the consumers' pocket so much the better for the industry, as it would make the consumption of cocoa larger than it was, and it seemed to him that in a country like England which boasted of a free breakfast table such a tax ought not to exist. He did not believe any serious effort had been made to get rid of this tax; it had been mentioned to the West India Committee but never had been worked out or brought to the knowledge of Her Majesty's Government, and that, he thought, was one of those things in which the West Indian Committee could very well help them.

Mr. R. de Verteuil said he believed the estimated acreage in cacao cultivation last year was only 102,000.

Mr. Leotaud said he had spoken of the land held by cacao proprietors. There was 100,000 acres belonging to the sugar proprietors, but there was only 57,000 acres in sugar cultivation. His cacao cultivation at Maracas did not cover the whole area, but he was paying the tax for it.

MEXICAN COFFEE.

The *Brazilian Review* remarks:—"The *Dos Rios* Coffee planting Company of Mexico, which describes itself as the model plantation of Mexico and the largest in the world outside of Brazil (it has 2,000,000 coffee trees and $1\frac{1}{2}$ million of rubber) has issued the following prospectus on which comments seem unnecessary. How long prices are likely to remain at 13 cents, if only half what is promised can be substantiated, or why the company should be so anxious to give away such valuable properties at such a sacrifice instead of sticking to them itself, are two of the points that in our opinion seem to want explanation before rushing to invest.

"Each tract of one hundred acres, when turned over to the purchaser at the end of the fifth year, shall have forty acres improved and under cultivation, upon which there shall be 30,000 Coffee Trees five years old and 1,000 Rubber Trees 5 years old, all to be in perfect and well cared for condition. On a conservative basis the income from this property during the sixth, seventh and eight years can be estimated at $4,800·00 per annum, being the crop of 30,000 coffee-trees yielding two pounds each and worth 13 cents per pound less 5 cents for care of plantation, picking, milling, sacking, freight, insurance and brokerage, leaving a net profit of 8 cents per pound on the annual yield of 60,000 pounds. The ninth year this income will be increased $10,000 per annum by the net profit from the product of the 10,000 rubber-trees, *making a total annual net income of* $15,000·00 which can be relied upon without any fear of diminution for at least twenty-five years thereafter. This income can be still further increased by the owner diverting a portion of his profits to the planting of additional coffee and rubber in the portion of his land remaining undeveloped. At the present time the lowest cash value of such a plantation is $50,000·00 and one could readily be sold at that price, *and this we offer for a cash outlay on the part of the purchaser of only five thousand dollars extended over a period of five years.*"

Eucalyptus Globulus in the Open.—I regret to report that trees here after attaining the height 20 feet, and in spite of the stems having been wholly protected with hay-bands, have been killed to the ground during the past winter. We have registered frosts of 25 degrees and upwards.—*A. R. Pearce Braymead Gardens. Berkshire.—Gardeners' Chronicle*, May 26.

The Bengal Tobacco Trade.—It will come as a surprise to many to know that for several years past the imports into Calcutta of tobacco grown in Bengal Proper have averaged nearly five lakhs of maunds per annum. About a lakh of maunds also arrives from Behar, while the average from Madras during the three years 1896 97, 1897-98, and 1898-99, for which statistics are now published, was under four thousand maunds per annum. Calcutta's largest customer in the matter of tobacco is Burma, which in 1898-99 took fourteen million pounds, part of which no doubt comes back in the form of Burma cheroots, Madras took 800,000 lb., the United Kingdom 22,000 lb. and France 19,000 lb. The amount exported, however, accounts for only about half the total. The other half, apparently, is consumed in Calcutta, where the hubble-bubble presumably accounts for the annual disappearance of some two lakhs of maunds.—*Friend of India*, May 24.

Correspondence.

To the Editor.

COFFEE PLANTING IN NYASSALAND

BY AN EX-CEYLON PLANTER.

Mlanji, B.C. Africa.

DEAR SIR,—Your letter of 9th February came duly to hand. I shall send specimens of our spotted bug to Mr. Green's friend in Surrey, England. From experiments carried on by myself, imprisoning our bugs in a muslin bag with newly formed berries, medium sized, and fully matured ones, I find that the bugs, puncturing the young fruit up to two months or so, damage them and by sucking the juice, producing black and empty berries after two months and up to four months; the berries when damaged by bugs are spotted black and brown, not entirely destroying the fruit. When the parchment forms after four months or so no damage appears to be done by this bug. The natural enemy of this bug is the soldier ant, identical with our Ceylon tiger. I have had a bug put beside those ants and they devoured it ravenously.

This bug is blamed in British Central Africa for causing so much unsound coffee. We are troubled with much worse enemies, however: borer and periodical droughts which do the maximum of damage to our coffee. Some old estates where no bug is to be found have 80 to 90 per cent spotted and light berry caused by those enemies. Shade mitigates those two evils, fosters the red ant and other natural enemies of our insect pests and is a cure for sunstroke and canker in our coffee fields. It will take a year or two yet to tell what the result of shade will be on coffee here. So far, however, it beats all I have ever seen anywhere. From two year old trees I picked off two leaves and enclose them for your inspection, measuring green 9 by 4 inches. I do not think Arabica coffee leaves can be found in Ceylon to beat those. This coffee, two years old or two years and eight months from seed, is being topped at 5 feet 6 inches and it has a crop just ripening on the trees of about 1 cwt. per acre. Coffee, in the open here, yields a heavy crop or two: 7 to 8 cwt per acre is common enough, and 10 cwt has been secured at three and four years old; but sooner or later it gets such a scorching that it never recovers and must be cut down or abandoned. Cutting down even does not always prove a success as the trees are often damaged right into the ground especially in very light friable soil.

I am trying to get up an acreage of tea and have now got 12 acres planted with a very good jât. I was a long time in the country before I learnt how to keep *good* health here: the secret is quinine taken whenever I feel I want it and most old residents can tell when quinine is wanted. One gets heavy and it's a trouble to go about and attend to one's work; then is the time to take freely of quinine and an opening dose or two. I often remember how true William Smith the Patriarch of Dimbula's words were, when he said to me just before leaving for Africa: "Keep your quinine bottle on your side-table or side-board and take a dose any day, the same as you would your early tea. I had to do so when living in Kurunegala and Africa must be as bad."

Whyte is now in Uganda: he kept very good health when here; Lloyd, Tunbridge, Moggridge and others, who came from Ceylon, seem to keep good health, they all know of course, how to live in the tropics. Those who have broken down in this country are mostly young men who ought never to have come here at all or those who won't learn how to live here and no experience teaches them either. I have been home once and that only for two months during my ten years in Mlanji. It was not owing to ill-health that I went home. I landed in Ceylon in 1872 and never left till I came to Africa in 1890. My S. D. days were spent in Dimbula under the late James Ryan, opening Glenomera and Stirling, and when the estates were leased to H. S. S. & Co., I went to Matale. Most of the men in Dimbula in my day, have either left or gone over to the majority; few remain who were at the ball given to Sir Wm. Gregory in Middleton Store and were photographed on the patana afterwards. I was over the Nyassaland Co. Lirchemya's Estate the other day and think it should pay its way from now and make something for the shareholders in about two years' time *if carefully managed.*

The war does not affect us yet, but it is very probable we shall be joined to South Africa with the B. S. A. Co. territory, all under one Government, and get our railway, etc., after the war is over. Salaams!—Yours sincerely,

HENRY BROWN.

A NEW (?) INSECT PEST IN CEYLON.

DEAR SIR,—I read in the *Auckland News* that importers of plants from Japan are warned against the introduction of a scale insect known as *Diaspis amygdali*, which is said to be a dangerous pest and may even outstrip the alarming San Josè scale. The insect in question first attracted attention in the United States, "where it was found to be a serious pest on the plum and the peach; also on almond trees and tea bushes, which had been imported from Japan. In the latter country, it has been found destructive to the mulberry trees. *In Ceylon* it is partial to the Pelargonium, and it feeds on many species of plants."

Seeing that the native habitat of the Pelargonium has no connection with Ceylon, the plant being only grown for ornament round upcountry bungalows, the location of the scale here is probably a mistake. Could you kindly enlighten us as to this?—Yours faithfully,

X.

[We have referred the matter to Mr. E. E. Green, the Government Entomologist, who kindly sends us the following:—"*Diaspis amygdali* is a common scale-insect in Ceylon—see 'Coccidae of Ceylon,' Part I, p. 87, Plate xxiv. It is particularly noticeable on Geranium plants grown under shelter of verandah or eaves of bungalows, where the masses of small white scales (of the male insect) appear like white mildew on the stems of the plants. It also affects many indigenous plants, *e.g.*, *Callicarpa lanata*, *Tylophora asthmatica*, etc. Curiously, although it occasionally occurs on cultivated peach trees in Ceylon—it does not seem to flourish on that plant in this country. It earned its specific name from its destruc-

tiveness to peach trees in Australia. The species is very possibly an importation in Ceylon; but its introduction must have been somewhat remote, as it has already acquired a large number of natural enemies (chiefly hymenopterous parasites) which serve to keep it in partial check."—ED. *T.A.*]

PLANTING IN MEXICO—RUBBER, COFFEE, CACAO—THE DRAWBACKS AND ADVANTAGES.

(By an ex-Ceylon Planter.)

Mexico, April 10.

DEAR SIR,—I have received your paper of 5th January, and note your remarks *re* my letter you published in it. You ask what are the drawbacks here. Much the same, I imagine, that the pioneer planter of Ceylon had to contend with 60 years ago, the principal ones being lack of roads and scarcity of labor. The Mexican peon in the tropics will not work, unless in debt and obliged to do so and then does not compare with the East Indian cooly, except for clearing new land at which work he is pretty good. Any one having sufficient capital would import Chinese coolies, which are in the end much cheaper than the native peon. Taxes are low enough. This Company owns 100,000 acres and the tax is only some $400 £40) a year. The personal tax on each man is $1·50 (one doller fifty cents) and school tax ·80c (eighty cents) per annum. Bank cheques require a stamp of 5c (five cents) each and bills of sale and receipts 10c (ten cents) per $100. New colonies of agriculturalists and new manufactures generally can get exempted from *all* taxes for ten years. There is a Federal tax on the manufacture of rum and tobacco, which is not very high, but I have not the exact figures by me.

Mexico is well policed and any plantation can have a resident policeman by applying to the Tefe Politico of his district and paying wages of same, some $20 per month. You ask why do not British and American capitalists take up land? The latter are doing so in enormous quantities every year. The whole of the Isthmus land suitable for coffee, rubber and cacao is now practically owned by Americans who are rapidly colonising to and the Vera Cruz and Alourado Rail-road; iand the Tehuantepce Rail-road has passed into the hands of Sir Weetman Pearson and he has built a new railroad from Tinle to San Juan Evangelista, and put a large fleet of new passenger steamers on the rivers connecting with his railroads,—all since your hard-headed friends from Ceylon visited Mexico,—two of whom did me the honour to visit my camp in that part of Mexico. The railroad from Cordoba to Santa Lucretia is also now being built on past my old camp Several of the American Companies have also put steamers on the rivers so that, so ar as that part of Mexico is concerned, transport facilities have been pretty well revolutionised since the aforesaid hard-hearded Ceylon planters visited there.

You doubt cacao bearing 16 cwt. per acre. or selling for 90 shillings. I do not claim that all cacao does so; but that well-cultivated cacao plantations on this rich soil in Tabasco will do so and do do so, is beyond doubt. I was asked to value the crop on 6,000 six-year old cacao trees bearing their first crop last month. I counted on many trees 135 pods and could only find a few having 53 to 55 pods, the average was over 70 pods. There were 400 trees per acre, which, at 20 pods per lb., is easily producing 12 cwt. per acre. The owner told me he estimated he spent (3c) three cents per tree per year on cutivation which consisted only in cutting down the weeds every three or four months. Cacao is quoted today in Mexico city at $1-15c per kilo as you will see by sale list enclosed: in New York, 35c silver per lb. I have not be n long enough in this country to plant and take in a crop of either rubber or cacao, but I have gathered three lbs. of coffee per tree from three-year old trees of my own planting. No one not having seen the crops produced on this fertile soil can imagine the crop coffee gives here: it is, however, of low class at this elevation. High grown Colima and Cardoba bring good prices; but the crops are smaller, ½ to 1 lb. per tree. In Mexico all crops—coffee, rubber, cacao—are estimated by the tree, not the acre: at this elevation 500 feet coffee is planted 12 ft. by 12 and covers the ground; at 3,000 feet, it is planted 5 by 5 ft.

Life on a plantation here, so far as society and comforts are concerned, does not begin to compare with Ceylon life of the 1870's—no races, no elk hunts, no gymkhanas. It is a new country and unless a man is willing to give up all that he had better not come. Anyone having a knowledge of planting and some capital, can make money here; if he has neither of these he is better away.—Yours truly, E. DARLEY.

LIGHTNING—NARROW ESCAPES FROM, IN CEYLON.—No. II.

SIR,—You ask for narrow escapes from lightning Mr. Stewart Taylor had one, two or three years ago at Passara. Lightning burnt the toe of his slippers and played havoc with the contents of his bungalow. Mr. Harvey, of Cattarem, in Dolosbage, had two very narrow escapes. There are certain parts of Ceylon that one wishes not to be in when there are thunderstorms:—El Teb or its neighbourhood in Passara, Cattarem in Dolosbage, and Mr. Duncan's bungalow site in Rangala.—Yours truly,

PLANTER.

No. III.

SIR,—The letter of "Planter" reminds me of the Cattarem Bungalow being wrecked by a flash of lightning, while the late Mr. Cottell and I were sitting at table, taking early breakfast one morning in 1864. It gave us a bit of start, for it came with a report like a cannon and sent the chimney through the roof about our lugs, smashing a large clock and pictures, etc. The whole bungalow was injured and the lightning tore a hole in the wall of one of the bedrooms, large enough for me to go through. A.

SINHALESE CATTLE IN TRINIDAD.

Government Farm Trinidad, B.W.I., 20th April, 1900.

DEAR SIR,—Will you kindly accept my annual report for the past year and also my best thanks for your notice of that of the previous year.

Enclosed are photos of crossbred cattle—Zebu and Redpoll cross: the cross has been successful, a useful animal being the result. The bull at two years weighed 900 lb. and cost some £3. He

has all the appearance of a good beet beast. The heifers are now coming into milk and their yield is from 8 to 10 quarts per day of excellent quality.

You will perhaps remember our getting some small cattle from Ceylon. We have not done so well with them as was anticipated. There has been no increase amongst them and unfortunately the bull has broken his leg. The leg has been set, but from his restlessness there are no great hopes of repair,—I am, yours truly,

C. W. MEADEN.

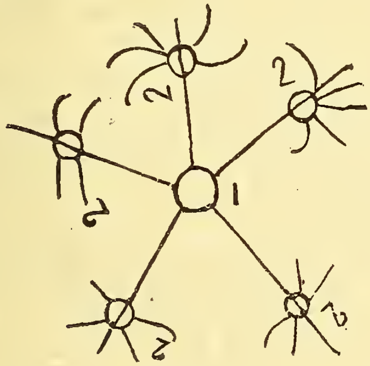
[The photographs—very fine ones—can be seen at our office. The Report will be reviewed in due course.—Ed. *T.A.*]

EXPERIMENTS WITH INDIARUBBER.

Paris, 29th April.

Dear Sir,—I should like to know if I could procure in Ceylon, dry corks or bark (écorces) of Indiarubber plants for experiments such as Alstonia, Hevea, Urceola, etc. For the species of little development, few stems will be sufficient. You know that I have attracted the attention of chemists to the possibility of extraction of rubber by dissolvents and that the results have proved that for Landolphia, etc., etc., dissolvents are not needed and extraction can be purely mechanical. I have sent twice to America for samples of leaves of Castilloa, but the experiments have been totally unsuccessful ; but it is not the same with corks of Landolphia particularly if (? preserved) on the roots.

Curiously, and you will easily understand the fact of plants oue year old, when I say at two months old, if they do not show nearly any rubber in the stem s, are very rich in the roots. So I beg the planters on the Colony if they have Laudolphia under hand, to marsol (? sic) to layer the stems all around the mother plants and when hour of exportation come, to whig (? pull) out all the children around the mother. Do you understand what I mean ?



1 is the mother plant which must never be touched ; 2 are the children layered in the soil where they have much roots. These can be digged out and all the cork (? bark) from the stems or the roots be sent to manufacture and the planter can begin again with new shoots from the mother plants. Landolphia Hendelotii gives easily 8 per cent of good rubber from the stems and ten to eleven per cent from the roots,—which you can easily see by the samples I sent to you.

You must understand the interest for me to know the value of the corks (? bark) of any rubber plant —Yours most truly,

A GODEFROY-LEBEUF,

Horticulture.

SEYCHELLES GUANO AND MR. BAMBER'S REPORT ON CEYLON TEA ESTATES.

Analytical Laboratory, 79, Mark Lane,
London, E.C., May 11.

Sir,—Just a few lines to say that I have only this week seen a copy of Mr. Bamber's report ; indeed, I doubt if I should have done so, only Mr. Talbot called on Monday to consult me in reference to the use of the Seychelles Guano as a phosphatic ingredient of tea manures, and in the course of conversation asked me if I had seen his report, to which I replied that up to the present time no copy had been sent me. The publication which apparently has only been privately circulated, is very interesting, especially the portion referring to the manufacture of tea, concerning which, you will remember, I originally made some urgent recommendations, pointing out how very useful careful investigations made in the factory must prove in the future.

In reference to the system of manuring suggested by Mr. Bamber, I refrain from going into details, as I may be consulted professionally, and have already reported on some of his soil analyses.—Yours faithfully,

JOHN HUGHES.

WHO WILL TELL US MORE ABOUT "CHILLIES." ?

Aberfoyle, Rakwana, May 15.

Dear Sir,—I shall be very much obliged if you could give me any information by post or through your Journal regarding chillies:—

1. The most suitable kind for local and home consumption.
2. Method of planting, from nursery, or sown broadcast.
3. Safe estimate of crop for one year's bearing.
4. How long each bush lasts from time of coming into bearing, and when the bush comes into bearing from time of planting or sowing.
5. What enemies to fear or pests ?

You have had some information in the *T.A.* on this subject, but not giving any of the information now asked for.—Thanking you in anticipation, I am, sir, yours faithfully,

W. G. B. STRONACH.

[We shall be obliged if any cultivator who has had actual experience in raising "chillies" will send us answers to the above questions.—Meanwhile we quote the following from the *Treasury of Botany.*—Ed. *T.A.*]

Capsicum annuum a native of South America, but introduced into India and elsewhere, furnishes the fruits known as Chillies ; these, as well as the fruits of *C. frutescens*, and several other species or varieties, are used to form Cayenne pepper. The species of *Capsicum* are chiefly natives of the East and West Indies, China, Brazil and Egypt, where they are much esteemed for their pungent fruit and seeds, which, under the name of Cayenne Pepper, or chillies, form an indispensable condiment which Nature herself appear to have pointed out to persons resident within the tropics. According to Sir R. Schomburgk, the natives in Guiana eat the fruit of these plants in such abundance as would not be credited by a European unless he were to see it [*Jour. Hort. Soc.* ii 153). In Jamaica the species most esteemed

is the Bonnet Pepper (*C. tetragonum*), the fruits of which are very fleshy, and have a depressed form, like a Scotch bonnet. The shrubby Capsicum, or Spur Pepper, (*C. frutescens*), is a native of the East Indies, and has been in our gardens since 1656. It forms a dwarf bushy shrub, with white flowers, and bears numerous small oblong obtuse pods which are very pungent, and in their green and ripe state are used for pickling, as well as for making Chilli vinegar. This is done by merely putting a handful of pods into a bottle, and afterwards filling it with best vinegar, which in several weeks will be fit for use. But the chief purpose for which this species is cultivated is for making Cayenne pepper, which is often prepared by drying the pods on a hot plate, or in a slow oven, and then pounding them in a mortar, and passing them through a hand-mill until the whole is reduced to the finest possible state. After this has been done, the powder is to be sifted through a thin muslin sieve, and preserved in well-corked glass bottles for use. The common annual Capsicum, or Guinea Pepper (*C. annuum*), was introduced into Europe by the Spaniards. It was cultivated in England in 1548, and is sufficiently hardy to thrive in summer against a south wall in the open air, and nature its fruit. The colour, direction, and figure of the latter is very variable—some being yellow, others red, and others black. In a green state they are used for pickling, and when ripe are mixed with tomatoes, &c., to form sauces. They are also dried and ground for use like Cayenne pepper. The Berry-bearing Capsicum, or Bird Pepper (*C. baccatum*), is indigenous to both the East and West Indies, and has been grown in this country since 1731. Its pods are erect, roundish, egg-shaped, very pungent, and when ripe are dried and used for the same purposes as those of other kinds of *Capsicum*. They also form one of the chief ingredients in the preparation known in the West Indies as *man-dram*, which is usually resorted to by those affected with loss of appetite or weak digestion, and consists of cucumbers sliced very thin, shallots or onions chopped very fine, a little lime juice and Maderia wine, to which is added a handful of the pods of this pepper, and the whole are then mashed together, and mixed with as much liquid as may be thought necessary. Besides the three species noticed as being the kinds most generally cultivated, there are many other species and varieties occasionally grown for the sake of their pods, all of which yield a warm acrid oil, which acts powerfully on the stomach, and is thought to correct flatulency, and assist digestion. [W. B. B.]

THE INDIAN CURRENCY AND EXPORTING INDUSTRIES.

London, 25th May, 1900.

SIR,—Last Thursday I attended Mr. Baines's lecture on the Industries of India, and spoke in the discussion, and showed that in consequence of the currency measures, all industries must decline. In a word, I showed that the Government, by their method of giving stability to the exchange value of the rupee, had given an unstable value to property. That it had declined in value since 1893, and was liable to be again diminished in value should the needs of the Government compel it again to raise the exchange. I also showed that the withdrawal of capital was proved by diminishing wages, and diminishing means of employment. When Lord George Hamilton attempted to answer me he avoided India altogether and, as a reply to what I had pointed out as to the decrease in cooly immigration into Ceylon, merely said that the report on the island was favorable. When Mr. Rees (who is in the Council at Calcutta) attempted an answer, it was merely to say that he knew of a considerable sum that was about to be spent in planting in Travancore. But, of course, no answer was possible. Formerly we stood on an automatic currency which kept us on even terms with our silver-using rivals in other parts of the world, whereas now we are not only heavily handicapped in our competition, but may be much more so, if recurring famines cause the Government, as is very probable, to again force up the rate of exchange.—Obediently yours,

ROBERT H. ELLIOT.

P. S—You will observe remarks by Mr. Vithaldon D. Thackersey in *Weekly Times of India* for May 5th, on how the Bombay Cotton Mills have been suffering from the currency legislation, but, of course, every kind of productive enterprise must suffer. The Mysore gold mines managed by a single agency lose upwards of £31,000 a year for every penny the exchange has been forced up, and considering that the exchange ought now to be at 1s 1d. and that their operation have increased since the above calculation was made, the present loss is probably about £100,000 per annum, or say £90,000 if we allow £10,000 for saving on purchases from this side.—R.H.E.

A TAMIL TREATISE ON AGRICULTURE.

(Communicated.)

Mylapore, June 1st, 1900.

SIR,—In a separate packet I send for your kind perusal and early review my book on Agriculture in Tamil. The book contains collection of agricultural practices explaining the principle underlying them, thus solving the problems of Treegrowing, Village Sanitation, etc. Attempt was made to write it in a village Tamil, so that every Tamil-knowing individual may understand the contents of the book.

My 15 years' experience in questions connected with Agriculture warrants me to present a publication to my countrymen. The publication is no commercial concern. It is done with love—the local papers have recommended the book to the notice of the Government so that it may be popularized in villages and made a subject of study in schools.

If you think the book is deserving of the above recommendation I request you will also help me in taking it to the notice of Ceylon authorities: I shall thank you much. I require only fair play. In conclusion I request you will send me the issue containing the review for my information. An early review is solicited.—Yours faithfully,

G. RAJAGOPAL NAIDU,
Agricultural Inspector.

Mylapore: Madras.

(Review—Communicated.)

'VIVASAYA VILAKKAM" or "Agriculture Explained" is the title of a Tamil treatise on Improved Agriculture by Agricultural Inspector Rajagopal Naidu of Madras, late Superintendent Lashio Farm, Burma. This book bears on its title-page the appropriate motto "India's need is improved Agriculture," and is dedicated to Mr. Charles Benson, Deputy Director of Land Records and Agriculture, Madras.

The opening lines of the author's preface rendered into English would read thus:—"The necessity for the improvement of agriculture in a country like India where it forms the mainstay of the people will he evident to all. An attempt at such improvement is, however, beset with difficulties. Nevertheless I have ventured to set forth in the following pages, for the benefit of the ryots, some information which has struck me as essential to agricultural reform after fifteen years' personal observation of the agricultural customs in different countries and a study of English works on

SCIENTIFIC AGRICULTURE.

"Although this little book may not be productive of any marked benefit, I hope it will, at least, create an interest in agricultural matters in the minds of the ryots. Such an interest once engendered will ultimately lead to agricultural improvement. Ryots, who are desirous of attempting the improved methods suggested here, would do well first to try them on a small scale and, after they are satisfied that they would suit the conditions of their soil, climate, &c., carry them out extensively."

The author displays a deal of good sense and caution by giving this last piece of advice, for in a large country like India where the conditions of soil, climate, &c., differ rather widely in various parts, an experiment, on a small scale, would be very prudent, before the general introduction of a new method that has been found to succeed elsewhere, even in another part of India itself.

The first chapter is introductory and shows the dignity and importance of agriculture and the need for agricultural reform. The second is about the different kinds of soil. The third chapter treats of certain preliminary operations and auxiliaries to agriculture such as levelling, fencing, the different kinds of trees used for live fences and boundaries, irrigation and the sinking of wells. The author's remarks under the last heading show that he is free from the usual oriental superstitions which many natives of India and Ceylon, even of the educated classes, find difficult to get rid of. He says—"It is a common custom in this country to consult an astrologer in selecting a site for sinking a well. This is like the blind leading the blind. For we do not find either astrologers or Brahmins who ascertain the truth and impart it to others. Many have been ruined by trusting false astrologers who make a vain profession, merely for the sake of earning a livelihood. But Europeans use a borer, called the 'Auger,' in order to find out whether water can be obtained at a certain site or not. When this instrument is inserted in the ground and worked, so as to reach deep enough, the different strata underground can be ascertained, and we can not only find out at what depth water is obtainable, but also whether the water is fresh or brackish. When this test is made use of we can know with something like mathematical certainty, the best sites for wells and dig them without undergoing loss or disappointment." The fourth chapter which deals with

AGRICULTURAL IMPLEMENTS

compares the ordinary native plough of the ryots with the improved plough, and shows the superiority of the latter by means of facts, figures and illustrations.

In India where unlike Ceylon, dry cultivation is done on an extensive scale, there are several native implements used to economise manual labour and to expedite work in the cultivation of dry crops. The seed drill, an illustration of which appears on page 44 is one of these. This implement which can be easily drawn by a pair of ordinary country bullocks, goes on sowing three rows at a time. It is said that Sir James Caird, one of the famine commissioners appointed in 1876, was agreeably surprised at the work done by this seed-drill and remarked that it served just as well as an English seed drill which would cost from five hundred to eight hundred rupees. The other labour-saving implements treated of in this book are, a leveller and clod-crusher used after ploughing, a weeding machine that can be used between the rows till the plants are about eighteen inches high, a sickle-shaped hand-weeder, a roller which can also be used for separating the larger variety of grains, such as sorghum from the stalks, and the wheel barrow. The fifth chapter deals at length with the different sorts of

MANURES

and how they can be utilized for Indian crops and soils. The next treats of the different kinds of crops such as cereals, peas and beans, fibre plants, root and leaf crops and several other varieties including fruit trees. There is a strange botanical inaccuracy in the classification of the grape vine, for it is said that it belongs to the same family as the tobacco. In other respects the information given about that plant may be useful. The following is what is said about its culture:—"The grape-vine is a long-lived creeper and requires frequent manuring and abundant watering. It is usually grown either from layers or cuttings. In the latter case, cuttings of branches of more than a year's growth are planted in prepared soil, covered with straw. In Europe the vines are planted at a distance of ten feet apart. Fish manure is highly suited to this plant. The soil round the vines should be frequently stirred. During the first year it is customary to grow some tall-growing crops between them. Pruning is indispensable in grape culture, and it is owing to the gardener's ignorance of this fact that vines which bear for some time are found to stop bearing afterwards."

In describing the method of

PRUNING,

it is recommended to allow three nodes in each branchlet, the shoot from the terminal node of these three being nipped off after having made sure that the other two nodes send off good, healthy shoots. The time recommended for pruning the grape vine is when the plant shews signs of wintering by the shedding of the leaves and by the dry grey appearance of the little branches. Time and space will not allow justice being done to this interesting chapter: but it may be mentioned *en passant* that the part dealing with the preserving of ripe fruit for transport contains most interesting and useful information.

The seventh chapter aptly commencing with an illustration of the four stages of metamorphic insects shows how plants are destroyed by them and suggests powerful remedies such as Paris green, London purple and other similar preparations which, owing to their poisonous character, have to be used with caution.

The concluding chapter on Live Stock treats not only of the more important species which are quadrupeds, but also of the various domestic fowls and birds, including the turkey and the pigeon. The commoner ailments of live-stock, their breeding, rearing, management, etc., are suitably treated of in this chapter.

Altogether the book contains a good deal of valuable matter covering over 200 pages and will well repay perusal. Notwithstanding the slight difference in dialect from Ceylon Tamil, its language is easily intelligible a simple style being used for the most part. The price of the book (twelve annas) places it within the reach of the poorest ryot, and it is to be hoped that the Tamil agriculturists of Southern India and Ceylon will not be slow to profit by the fund of useful information offered to them in such handy form.

No. I.—SNAKES ALIVE! A FATAL ACCIDENT IN COLOMBO.

Colombo, June 3.

DEAR SIR,—I can vouch for the following fatal results from snakebite in reference to enquiry from "Constant Reader" appearing in yesterday's *Ceylon Observer*—though the occurrence was nigh 40 years ago,

A son of the late Mr. H M Fernando, of Ferryside Mansion, Mattakuliya, lost his life by dropping from a cadju apple tree at "Crow Island" and alighting on a tic polonga or cobra—I am not sure which—when he was stung by the reptile—was brought across the river in a faint and died within two hours of his arrival at home. You will find this reported in the *Observer* of that period.—Yours faithfully,

RESIDENT.

TEA PLANTING IN THE CAUCASUS.

PLANTERS' ASSOCIATION OF CEYLON.

Kandy, 2nd June, 1900.

Sir,—I herein enclose copy of an interesting communication in reference to tea planting in the Caucasus.—I am, sir, yours faithfully,

A. PHILIP,

Secretary to the Planters' Association of Ceylon.

Colonial Secretary's Office,
Colombo, 31st May, 1900

Sir,—I am directed to transmit for your information a copy of a report by Sir Henry Cooke on the subject of tea planting in the Caucasus, forwarded to this office by the Right Hon. the Secretary of State for the Colonies.—I am, sir, your obedient servant,

(Signed) A. E. CLAYTON,
for Colonial Secretary.

The Secretary, Planters' Association, Kandy.

(Copy referred to.)

A report was lately read at St. Petersburg by Mr. I. Klingell, giving the first results of the experiments made by the Imperial appanage in tea-planting in the valley of the Chakva, on the South-eastern coast of the Black Sea. The factory on the estate was built in 1899 with exclusively English machinery. In July 1899 there were 55 dessiatines* under tea culture, mostly Chinese plants, specially imported from China. Three crops were taken during the year, yielding 27½ poods (1 pood=36 lb.) The best in quality was the second. Four funts of green tea-leaves were needed for one funt of prepared tea (1 funt 14½ oz.) In type, Caucasian tea resembles Ceylon of very good quality. According to experts it will find a good sale. The prices obtained are 1st brand R1·90 cents and 2nd R1·60 cents the funt. By the Spring of 1900 there will be 102 dessiatines under plantation and in the near future 126, and, if the results continue favourable they will be extended to 500. The further development should go hand in hand with colonization. With rational culture and proper protection from cold winds the crops should yield 600 funts per dessiatine, and not 400 as at present calculated. The plantations are expected to reach economic maturity by 1905, yielding by then a clear profit on outlay. But to effect the results desired there should be introduced a persistent and rational system of colonization, and technical improvements all round.

Samples of Chakva tea in London received a very favourable report, experts even doubting whether they came from the Caucasus at all, as it was supposed only brick tea could be produced there. The majority of those who tasted it found it satisfactory, and only with fixed tastes preferring Ceylon tea. But as the latter is developing by great strides in Russia (in 1895 the consumption was 2,000,000lb, and in 1899 over 10,000,000). The amount of Ceylon teas consumed in Russia of late years is 6,000,000lb in 1897, 11,000,000lb in 1898, 17,000,000lb estimate for 1899, there need be no fear of Caucasian tea ousting it from the market.—"Commercial and Industrial Gazette of St. Petersburg."

(Signed) HENRY COOKE.

* 1 dessiatine equal 2.7 acres.

PLANTING NOTES.

M. GUYON—Administrateur des Colonies, Tannanarivo, Madagascar, who has been learning all he can about British and Dutch Colonial Administration in the Eastern tropics, went home by the French mail steamer on the 15th June.

A COMPLIMENT.—A Publishing and Bookselling Firm in Paris, in ordering our *Tropical Agriculturist* for Brazil, adds :—

We have seen with pleasure your Books at the Exhibition. The Ceylon Exhibition is one of the most interesting of all.

SINHALESE CATTLE IN TRINIDAD.—We regret to learn from Mr. Meaden of the Government Farm, Trinidad—see his letter on page 42—that the importation of small cattle from Ceylon has not been a success. They were very carefully selected and looked a choice lot as we saw them at the Agricultural School grounds before their shipment.

JAVA CINCHONA.—From the extract on page 32, dealing with the latest official report on Java cinchona, it will be seen that the product is prospering, though not so much from artificial as natural manures. A substance, "Ricinus spectabilis," obtained from castor-oil presses, is said to be very beneficial for the growth of the tree. Proprietors of castor-oil trees, who are unaware of this, will do well to note the fact.

PLANTING IN NYASSALAND.—An interesting letter from our correspondent, Mr. Henry Brown, formerly of Dimbula and Matale, will be found on page 41. He gives us a good deal of information and speaks well of the prospects of coffee and of the Nyassaland Company's estate. Mr. Brown's Ceylon reminiscences carry him back to early days under the late Messrs. Ryan and Wm. Smith in Dimbula. As regards the spotted bug referred to by Mr. Brown, we learn from Mr. E E Green that it proves to be *Antestia variegata* var. *lineaticollis*, said to be a well-known coffee pest in Africa. The coffee leaves sent by Mr. Brown are certainly very fine.

INDIA-RUBBER IN BEIRA.—According to a British consular report, the planting of India-rubber and coconut trees has been seriously taken up in the Beira district, and should in course of time become a thriving and profitable industry the soil and climate being, in the opinion of experts, all that can be desired. The cultivation of economic plants and trees in the valleys of the Zambesi, Buzi, and Sabi Rivers has been an industry too long neglected. The fertility of the soil and its capacity to give good returns for capital expended has been long recognised, but until quite recently entirely neglected on a large scale.—*Planting Opinion*, June 16.

TEA MANURING AND SEVERE PRUNING CONDEMNED.

(From a Correspondent.)

"I am very much surprised at the manuring and pruning that is now going on in the island. To me it is burning both ends of the candle. You see fine tea cut down to the ground; the prunings buried and more or less rich manure put in to force the trees to give big yields, and, as far as I can learn, with loss of flavour, though an increase of yield, I see tea treated this way in the —— that to my thought, does not require manure for years, and I am not alone in this view. All very well to manure in the poorer districts to get an increase of yield, where estates can barely pay without; but in this fine district, with its splendid tea, to me, it is agricultural murder and must do in the end no end of harm. But what I most wish to find fault with is the extremely severe pruning tea is subjected to. I have seen tea hacked down to 6″ or 8″ with large Assam pruners, but often without any slope, and after a year or so you find rot right down the centre of the tree. This cutting is done for cheapness and to force a crop. I hear of fields abandoned, that a few years ago were subjected to this treatment, and that by a well-known V.A., who now says Ceylon tea will not last. No, I should say not. The whole of this treatment to me spells ruin."

[But then the ruin has been "lang o' comin": look at Mariawatte for systematic manuring and pruning, for instance—it goes on giving 1,000 to 1,100 lb. made tea per acre year by year and seems none the worse. Still there is no doubt room for considering what our correspondent srys above, in some other cases.—Ed. *T.A.*]

CATTLE SALE AT THE AGRICULTURAL SCHOOL, CEYLON.

The periodical sale of calves at the Agricultural Dairy Farm last month was not so well attended as usual nor the competition so spirited. This was partly due to the calves not being so well up to the mark. Some 14 were sold, including a cow and calf, chiefly to country native gentlemen, and the prices of the calves ranged from R22 to R50, the cow realizing R70. All were of the Scinde stock which does so well, both for dairy and breeding purposes at the Farm. Scinde cattle were first recommended to Mr. Drieberg by his Edinburgh schoolfellow, Mr. Mollison, now in charge of the Poonah Dairy Farm. Aden cattle seemed to be even more suitable; but they are very difficult to get. Mr. Rodrigo has now some 87 cows, 4 bulls and some 70 calves under his care on the local Farm and all look very healthy and in fair condition.

Unfortunately most of the villagers cannot afford the price of one of these calves. We would suggest that some of them be given away as prizes at Agricultural Shows or for meritorious conduct otherwise.

Nothing more has been heard of the Commission on the Agricultural School, of which the Hon. W. T. Taylor is Chairman, with Messrs. Ellis, Burrows and Willis. It is very questionable if it would be wise to move the School from the lowcountry and certainly it would never do to locate the Royal College, where the Agricultural and other connected Schools now stand. A prudent plan would be to retain the present institution and establish a Branch Farm and School near Heneratgoda, or Veyangoda, and indeed Mr. Willis might have a third branch near Kandy. As the improvement of farming and cattle in the *low country* is one chief object of the School and Farm, it would seem only reasonable to work under much the same conditions.

GUNS AND ELEPHANTS INUVA, CEYLON.

(From Mr. Baumgartner's Report.)

The number of gun licenses issued in the past three years was—in 1897, 248; in 1898, 202; in 1899, 514. Details are given in the Appendix.

The game licenses issued in 1899 were—to Europeans, 34; to others, 21.

Elephants were numerous in the Province. From my own observations I can speak to their prevalence in many localities: *e.g.*, in Wellawaya division near Kataragama, and again near Tanamalwila, where I saw two on the high road on the 24th July; also near Balaharuwa and Hambegamuwa in herds: also between Hambegamuwa and Kotaweramankanda they are numerous, and included a solitary elephant of large size known as "Kurakkan-hora." This elephant was sought after by a sportsman, but not found, for the jungle scene at the Paris Exhibition.

In Buttala division, with its immense unbroken stretch of forest, elephants are plentiful, and it was here, near the Kumbukkan-oya, that sixteen elephants were captured under licenses in 1899. Six more were captured without license, but were allowed to be kept on payment of R50 each.

In Wellassa, not far from Siyambala Anduwa, I saw tracks of a very large herd on 2nd April. They are also fairly plentiful about Dambagalla and thence towards Nilgala. They are found in Bintenna and in Wiyaluwa within twenty miles of Badulla.

They do much damage to crops in outlying places. I have also seen about fifteen coconut trees in a poor villager's garden laid low and torn to pieces by elephants. This was at Ulwita in Buttala Wedirata.

Tea in Russia.—Some interesting correspondence—sent by the Planters' Association—will be found on page 46. The experiment in growing tea near the Caucasus need not alarm us any more than what is done in Natal, or in Carolina, U.S., by worthy Mr. Shepherd. It is, however, specially interesting to learn that the consumption of Ceylon Tea in Russia is increasing so rapidly as these figures show:—

1895	...	...	2,000,000 lb.
1897	...	...	6,000,000 ,,
1898	...	...	11,000,000 ,,
1899	Estimate	...	17,000,090 ,, (?)

COCONUT PLANTING AND WEATHER NOTES FROM THE N.-W.P., CEYLON.

MARAWILA, June 2.

It is a comfort to be assured, on so high an authority as that of Captain Donnan, that we have yet to experience the "burst" of the big monsoon. Otherwise the prospect before coconut-growers, especially in the drier districts of the Island, will be very gloomy indeed. The rainfall we have had so far has been very deficient and has gone but a very little way to counteract the effects of the previous droughts (plura') on the north of Chilaw, before the rains of April. Water was not to be had for man or beast, except in the bed of tanks and of the Deduru-oya. A water-service had to be established for the coolies. Work had to be knocked off two or three hours earlier than usual on several days in the week and the coolies driven like cattle to the river to bathe and to wash their clothes, in order to keep them in health, a penalty being attached to those who did not go. The water-service for a bachelor's bungalow alone cost about six coolies a day. Rain fell heavily in April, four inches in one day, and about four times that during that month and yet the complaint is want of water. Those south of Chilaw were not so badly off for water as depicted above, as the lands are low-lying and the soil sandy and water nearer the surface, yet nearly 12 inches of rainfall in April did not saturate the soil below a few feet. May has been a dry month with us; rain has fallen on only six days and averaging a little over one-and-a-half inches, Under these circumstances it can well be imagined with what feelings of joy and hopefulness we read Captain Donnan's opinion.

It was only last week you repeated an oft made request for an Observatory for Ceylon It is passing strange that an omniscient newspaper editor did not then know that on the 24th May there landed in Ceylon from India a gentleman connected with the Meteorological Department of Madras. I heard him described as the Astronomer Royal of Madras. He had certain packages marked "Meteorological Department, India." Possibly he came over to take observations of the recent solar eclipse. [Which, if our correspondent had read the *Observer*, he would have known was invisible in Ceylon.—ED. *T.A.*]

SUGAR IN CEYLON IN DAYS OF OLD:

NEGOMBO, June 6.—The account of your visit to Baddegama, published in one of the back numbers of the *Observer*, in which you make reference to sugar cultivation in the Southern Province in the olden days, brought vividly to my recollection the attempted sugar industry in the Negombo District in the outlying villages of Katukenda, Petigoda, Delpakadawara, Dalupathgedera, &c., in the "forties." A French gentleman, named M. Chermont, acquired from Government considerable land in the villages mentioned, and, with the aid of the others, who I think formed a syndicate, parcelled them up in lots of hundreds of acres and commenced planting sugar-cane. Among the Superintendents were

MESSRS. STEWART AND FRASER.

The sugar plantation was carried on, on a rather lavish and expensive scale, the superintendents and others drawing very large salaries and horse allowance. The outturn of sugar was coarse and rather brown and I think it did not come up to the price first calculated upon. The whole concern went to smash in the end of the "forties" or beginning of the "fifties." I remember, as a boy, the large copper vats being carted from Katukenda, drawn by a large number of cattle and deposited near the Negombo Resthouse, where they were lying for sometime before removal to Colombo. The Company, after abandoning the sugar cultivation, sold up the land in parcels which fetched at the rate of *five shillings* the acre! These (about 3,000 acres) were all bought up by Hendrick Kure, commonly called Andris Baas, late of Moratuwa.

In one of these parcels of land, now owned by Lady De Soysa and called Katukenda Sugar Estate, might be seen the site of a former sugar mill. At the present time these lands are all flourishing coconut estates.—J. K.

THE PAPAYA AS A PROFITABLE CROP.

Now is the time to select large, well-formed fruit—*fruit that has ripened on the tree*—for seed. After consuming the fruit, select all the *dark-coloured* seeds, rejecting the rest; dry them in the sun, and sow in brandy cases, pots or pans. filled with leafmould and garden loam. When the plants are from three to five inches high, transplant singly into small pots filled with the same mixture. About the beginning of July put out into the permanent quarters the plants are to occupy. Here dig holes, ten feet apart either way, two feet wide and two feet deep. Fill these with well decayed cow manure and garden soil in equal parts, into which plant the seedings. Here they may be left to take care of themselves. They will grow apace most luxuriantly. When they begin to flower. watch should be kept for male and female trees, so that the male trees may be left alone, and attention directed to giving an occasional surface-dressing of cow manure to the female trees. The fruits usually set very close together; but they should be thinned out at an early stage, to give the others an opportunity of swelling and ripening. It is only by this means that you can obtain large well-formed fruit. The fruit ripens best during the hot, dry months of March, April and May. At this time heavy watering would spoil the flavour of the fruit; therefore, just sufficient water should be given to enable the fruit to swell. If you want good fruit, don't pluck till nearly ripe; then keep for 24 or 48 hours, according to the stage of ripeness, before using.

I was much struck by "Hortus's" remark in his article referred to above. He says: By a careful selection of seeds from male trees, which seem to have a special tendency for producing hermaphrodite flowers, I do not doubt that a variety could be produced in a few years in which this tendency should become fixed, and form the special character.

In the Calcutta market Papaya fruit realise from one anna to eight annas each according to size. A single tree, bearing from twenty to thirty fruits at an average of four annas each, would give a return of six rupees per tree. A plot of ground, 100 feet square, would carry 100 trees, which. at even an average of four rupees per tree, would give a return of R400, of which, say, R350 would be net profit. Here is something that promise to yield a good profit. —*Indian Agriculturist*, June 1.

THE OUTTURN OF THE MYSORE MINES.—The Director-General of Statistics in India having applied for particulars as to the quantity of gold in ounces and value in rupees produced by the Kolar Gold Mines from April 1899, to 31st March 1900. Messrs. Binny & Co., of Madras, have been requested by the Mining Board to furnish complete returns to the Director-General. The National Bank of India, Bombay, have been written to supply them with particulars of gold delivered to the Bombay Mint since January, 1900.—*Pioneer*, June 10,

"THE MANUFACTURE OF PLUMBAGO OR GRAPHITE":

IS IT TO BE ACCOMPLISHED "AS EASY AS SOAP" AT NIAGARA? ALSO THE MAKING OF REAL DIAMONDS EVENTUALLY?

We all know that the diamond and carbon are, in substance, identical. Indeed, this is practically true of the following substances which may all be put in the same category, and which owe their distinctiveness to different degrees of heat and pressure, namely :—PETROLEUM, PEAT, COAL, PLUMBAGO, AMBER, DIAMOND. A due amount of heat and pressure would have turned our plumbago into diamonds and made the Western portion of this island as rich a mining district as that of Kimberley. But today we have to deal with information which goes to show that there is a possibility of both plumbago and diamonds being manufactured on a scale that may seriously interfere with mining industries. Of course, the artificial, chemical manufacture of the diamond has been a very old threatened discovery; but we have not before heard of graphite being coupled with it, nor of operations on the large scale that is now revealed. We refer to a paper on "Hottest Heat and Electric Furnaces" by Sturgis B. Rand in the *Windsor Magazine* for May. We must say, in the first place, that if there was any immediate risk of graphite being economically and plentifully manufactured, an ever-watchful trade both in America and England would have had an inkling of what was approaching, long before the subject got into a monthly magazine, and we should have seen the result in altered prices. Still, although there is no immediate danger of the Ceylon Plumbago Industry being closed or even adversely affected by a manufactured article, which at first, at least, is likely to be both more costly and inferior in quality; yet we do not think the prospective manufacture is to be altogether ignored. It is an indisputable fact that the hottest furnaces in the world are now being operated by the Niagara Falls, and this is what Mr. Rand has to say of the result :—

Here clay is melted in vast quantities to form aluminium, a metal as precious a few years ago as gold. Here lime and carbon, the most infusible of all the elements, are joined by intense heat in the curious new compound, calcium carbide, a bit of which dropped in water decomposes almost explosively, producing the new illuminating gas, acetylene. Here also pure phosphorus and the phosphates are made in large quantities ; and here is made carborundum—gem-crystals as hard as the diamond and as beautiful as the ruby. Just now, too, an extensive plant is building for the manufacture of graphite, such as is used in making lead-pencils, lubricants, electrical appliances, stove-blacking, and so on. Graphite has been mined from the earth for thousands of years ; it is pure carbon, first cousin to the diamond. Ten years ago the possibility of its manufacture would have been scouted as ridiculous ; and yet in these wonderful furnaces, which repeat so nearly the processes of Creation, graphite is as easily made as soap. The marvel-workers at Niagara Falls have not yet been able to make diamonds—in quantities. The distinguished French chemist Moissan has produced them in his laboratory furnaces—small ones, it is true, but diamonds ; and one day they may be shipped in peck boxes from the great furnaces at Niagara Falls. This is no mere dream ; the commercial manufacture of diamonds has already had the serious consideration of level-headed, far-seeing business men, and it may be accounted a distinct probability.

As regards graphite, we repeat that, if it "were as easily made as soap," it is incredible that Ceylon plumbago should have recently been in unprecedented demand and at unprecedentedly high prices. Nevertheless, who is to dispute the possibilities of furnaces heated by electricity generated by the power of Niagara? We are told of one furnace so built that an amount of heat energy, equivalent to 700 horse-power, is produced in an arc cavity not larger than an ordinary water tumbler! As to the crystals or gems made, so great an authority as Geikie, the Scotch Geologist, was deceived : on being told they were manufactured, he exclaimed testily :—"These Americans! What won't they claim next? Why, man, those crystals have been in the earth a million years!" It seems to have been through the manufacture of the gems that artificial graphite was accidentally noticed. Thus we read :—

At the end of thirty-six hours the current is cut off and the furnace is allowed to cool, the workmen pulling down the brick as rapidly as they dare. At the centre of the furnace, surrounding the core, there remains a solid mass of carborundum as large in diameter as a hogshead. Portions of this mass are sometimes found to be composed of pure, beautifully crystalline graphite This in itself is a surprising and significant product, and it has opened the way directly to graphite-making on a large scale. An important and interesting feature of the new graphite industry is the utilisation it has effected of a product from the coke regions of Pennsylvania which was formerly absolute waste.

It is a pity that the opinion of a crucible-maker on the quality of the so-called graphite is not given. But Mr. Acheson, the investigator, confesses that there is much to learn yet of Nature's secret of great pressure in regard to "Diamonds" and the same may be true of "Graphite." Nevertheless, the potentialities of the "Electric Furnace" are, quite probably, beyond all present conjecture and we shall have more to say on the subject later on.

VANILLA.—Any one interested in Vanilla Culture should read the account of a successful experiment in Bengal recorded on page 52.

CACAO POD.—We have seldom seen a finer cacao pod of the yellow or Forestero variety than has been sent us by Mr. Drieberg from the Agricultural School. It is 9½ inches long by 14 inches in girth and weighs 2¼ lb., thereby beating the champion pod sent us some years ago by Mr. Drummond and recorded in our Directory's Planting Review. This is another evidence of how suited cacao growing must be for the majority of village gardens in the Western Province.

PLANTING IN LOWER PERAK.

This purely agricultural district is making steady progress. The revenue has again increased by 10 per cent., of which more than one half is due to a permanent increase in land rents. It will be remembered that some 14,000 acres were alienated in the previous year for sugar, coconut and rubber cultivation. In 1899 a further 640 acres were granted to Tek Kwi with 1,280 acres in reserve, and another 300 acres to Karmarasamy with a reserve of 200 acres, in addition to 1,056 applications for native holdings which were entertained for an area comprising some 7,000 acres. I have said that this is a purely agricultural district and so it has always been, but during the year 18 applications, comprising some 275 acres, have been lodged for mining land at Pasir Laut, marking a quite new departure in the development of this district. The opening of Mr. Turner's new estate of 1,100 acres is making great strides. —*Official Report.* [This is the new Sugar Plantation of Mr. Turner's Syndicate who mean one day to try sugar in North-East Ceylon.—ED. *T A.*]

KUALA LUMPUR.

It was not anticipated, as a reference to last year's report will show, that any substantial rise in the reveuue of this district would take place, nevertheless the revenue for 1898 was slightly exceeded in 1899. The depression in agriculture, particularly as regards products cultivated under European supervision in Selangor, is a matter of common knowledge, and it is therefore gratifying to find that rents on European estates have not fallen into arrears, with one exception.—*Official Report.*

KUALA SELANGOR.

This district does not show such encouraging results. The revenue not only fell far short of the estimate, but was less than that collected in 1898. The Collector of Land Revenue explains that rent and arrears, amounting to $2,443, were not paid on one large estate, but I cannot reconcile his statement that this sum will become payable in 1900, with another to the effect that the total arrears brought forward into the 1900 rent rolls amount to only $331.20. Possibly there is some special arrangement of which I have not been informed. A sum of $349 has been written off as irrecoverable. Licenses show an increase, but estimates for this district appear to have been somewhat over-sanguine. The cultivation of coconuts is largely on the increase, but wild pig are doing enormous damage. The District Officer says: "The Selangor Coconut Oil Company Mill has been in working order throughout the year. This district does not supply sufficient copra to enable the factory to keep going, but a certain amount is imported into Kuala Selangor from Jeram, Bernam and Telok Anson. I understand from the Manager, Mr. R S Meikle, that there is a ready sale for the 'poonac,' the refuse of the copra when the oil has been extracted. It is used for feeding horses, cattle and pigs, and is, I believe, extremely nourishing. Most of it is shipped to Australia, but a portion is sold locally and in Kuala Lumpur." I agree with the District Officer that it is a question whether the Government should not offer special advantages in order to encourage European capitalists to take up land in this district for sugar and other products similar to those grown in the Krian district of Perak.—*Official Report.*

A VISIT TO HULTSDORP MILLS.
THE NEW DEVELOPMENT IN MANURE WORKS, CHEMICAL LABORATORY, &c.

Hulftsdorp Mills were probably the first established in Asia for the manufacture of coconut oil, coir-matting, etc. The late Mr, David Wilson may be said to have been their founder, and the "Price Candle Company" had at one time a good deal to do with them. They afterwards became the property of Messrs. Antony Gibbs & Sons, of London, who, in 1885, appointed Messrs. Freudenberg & Co.—at that time a Colombo Firm of twelve years' standing—their Managers and Agents. So much by way of introduction to the following:—

Comparatively few residents in suburban Colombo are aware of the large extent of ground covered by the mills and storehouses of Fort firms, in the region alongside the canal between the Kelaniganga and St. Sebastian; establishments of which the largest and oldest is so well-known by the name Hulftsdorp. Of such mills there is none, moreover, more extensive or more picturesquely situated than this one, which is owned by Messrs. Freudenberg & Company, occupying as it does an area of fully 12½ acres, across an interesting bit of water as one approaches from Maradana. The mills are bounded by the canal along which produce, firewood, etc., are brought by natives for disposal to the mills. Several landing jetties are visible, and the selection of one of these, whenever there are goods to be deposited, is made by the authority in charge, according to the location of the store to which the produce will be transferred.

Calling the other morning, soon after 6 a.m., at which hour Mr. Walter Freudenberg is accustomed to go his rounds, our representative was shown over the various buildings by this chief representative (in Ceylon) of Messrs. Freudenberg's well-known Firm, accompanied by his able assistants—Mr. Brandis, who is in charge of the Hulftsdorp buildings, and Dr. Koller, the expert German chemist, late lecturer at Geneva University, who superintends the numerous chemical operations which are constantly being required.

Over the khaki-coloured gateway, one's attention is arrested by the date 1835 at which

THE FIRST MILLS

were built here—before entering the actual precincts. Before us was a large open space, looking comparatively quiet, no shipments of goods being at the moment in progress, but one which is bounded by a long array of warehouses and stores full of produce ready for sale or shipment. Across this we proceeded to inspect a new 400 horse-power engine, made by Messrs. John Fowler, of Leeds, the biggest mill-engine of its kind in Ceylon. It was put up in a remarkably short space of time, only 17 days being spent in the job—the foundations having been carefully prepared; the latter gave some trouble, both rock and water being found at no great depth. This engine was erected in

order to work the oil-crushing presses which are found in an adjoining room ; these, however, were temporarily out of use, pending the arrival of new crushing machinery.

From here we were shown the first long store of manure material, down the centre of which runs a toy tramway, where coolies were in course of piling up and then moving a trolley-load of full sacks. Sacks were piled nearly to the ceiling in every direction, containing pretty well every ingredient known, at least to the intelligent novice in agricultural chemistry—fish, bones, patent steam bone dust, bonemeal, rape seed cake, sulphate of potash, basic slag, sulphate of ammonia, nitrate of soda (a first shipment, by the way), nitrate of potash, muriate of potash, sulphate of iron, saltpetre, etc., etc.—20 substances in all, so the foreman stated.

There is, we believe, an impression abroad, amongst a portion of the planting community, that

CHEMICAL MANURE MANUFACTURERS

like Messrs. Freudenburg, will only supply prescriptions of their own and will not reveal the contents of the manure supplied. This may be the way with some, but, in the case before us, a visit to Messrs. Freudenberg's Hulftsdorp Mills would entirely remove such an impression. Here is an exceptionally large variety of chemical materials, ready to be made up according to any prescription the planter-proprietor or superintendent may desire, or may—from his own or others' experimental knowledge—have seen fit to apply ; and, further, (the more frequent method) according to any of Messrs. Freudenberg's tried formulae, which is always communicated to the recipient whenever required. In all this immense store, to which we have just referred, contained no less than 2,500 tons of chemical substances from which to draw from. In another spacious shed, on the site of an old soap factory, we passed through dense piles of sacks of castor-cake and bones, stacked ready for crushing. With regard to the bones, we should add that quantities are placed in large iron cylinders through which steam passes and renders the bones quite soft, reducing them to a crumbled state like that of broken shells on the seashore. The bone material is then ready for final crushing which produces the fine patent steam bone-meal, a favourite ingredient in manure mixtures owing to the fact that it decomposes in the soil more readily and thoroughly than almost any other. Near to the steam-fed cylinders is a 40-horse-power steam engine which works a powerful grinding machine, used for reducing castor-cake to the finest powder ; with the various sieves provided upon it, the cake is divided very finely. This immense "crusher" disposes of as much as 40-tons of castor cake in the day.

From here one passes into the specially

ODORIFEROUS ROOM, THE BONE MILL,

where a cigar, with or without a scented pocket-hankerchief, is felt to be a great, if not an absolutely necessary boon. For this is the room in which fish and bones are crushed.

Until lately "manure" fish had been easily obtainable from the Indian Coast in large quantities, and so popular among planters was the manure containing fish, that orders amounting to 200 tons had been on the firm's books at one time. But lately, plague regulations have interfered with the supply of this fish and for some time it has been unprocurable. Recently, however, imports of edible fish having proved excessive, native speculators had brought small quantities for sale at the mills—of their superfluous stock ; at first this was tentative, but the price obtained being satisfactory, further supplies had come in and to some small extent the lack of "manure" fish proper had been temporarily remedied.

It was interesting to watch the steady way in which the coolies went on poking away at the bone material (assisting its passage as it passed along the pipes into the crushing machines) ; others, handling fish, were quite heedless of odours disturbing to the more sensitive European as he pays but a butterfly visit. Looking back, the air appeared rather cleaner than might be expected where so many dried and separating particles were being set in motion ; but we were informed that the atmospheric excellence was due to a fan, put up by Mr. Maguire of the Sirocco Works, which carried off a large quantity of the dusty impurities of the air and lessened the objectionable smells considerably. In reference to fish manure we were informed that one favourite receipt used to run as follows :—

$\frac{3}{8}$ fish
$\frac{1}{4}$ bonemeal
$\frac{1}{3}$ castor cake

The next move, after visiting a landing jetty where copra brought down the canal could be landed under shelter, ready for transport to the store selected for it, was made in the direction of

THE LABORATORY.

Here we were struck not only with the cleanliness of the whole department, but with the convenient arrangement of the various shelves of chemicals and with one or two special apparatuses, such as are not found in any but experimental rooms where the most accurate work is required ; there were one or two revolving holders for bottles the contents of which required to be mixed. Another elaborate apparatus stood apart, for distilling water, according to latest improved methods. Most delicate of all, however, were a special set of scales, of a mechanism sensitive to the last degree, kept in a glass case and regulated by a series of screws working from different points, and weighing—to the 1—10,000th part of a gramme ! Dr. Koller has evidently the means and the ability to carry out every description of work appertaining to the Chemical Analyst, and not only soils but products and parts of growing plants should be sent his way. Analyses of soil are made here free of charge and every planter is able, by having the soil of the estate analysed, to apply such manures as are most suitable for that particular soil. Dr. Koller gives all information that buyers or intending buyers of manures may wish to possess and advises them as to the mixtures required. Any soil can be analysed and the

planter can be advised for what produce the soil is most suitable.

From here our way lay by

THE COOPERS' YARD

where scantily-clad athletic Sinhalese, were busy,—some, moving round blazing fires, hammering hoops downward around the staves that bent before this pressure and under the influence of the flaming heat within, while others were attending to casks in various stages of construction and engaged in testing the reliability of the finished casks. These were, of course, intended to hold coconut oil and a little further an immense yard was covered with huge oil-casks all more or less seasoned. It takes about six weeks for a cask to be thoroughly seasoned and tested. Many of the new casks are out in the yard a very short time before the oil penetrates between the fissures and parts of the surfaces shew the exuding oil: the casks are then marked by the inspector to be "pumped" and this is done into another cask by means of a hand-pump. The working of this hand-pump is only performed by natives of considerable muscular power, and the suppleness of their arms and wrists are brought into full play as the required twist is given to the instruments as they are raised and lowered with wonderful evenness. The unsound cask is then taken to have its bands tightened.

From here we made our way back to the entrance at one side of which was a small building devoted to

COIR WORK.

In the verandah door-mats were being made, while inside, in the nearer room, matting was being pieced together, and in the further the hand looms were at work, producing the matting material that is used for special carpeting and also for ordinary matting. Bags were being made out of the matting. These, we were surprised to learn, were in increasing demand, as they were taking the place of the large baskets for bringing tea leaf on the estates along wire shoots. There is much to be said for the new article, perhaps even as leaf-holders on the backs of pluckers in the field? They are probably cheaper and are at any rate far easier for transport in an empty state.

Proceeding to the opposite building, where the mill offices are situated, we were shown various specimens of extra refined coconut oil (such as one sees at very few Shows, even) and, in the course of further conversation, learnt more definitely of the magnitude of the work carried on. The acreage of the ground covered, as we have already stated, was not far short of 13 acres; while as to the number of natives employed, we may state that in the oil mill alone, when it is in full working order, there are no less than 200 hands engaged; while about 200 more find employment in the other Departments. We left Messrs. Freudenberg's Hulftsdorp Mills with an increased sense of the importance and practical usefulness of the large and varied work being carried on there, both to the native and the planting community.

Before modern scientific manuring was introduced by this firm in 1897 and notice taken of it in an article in the *Ceylon Observer* that year, there were used in Ceylon for manuring purposes almost alone:—

Castor cake
Patent steamed bone
Bone meal and
Fish maunre

—a list which contrasts well with that of the substances used today, which we have already detailed.

The Firm is sole agent in Ceylon for the United German and Austrian Thomas Phosphate Works—the largest concern of its kind in the world,—and also for the United Stassfurt Potash Works, which are by far the largest manufacturers of potash salts in the world. It is, therefore, naturally in a position to provide the best and cheapest basic slag and potash salts. The planter has many a want supplied by the produce of the Hulftsdorp Mills, from reliable manure, made precisely to his order, to the tea bag—used for estate transport, but perhaps some day to relieve the pluckers' baskets in the field; whereas the native curing his copra around his jungle home may always be certain of a ready sale of his goods when brought to the large mills of Messrs. Freudenberg at Hulftsdorp.

VANILLA CULTIVATION IN BENGAL.

A SUCCESSFUL EXPERIMENT.

During these last few years attention has heen greatly drawn to products which were likely to succeed in India and give satisfactory results. The cultivation of Vanilla has been taken in hand more than once, but somehow it has never had, really speaking, a thorough trial; the trial was not carried on long enough, although it was shown that this plant grows and fruits in Bengal without any difficulty. The experiments in the Alipore Gardens have not been carried out on such an elaborate scale as were attempted in several places in Bengal some years ago: in fact the plants were here growing almost in a wild state in a maugo grove, and snch as they were, they served all the more to show what little trouble there is attached to their cultivation. This experiment has been conducted under the above-mentioned conditions just to show that anybody possessing a grove of maugo trees can raise a crop of Vanilla without any further expense than the purchase of the plants to form a stock. In the gardens the Vanilla was planted at the base of the trees in good leaf mould, mixed with plenty of brick refnse, as drainage for the young plants; one put down they practically grew at their own sweet will, and soon attained fine vigorous growth. If this was done with a view of continuous production, the plants should not be allowed to grow over a certain height, say fifteen feet, as a maximum; if allowed to climb higher up, the work of fertilising the flowers wonld become almost impossible. Last year, in the beginning of March, the plants showed their flower buds, the plants then were occasionally syringed, and hy the 10th April the first flowers were fertilized. At the end of that month the flowers, which had set, looked dried up but still stuck to the pods, which were then beginning to lengthen out.

The main thing in growing Vanilla is of course the time when the flowers must he fertilised. This has to be done artificially. If left to themselves, perhaps, not one in a thousand would give a pod. This operation is thus of the greatest importance, and should be done very carefully: on it depends the whole result of one year's trouble. The *modus operandi* can, of course, better be shown than described, and it requires a little practice and a steady hand before one can do it quickly without spoiling the flowers or losing the pollen, etc. One must first of all prepare a

little piece of bamboo cut into the shape of a toothpick: in fact, I have done the fertilization with this last named article and it answered admirably.

The anatomy of the Vanilla flower is somewhat different from the general run of other Orchid flowers. At the extremity of the gynostemium there is a little cap covering the pollen; the first operation is thus to lift this cap and carefully take the pollen masses out on the end of the toothpick. Beneath this first receptable is another little lip covering the stigma; under this lip will be found the stigma covered with a sticky liquid. The second operation consists in lifting this lip with the very point of the toothpick, holding already the pollen; then, when the stigma is fully exposed, by a gentle twist apply the pollen on to it. When one has repeated this operation systematically a few times, it is really wonderful how quickly one can perform it. The segments of the flowers should be drawn well back so as to facilitate the operation, and held with the left hand together with the ovary; the operation of applying the pollen should be performed with the right, at the same time join the tips of the little fingers to steady both hands.

The pollen adheres very firmly to the stigma, and when once properly applied, there is little chance of its falling off. After the operation of fertilizing has been attended to, very little remains to be done. Nature then takes the matter in hand, and one has but patiently to wait the further development. The first sign by which one can detect whether the flower has set to fruit, is the way in which the segments stick to the top of the ovary. If not successful after a day, perhaps, a couple of days, these segments drop, leaving only the ovary, which soon drops in its turn. The pods after the first two or three weeks grow very steadily and attain their full size about the beginning of November. Then they gradually begin to lose the bright green colour, and by December the nose of the pod turns yellow first, then slightly brown; this is the time to gather the pods. The plucking of course must be done every day, for all pods do not ripen at the same time, and only those that part easily from the flower stem should be taken down.

After the gathering comes the curing. Having only a limited number of pods, they were sundried, wrapped up in woollen cloth, which I found answered very well. The pods developed a fine aroma and soon assumed that dark chocolate tint which I believe is recognized as very good.—A. J. B. Gisseleire, Superintendent, Agri-Horticultural Society's Gardens, Calcutta.—*Indian Gardening and Planting*, June 7.

FRUIT FARMING IN MYSORE.

In a recent official report, Mr. John Cameron commented on the backward condition of Fruit Culture in the Kadur district, remarking:—"With the exception of orange trees, which are found on some estates, fruits are not abundant; nor did I observe any organised attempt to grow this class of produce in quantity. Mr. Kirwan has in his fine garden at Santaveri a number of fruiting plants such as pineapple, strawberry, peach, orange, hill-gooseberry and banana. But they are grown on a limited scale, and more to represent their class than with a view to economy." As, however, "most of the kinds were growing well," there is no apparent reason why fruit farming should not prove a very useful adjunct to coffee-planting in Kadur. The inimical factors are said to be (*a*) the length of the monsoon accompanied by dense fogs and much cloudy weather; (*b*) the prevalence of fruit-eating birds, and (*c*) the pilfering habits of estate coolies. The first is a difficulty that may prove insurmountable in some places, but there are certainly remedies for (*b*) and (*c*); and we do not believe that any planter eagerly bent on pushing fruit cultivation would allow himself to be deterred from carrying out his plans by either feathered or human biped. The true difficulty appears to lie in finding a market. As things stand at present, there is not bulk enough to secure a minimum of transport expense, nor enterprise enough to set about *making* a market. Referring to this point, Mr. Cameron remarks that fruit must either be preserved on the spot, or conveyed by rail to the cities on the plains. In this connection it may be observed that, although there is at present no factory for the manufacture of jams and preserves on a large scale, one would probably soon be forthcoming if a sufficient fruit supply could be assured at a convenient centre. Then, too, there are well-known methods of drying fruit; while fruits such as oranges, apples, etc., are easily transportable to even distant places.

The orange itself affords perhaps the best proof available of the general indifference manifested with respect to the cultivation of fruit. In Kadur Mr. Cameron only found one variety, the "Coorg loose-jacket." Good as this is, we are not surprised that Mr. Cameron should suggest the introduction of other good varieties, such as the Seville, Malta blood and St. Michael's. Variety would certainly give an impetus to demand, and moreover it is fairly certain that all the above varieties would not ripen at one time, so that the measure suggested might lengthen the "season" during which oranges are obtainable. Mr. Cameron further recommends for cultivation in the drier parts of the hill zone (that is, the eastern and southern faces of the lower hills having a rainfall of 45 to 80):—

Apple	Dwarf bushes or maidens imported from California, Italy and Japan.
Peach	Ditto from Florida, Italy and Japan.
Plum	From Malta and Japan.
Pear	From California, France and Italy.
Mulberry	From Japan and China.
Pineapple	From Ceylon and Singapore.
Fig	From Southern Europe and Turkey.
Raspberry	Best English.
Strawberry	Ditto.

He remarks that raspberries and mulberries would stand a good deal of rain and cloudy weather; but in regard to fruit culture generally he considers that operations should be confined to the drier parts of the district, where there is elevation, in addition to shelter and means of irrigation. Many positions of this class would possibly be found on the lower slopes of the Baba Budans facing towards the east and south; but more particularly amongst the smaller hills dwindling down in the same direction to the plains. Except for oranges of sorts, the western portion of the district is too wet and gloomy during several months of the year. In addition to the exotic plants already recommended, the following novelties are mentioned for trial:—

Loquat	..	Eriobotria japonica
Sapodilla plum	..	Achras sapota
Litchi	..	Nephelium litchi
Alligator pear	..	Persia gratissima
Parangi	..	Carica Papaya.

He did not observe any spot sufficiently tropical and sheltered, as at Burliar on the Nilgiri ghat, for the cultivation of the Durian and Mangosteen. Neither are there suitable localities for the fruits of cold temperate climates, such as cherry, gooseberry, currant, etc.

As to conditions of cultivation, Mr. Cameron gives the following practical advice:—"A fruit garden should be fully exposed to sunlight. The land should be fairly good to start with and should be entirely free of roots from adjacent trees or crops. A sufficient water-supply must be available at a higher level or in wells to irrigate the whole of the garden. Land chosen for fruit culture should, in preference, be of the calcareous class. It may be level throughout or terraced. Very steep land is undesirable, and in cold situations a southern aspect is best. By efficient systems of drainage, and the judicious application of suitable manures the land would soon improve in quality. But it must not be forgotten that fruit crops are exhaustive to the soil in proportion to their outturn and duration. Therefore, the richness of the soil has to be carefully maintained as long as the production of fruit continues. The first operation, which consists of

trenching the land to a depth of 2 to 3 feet, reveals the nature of the subsoil and usually decides to what extent artificial draining is necessary. Subsoils of gravel, laterite, and sand would mostly afford natural drainage, except where the situation is lower than its surroundings. Drainage is most necessary in the case of a stiff clay. Fruiting plants are impatient of stagnant moisture at their roots. For this and other reasons the latter should be kept as near the surface as possible. It is only in the case of large trees, such as the coconut and jak, that deep land is needed for the cultivation of fruit.' Mr. Cameron concludes this interesting section of the report under notice by saying that all, or nearly all, the indigenous fruits would succeed in the *maidan* part of the district. The hog-plum, *Spondias magnifera*; hill-gooseberry, *Physalis peruviana*; Korinda, *Carrissa carandas*; and at least three species of Rubus (raspberry) were commonly found all over the hills. Bananas and plantains are not uncommon in the hamlets skirting the paddy-fields up to 4,000 feet.—*Planting Opinion.*

UNITED PLANTERS' ASSOCIATION (FEDERATED MALAY STATES).

[EXTRACTS :] LATEST MEETING, MAY 7TH.

COFFEE.

The CHAIRMAN said that at the general meeting held on 14th August last the Association had expressed its cordial approval of a scheme for stimulating the consumption of coffee, proposed by the *South American Journal*, and he had written to the Editor to that effect. Subsequently, the Editor abandoned his original suggestion and proposed instead that a coffee roasting company or syndicate should be formed and invited our Association to take shares and supply coffee. This matter was considered at a Committee meeting on 12th January last, and it was decided that the Chairman should write and inform the Editor that we were not in favour of this idea and could only support the original proposal, which had been done. In an editorial on 17th February, 1900, the Editor expressed his pity that we should have come to such an important conclusion, especially after the arguments he had advanced, but we have our own opinion on that point and there the matter may rest.

Mr. T H HILL had written several letters to the Hon. Secretary, on the subject of sending regular supplies of coffee to Messrs. Sanderson and Company in London, with the view of bringing our coffee more into favour, and after consideration by the Committee the Chairman was asked to write to Messrs. Sanderson and Company on the subject, at the same time sending samples of machine-dried and sun-dried coffee and asking their advice as to which was most suitable. This the Chairman had done, having sent two samples of machine-dried and two samples of sun-dried coffee, and nothing further could be done until we heard from Messrs. Sanderson and Company. Mr. Hill had also suggested that a small shipment of coffee should be sent to Aden and had taken a great deal of trouble to arrange for the treatment of the coffee there. The Committee thought favourably of the experiment, and the Co-operative Coffee Trading Company, Port Dickson, were prepared to arrange for the shipment. It was, however, stipulated that a sample of the coffee sent should be submitted to the United Planters' Association Committee, and also that the coffee should be submitted to an expert in London before being handed over to the Kajang Coffee Company for sale. The Chairman said he thought this a matter which the Association might well take up, and it was for the meeting to decide as to guaranteeing payment for the coffee or not. After some discussion, it was resolved unanimously that the Association should guarantee the payment.

RUBBER.

The CHAIRMAN said there had been an idea that it would be a good thing to send a practical man to Brazil to enquire into the Para and other rubber questions, and he had been asked by the Committee to write to the newspapers on the subject, which he did. The article had been favourably received, but since then he had met Mr. Michie, a well-known Ceylon gentleman, who had spent about a year in Brazil, and his opinion was that there was nothing to be learned by going to that country and any money could be much better spent here. The whole of the system of tapping and curing was carried out in a crude and primitive way and no cultivation was attempted. Mr. Coates corroborated what Mr. Michie had said, as he was in Brazil with him when he made the enquiries. Mr. Bailey said he, also, was of opinion that we could spend the money much better by experimenting ourselves on trees in the Malay States and the Colony. The Chairman said he was also of that opinion, particularly as a qualified man from Kew would soon be available to carry out such experiments, and in the meantime the Committee had instructed the Hon. Secretary to write to the Resident-General's Office asking them to get all possible information about Para rubber and gutta rambong—such as method of tapping, yield, etc.—and suggesting Sumatra as a likely place to get information about rambong.

PROSPECTS.

The CHAIRMAN said: Coffee was higher than last year, and, although there had been a slight drop in the market lately, the opinion of those in the trade was that the present depresssion could not last much longer. Rubber of all kinds was doing well in these States and coconuts also promised to be a good source of revenue. Our labour market was in a better position than it had ever been, no doubt greatly owing to the Indian famine, but they had also to thank the Resident-General for what he had done for them in connection with the extension of the cheap-ticket system and the importation of labour by Government for Public Works. The Experimental Garden and Agricultural Department had been, at last, brought to a definite conclusion, and they had also to thank Sir Frank Swettenham for what he had done for them in this matter. As they would see in the report, there were now 95 members on the roll, against 99 last year, and he regretted to say that Perak was responsible for this falling off, their 16 having dwindled away to two. He hoped that Perak would soon reconstruct their district Association.

Mr. E. V. Carey was re-elected Chairman, and as Mr. Tom Gibson could not stand again, Mr. M. Sidney Parry was elected Hon. Secretary.

GUTTA IN THE STRAITS.

THE NEED OF PLANTING AND PROTECTION.

(*From Pahang Administration Report for 1899.*)

The gutta percha producing tree (*Dichopsis gutta*), known locally and in Singapore as "getah taban merah," is the one most in need of protection. It is a very slow-growing tree, and, when it has obtained a girth of three feet in circumference, which it takes about thirty years to do, it yields about two katies, or 2⅔lb. of gutta, and the collection of this involves the felling of the tree. It is an essential material in the construction of submarine cables, and it is only to be found in the southern part of the Malay Peninsula, Sumatra and Borneo. It consequently commands a much higher price than any of the other guttas, and, for this reason, is much more liable to extermination. It is laid down in the Farm Rules that no trees of less than three feet in circumference are to be felled, but it is almost impossible to enforce this rule, and there is no doubt that a large number of immature trees of less than the prescribed girth are being destroyed. Recently, a system of rewards for information leading to a conviction for breach of the rules has been introduced. It is probable that this, when it becomes well known, will prove more efficacious in preventing the felling

of immature trees than any other method yet tried, but it is not likely to put an entire stop to the practice. Though saplings still exist in large numbers, there are very few fully matured trees. In fact, up to the present time, I have not met anyone who can show me one anywhere, except in the very remotest parts of the State. If these are felled and the younger trees cut down before they are old enough to bear seed, the jungle will, in a few years, become entirely denuded of these valuable trees, and the greatest care will have to be taken to prevent this. In an earlier paragraph of this report I have alluded to the probable necessity of prohibiting, for a term of years, the collection of gutta, after the expiration of the present Gutta Farms in July next; but, though such prohibition is likely to be desirable, it may prove quite impossible to enforce, except at very great expense.

The above facts all point to the necessity of opening large plantations of "taban" trees. Unfortunately, owing to the tree being such a very slow-growing one, it is not a form of planting that could be profitably pursued by private individuals or firms. It must, therefore, if it is to be done at all, be undertaken by the Government. Gutta from Pahang commands a higher price in the Singapore market than that from any other part of the Peninsula or elsewhere. The climatic conditions and nature of the soil in Pahang appear to be more favourable to its growth than are those of the Western States. It would, therefore, most probably be the best State in which to commence planting gutta percha on an extensive scale. As Pahang does not possess the funds requisite for this, it might with advantage be made a Federal charge, each State sharing, in proportion to the amount of its contributions, in such profits as might eventually accrue.

PRODUCE AND PLANTING.

THE TEA TRADE OF JAPAN.—The tea trade of Japan cannot be considered as flourishing. Mr. A. H. Lay, the British Assistant-Consul at Tokio, in his report on the trade of Japan, gives some interesting information in regard to the tea industry. The quantity of tea exported from Japan during 1899, he says, exceeded that shipped abroad during 1898; but all the same the tea business in Japan is becoming more and more unsatisfactory each year, and, for the foreign merchant, at any rate, there is, little or nothing to be made out of it. In quality the tea of 1899 compared unfavourably with the crop of 1898. The practice of picking the young leaves in the early spring before they are properly matured, for the sake of obtaining exorbitant prices for small quantities, is undoubtedly having a very injurious effect on the plants, and it is surprising that Japanese tea growers do not realise this fact. But it is not only from the effects of the injudicious system of picking that the Japanese tea industry is suffering. The trade with Canada, Mr. Lay points out, is appreciably affected by the competition of the Ceylon and India growers, who, by extensive advertising and other methods, are bringing their produce prominently before the public. The Japanese, on the other hand, are making no efforts whatever to advance the sale of their teas, and as Ceylon green teas are now making their appearance in Canada, where their sale will be vigorously pushed, the future of Japanese tea in that market cannot be regarded as bright.

THE TEA TRADE OF ICHANG.—A Consular report states that the trade of Ichang, China, is entirely with native treaty ports. There is no direct foreign trade. Exports include tea, which is prepared for export at the place of production, Ta-ch'i-k'ou, about a hundred miles west of Ichang; 74,800lb. of this tea were exported to Hankow, but resulted in a financial loss. The advent of steamers to run between Ichang and Chung-king is expected to increase exports from and ultimately imports to Chungking, and thereby increase imports into and re-exports from Ichang.—*H. C. Mail*, June 1.

SCIENTIFIC MANURING.

Four years ago we wrote as follows on this subject:—

There is, perhaps, no direction in which money can be more easily wasted in connection with the cultivation of tropical products, than in the purchase and application of manures. Not only should the fertiliser purchased be tested by the analyst; but also the soil to which manure is to be applied. Not only does the soil of one district differ from another; but it may be that adjacent plantations require very different treatment. But there is the great temptation among planters to follow some one particular lead; or there is the feeling that for Ceylon tea bushes. "bones and castor-cake or fish manure" cannot fail to do good. Possibly not; but it is equally certain that a previous examination of the soil might supply information which would lead to considerable economy or to a great deal more lasting benefit from the application of fertilizers.

At that time, the supply of fertilizers according to scientific investigation was in its infancy amongst us and we believe not more than four distinct substances were in use. The great advance made in the interval will be best understood from a perusal of an account of a visit to the Hulfsdorf Manure Establishment and Laboratory, which is given on page 50, and which, we feel sure, will be perused with interest, especially by planters.

PLANTING NOTES.

GUTTA PERCHA.—The Straits authorities are awaking to a sense of the need of protecting their very profitable gutta-yielding tree (*Dichopsis gutta*) and also of putting out trees on special plantations of the same. We refer to interesting remarks on the subject from the Administration Report on Pahang, given on page 54.

RUBBER IN SUMATRA.—Gutta plantations have largely been started on the East Coast of Sumatra. The Russian-American India Rubber Company have just begun operations there. The Tanah Priok Cultivation Company now follows suit. It proposes to grow rubber on a scale sufficient to admit of 240.000 trees being available in seven year's time. Rubber grows wild in large quanities in East Sumatra.—*Straits Times*.

SUN-FLOWER OIL.—We have at times drawn het attention of our readers to the commercial value of the cultivated Sun-flower, and have advocated its being planted out on waste plots. We now learn from a Russian chemist that the plant is extensively cultivated in Russia, which produces nearly 300,000,000 pounds of seed from 216,000 acres. The seed yield—oil and seed cake—is good food for poultry, and the flower produces a yellow dye, honey and wax. Potash is derived from the stalks, which are also used as fuel. Cigars are made from the leaves, and it is claimed that the plant is a preventive of fevers, and is at the same time a good cattle food. The oil is pale yellow in colour, thicker than hempseed oil, flavourless but palatable. Mr. Machalske obtained from 1,300 lb. of seed kernels 34 per cent. of raw oil having the appearance of the best qualities of refined cotton seed oil.—*Indian Planters' Gazette*, June 2.

M. Prudhomme—our French Agricultural visitor (Director-General of the Department in Madagascar)—left for Europe by the French mail-steamer last month. He has now been travelling for six months, visiting Java, Sumatra, the Straits Settlements, Ceylon and Calcutta; but he comes back after a couple of years, to give some weeks or months to India by itself.

Tea Planting at Malacca.—A Colonial Office Report, from Singapore, on planting in the Straits Settlements, says that a good tea plantation has been thoroughly established in Malacca, which finds a local market for its produce. An enterprising syndicate of Chinese has taken up the business.—*Pioneer*, June 20.

New Duties in France.—The new French duties to come into force on 1st September bear very hardly on Ceylon produce, and the doubling of the tax on tea will go far to destroy any benefit that might have accrued to tea industry from the Paris Exhibition. The Ceylon Association is in communication with the Colonial Office on the subject, and it is understood that the London Chamber of Commerce will also take the matter up. The enhanced rates are as follows:—

					kilos.
Coffee	from	156 to 300	francs	per	100
Tea	do	208 to 400	do	do	100
Pepper	do	208 to 400	do	do	100
Cloves	do	208 to 440	do	do	100
Shelled Nutmegs & Mace	do	312 to 600	do	do	100
Vanilla	do	416 to 800	do	do	100

—London Cor., local "Times," communicated.

[The new French Duty on tea will, therefore, be a fraction over 1s. 6d. per pound!—Ed. *T.A.*]

A French "Planters' Association."—In a recent issue of the Tonkin French paper *L'Avenir du Tonkin*, we notice that a "Syndicate of the Planters of Tonkin" was about to be formed. From the proposed rules of the Syndicate, subscribed to by a membership of 91, we learn that its object is to centralise at the headquarters of the Syndicate information of every kind, documents, specimens, &c., and to bring mutual assistance to the planters and facilitate operations of sale and purchase. For active membership all settlers in the colony and companies or persons owning estates or plantations are eligible; for associate membership, all settlers or companies without such property. Active members alone will have the right to effect sales or purchases, through the intermediary of the Syndicate; these transactions are to be gratuitous and will not require any commission. The headquarters of the Syndicate will be at Hanoi and its affairs will be managed by a Committee of ten (elected by the active members) who will settle the dates of the annual meetings and arrange where they are to be held. The work of such a Syndicate, it will be seen, will be, if the initial rules are adhered to, confined far more to internal trading than the opening of foreign markets for local produce or influencing the local and home Governments with a view to beneficial legislation—such as our Ceylon P. A. aims at.

The Dear Elephants.—The teak trade in Siam is hampered by the increasing dearness of the elephants which drag the logs from the forests. Five years ago, elephants cost only 1,000 to 1,500 rupees each. At present, the price is from 3,500 to 4,000 rupees. The cost of labour, too, has risen over 50 per cent.—*Straits Times*, June 15.

The Duty on Tea in France—which is now about 11½d per lb. (or 208 francs per 100 kilos)—will after September 1st be a fraction over 1s 6d per lb. (400 francs per 100 kilos), unless the remonstrances now being offered to the French fiscal authorities, prevent this backward step. Little Belgium has actually no duty on tea.

Ceylon Publications in Paris.—The editor of the *Revue des Cultures Coloniale* has given several favourable notices of works that have issued from the *Observer* Press and that bear on agricultural topics, showing how keenly they are alive to what may help French colonists abroad. He especially notes the *Ceylon Handbook and Directory* and refers to "two portions of extreme "interest, namely that on the Meteorology "of Ceylon and the general sketch of the "Agriculture of Ceylon, covering nearly 200 "pages."

Gemming in Ceylon.—From the Administration Report for 1899, Mr. L. W. Booth, Government Agent, of the Province of Sabaragamuwa, we make two extracts:—

Gemming.—It may be said that plumbago drove gems out of the market last year. Gemming, never a paying industry, is much less so now, as most of the accessible localities likely to contain gems have been searched. It will however continue to exercise its fascination, for if the blanks are many, the few prizes are dazzling. There was a general impression that if European and scientific methods were substituted for the primitive and crude ones now obtaining, the industry could be made a remunerative one. But the death-blow to that impression was dealt by the failure during the year of the European syndicate who laid out a large sum on plant and employed highly-paid experts. Their failure was due to the bad choice of a site and the expensiveness of their establishment. A better fate might have attended search in river beds conducted on scientific but less extravagant methods. The beds of rivers are supposed to be rich in gems, and they have not been explored to the same extent as valleys, owing to the greater difficulties which attend search in them and obtaining of licenses and the unsuitability of the Sinhalese methods for places where the water is deep. Gemming in navigable streams is not allowed for obvious reasons. Gemming in streams that are not navigable is not, as a rule, allowed, as the people living in villages through which the streams flow are dependent on them for their water supply both for drinking and irrigating purposes. Licenses are however issued to gem in parts of streams where it is shown that no inconvenience to the public will result by gemming. The lease of the right to gem in a section of the Niri-ella stream was sold from 1898 to 1899 for R760, and as the digging was very successful the lease for 1899 to 1901 fetched R2,020. The only innovation as yet adopted in river gemming is the use of the diving machine. One similar to that used by the Austrian Navy was recently worked by an Austrian, with, it is believed, good results.

CAMPHOR.

Of all exotics that are used for ornamental purposes, none has taken so kindly to New South Wales as the Camphor tree. On hard stiff clays, and in barren sand, and even in paved yards, this beautiful evergreen can be found flourishing most luxuriantly. Nothing appears to attack its foliage or wood, and if a tree gets too big for its surroundings and is ruthlessly pruned, not many months elapse before it sprouts again, and becomes a mass of delicate and fragrant verdure. Until quite recently the demand for the well-known resin of this tree was not extraordinary, being confined to the requirements of the druggist; but of late years it has been used in continually increasing quantities in the conversion of collodion cotton with the material known as celluloid, which is applied to the manufacture of imitation ivory, tortoise shell, horn, and a great variety of ingenious deceptions. It is easy to understand that anything that can be utilised in the substitution of artificial for fast disappearing natural production has a great future, and since the tree grows like a weed in so many parts of this Colony, it is worth while considering whether local manufacture of camphor could not be successfully attempted here.

The following details concerning the tree, and its products are taken from a special report written in 1897 by Mr. Lyster H. Dewey, of the United States Division of Botany, and reprinted in Kew Bulletin:—

Native Range.

The camphor tree is native in the coast countries of Eastern Asia from Cochin China nearly to the mouth of the Yang-tse-kiang, and on the adjacent islands from the southern part of the Japanese Empire, including Formosa and the Loochoo Islands, to Hainan, off the coast of Cochin China. Its range also extends into the interior of China as far as the province of Hupeh, about 500 miles from the coast on the Yang-tse-kiang, in latitude 30° north. This area, extending from 10° to 34° north latitude and from 105° to 130° east longitude, is all embraced in the eastern monsoon region, which is remarkable for abundant rains in summer.

The Camphor trees growing wild in the native range are usually most abundant on hillsides and in mountain valleys where there is good atmospheric as well as soil drainage. The temperature in the greater part of this region, which is partly within the tropics and partly subtropical, rarely falls below freezing. The tree is an evergreen, changing its leaves generally in April, and therefore the winter temperature is a factor of more importance than would be the case with a deciduous tree.

Description.

The camphor tree is an evergreen, related to the bay and to the sassafras of the United States. In its native habitat it attains a height of 60 to 100 feet, with wide-spreading branches and a trunk 20 to 40 inches in diameter. The leaves are broadly lanceolate in form, acuminate at both base and apex, of a light green colour, smooth and shining above and whitish or glaucous on the under surface. The lower pair of lateral veins are more prominent than the others, but the leaves are not as distinctly three-nerved as those of the cinnamon and many other species of the genus. The small white or greenish-white flowers are borne in axillary racemes from February to April on shoots of the previous season, and are followed in October by berry-like, one-seeded fruits about three-eighths of an inch in diameter. The fruiting pedicles terminate in a saucer-shaped disc, perishing after the mature fruit has fallen.

Range under Cultivation.

Notwithstanding the comparatively narrow limits of its natural environment, the camphor tree grows well in cultivation under widely different conditions. It has become abundantly naturalised in Madagascar. It flourishes at Buenos Ayres. It thrives in Egypt, in the Canary Islands, in south-eastern France, and in the San Joaquin Valley in California, where the summers are hot and dry. Large trees, at least 200 years old, are growing in the temple courts at Tokyo, where they are subject to a winter of seventy to eighty nights of frost, with an occasional minimum temperature as low as 12° to 16° F. The most northern localities in the United States, where the camphor tree has been grown successfully out of doors, are Charleston and Summerville, in South Carolina, Augusta, Ga , and Oakland, Cal.

At Charleston Sommerville, and Augusta the trees have withstood a minimum temperature of 15° F., but they have been protected by surrounding trees and buildings. At Mobile, Ala., the trees have grown and fruited in protected situations, while in exposed places they have been repeatedly destroyed by frosts. While the camphor tree will grow on almost any soil that is not too wet, it does best on a well-trained sandy or loamy soil, and it responds remarkably well to the application of fertilizers. Its growth is comparatively slow on sterile soils, but under favourable conditions it sometimes grows very rapidly. An instance is recorded of a camphor tree in Italy a foot in diameter and 90 feet high, eight years from the seed. Under ordinary conditions, however, such a girth is not often attained in less than twenty-five years, and such a height is rarely attained in a century. Under favourable conditions an average of 30 feet in height, with trunks 6 to 8 inches in diameter at the base, may be expected in trees ten years from the seed

Uses of the Tree and its Products.

The principal commercial uses of the camphor trees are for the production of camphor and camphor oil. Camphor is employed extensively in medicine. It enters into the composition of many kinds of liniments for external application. For liniment it is used especially in combination with olive oil. It is taken internally for hysteria, nervousness, nervous headaches, diarrhœa, and diseases affecting the alimentary canal. It is a specific in cases of typhoid fever and cholera. Camphor fumes have been used with success in cases of asthma. It has been used very extensively to keep insects out of furs, woollens, etc. In Japan, camphor and camphor-oil are used in lacquer work. The oil is somewhat similar to turpentine, and could doubtless be used to advantage in varnishes and shellacs. It is now used in the manufacture of toilet soaps. In Japan and China it has been used for illuminating purposes, but it produces a smoky flame.

Among the secondary uses of the camphor tree the most important is for ornamental planting. Its bright evergreen leaves, rapid growth, and long life make it valuable for this purpose. In Japan and China it has been the principal tree planted in the temple courts for many centuries, and in those countries, it takes the place of the historic oaks of England. It has been extensively introduced into Southern Europe and South America for ornamental purposes.

The wood, with its close grain, yellow colour, and susceptibility to polish, taking a kind of satin-like finish, is exceedingly valuable in cabinet-work, especially for making drawers, chests, and cupboards proof against insects. The leaves and young branches, although they have but a slight odour of camphor, are packed with clothing or scattered about unused rooms to guard against insects.

The tree produces an abundance of berry-like fruits, which are used in Japan and China to make a kind of tallow. The fruits are greedily eaten by chickens and birds.

Conditions of Successful Cultivation.

For most of the secondary purposes, the camphor tree may well be cultivated wherever it can be made to live; but for commercial distillation, and for the production of wood for cabinet purposes, it must be grown under the most favourable conditions. The minimum winter temperature should not be below 20° F., and this minimum should be of rare occur-

rence. The soil, preferably sandy and well drained, shonld be irrigated nnless there are abundant rains. Fifty inches of water during the warm growing season is desirable, and much more may well be used where the air is very dry.

An abundance of plant-food, rich in nitrogen, is required for rapid growth, but the kind of fertilizer that can be most profitably applied will vary according to the character of the soil in each locality. In the absence of definite information in this regard the kind of fertilizer producing most rapid growth of wood in the orange or in other fruit trees may be taken as an index,

Propagation.

Camphor tree s may be grown eitber from seed or from cuttings. They are usually grown from seed, as the trees fruit abundantly, and seedlings can be grown more easily than cuttings. The seeds are collected at maturity in October and November, and after drying are packed in sharp wbite sand or some similar material to keep them fresh until the time of planting in spring. About the last of March they are shown in drills in the seed bed.

The soil of the seed bed should be a good sandy loam mixed with about one-third leaf mould. The seed bed should be kept moist, but not too wet, and should be shaded from the direct rays of the snn if the weather is warm. The best soil temperature for germinating camphor seeds is from 70° to 75° F. The temperature of the atmosphere may be ten degrees higher. The seedlings will grow well at higher temperatures, but are likely to lack vigour and hardiness.

The seedlings may be grown in pots, which will facilitate transplanting at any time, or they may be transplanted in nursery rows early in April when one year old. Plants two years old are generally regarded as best for final planting. At this age they vary from 20 to 40 inches in height.

Planting and Cultivation.

In Japan, where the law requires that a new tree shall be set out for every one cut, they are not generally set in strait orchard rows, but cultivation there is performed almost exclusively by hand labour. There are no records showing results or regular orchard planting, hence the distances at which trees should be planted must be determined by the size and form of the trees and the methods of cultivation and of procuring the gum. They may be set closely in rows about 10 feet apart, and alternate rows cut and reset every five years, thus producing bush-like plants of ten years' growth. They may be planted in checks 10 feet square, and alternate trees cut every ten or twelve years, or they may be planted in larger cbecks, and all of the trees be cut at the age of fifteen or twenty years.

There are not sufficient data obtainable upon which to base definite statements as to the best methods of planting, or the age at which the trees may be cnt with greatest profit. A recent English consular report from Japan states that, "although hitherto the youngest wood from which oamphor was extracted was ahont seventy to eighty years old, it is expected that nnder the present scientific management the trees will give equally good results after twenty-five or thirty years." Camphor of good quality has been prodnced in Florida from the leaves and twigs of trees less than twenty years old, 1 lb. of crude camphor being obtained from 77 lb. of leaves and twigs.

The trees will endure severe prnning with little apparent injury. One-third of the leaves and young shoots may be removed at one time without materially checking the growth of the tree. The largest proportion of camphor is contained in the older, larger roots; the trunk, limbs, twigs, and leaves containing successively a decreasing proportion. When the camphor tree is killed nearly to the ground by frost it sends np vigorous shoots from the base. It may he expected to do the same when cut, especially if cut late in the fall, Experiments are needed to determine whether this growth may be depended upon or whether it will be more profitable to dig out the larger roots and set out new seedlings.

Distillation.

In the native forests in Formosa, Fukien, and Japan, camphor is distilled almost exclusively from the wood of the trunks, roots, and larger branches. The work is performed by hand labour, and the methods employed seem rather crude. Different methods of distillation are employed in different districts, bnt those in use in the province of Tosa, in Japan, appear to be the most skilful. The camphor trees are felled, and the trunk, larger limbs, and sometimes the roots, are cut into chips by hand labour with a sharp concave adze.

The fresh chips are placed in a wooden tub abont 40 inches high and 20 inches in diameter at the base, tapering toward the top like an old-fashioned churn. The perforated bottom of the tub fits tightly over an iron pan of water on furnace of masonry. The tub has a tight-fitting cover, which may be removed to put in the chips. It is surrounded by a layer of earth about 6 inches tbick to aid in retaining a uniform temperature. A bamboo tube extends from near the top of the tub into the condenser. This consists of two wooden tubs of different sizes, the larger one right side up, kept about two-thirds full of water from a continuous stream which runs out of a hole in one side. The smaller one is inverted with its edges below the water, forming an air-tight chamber. This air chamber is kept cool by the water falling on the top and running down over the sides. The upper part of the air chamber is sometimes filled with clean rice straw, on which the camphor crystallizes, while the oil drips down and collects on the surface of the water. In some cases the camphor and oil are allowed to collect together on the surface of the water and are afterward separated by filtration through rice straw or by pressure.

About 12 hours are required for distilling a tubful by this method. Then the chips are removed and dried for use in the furnace, and a new charge is put in. At the same time the camphor and oil are removed from the condenser. By this method 20 to 40 lb. of chips are required for 1 lb. of crude camphor.

The principles generally held to be essential in distilling camphor of good quality are :—(1) The heat must be uniform and not too great, producing a steady supply of steam; (2) the steam after liberating the camphor must not come in contact with metal, that is, the tub and condensing apparatus must be of wood.

Suggested Improvements.

Many improvements upon the methods described can doubtless be made, tending both to a reduction in cost and an increase in the proportion of crude material obtained. Instead of an adze wielded by hand labour a machine similar to the "hog" used for grinding up waste slabs in sawmills may be used to reduce camphor limbs to the requisite fineness for distillation. Better distilling apparatus can probably be devised. Thermometers may be introduced to determine the heat in the distilling tub, and the furnace may be so arranged as to permit better control and greater economy in fuel. Camphor and camphor-oil are both slightly soluble in water, and the condensing chamber should be improved so as to recover the product that is being constantly carried off in the running stream which cools the chamber

Outlook for Future Market.

The consumption of camphor in the United States, as measured by the importations, has been decreasing during the past ten years, while the price has been increasing.

The Tariff Act, approved July 27, 1897, imposes a duty of 6 cents per pound on refined camphor, and leaves crude camphor on the free list, as heretofore.

There has been an increase in importations of refined camphor, due to improved methods of refin-

ing and packing in Japan and to changes in the tariff, but this increase has been much more than counterbalanced by the decrease in importation of crude camphor. The decrease may be attributed to the following causes:—(1) the exhaustion of the supply of the available camphor trees near the shipping ports; (2) the governmental restrictions on the trade in camphor in Formosa; (3) government taxes on the exportation of camphor from Formosa; (4) hostilities and wanton destruction of camphor stills by the natives in Formosa; (5) disturbances in the camphor-producing district of China; (6) the China-Japan war; (7) attempts by speculators to corner the market.

These causes have increased the price of camphor, and this in turn has led to the introduction of substitutes. Menthol and other peppermint derivatives or compounds, carbolic acid and its derivatives, naphthalin, formalin, and insect-powder are now used for various purposes where camphor was formerly employed. Camphor has been manufactured artificially, at a cost leaving a margin of profit at present prices. It is therefore apparent that if the production of camphor from the trees is to be carried on with profit in this country, and the industry increased to any considerable extent, the price of camphor must be reduced to compete with the prices of substitutes now taking its place.

Camphor has been obtained from several other plants not at all related to the ordinary camphor tree, but only two kinds. Borneo camphor and Blumea camphor, are of any importance commercially.

Borneo camphor is obtained from the camphor tree of Borneo and Sumatra, *Drybalanops aromatica.* It is deposited in clefts and hollows in the wood, and has simply to be taken out. This camphor is comparatively rare, and the supply is consumed almost exclusively in China, where it is valued at from thirty to ninety times as much as ordinary camphor.

Blumea camphor is obtained by distillation from *Blumea balsamifera*, a shrub growing in Burma and the Malay Peninsula. This is usually refined in Canton, whence about 10,000lb. are exported annually. The source of this supply is abundant, and as the industry develops it is likely to enter more into competition with ordinary camphor. Neither of these plants can be grown in the United States, except possibly in Southern Florida. without protection against cold.—*Agricultural Gazette, N. S. Wales.*

PLANTING IN GERMAN EAST AFRICA.

In the December issue of *Der Tropenpflanzer*, Berlin, are the following interesting accounts of G. E. A.:—

The Coffee plantation Sakarre (Usambara). The annual report of the financial year 1898-99 shows that the plantation situated in west Usambara suffered less from the drought of the preceding year than the coffee plantations situated in the eastern slopes of the Handai mountains. In the summer of 1898, *i. e.* at the beginning of the financial year, the plantation numbered 300,000 trees and in the course of the year *i. e.* until the end of July, 220,000 more were planted, so that the entire plantation consists of 520,000 trees, which gives the plantation in respect of size the third place among the coffee plantations of Usambara (coming next to Magrotto and (Union). A dwelling-house, an office and two stables have been erected in place of the temporary buildings. Besides the plantation roads, preparatory works on the high road which is to connect Sakarre with the future railway station Korogwe have also been completed. On this road, near the river Garia, the storehouses are to be built. The number of labourers varied between 300 and 400, for the greater Wanyamwesi. The village Sakarre has become an important market place, to which even the inhabitants of distant villages send their produce. The origiual capital of 700,000 marks has been raised to 1,200,000 marks in an extraordinary sitting on the 16th of May, and the new shares have been nearly all taken up by the former shareholders. The accounts show that the cost of each tree up to now, including buildings, management, etc., is about one mark.

This plantation is therefore one of the most cheaply managed in Usambara.

What account a plantation costs in German East Africa.—In the "German East African Zeitung" of October 7th is to be found the following rough estimate of a plantation of 10,000 palms made by an expert:—

Purchase of young palms, R. 40-50 per 1000	R.	400-501
Carrying them to their respective places	,,	100-150
Planting 10,000 palms, 4 labonrers 50 days @ R. ½	,,	100-125
Total	R.	600-675 (*sic*)

Generally speaking the cost of one palm until the time of bearing may be estimated at R1½. There may however be favourable conditions under which a coconut plantation does not incur further expense than the cost of buying the land or paying the rent. This is the case when there is a concession to settle down on the plantation a number of families for the space of six years. They receive the right to plant muhogo and bananas in retrrn for a third of the produce and the obligation to look after a certain number of palms. The muhogo at the same time serves for shading the young trees. This third part of the produce of the soil should cover the purchase of the seedlingsand young palms. The *Tropenpflanzer* also has the following abont the fibre plantation at Kurasini, Dares-Salaam:—The original plantations consisting of 150 hektars, were bonght later on. At first only abont 30 labourers were employed as it was an experiment. Work was begun on April 25th, 1895. The first 45 nnrseries were laid ont in Jnne 1895 and in the beginning of 1896 the first plants were put out. Up to spring 1897, 27 hektar had been planted; on the 26th March 1898 150 hektars were covered. The species cnltivated is the Manritins hemp (Furcroya gigantea) the fibre of which is of less valne than sisal hemp, but the plant is more easily grown.

The plants were set 9 by 9 ft. apart which gives 111 plants to 1 hektar.

The machine for cleaning has been at work since December 12th, 1898. It gives about 140 lbs. per day. In Augnst the first 45 bales, of 250 lb,, were shipped. A light railway has been constrncted, 1½ km. of which are already in use. There are actually 60,000 plants ripe for harvest. It is estimated that from the time of planting plants are ready for harvest in about 3 years time. Each leaf weighs about 2 kgr. At the first cutting each plant had about 70-80 leaves; 1,000 leaves give on an average 40 lb. dry fibre so that one hektar produces about 1,000-1,250 kar. (1-tons; the fibre was 1-1½ m. long and had a nice whit appearance.

A ton of fibre fetched during the last year 400-500 marks in Hamburg. If the whole plantation were laid out at the same time 240 hektars wonld in three years produce 300 tons of fibre, worth 120,000 marks.

Compared to other products the cultivation of fibre is very simple and cheap. As long as the price does not fall from overproduction my opinion is that the cultivation of fibre is very profitable.

AN INCH OF RAIN.

What does an inch of rain mean? Few person have a definite idea as to what is involved in the term. It may aid those whose opinion on the matter is not as fixed and positive as it might be to follow this calculation: An acre is equal to 6,272,640 square inches. An inch deep of water on this acre will be as many cubic inches of water, which at 231 to the gallon is 27,154 gallons. This immense quantity of water will weigh 228,190 lb. or 114 tons. One-hundredth of an inch (·01) alone is equal to over one ton of water to the acre.—*Queensland Agricultural Journal.*

PRODUCTION OF IPECACUANHA.

One of the most widely used of all vegetable drugs is the powerful emetic ipecacuanha, which is obtained from a Brazilian shrub. The French Conseller de Commerce, at Cuyaba, in the State of Matto Grosso, Brazil, gives in a recent report an interesting account of this plant, which has in that State and the neighbouring districts its only habitat. The drug is obtained from plants which attain a height of from 12 to 16 inches. The leaves are oval, dark green, and sharply ribbed, and the white flowers give place to an ovoid fruit containing black seeds. Besides the *Ipecacuanha Cephoelis*, or the "white ipecacuanha," as it is generally known, there are several other varieties which are somewhat different, but all are used for the same purpose, and are distinguished as brown, black, and striated ipecacuanha. The drug is obtained from the root of the plant, where it occurs in quantities about the size of a quill, between the layers. The taste is acrid and bitter, and the odour is nauseating. That found next to the bark is most active in its effects, having in the highest degree the emetic property, due to the active principle known as 'Emetine." The state of Matto Grosso which as before observed, is the habitat of the plant, is one of the richest in Brazil, among its many natural products being gold and diamonds, rubber, sarsaparilla, jalap, jaborandi, copaiba, various gums and drugs of several kinds. Ipecacuanha is found in the north and north-west of the San Luiz-de-Caceres, formerly in the Villa Maria region, and its habitat covers an immense area comprised between a network of rivers in Brazil, Bolivia, and Paraguay. The dense of foliage of the forests of this region provide the dank and humid conditions which favour the growth of the shrub. The Brazilian product is known as Rio Ipecacuanha, and the product secured from similar shrubs in other countries passes under the name of the port from which it is shipped. Attempts have been made to transplant the shrub and to cultivate it in British colonies in various parts of the world, but without success, and Brazil continues to be the only source of supply for the best grade. The process of gathering the plant is perfectly simple, and during the rainy season, while the ground is soft, is very easy. A stick is inserted under the root, and while this is raised with one hand the entire plant is pulled out with the other. As little care is given to the protection of enough plants to secure a future supply, the output is growing smaller and the price consequently higher each year. The scarcity of workmen is a great difficulty. In the dry season the roots cannot be gathered, and it is at this season when any one adapted to the work is engaged in gathering rubber. During the rainy season, from October to to April, when the plants may be easily drawn from the ground, women are usually employed for the work.—*Journal of the Society of Arts.*

WEEDS ON PATHS.

These may be destroyed without breaking up the paths by treating with hot brine—1 lb. salt to 1 gallon water; or 1 part sulphuric acid to 30 parts water; or 1 oz. carbolic acid to 1 gallon water; or 1 lb. powdered arsenic in 10 gallons water. To dissolve the arsenic, place it in 3 gallons cold water, bring up to boil and keep stirring, then while boiling add 7 gallons water and 2 lb. washing soda.—*Queensland Agricultural Journal.*

GOOD MANURES.

For Potatoes.—3 cwt. superphosphate, 2 cwt. kainit, and 1 cwt. sulphate of ammonia. Mix before planting.

For Cabbages and Cauliflowers.—3 cwt. bonedust, 1 cwt. sulphate of potash per acre, followed by a top dressing, after the plants have recovered from transplanting and commenced to grow, of $1\frac{1}{2}$ cwt. of sulphate of ammonia, mixed with soil and sprinkled round the plants.—*Queensland Agricultural Journal.*

COFFEE SHADE TREES.

[SPECIALLY TRANSLATED FOR "INDIAN GARDENING."]

M. PIERRE, late Director of the Jardin d'essai of Saigon, in reply to a request of the Editor of the *Revue des Cultures Coloniales*, treats in the January number of that Journal, of the Kapok tree utilised in Java as a shade tree for coffee. He states that there are two trees known in Malaya as the "Kapok cetan" and the "Kapok." *Kapok cetan.*—Bombax ceiba L.; Bombax malabaricum D. C., Salmalia malabarica Sch. et. Endl. This is a tree of 60 to 90 feet, which attains a considerable diameter, 18 to 36 inches. It secretes a gum known in India under the name of *Muchi.* With age the trunk becomes hollow. Its wood is white with loose fibres, not durable, very light, and has but small value relatively to its employment in the manufacture of buoys, boxes and toys. The endocarp of its fruit is covered inside with a silky gloss of short fibres of which the only use is to stuff certain articles of furniture, cushions, pillows, mattresses, etc. Perhaps it might be used in hat making. It is certain that no one has yet succeeded in spinning the fibre.

The fact that it loses its leaves in the dry season contests its utility as a protective tree in coffee plantations. However, it might be found of advantage when a rapid result is desired, because its branches have the property of striking root at all times in soil the least favourable.

Kapok.—Ceiba pentandra (L) Gaertn; Eriodendron anfractuosum, D. C. Bombax pentandrum L. This is the "silk-cotton tree" of the English and the "ouatier" of the French colonies. All the properties of the *Bombax ceiba* are those of the *Ceiba pentandra*, and in order to be complete it may be said that oil in small quantities may be extracted from the seeds of the two species."

It appears then (continues M. Pierre). that the only advantage of these trees in a coffee plantation is to take root quickly from cuttings; thus quick-set hedges in Indo-China and elsewhere are made rapidly, completely and very economically by setting the best developed branches particularly those of *Ceiba pentandra.* Their produce in wood, silk, resinous gum and the oil from their seeds, does not appear to me of sufficient importance to take into account.

To shade a coffee plantation with trees losing their foliage in the dry season seems to me of an utility little demonstrable, if it is remembered that it is positively in that season that the effects of reverberation make themselves felt.

That is a personal opinion which may be contested. Nevertheless, it is permitted to me to think that it would be more practical to make trial with other growths, even though their foliage should offer the same drawback with those of the Kapok; and in that way I make allusion to rubber plants such as Hevea, Manihot, etc.; necessarily many other useful plants might combine with the cultivation of coffee. Their number is considerable: first, at the commencement of a coffee plantation, bananas, above all the Musa textilis, would reduce in a large measure the expenses of planting, all in fulfilling the role of protection from or straining the sunlight, claimed for the Kapok. The Bread-fruit tree, the Jak, the Garcinias productive of gamboge, the Ochowa Gabonii, so rich in sebaceous matter and in the same order, the Pentadesma butyracea and leptonema, the Allanblackia Klainii, Sailenxii and Stuhlmanii, the Poga and Paud oleosa, the Ongokea Gore, the Vitellaria paradoxa (which is always wrongly called the Butyrospermum Parkii), etc.—*Indian Gardening.*

THE CABLE LAID FROM PARA up the Amazon was quickly destroyed by the driftwood of the mighty river, and a landline is now in course of construction. About 180 miles of it are completed, notwithstanding the expense and difficulty of cutting a way through the tropical forests.—*Globe, June 1.*

TEA IN JAPAN.

Mr. A. H. Lay, the British Assistant-Consul at Tokio, in his report on the trade of Japan. gives some interesting information in regard to tea industry in that country. The quantity of tea exported from Japan during 1899, he says, exceeded that shipped abroad during 1898; but all the same the tea business in Japan is becoming more and more unsatisfactory each year, and, for the foreign merchant at any rate, there is little or nothing to be made out of it. In quality the tea of 1899 compared unfavourably with the crop of 1898. The practice of picking the young leaves in the early spring before they are properly matured, for the sake of obtaining exorbitant prices for small quantities, is undoubtedly having a very injurious effect on the plants, and it is surprising that Japanese tea growers do not realise this fact. But it is not only from the effects of the injudicious system of picking that the Japanese tea industry is suffering. The trade with Canada, Mr. Lady points out, is appreciably affected by the competition of the Ceylon and India growers, who, by extensive advertising and other methods, are bringing their produce prominently before the public. The Japanese on the other hand, are making no efforts whatever to advance the sale of their teas, and as Ceylon green teas are now making their appearance in Canada, where their sale will be vigorously pushed, the future of Japanese tea in that market cannot be regarded as bright.—*Financial Times*, May 31.

CEYLON TEA COMPANY.

The Directors submit the Ninth Annual Report for the year ending 31st March, 1900

The considerable sum standing to debit of Profit and Loss Account, including also the amount irrecoverable owing to the failure of the New Oriental Bank Corporation, Limited, has now been reduced to R550·31 only, so that from next year a dividend is likely to become payable.

The position of the Company is sound, while the important work of pushing and advertising pure Ceylon Tea at the Tea Kiosk in Colombo and throughout the world has been maintained. The quality of the Tea supplied in the dry state and the excellence of the Tea in cup as served to Visitors at the Kiosk have been subject of favourable remark during the year.

As usual a memo of places to which Tea has been sent during 1899-1900 is appended. It includes:—

Australia, Austria, America, Burma, Belgium, Canada, China, Denmark, Egypt, France, Germany, India, Italy Madagascar, New Zealand, Nova Scotia, Norway, Syria, Sumatra, Straits Settlements, Great Britain and Ireland.

RAINFALL RETURN FOR COLOMBO.

Supplied by the Surveyor-General.)

	1895.	1896.	1897.	1898.	1899.	Av of 30yrs.	1900.
	Inch.	Inch	Inch	Inch	Inch.	Inch.	Inch.
January ..	5·00	2·92	3·81	2·32	6·98	3·22	3·72
February ..	0·81	0·35	1·68	1·98	2·78	1·93	0·63
March ..	1·84	5·64	3·66	4·21	0·88	4·78	3·71
April ..	9·34	5·93	10·97	22·81	6·66	11·31	15·12
May ..	10·09	9·31	8·30	5·80	17·73	12·09	10·63
June ..	13·99	8·37	10·14	10·94	9·23	8·37	7·83
July ..	0·52	2·85	5·24	6·15	1·11	4·38	0·01*
August ..	0·92	6·35	9·09	0·97	0·62	3·67	
September	4·09	10·99	4·58	6·90	1·43	5·01	
October ..	30·36	16·78	4·71	20·60	12 99	14·52	
November..	5·83	19.81	11·66	17·38	8·58	12·66	
December..	9·44	11·76	8·89	3·05	4·44	6·39	
Total..	92·23	101·06	82·73	103·11	73·48	88·33	41·65

* From 1st to 4th July 0·01 inch, that is up to 9·30 a.m. the 5th July.—ED. *T.A.*

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS FOR MAY 1900.—We append the Monthly Return of rain from which it will be seen that the highest fall in May, was at Kalutara in the Western Province, 13·60 inches and the lowest at Lahugala in the Eastern Province, 0·20 inches.

WESTERN PROVINCE

Negombo, Mr. Bucknall (6) ... 4 13
Kalutara Mr. Gregson (36) .. 13·60
Labugama, Mr. Bond (369) ... 10·76
Henaratgoda, Mr. Silva (33) .. 5·85

CENTRAL PROVINCE.

Katugastota, Mr. Morgan (1,500) ... 2 90
New Valley, (Dikoya) Mr. Ward (3,700) .. 5·00
He'boda (Pussellawa) Mr. Anderson (3,300) .. 7·09
Yarrow Estate, .. Mr. Pedwick (3,400) 4·11
Peradeniya Mr. ... MacMillan (1,540) ... 2·91
Duckwari, Mr. Edwin (3,300) ... 3·20
Caledonia, Mr. Goork (4,273) .. 3·70
Pussellawa, Mr. ... Powell (3,000) .. 5·38
Hakgala, Mr. .. Nock (5,581) .. 5·93
S. Wanarajah Estate, Mr. Tatham (3,700) .. 3·59
Padupola, Mr. Ward .. (1,636) ... 10·12
Mylapitiya, Mr. Fletcher (1,767) ... 1·15

NORTHERN PROVINCE.

Mullaittivu, Mr. Sanmukam (12) .. 1·83
Jaffna Mr. Macdonnel (8) 0·76
Mankulam, (N. Road) Mr. Walker (167) ... 0·87
Elephant Pass, Mr .. Silva (7) .. 0·26
Vangalachettykulam, Mr. Oorloff (179) .. 1·10
Point Pedro, Mr. Chitambalam (24) ... 0·40
Jaffna College, Mr. Cooke (9) ... 1·34
Kayts, Mr. Kretser .. (8) .. 1·93
Kankesanturai, Mr. .. Pararachasingha (10).. Nil
Pallai, Mr. Silva (24) .. 3·40
Murlkandy, (North-Central Road) Mr. Silva (7) 2·40
Nedunkeni, Mr. Sanmukam (122) ... 3·53
Chavakachcheri, Mr. Silva (16) ... 0·22
Udupiddi, Mr. Brown (35) .. 1·09
Marichchukaddi, Mr. T. Pillay (14) 0·85
Murungan, Mr. Ramalinkam (52) 0·29
Vavuniya Mr. Walker (318) 2·92

SOUTHERN PROVINCE.

Ella Vella Mr. Caldicott (262) 2·54
Kekanadura, do (150) 4·12
Denagama, do (286) 3·14
Udukiriwila Mr. Lourensz (235) .. 1·45
Kirama, Not received (260) —
Hali-ela Mr. Caldicott (200) 2·35
Tissa Mr. Silva (75) .. 2·17
Matara Mr. Caldicott (15) 3·34
Dandeniya, do (175) 2·45
Urubokka, Mr. Caldicott (890) 0·44
Tangalla Mr. Fox (94) 0·87
Mamadola, Mr. Doole (56) .. 1·42

EASTERN PROVINCE.

Irrakkumam, Mr. Bower (42) ... 3·36
Devilana, Mr. Vanderstraaten (136) 3·87
Sagamata, Mr. Bower (40) ... 0·73
Ambare, do (65) 4·41
Kanthalai, Mr. Carte (150) 0·33
Allai, Mr. Carte (95) 1·76
Rukam, Mr. Vanderstraaten (120) ... 3·50
Periyakulam, Mr. Carte (20) ... 0·37
Chadaiyantalawa, Mr. Edge (57) 1·34
Kalmunai, do (12) 3·79
Rotewewa, do (30) 0·72
Lahugala, do (70) 0·20
Naulla, do (30) 0·80
Andankulam, Mr. Carte (41) ... 0·38
Manalpuddy, Mr. Vanderstraaten (21) 1·50
Maha-Oya-Tank, Mr. Vanderstraaten (190) 4·20
Potuvil, Mr. Brown — 0·33

N.-W. PROVINCE.

Magalawewa, Mr. Gunaratna (176) .. 3·68
Maha Uswewa tank, Mr. Addams (160) ... 2·80
Tenepitiya, Mr. Churchill (8) ... 2·70
Batalagoda, Mr. Madahapola — 4·45

N.-C. PROVINCE.

Kalawewa, Mr. Emerson (268) 1·75
Maradankadawala, Mr. Emerson (443) ... 3·70
Mihintale, Mr. MacBride (354) .. 0·37
Horowapotana, Mr. MacBride (217) .. 1·50
Madawachchiya, Mr. MacBride (285) .. 2·90
Topare, Mr. Jayewardane (200) .. 10·84
Minneriya Mr. Eves — 6·02

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) .. 3·58
Haldummulla, Mr. Viramuttu (3,160) .. 10·90
Kumbukan, Mr. Rowland (446) ... 2·30
Koslanda, Mr. Rowland (2,258) ... 7·86
Tanamalwila, Not received (550) .. —
Bibile, Mr. Silva (680) 2·9
Taldena, Mr. Fernando (1,100) .. 1·87
Allutnuwara—Mr. Leembruggen (300) 3·18

SABARAGAMUWA.

Ambanpitiya, Mr. Dassanayaka (729) 4·37
Pelmadulla, Mr. Robertson (480) 8·53
Kolonna Korale (Hulanda-oya) Mr. Dabre (203) Nil
Avisawella, Mr. Clarke (105) .. 9·18

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	—	900	—
Ceylon Tea and Coconut Estates	500	-	500 n'l	—
Castlereagh Tea Co., Ltd.	100	—	90	95
Ceylon Hills Estates Co. Ltd..	100	—	—	—
Ceylon Provincial Estates Co. Ltd.	500	—	500	—
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	—	—	—
Clyde Estates Co., Ltd.	100	40	—	—
Doomoo Tea Co., Ltd.	100	60	65	—
Drayton Estate Co., Ltd.	100	—	—	—
Eila Tea Co., of Ceylon, Ltd.	100	..	60	—
Estates Co., of Uva, Ltd.	500	225	—	—
Gangawatta	500	—	—	—
Glasgow Estate Co., Ltd.	500	—	950	—
Great Western Tea Co.,	500	640	—	—
Hapugahalande Tea Estate Co.	200	200	—	—
High Forests Estates Co., Ltd	500	512·50	525	—
Do part paid	350	—	400	—
Horekelly Estates Co., Ltd..	100	—	..	—
Kalutara Co., Ltd.	500	—	350	—
Kandyan Hills Co., Ltd.	100	—	67·50	—
Kanapediwatte Ltd.	100	—	90	--
Kelani Tea Garden Co., Ltd.	100	40	—	—
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	65	—
Maha Uva Estates Co., Ltd	500	—	425	—
Mocha Tea Co., of Ceylon, Ltd.	500	600	—	—
Nahavilla Estate Co., Ltd.	500	—	450	—
Neboda Tea., Co. Ltd	500	—	500	—
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estate Co., Ltd.	100	—	—	—
Palmerston Tea Co., Ltd.	500	-	400	—
Penrhos Estates Co., Ltd.	100	92½	95	—
Pine Hill Estate Co., Ltd.	60	—	42½	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	--	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co. Ltd.	100	50	55	—
Roeberry Tea Co., Ltd.	100	--		—
Ruanwella Tea Co., Ltd.	100	—	—	—
St. Heliers Tea Co., Ltd.	500	510	—	—
Talgaswela Tea Co., Ltd.	100	—	—	—
Do 7 per cent. Prefs.	100	—	..	—
Tonacombe Estate Co., Ltd.	500	—	450	—
Udabage Estate Co., Ltd.	100	—	..	—
Udugama Tea & Timber Co., Ltd.	50	—	..	—
Union Estate Co., Ltd.	500	..	...	—
Upper Maskeliya Estate Co. Ltd.	500	—	470	...
Ovakellie Tea Co., of Ceylon, Ltd.	100		—	..
Vogan Tea Co., Ltd.	100	...	80	..
Wanarajah Tea Co.,Ltd.	500	..	..	..
Yataderiya Tea Co., Ltd.	100	..	375	..

CEYLON COMMERCIAL COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	..	..	..
Bristol Hotel Co., Ltd.	100	95	...	..
Do 7 per cent Debts.	100	107·50	...	..
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	215	...	..
Colombo Apothecaries' Co. Ltd.	100	145	...	..
Colombo Assembly Rooms Co., Ltd.	20	12·50	..	...
Do prefs.	20	...	..	..
Colombo Fort Land and Building Co., Ltd.	100	85	...	85
Colombo Hotels Company	100	..	300	...
Galle Face Hotel Co., Ltd.	100	145	..	...
Kandy Hotels Co., Ltd.	100	..	120	120
Kandy Stations Hotels Co.	100	..	30	...
Mount Lavinia Hotels Co., Ltd.	500	150	..	...
New Colombo Ice Co., Ltd.	100	..	..	175
Nuwara Eliya Hotels Co., Ltd.	100	...	30	...
Do 7 per cent prefs.	100	..	..	..
Public Hall Co., Ltd.	20	15	...	..
Petroleum Storage Co.	100	..	..	..
Do 10 % prefs.	100	...	...	..

LONDON COMPANIES *

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon,	10	8½	9½—10	..
Anglo Ceylon General Estates Co.	100	..	35—45	..
Associated Estates Co., of Ceylon	10	..	3—4	...
Do. 6 per cent prefs.	10	..	6½—7½	..
Ceylon Proprietary Co.	1	...	⅝—⅞	..
Ceylon Tea Plantation Co., Ltd.	10	..	26—27	..
Dimbula Valley Co., Ltd.	5	..	5½—6	..
Do prefs.	5	..	..	...
Eastern Produce & Estates Co.	5	...	5½—5¾	...
Ederapolla Tea Co.,	10	...	8	...
Imperial Tea Estates Co., Ltd.	10	...	..	
Kelani Valley Tea Asscn., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	7—8	..
Lanka Plantation Co., Ltd.	10	4½	4—5	..
Nahalma Estates Co.,Ltd.	1	—	¼—¾	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	..	...	10¼
Ouvah Coffee Co., Ltd.	10	..	5—7	..
Ragalla Tea Estates Co., Ltd.	10	..	10	..
Scottish Ceylon Tea Co.,Ltd.	10		13—15	...
Spring Valley Tea Co., Ltd.	10	3	4—5	..
Standard Tea Co., Ltd.	6	..	11—12	..
The Shell Transport and Trading Company, Ltd.	100	..	.	302
Yatiyantota Ceylon Tea Co., Ltd.	10	...	8—9	...
Do. pref. 6 o/o	10	...	9¾—10¼	..

BY ORDER OF THE COMMITTEE.

Colombo, July 6th, 1900.

* Latest London Prices.

THE LOCAL MARKET.

Colombo, July 6th, 1900.

COFFEE:—	
Estate Parchment per bushel	None offering.
Chetty do do	None offering.
Native Coffee per cwt.	None offering.
do F. O. B per cwt.	None offering.
Liberian coffee:—per bushel	None offering.
do cleaned coffee:—per cwt	None offering.
Cocoa unpicked:—per cwt	None offering.
do cleaned do	None offering.
Cardamoms Malabar per lb	R0·90 to 1·25
do Mysore do	R1·25 to 1·50
RICE:—	
Soolai per bag of 164 lb. nett	R9·40 to 9·50
Slate or 1st quality:—per bushel	R3·48 to 3·50
Soolai 2 & 3rd. do do	R3·40 to 3 45
Coast Calunda	R3·70 to 3·75
Coast Kara	R3·75 to 3·87
Kazala	R3·38 to 3·40
Muttusamba Ordinary	R4·50 to 4·87
Cinnamon per lb No 1 to 4	R00·58 to 00·58½
do do 1 and 2	R00·63
do Chips per candy	R86·25 to 87·50
Coconuts Ordinary per thousand	R35·00 to 38·50
do Selected do	R36·00 to 39·50
Coconut Oil per cwt	R13·87 to 14·00
do do F. O. B. per ton	R318·75 to 320·00
POONAC:—	
Gingelly per ton	R130·60 to 132·50
Coconut Chekku do	R90·00 to 92·00
do Mill (retail) do	R85·00
Cotton Seed per ton	R85·00
Copra per candy	
Kalpitiya do	R44·00 to 45·00
Marawilla do	R42·50 to 44·00
Cart Copra do	R36·00 to 42·00
Satinwood per cubi feet.	R2·00 to 2·25
do Flowered do	R5·00 to 6·00
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R75·00 to 175·00
Kitul fibre per cwt	R28·00 to 30·00
Palmyra do do	R8·50 to 15·00
Jaffna Black Cleaned per cwt	R14·00 to 15·00
do mixed do	R12·50 to 13·00
Indian do	R9·00 to 12·50
do Cleaned do	R9·00 to 13·50
Sapanwood per ton	R52·50
Kerosene oil American per cases	R8·25 to 8·50
do bulk Russian per tin	R3·52 to 3·60
do Russian per cases	R7·30 to 7·40
Nux Vomica per cwt	R2·00 to 3·50
Croton Seed per cwt	R23·00 to 28·00
Kapok cleaned f o b per cwt	R24·00
do uncleaned do	R5·50
Plumbago per ton, according to grade — Large lumps	R400·00 to 800·00
Plumbago per ton, according to grade — Ordinary size lumps	R350·00 to 600·00
Plumbago per ton, according to grade — Chips	R200·00 to 450·00
Plumbago per ton, according to grade — Dust	R50·00 to 150·00

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 2nd July, 1900.

CARDAMOMS:—

All round parcel, well bleached	per lb.	R1·50
Do. dull medium	do.	1·25
Special assortment, 0 and 1 only	do.	1·70
Seeds	do.	1·35

CINCHONA BARK:—

Per unit of Sulphate of Quinine 10c—1½ to 3 o/o

CINNAMON:—

Ordinary assortment	per lb.	58½c.
Nos. 1 and 2 only	per lb.	63c,
Nos. 3 and 4 only	per lb.	54c.

CINNAMON CHIPS:—

Per candy of 560 lb R87·50

COCOA:—

Finest estate red; unpicked per cwt	R52·00	scarce.
Medium do do	,, 44·00	
Bright native, unpicked and undried	,, ..	
Ordinary do do do	,, ..	

COCONUTS—(husked).

Selected per thousand	R44·00
Ordinary ,,	R34·00
Smalls ,,	R27·00

COCONUT CAKE—

Poonac in robins f. o. b. per ton R80 Sellers at R81/25

Do. in bags none.

COCONUT (Desiccated).

Assorted all grades per lb. 13¾c

COCONUT OIL—

Dealers' Oil per cwt. R14·00

Coconut Oil in ordinary packages, f. o. b. per ton R317·50.—Business done.

COFFEE—

Plantation Estate Parchment on the spot per bus. R11·00.—None offering.

Plantation Estate Coffee f.o.b. (ready) per cwt.—R65.00.—None offering.

Native Coffee, f.o.b per cwt. R12·50.—None offering.

CITRONELLA OIL—

Ready do per lb. 65c.

COPRA—

Boat Copra	per candy	of 560	lb.	R45·00
Calpentyn Copra	do	do	do	R45·00
Cart	do	do	do	R42·00
Estate	do	do	do	R45·00

CROTON SEED per cwt R22·00

EBONY—

Sound per ton at Govt. depot R175.—As per last Government Sales, of 15th November.

Inferior R120.—As per last Government sales of 15th November.

FIBRES—

Coconut Bristle No.	1	per cwt	R10·50
Do ,,	2	,,	8·00
Do mattress ,,	1	,,	3·50
Do ,,	2	,,	3·00
Coir Yarn, Kogalla ,,	1 to 8		18·00
Do Colombo ,,	1 to 8		16·00
Kitool all sizes			38·00
Palmyrah			16·00

PEPPER—Black per lb 28c.

PLUMBAGO—

Large lumps	per ton	R800
Ordinary lumps	do	700
Chips	do	500
Dust	do	400
Do (Flying)		150

SAPANWOOD— per ton R52·50

SATINWOOD (ordinary) per cubic ft. R2·40

TEA—

	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	55	42	32
Orange Pekoe do	55	37	29
Pekoe do	43	33	28
Pekoe Souchong do	35	28	24
Pekoe Fannings do	29	29	23
Broken mixed—dust, &c. per lb	26	20	18

CEYLON EXPORTS AND DISTRIBUTION, 1899-1900.

COUNTRIES	Tea. 1900 lbs.	Tea. 1899 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs	Cinnamon. Bales lbs.	Cinnamon. Chips. lbs.	Coconut Oil. 1900 cwt	Coconut Oil. 1899 cwts
To U K.	56419370	50363492	2341	..	2341	13637	192214	347790	133494	112747	49422
,, Austria	5902	6816	..	..	..	..	..	1500	19600	3038	1855
,, Belgium	2115	8883	54	..	54	206	...	23631	55241	722	404
,, France	108409	69851	..	...	..	59	3407	71488	23484	...	..
,, Germany	188596	196843	252	..	252	204	59850	218600	304934	5443	401
,, Holland	2000	4670	..	..	..	...	...	..	22400	..	..
,, Italy	5007	8169	..	..	..	...	519	39509	55216	..	205
,, Russia	4296699	1822489	88	..	88	..	..	..	...	..	..
,, Spain	15130	11300	..	...	..	...	..	85?00	16800	..	..
,, Sweden	43218	23746	9	..	9	..	4051	2400	..	...	206
,, Turkey	11203	10202	..	..	..	..	1000	...	..	...	..
India	342150	244576	73	4	77	...	33545	..	..	27502	23368
,, Australia	7849385	7404753	1757	..	1757	20	336	4220	11816	83	373
,, America	2517826	1441200	85	..	85	361	..	179000	93000	21479	56442
,, Africa	82578	134739	...	..	..	..	1456	100	2408	...	..
,, China	766592	469638	21	...	21	82	1800	40000	...	622	2880
,, Singapore	50932	28907	1	..	1	405	..	..	..	...	17812
,, Mauritius	700	17420	..	..	..	..	...	...	..	..	..
,, Malta	209553	125087	..	...	.	..	..	..	..	...	...
Total export from 1st Jan. to 2nd July 1900	72917366	62382781	4381	4	4385	14974	298178	1013232	743396	181636	153368

COUNTRIES	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts. No.	Plumbago. 1900 cwts.	Plumbago. 1899 cwts.	Fibre.	Ebony cwts.	Sapanwood cwts.
To U K.	12284	3024048	..	5959241	48012	61?60	24739	280	4644
,, Austria	13873	37312	...	..	..	14	...	..	1080
,, Belgium	46244	9 500	32477	...	19114	14687	6373	...	..
,, France	15062	3602	201	..	..	609	300	220	..
,, Germany	38410	426091	36865	357444	28941	37320	8319	2045	2880
,, Holland	..	96330	.	25050	912	3126	100	...	...
,, Italy	1500	..	..	3018	...	..	..	45	...
,, Russia	36437	..	...	1590	1004	1188	...	..	..
,, Spain	..	...	...	..	..	...	..	..	..
,, Sweden	4403	...	..	..	105	208	...	...	...
,, Turkey	1	...	..	2000	...	..	..	...	...
India	98	..	..	55600	709	280	12	..	23
,, Australia	..	299260	..	..	1637	759	1954	27	.
,, America	..	781065	...	..	82728	149579	5591	..	..
,, Africa	..	9835	...	757955	..	..	883	..	...
,, China	20	83555	...	..	41	100	...	..	...
,, Singapore	..	...	..	--	...	..	42	...	..
,, Mauritius	...	...	..	...	..	...	..	..	...
,, Malta	...	..	..	..	..	..	..	..	...
Total export from 1st Jan. to 2nd July 1900	163332	4853598	69543	7141948	183203	269830	48313	2617	8027

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, June 13th, 1900.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt,		
Zanzibar & Bombay White ,,	Good to fine	£6 a £7 10s
Zanzibar & Bombay Yellow ,,	Fair ,,	£6 10s a £7 .s 6d
Madagascar ,,	Dark to good palish	£6 10s a £6 17/6
CAMPHOR, China ,,	Fair average quality	130s
Japan ,,	,, ,, ,,	190s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 6d a 2s 9d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s 7d a 3s 9d
	Seeds .	1s 6d a 2s 6d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish .	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	2s 3d a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	3¼d a 4¼d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	37s 6d a 47s 6d
CINCHONA BARK.—lb. Ceylon	Ledgeriana Orig. Stem	3¾d a 6¾d
	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅝d a 5⅜d
	Renewed	5¾d a 7½d
	Root	3¼d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	11d a 1s 8d
2nds	,, ,,	10d a 1s 7d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	3½d a 9d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar and Pemba	Good and fine bright	4d
	Common dull to fair	3½d a 3¾d
Stems ..	Fair	1½d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	100s a 115s
	Middling to fine mid	85s a 95s
	Low mid. and low grown	75s a 82s 6d
	Smalls	55s a 75s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	37s a 45s
COCOA, Ceylon ,,	Bold to fine bold	90s a 100s
	Medium and fair	78s a 87s 6d
	Native	65s a 73s
COLOMBO ROOT ,,	Middling to good	12s a 27s 6d
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair .	£14 a £19
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£18 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	.. ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	38s a 45s
CUTCH ,, ,,	Fair to fine dry	28s a 35s
GINGER, Bengal, rough ,,	Fair	27s
Calicut, Cut A ,,	Good to fine bold	87s 6d a 92s 6d
B & C ,,	Small and medium	35s a 72s 6d
Cochin Rough ,,	Common to fine bold	25s a 33s
	Small and D's	25s a 28s
Japan ,,	Unsplit	2?s a 24s 6d
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ..	£4 8s a £8
	,, ,, red .	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		67s 6d a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr to gd. almonds	40s a 85s
	Ord. stony and blocky	8s a 25s
KINO ,,	Fine bright	1s a 1s 3d
MYRRH, picked ,,	Fair to fine pale	65s a 75s
Aden sorts ,,	Middling to good	33s a 55s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 8d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS
INDIARUBBER, (Contd)		
Java, Sing. & Penang lb.	Foul to good clean ..	3d a 3s 2d
Mozambique ,,	Good to fine Ball ...	2s 8d a 3s 7d
	Ordinary to fair Ball..	2s a 2s 10¾d
	Low sandy Ball ..	1s 3d a 1s 7d
	Sausage, fair to good .	3s 2d a 3s 7d
	Liver and livery Ball	2s 4d a 3s 1½d
Nyassaland ..	Fair to fine ball	3s ?d a ?s ?d
Madagascar ,,	Fr to fine pinky & white	3s a 3s 3d
	Fair to good black .	2s a 2s 10¾d
	Niggers, low to fine ..	11d a 2s 8d
INDIGO, E.I. ,,	Bengal—	
	Shipping mid to gd violet	3s 9d a 4s 6d
	Consuming mid. to gd.	3s 2d a 3s 8d
	Ordinary to mid.	?s 10d a 3s 1d
	Mid. to good Kurpah	2s 4d a 3s
	Low to ordinary	2s 1d a 2s 3d
	Mid. to good Madras	1s 7d a 2s 6d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a ?s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 4d a 1s 4½d
MYRABOLANES, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 4d a 2s 6d
Bombay & Penang ,,	110's to 65's	11¼d a 2s 3d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 10d
OIL OF ANISEED lb	Fair merchantable	5s 9d
CASSIA ,,	According to analysis	2s 1d a 2s 6d
LEMONGRASS ,,	Good flavour & colour	3d
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1/0¼d
ORCHELLA WEED—cwt.		
Ceylon ,,	Mid. to fine not woody .	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ..	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	6 1-16d a 6⅛
Singapore	Fair	6 3-32d a 6⅛d
Acheen & W. C. Penang	Dull to fine	5¼d a 5¾d
PLUMBAGO, lump cwt.	Fair to fine bright bold	4?s a 45s
	Middling to good small	2?s a ?5s
chips ,,	Dull to fine bright ..	10s a 20s
dust ,,	Ordinary to fine bright	4s a 11s
SAFFLOWER ,,	Good to fine pinky .	65s a 75s
	Inferior to fair ..	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £?0
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£6 a £6 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ..	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	53s a 59s
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair middling medium	4d a 5½d
	Common dark and small	1¼d a 3½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's / D's and B's / Small ...	£4 a £5 7s 6d
Mergui ,,	Small to bold ..	£5 15s a £
Mussel ,,	Small to bold ...	18s a £3
TAMARINDS, Calcutta .	Mid. to fine bl'k not stony	15s a 16s
per cwt. Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	19s a 26s 6d
TURMERIC, Bengal cwt.	Fair ...	30s
Madras ,,	Finger fair to fine bold bright	30s a 32s 6d
Do. ,,	Bulbs ..	24s 6d
Cochin ,,	Finger ..	24s
	Bulbs ...	8s
VANILLOES— lb.		
Mauritius .. 1sts	Gd. crysallized 3½ a 9 in	17s 6d a 27s
Bourbon ... 2nds	Foxy & reddish 4½ a 8 ,,	15s a 22s
Seychelles 3rds	Lean and inferior ...	10s a 13s 6d
VERMILION lb.	Fine, pure, bright ...	3s 6d
WAX, Japan, squares cwt	Good white hard ...	33s a 34s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for July :—

Vol. XII.] JULY, 1900. [No. 1.

THE AGRICULTURAL COMMISSION AND THE IMPROVEMENT OF NATIVE AGRICULTURE.

THE Report of the Commission appointed to report on the advisability of a Department of Agriculture being established for Ceylon has at last been made public, and it would appear from reviews of it published in the Press, that the general opinion with regard to the document is to the effect that it affords exceedingly interesting reading, containing as it does the views of high Government officials as well as of private gentlemen of standing, but that it has failed to enunciate a practical scheme for dealing with the native agriculture of the country.

In this connection we might refer to another scheme which we understand has been forwarded to Government—the author of which is Mr. E. Elliott, late Government Agent of the Southern Province, who since his retirement has been working as a private agriculturist; and so, having experience (and that varied and extensive) of native agriculture both as an official and an unofficial, is eminently qualified to advise on a question of this nature. We understand that Mr. Elliott deprecates the merging of the interests of what is known as European agriculture with those of Native agriculture, as there is so little in common between the two. Besides, the latter has its own powerful machinery in the Planters Association of Ceylon to protect its own interests, while the Government of the Colony has liberally provided help in the appointment of a number of expert scientists to further protect those interests. Mr. Elliott's scheme provides for a re-orgainsed Central School, of Agriculture, which already exists, and a Central Experimental Farm not far from Colombo, with branch experimental gardens all over the country. His whole scheme is calculated to directly reach the village cultivator, and to this end he recommends that the men to be trained at the Central School should be drawn from the cultivating classes, that the teaching should be in the vernacular, and that the curiculum should be so revised as to entirely serve the requirements of the classes to be reached. The scheme further advises the retention of the mechanism for controlling and working this sub-department of agriculture in the department of Public Instruction, which is already so closely in touch with the village population through its extensive system of vernacular education. We cannot do more than generally indicate the outlines of this excellent scheme, which novel and original though it is, appears to us to be better calculated to effect the object which the Government has so long striven, but unsuccessfully, to attain,

OCCASIONAL NOTES.

The following analysis of Plantain Flour made in Ceylon should prove of interest :—

Moisture	11·74	%
Mineral ash	2·28	,,
Glucose	1·02	,,
Crystallizable Sugar ...	·20	,,
Total saccharifiable matter expressed as Glucose	81·96	,,
,, Starch ...	73·76	,,

It is said that the small percentage of sugar should make Plantain Flour a suitable diet for diabetics, and that a food substance entirely free from sugar ought to bring a fortune to the producer. The absurdly low price asked for the Flour (70 to 75 shillings per ton c. i. f.) will, however, prevent anyone from embarking on the Plantain Flour industry.

We note that Sir W. W. Mitchell, writing from Paris, refers to the caju-nut as a possible article of export, as the samples sent to the Ceylon Court have been favourably reported on, while almonds (for which the nuts are a good substitute) are not so plentiful in the market as they used to be. We understand, however, from a correspondent in Paris, that to sell well, caju-nuts must be priced at much less than 12 cents a hundred, as ground nuts from India are so much cheaper. Here, again, the price put upon the article is far too low to encourage the cultivation of the tree (*Anacardium occidentale*) which produces the nut, unless some use could be found for the so-called fruit (swollen peduncle) in the manufacture of spirit, as we believe was once suggested and even tried in Ceylon. The local value of a hundred good caju-nuts varies, according to the season, from 10 to 25 cents, so that there would seem to be a poor chance of making money by selling for less than 12 cents per 100.

We would draw attention to the directions for the prevention of rinderpest issued by the acting Government Veterinary Surgeon, Mr. E. T. Hoole.

Mr. Christian Fernando, a late student of the School of Agriculture and Forestry School, as well as a late member of the Forest Department of Ceylon, left the Island on the 24th June by the S.S. "Secundra" for Natal, whither he has proceeded with a view to finding employment. Mr. Fernando had a creditable career in both the above-named institutions, and with his intelligence and energy should find no difficulty in finding some suitable work to do in South Africa.

A sale of cattle, principally young calves, was held at the Government Dairy on the 8th June, twelve weaned calves together with a cow and calf at foot fetching Rs. 499·63.

The following is the latest analysis of a sample of dairy milk made by the City Analyst on the 6th June:—

Sp. Gravity ...	at 84° F.	1·030
Fat ...	...	4·12
Casein and Sugar	...	8·31
Ash (suets)	...	·72
Total solids...	...	13·15
Water ...	...	86·85
Solids not fat	...	9·03

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JUNE, 1900.

1	Friday ..	·07	16	Saturday ..	·05
2	Saturday ..	Nil	17	Sunday ..	1·17
3	Sunday ..	·02	18	Monday ..	·13
4	Monday ..	Nil	19	Tuesday ..	·08
5	Tuesday ..	·42	20	Wednesday	Nil
6	Wednesday	·05	21	Thursday ..	·18
7	Thursday ..	1·07	22	Friday ..	Nil
8	Friday ..	·39	23	Saturday ..	Nil
9	Saturday ..	·27	24	Sunday ..	·04
10	Sunday ..	·12	25	Monday ..	·82
11	Monday ..	1·87	26	Tuesday ..	·01
12	Tuesday ..	·13	27	Wednesday	Nil
13	Wednesday	·32	28	Thursday ..	Nil
14	Thursday ..	·19	29	Friday ..	Nil
15	Friday ..	·20	30	Saturday ..	·17

Total. .7·71
Mean. . ·25

Greatest amount of rainfall in any 24 hours on the 11th June, 1·87 inches.

Recorded by Mr. C. DRIEBERG.

PRACTICAL HINTS TO HORSE-OWNERS.

By A. CHINNIAH, C.B.V.C.

CHAPTER II. (*contd.*)—FOOD AND FEEDING.

Horse gram or kollu (*Dolichos biflorus*) is the common horse food in the Madras Presidency. Prof. Church gives the nutrient ratio of kollu as 1: 2·7 and the nutrient co-efficient as 83. The ash contains nearly ⅓ of its weight of phosphoric acid. Kollu seeds, owing to their hardness, are not digested properly when given whole or even crushed. If soaked and given kollu brings on colic, so that it has to be boiled before feeding, and this, of course, is rather an objection, as a great amount of heat is necessary for boiling and the cost of fuel is a consideration. Another drawback is that pebbles are generally found mixed with kollu, and these cannot be easily separated owing to the grain being as heavy as the pebbles. Long continued use of kollu is regarded as objectionable. It is said to cause œdematous swellings which are to be attributed to its highly-nitrogenous character, for œdema may be caused by want of nutrition as well as by over-nutrition.

Black gram or ulundu (*Phaseolus mungo var. radiatus*) is as nutritious as Bengal gram. According to Prof, Church one hundred parts of the unhusked grain contain: water, 10·1; albumenoids, 22·7; starch, 55·8; oil 2·2; fibre, 4·8; and ash 4·4 (of which 1·1 consists of phosphoric acid). It is considered a very 'cooling' diet, and this may be ascribed to its mucilagenous character. Ulundu has to be boiled before it is given to horses.

Green gram or mung (*Phaseolus mungo*) differs little from the last, which is only a variety of it. One hundred parts (according to Church) contain: water, 10·8 to 11·4; albumenoids 22·2 to 23·8; starch, 56·1 to 54·8; oil, 2·7 to 2·0; fibre, 5·8 to 4·2; ash, 4·4 to 3·8. The former figures are for typical green-seeded mung, the latter for typical yellow-seeded. In unhusked

beans the fibre is reduced to 1·1 per cent, all other constituents being proportionately increased. Green gram has also to be given after boiling.

Having considered the chief leguminous horse foods of the East, viz., Bengal gram, horse gram, black gram and green gram, I will now go on to refer to the chief cereal food. Paddy (*Oryza sativa*) which is the staple food of the people in the form of rice or husked paddy, is also largely used for horses—in the unhusked state, mixed with gram. Though some have a prejudice against the use of paddy as a horse food, it forms a good enough diet when given mixed with gram. Paddy is rich in starch but very poor in nitrogenous constituents and fat.

Though rice is the staple food of the people in the East, it is invariably eaten with either meat, ghee, dhall, or some preparation containing coconut milk, for it was found by experience, long before the chemist settled the fact by analysis, that it was wanting in nutritive properties owing to the absence of nitrogenous constituents and fat, so that flesh-forming and fatty substances had to be added to make it a suitable diet. The same necessity has given rise to the use of gram with paddy as a horse food. Doubtless the husk of paddy has like bran a mechanical stimulating effect on the intestines. To counteract this, paddy has to be first ground separately. But even a mixed diet of paddy and gram contains a small proportion of fat, and I am inclined to think that we shall be taught by experience to add a third ingredient to make up the deficiency in fat, say some form of oil-cake.

SOME BIBLE PLANTS OF CEYLON.

II. CINNAMON.

This plant common enough in Ceylon is the *Cinnamomum Zeylanicum* of botanists. In the Old Testament cinnamon is referred to in more than one place as Kinnamon.

It would be useless to describe the plant or the method by which the cinnamon of commerce is prepared from the bark, as both are too well-known even out of Ceylon. It is not generally known, however, that in addition to the oil of cinnamon which is distilled from both bark and leaves, (though the latter is infinitely superior and therefore considerably more expensive than the latter), a fat can also be extracted by boiling the macerated fruit. This substance has been called "cinnamon suet," and was used by the Portuguese to make scented candles for use in their churches. These candles are, however, not manufactured in the Island in the present day, and when samples of cinnamon suet were required by the late Dr. Trimen for the Imperial Institute collection, they had to be specially made by Mr. J. F. Drieberg, cinnamon planter of Jaela, Ekele. Cinnamon has in the past always been highly valued as a spice and a perfume, and is said to have been one of the principal spices employed in the manufacture of precious ointment for the tabernacle (Exodus xxx. 22-25). Solomon speaks of it as one of the frankincense plants: "Calamus, cinnamon, with all trees of frankincense (Songs of Solomon iv. 14). Its use as a perfume is referred to in Proverbs vii. 17: "I have, perfumed my bed with myrrh, aloes, and cinnamon." The merchandise of it is noticed in an account of the destruction of the Apocalyptic Babylon: "Cinnamon, and odours, and ointments, and frankincense (Revelations xviii. 3).

Besides the true cinnamon should be noted another species known as Cassia, and mentioned in the Bible under the names of Kiddah. It was an ingredient of the holy ointment already referred to, and is referred to by Ezekiel among the merchandise of Tyre (Ezekiel xxvii. 19). This plant is understood to be *Cinnamomum Cassia*, the bark of which is generally known as Cassia bark. It is thought to be inferior to true cinnamon, being coarser and more pungent, with a certain amount of bitterness. The leaves when chewed taste of cinnamon, but those of the true cinnamon plants have more the flavour of Cloves. Cassia oil and Cassia buds appear to be produced by the same tree, which grows both in India and China.

THE TRINIDAD STOCK FARM.

The report of the Manager of the Trinidad Government Farm for 1899, which has been kindly sent to us, speaks of the year having proved an exceptionally trying one for the management of a large herd on a limited area of land, aggravated by the drying up of the pastures and the prevalence of hot winds. As a result the yield of milk was lower and the cost of upkeep of the animals higher. The milch herd consists of 100 animals: 114,737 quarts of milch were produced as against 130,977 quarts last year, that is, 16,140 quarts less from about the same number of cows, 52. The following breeds are kept on the Farm:—Pure zebu, Sinhalese, Red Poll cross and Guernsey cross, besides what is described as the general milch herd. The particular breed of Indian cattle referred to as Zebu (a general term for the humped cattle of India) is not mentioned. The following reference is made to the Sinhalese cattle which were taken over from Ceylon some time ago:—

"A small herd of Sinhalese cattle were introduced from Ceylon. These miniature animals would be of excellent service on cocoa estates, as they could pass freely under the trees when crooking. They are very strong, quick and hardy; for cane farmers they could take the place of mules, do the same work, and cost a third less, in fact, prove the poor man's beast. There has been no increase as yet in the herd."

With the high opinion entertained of the utility of Sinhalese cattle, it would, we think, be as well to introduce at least another pair into Trinidad with a view to increasing the stock. (In this connection we might add that the latest demand for Sinhalese cattle came from Austria for the Emperor's Zoological Gardens. The animals were selected for the local agents by Veterinary Surgeon Chinniah.)

The profit during the year's working of the Trinidad Farm is given as 5·6 per cent on the capital outlay. We should mention that besides the dairy a horse-breeding and poultry farm is also maintained.

The following table giving the analysis of the morning and evening milk produced on the farm is worthy of note for purposes of comparison, and as showing how the composition and specific gravity of milk varies in different seasons:—

	MORNING.			EVENING.		
	Fat.	Solids—not Fat.	S.G.	Fat.	Solids—not Fat.	S.G.
February	4·25	8·97	1028	4·23	8·51	1027
March	3·57	8·74	1028	4·66	8·91	1027
April	3·16	8·97	1030	4·64	8·75	1026
May	4·15	8·81	1027	4·72	8·78	1026
June	3·99	8·87	1029	4·20	8·91	1028
July	3·10	9·02	1030	4·04	9·05	1029
August	3·69	9·38	1029	4·20	9·24	1029
September	4·10	9·76	1029	4·	9·09	1029
October	3·91	9·65	1030	4·88	11·29	1027
November	3·91	9·33	1029	4·22	9·52	1029
December	3·65	9·40	1029	4·93	9·33	1026

THE DYEING OF MATERIALS USED FOR KALUTARA BASKET MAKING.

The following communication addressed by the Secretary of the local Paris Exhibition Committee to the representative of the Ceylon Government at Paris is worth reproducing as dealing with the development of an industry, the products of which are becoming very popular. The Assistant Government Agent of Kalutara and Mrs. Vigors are deserving of the gratitude of the basket-makers of Kalutara for the interest they are taking in the improvement of the industry associated with their district:—

"I am instructed by the Chairman of the local Paris Exhibition Committee to forward a bundle of dried leaves of the wild date (*Phœnix zeylanica*) used for basket-making in the Kalutara district, and to ask you to be good enough to make ènquiries as to the possibility of fixing permanent colours in such material. I would refer to the many artistic shades used in dyeing straw for hats and bonnets in Europe, and how little, if at all, the colour is affected by light, whereas the imported dyes now used in dyeing the material for local baskets and mats fade rapidly. In the correspondence with reference to the use of dyes carried on by the Assistant Government Agent, Kalutara, with his headmen, it is stated that though imported dyes (as sold in the village bazaars) produce more brilliant colours, these colours are not so durable as those produced by native methods of dyeing. From enquiries made the following appear to be the indigenous dye stuffs used by the natives for dyeing the materials for making baskets, mats, and hats.

1. Pathangi, from the wood of *Caesalpinia sapan* (red).

2. Marithondi, from the fruits of *Lawsonia alba* (orange yellow).

3. Welikaha from the leaves of *Memecylon capitellatum* (yellow).

A black colour is induced by first dyeing red with No. 1, then burying the dyed material in mud for a period, next steeping it in a mixture of water and the ash of burnt plantain leaves (*Musa sapientum*), and finally washing and dyeing! I enclose specimens of the leaves dyed according to the native method as well as by means of the imported dyes referred to. The people are taking to the latter owing to the simpler treatment they involve, as compared with the comparatively laborious native processes. It is surmised by the Assistant Government Agent of Kalutara that the imported bazaar dyes now used are of an inferior description, and that it would be possible to introduce into the colony superior dyes such as are used for colouring straws in Europe. As the basket industry of the Kalutara district is one of some importance, the Chairman will be glad to hear from you with reference to the desired improvement in the matter of dyeing the material used."

PREVENTION OF RINDERPEST

Rules to be observed when the Disease has broken out in or near the District.

The following directions for the prevention and suppression of rinderpest are specially drawn up for the benefit of owners of large cattle establishments on estates:—

1. The method for the prevention of rinderpest can be summed up in the words "Keep out all sources of infection and contagion."

2. Cart bulls might bring the contagion with them and introduce the disease. They should therefore be housed separately, and as far away as possible from the dairy and other cattle on the estate.

3. Carters are careless about the safety of their masters' cattle, and they often house the cart bulls in infected galas on the way regardless of consequences. Every effort should be made to prevent this by putting up extra temporary galas for healthy cattle and exercising strict supervision and control in the matter. Infected galas should be closed for healthy cattle and notices put up to the effect.

4. If cart bulls have of necessity to frequent infected localities, it would be advisable to have them inoculated with glycerinated bile and keep them strictly isolated and under observation for ten days, after which period they may be used in carts.

5. Inoculated cattle and those that have previously recovered from an attack of rinderpest, although they may be proof to the disease themselves, may yet convey it to other cattle on their return from an infected area. So they should be housed separately on their return.

6. Men, dogs, crows—in fact, anything that has been in contact with rinderpest cattle, their discharges or excreta—should be considered sources of infection. The carting of manure from an infected locality to the estate should also be avoided.

7. Ten to fifteen drops of Jeyes' fluid may be given daily to healthy cattle with poonac water or conjee as an aid to prevention. After giving it for three or four days the Jeyes' fluid should be discontinued for a couple of days and then

given again for another four days, and so on. A due allowance of salt should be given to all the cattle and their bowels kept in good order.

8. If rinderpest breaks out on the estate, an attempt should at once be made to stamp it out by immediately destroying the first one or two cases and thoroughly disinfecting the place. As fever is one of the earliest symptoms, the temperature of the remaining cattle should be taken every day, and any showing a temperature of over 103° F. should be removed and isolated at once, before they spread the infection to their neighbours. All the cattle on the estate may now be inoculated.

9. If the disease threatens to spread further, of if the outbreak on the estate has somewhat advanced, the inoculation of all the cattle becomes a positive necessity. But it would not be necessary to have *all* the cattle (including dairy cattle, stud bulls, &c.) inoculated unless there is rinderpest on the estate itself or in its immediate vicinity.

10. Inoculation will be done by the officers of the Government Veterinary Department gratis or at a very moderate expense to the owners, when application is made in case of actual necessity.

11. Rinderpest carcases should be buried six feet deep, and as far away as possible from human habitation, public roads, water-courses, cattle sheds, and grazing grounds. Carcases should not be dragged along the ground, but should be lifted up by coolies suspended on strong sticks. The quartering of carcases before burial should not be allowed, as well as the consumption of rinderpest meat by coolies. These are sure means of spreading the disease.

12. Disinfectants (such as a one or two per cent, solution of carbolic acid or Jeyes' fluid) should be freely used when rinderpest is prevalent, and anything known or suspected to be infected (including coolies who have buried the carcases) should be thoroughly disinfected. The fumes of burning sulphur are very useful for disinfecting the air of cattle sheds, &c. Fire is one of the best and cheapest disinfectants, and any infected matter that can be burned or even charred, such as litter, should be so treated.

E. T. HOOLE,
Acting Govt. Veteriuary Surgeon.

A REPORT ON EDIBLE OILS.

One of the latest numbers of the *Agricultural Ledger Series* treats of Indian Edible Oils, and contains a report by Prof. Dunstane, F.R.S., Director of the Scientific Department of the Imperial Institute.

Prof. Duustane prefaces his report with the following remarks :—Among the subjects awaiting investigation by the Scientific Department at the beginning of the present year was that of Indian Edible Oils, samples of which have been collected in India during the last two years under the supervision of the Reporter on Economic Products to the Government of India and despatched by him to the Imperial Institute. As the subject is an important one, and the entire staff of the Department was, and is now, occupied with other investigations, most of them on Indian subjects, I decided to arrange for these oils to be examined in my laboratory at St. Thomas' Hospital by two young assistants specially competent to engage in such work, Dr. H. W. Crossley, M.Sc. Ph.D., and Mr. H. R. LeSueur, B.Sc. The Government Grant Committee of the Royal Society were good enough to make a small grant from the Government Fund for Scientific Research to defray the expenses connected with these experiments.

The plan of investigation which seemed to me likely to be serviceable was to examine in the first instance the chief physical and chemical characters of each oil, so as to furnish a basis for their comparison with well-known and largely-used edible oils, and thus to render it possible to obtain a report on the commercial value of the Indian samples. After this preliminary survey of the entire collection it might prove to be worth while to examine more minutely the chemistry of those oils which appeared to present features of novelty. The preliminary examination of the oils has now been completed by Messrs. Crossley and LeSueur, who will present an account of their results to the Society of Chemical Industry, which will subsequently be printed in the journal of the Society. By this means it is hoped that the attention of oil brokers and merchants will be directed to the variety of excellent oils belonging to almost every class which are obtainable in India, and that the experimental data will enable us to obtain a trustworthy opinion as to commercial uses and value. I ought to say that when the oils were first received, I made several attempts to ascertain their market value but entirely without success, as no scientific data existed as to their composition and quality.

Then follows a list of the oils which were examined.

The reference to coconut oil is naturally of primary interest to us. The samples were drawn from Malabar, Bengal and Bombay, and the following results of the examination of the chemical and physical characters were noted in the three samples :—

	Malabar.	Bengal.	Bombay
Specific gravity	·9030	·9040	·9042
Acid value as K.O.H	35·21	11·84	9·95
" as Oleic acid	8·86	2·98	2·50
Saponification value	25·82	255·6	255·5
Iodine value	8·54	8·41	8·25
Reichert-Meissel value	6·71	6·79	6·65
Insoluble fatty acids	—	82·35	—
Melting point	23·5	24·5	25·0

The percentage yield of oil from Bengal and Bombay are given as 52·3 and 57·1. The constants, says Prof. Dunstance, of these Iudian species agree with those on record for this oil, except the Reichert-Meissel value which is markedly higher,

The following reference to the composition and properties of coconut oil (and Ceylon coconut oil in particular) occur in Cochran's Manual of Chemical Analysis :—

The soap made from it is soluble to a larger extent in saline and alkaline water than most other kinds of soap, hence it is used for the manufac-

ture of marine soaps. It does not make a good lubricant as it contains free acids. In addition to the other uses enumerated, it has been in considerable quantities in recent years for the manufacture of a butter substitute, known in commerce as coconut butter. [A sample of coconut butter can be seen at our office. The latest developement in connection with coconut produce, is the manufacture of a substance—entirely by mechanical means—from the fresh coconut, and known as "Edible coconut oil." A correspondent from the Paris Exhibition mentions that Mr. G. G. Warr (who was for some time in Ceylon) is expected there with sample packets of the "edible oil" for distribution to the trade, with the help of Sir W. W. Mitchell of the Ceylon Court.—ED. *A.M.*]

Coconut oil has a very complex constitution. The following fatty acids have been found in it:—Lauric acid, $C_{12}\ H_{24}\ O_2$; Myristic acid, $C_{14}\ H_{28}\ O_2$; acids having the composition $C_{11}\ H_{22}\ O_2$; and $C_{12}\ H_{26}\ O$; also Palmatic acid, $C_{16}\ H_{32}\ O_2$; and stearic acid, $C_{18}\ H_{36}\ O_2$.

When coconut oil has solidified, which it does at the comparatively high temperature of 78° F., it can be readily separated by pressure into a solid body, stearine, and a liquid called oleine. The former substance is used in the manufacture of candles, the latter, after being purified with sulphuric acid, is used as a burning oil.

A sample of ordinary coconut oil from the bazaar had a specific gravity ·9207 at 85° F. (29·4° C.) A sample of Hultsdorf pure king coconut oil at the same temperature had a specific gravity of ·9186. The specific gravity of coconut oil given by European writers is for the temperature 212°F. (100° C.) ·868.

CLASSIFICATION OF FIBRES.

[DR. DODGE.]

D. BRUSH FIBRES.

1. *Brushes manufactured from prepared Fibre.*

a. For soft brushes (substitutes for animal bristles, such as Tampico).

b. For hard brushes (ex. palmetto, palmyra, kitul, &c.)

2. *Brooms and Whisks.*

a. Grass-like fibres (broom root, broom corn, &c.)

b. Bass fibres, also for coarse brushes and sweepers (monkey bass, piassaba, &c.).

3. *Very Coarse Brushes and Brooms.*

Materials used in street sweeping, &c. Usually twigs and splints.

E. PLAITING AND ROUGH WEAVING FIBRES.

1. *Used in articles for attire as Hats, Sandals, &c.*

a. Straw plaits. From wheat, rye, barley, and rice straw (ex. the commercial Tuscan and Japanese braids).

b. Plaits from split leaves, chiefly palms and allied forms of vegetation. (Ex. the celebrated Panama hats, from the finely-divided leaves of *Carludovica palmata*).

c. Plaits from various materials used entire and without preparation. (Ex. basts and thin woods used in millinery trimmings, &c. Chinese sandals from rushes).

2. *Mats and Matting; also Thatch Materials.*

a. The commercial mattings from eastern countries.

b. Sleeping mats and other forms of mats or matting. Screens, &c., made by natives for their own use.

c. Thatch or other covering or protection from the elements, made of tree basts, palm leaves, grasses, &c.

3. *Basketry.*

a. Manufactures from woody fibre. (Commercial examples: Osier and splint baskets; the same forms produced by Indians and including also manufactures from sumac and other twigs, roots of spruce, &c.)

b. From the whole or split leaves or stems of endogens, or from any rigid fibrous material, including also the culms of grasses. (Chiefly Indian or native manufactures from Yucca leaves, palm leaves, reeds, grasses, &c., used individually or in combinations).

4. *Miscellaneous Manufactures.*

Willow ware in various forms, chair bottoms from splints, rushes, &c.

F. STUFFING OR UPHOLSTERY.

a. Wadding, batting, &c., usually, commercially prepared lint cotton.

b. Feather substitutes. For filling cushions, pillows, &c., cotton; seed hairs or silk cotton, such as kapok, Asclepias down, &c.; tomentum from the surface of leaves, stems and leaf buds of plants; other similar soft fibrous material.

c. Mattress and furniture filling. The tow or waste of prepared fibre, unprepared bast; straw and grasses; substitutes for curled hair, as Spanish moss, crin végétal, maize husks, &c.

2. *Caulking.*

a. Filling the seams in vessels, &c., oakum from various fibres.

b. Filling the seams in casks, barrels, &c., leaves of reeds and giant grasses.

3. *Stiffening.*

In the manufacture of "staff" for building purposes, and as substitutes for cow's hair in plaster. New Zealand flax; palmetto fibre.

4. *Packing.*

a. In bulk heads, &c. (as in armoured vessels). Ex. coir, cellulose of corn pith, &c. In machinery, as the valves of steam engines, various soft fibres.

b. For protection, usually in transportation; various fibres and soft grasses; marine weeds, excelsior; also stuffing and upholstery materials generally.

G. PAPER MATERIALS.

1. *Textile Papers.*

a. The spinning fibres in the raw state. The secondary qualities, or the waste, from spinning mills, which may be used for paper stock, including tow, jute butts, Manilla rope, &c.

b. Cotton or flax fibre that has already been spun and woven, but which as rags find use as a paper material.

2. Bast Papers.

This includes Japanese papers from soft basts, such as the paper mulberry (Broussonetia) or species of the genus Edgeworthia.

3. Palm Papers.

From the fibrous material of palms and similar monocotyledonons plants. Ex. Palmetto and Yucca papers.

4. Bamboo and Grass Papers.

This includes all paper material from gramiuaceous plants, including the bamboos, esparto, maize, and true grasses.

5. Woodpulp and Cellulose.

The wood of spruce, poplar and similar "paper-pulp" woods, prepared by various chemical and mechanical processes.

It should be noted that an absolute economic classification of uses with relation to species is impossible, as the same fibre may be used in several ways. Manilla hemp is manufactured into rope, and old Manilla rope into Manilla paper. Cotton is used for fabrics, as a netting fibre, for cordage, in upholstery, and in paper. In fact there are very few fibres which are not made into paper, the amount of cellulose they contain and the cost of the processes by which they are converted being the main considerations. The same plant may also yield two kinds of fibres, as lint cotton covering the seed, and cotton bast, stripped from the stalk.

[*Conclusion.*]

CEYLON CATTLE AS DAIRY STOCK.

No one will deny that the native cattle of Ceylon have hopelessly degenerated especially as milking stock if indeed they even excelled as such.

A cow may be said to be a milk-making machine, and every cow can be made to yield a quantity of milk commensurate with the care and feeding bestowed on her. There are different organs in the body, and their development depends greatly on the attention paid to them. So if attention is paid to the milk-secreting organ of the cow, within the course of a few generations, Ceylon cattle may also be made to supply fairly good dairy stock. I remember a lady upcountry remarking that English and Australian calves very soon take to hand feeding, and that it takes a long time to teach the country calf to feed in this way. The only reason which I could assign on being questioned as to the cause, was that the difficulty was due to hereditary defect, and any improvement or change must not be looked forward to till the next generation, and that, too, provided the greatest attention be given to the improvement of the habit complained of. The villagers do not realize the essential conditions required for producing milk cattle. I will try to explain some of these :—

1. *Feeding.*—The milk producing animal requires highly albuminous and fatty foods, that is to say, it needs foods which supply the ingredients required to produce milk, after having supplied all bodily wants. Such food as native cattle pick up generally only suffices to maintain animal heat, and to some extent to repair the wear and tear of the tissues, and leaves no balance for laying on fat or for producing milk.

2. *Temperament.*—Native cattle are more or less wild animals. The reason of this is that they are not properly fed and tended; they are, on the other hand, roughly handled by man and allowed to roam about in search for food exposed to all sorts of risks, and are frequently disturbed and frightened by other beasts. Hence they grow timid. Such spare energy as they possess is expended in unnecessary excitement and exercise.

The cow has first got to be made docile before we can expect to make a milking animal of her. The promiscuous mixing of heifers, cows in milk and in calf, young stock and bull of all ages, is most reprehensible, and such a state of things makes the possibility of breeding out good milch cows an utter impossibility. First and foremost, there should be a selection of bulls made, all weedy males being castrated. Next the herd should as far as possible be divided into different lots when at grass, one lot consisting of cows in milk, another of cows in calf, &c. It is only in this way that a beginning could be made of making the future native milch cow a docile creature, for an excitable animal will never settle down to milk secretion. A. CHINNIAH.

THE POONA DAIRY.

(*From the last Report.*)

The profit for the year was R2,470. There were 194 animals in the herd at the end of the year as compared with 187 at the beginning. Fifty animals, chiefly young he-buffaloes and old cows, were sold. The herd was healthy throughout the year, and the present strength is about the full limit that can be conveniently maintained. In the cattle-breeding and dairy operations certain definite aims are kept in view:—

(i.) To breed up to a higher standard certain of the breeds of India as regards their milking capacity, and to maintain, or, if possible, improve the usefulness of the same breeds for draft purposes.

(ii.) To supply pure milk and other dairy products to the sick in hospital, and, as far as possible, to the public in Poona at rates which are kept so high that our operations do not interfere with private enterprise.

(iii.) To shew by precept and example the advantages of cleanliness and improved methods and appliances in dairy management, and the necessity of careful management and feeding for dairy cattle.

(iv.) To teach dairy methods, the manipulation of dairy machinery and cattle management to those who attend at the farm for the purpose of being taught. Mere onlookers are not admitted to these privileges. Men who come to learn must also work.

It may be definitely said that progress in all the directions indicated above has been made from year to year, and there has been no backsliding in the year under report.

Young cows bred on the farm are proving themselves excellent milkers. The sales of milk and butter could be greatly increased, but with present facilities any increase is impossible. A number of soldiers were sent for instruction in order to be able to manage dairies and milk cattle in other cantonments. The department can take credit for initiating in India an enterprise which has had a material influence on agricultural prosperity on the improvement of of Indian butter, and its export trade.

The services of farm bulls are given gratis to all healthy cows.

AN AGRICULTURAL DEPARTMENT FOR CEYLON.

REPORT OF COMMISSIONERS.*

In obedience to the Commission to us directed, we have inquired into the advisability of establishing a Department of Agriculture.

We advise the establishment of such a Department, and we recommend the appointment of a Director of Agriculture.

The officer selected for this appointment should have local experience and knowledge of local conditions and acquaintance with the people. His office should rank in the First Class, and he should be a Member of the Executive and Legislative Councils.

The duty of the Director would be to advise the Government in matters concerning the improvement of agriculture and the extension of cultivation. It would be within the scope of his labours to direct inquiries into the suitability of soils for certain products; to cause inquiries to be made as to the origin and causes of diseases affecting useful plants, and as to the best means of arresting and destroying such diseases; to cause measures to be adopted for the improvement of the various descriptions of products now cultivated, either by the introduction of new seed or by the application of special manures or otherwise; to take measures for the establishment of Schools of Agriculture; and to suggest action for the improvement of native cattle and horses.

He should be assisted by an Advisory Board, of which he should be President, analogous in its constitution to the Central Board of Irrigation. Boards similar to the Provincial Irrigation Boards, and having the same relation to the Central Board, should be established at the provincial centres. The establishment of these Boards would enlist local influence and local headmen in the work of the Department.

There should be attached to the Department of Agriculture the Director of the Botanic Gardens, a Mycologist, Agricultural Chemist, Entomologist and Veterinary Surgeon.

The intimate connection between Agriculture and Irrigation renders it, in the opinion of a majority of the Commission, advisable that the Irrigation Department should be combined with the Department of Agriculture.

It has been suggested that the Departments of the Conservator of Forests and of the Director of the Botanic Gardens, and the future Department of Mines (including the Geological Survey), should be combined with the Department of Agriculture, in so far that the business of these Departments with the Government should go through the Director of Agriculture, who would be adviser of the Government in relation to the affairs of these Departments, and relieve the Governor and the Colonial Secretary of minor administrative details relating to them: but the majority of the Commission doubt the expediency of giving effect to this suggestion.

To the Department of Agriculture would be assigned the preparation of statistical information relating to agriculture and the areas of cultivation.

The immediate expenditure necessary to carry out the suggestions of the Commission would include the salaries of the Director and of his expert advisers and the funds required for the payment of the clerical establishment. A lump sum should also be provided to enable the Director to give immediate effect to approved proposals for the improvement of agriculture.

As the Department extends its operations and gives evidence of its usefulness further expenditure will be required; and the Commission desires to record its opinion that it will be futile to adopt its suggestions as to the establishment of a Department without recognition on the part of Government of its duty to provide the funds to give effect to its proposals. Its initial work must be largely experimental, and its expenditure cannot be justly submitted to the test of its pecuniary productiveness.

A. C. Lawrie	S. D. Bandaranaike*
L. F. Lee	P. Coomaraswamy*
A. De A. Seneviratne*	F. G. A. Lane
J. N. Campbell	J. H. Starey
A. F. Broun*	J. C. Willis.*

October 31st, 1899.

* See their remarks.

We dissent from the above report on the following points:—

The appointment of a Director of Agriculture is in our opinion unnecessary. The duties detailed in paragraph 4 of the report should be exercised by a Board of Agriculture analogous in its constitution to the Central Irrigation Board, and having a Member of the Executive Council as its President. Until the Government is in a position to judge of the working of the new Department the expense of a paid Director need not be incurred.

The interests of the paddy cultivation will, we think, suffer by combining the Irrigation Department with the Department of Agriculture. The object of the Irrigation Department is the irrigation and cultivation of paddy lands, and that Department is worked under the immediate and personal supervision and control of His Excellency the Governor. The withdrawal of the Governor's personal supervision from that Department cannot but be prejudicial to paddy cultivation, and the proposal to combine that Department with another, which deals with not only larger and more varied interests, but such as at times may be conflicting, cannot meet with the approval of the paddy cultivator. There is also the possibility, however remote, that such combination may lead to the use of irrigation funds for purposes other than irrigation.

A. de A. Seneviratna | S. D. Bandarnayake

P. Coomaraswamy.

I agree with the above gentlemen's views as regards the proposed appointment of a Director of Agriculture.—A. F. BROUN.

I agree with the views above expressed as to the proposal to create a Department with a Director. I think a Board should first be tried, with, if possible, His Excellency the Governor as Chairman. In this event I should not object to a combined Board of Agriculture and irrigation (with Sub-Committees for each Branch); otherwise I agree with the views of Mr. Seneviratna that these two departments of work should be kept separate.—JOHN C. WILLIS.

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* Commissioners appointed by H.E. the Governor:—

Mr. Justice A. C. Lawrie, Chairman; Hons. F. R. Ellis, L. F. Lee, A. de A. Seneviratne, and John N. Campbell; and Messrs. A. F. Broun, S. D. Bandaranaike, Maha Mudaliyar, P. Coomaraswamy, John Ferguson, F. G. A. Lane, J. H. Starey, J. C. Willis, and C. Drieberg (Secretary).

MR. JOHN FERGUSON.

The views of Mr. John Ferguson will be found in the following Draft Report drawn up by him at the request of the Chairman. prior to his degarture for England in August, 1899.—

The Commission appointed by His Excellency the Governor to inquire into and report on the advisability of establishing a Department of Agriculture have the honor to submit the following report with appended papers.

1. The Commission have only held four meetings, but careful consideration has been given by the memoers to a series of papers on the subject of an Agricultural Department, drawn up especiallyby the Director of the Botanic Gardens at an early stage of the proceedings and in addition the opinions of the several Government Agents and their Assistants have been invited, and obtained, of certain specified questions bearing on the subject of inquiry.

2. The Commission would direct attention to the several papers and answers appended to their report, and would confess to a considerable diversity of opinion, both among the members and Revenue Officers, on the advisability of establishing a Department of Agriculture.

3. It seems clear to the majority of the Commission that any step taken at this time should be primarily with a view to the improvement and expansion of native agriculture, and that whatever be the directing, supervising, and advising body, the Revenue Officers of Provinces and Districts should be the medium for reaching and influencing the people.

4. That the great defect hitherto attending experiments for the improvement of native agriculture has been—in the words of the Government Agent for the Northern Province—" the absence of continuity of work at any one subject." He tells us one Provincial or District Officer's fad " is irrigation ; another's, gardening; another's, stock improvement or horses ; another's paddy or coconuts ; and so on. Owing to the frequent changes in Administration (Provincial), each man s scheme, good in itself, is gradually dropped by his successor, and so the changes are rung to little or no ultimate benefit. It was the discovery of this as regards Irrigation which led to the formation of the Irrigation Boards, with the best results."

5. The Commission have no doubt that all branches of Agriculture in Ceylon—those of grain and palm-growing, equally with the tea, cacao and other industries of the planter—stand in need of scientific aid and advice from time to time, and that this can best be afforded by the Director of the Botanic Gardens and a staff of scientists at Peradeniya.

6. The Commission have also no doubt as to the value of experimental gardens or model farms being opened, with the full concurrence of the Government Agents and under their control, in every Province and ultimately in every Revenue District of the Island ; and they consider it desirable that an Agri-Horticultural Show, suited to the importance or necessity of the Province or District, should be held once a year either at the capital of the Province or in a district town.

7. The Commission further think the Agricultural School should be placed on a new basis and that its transfer to the neighbourhood of Kandy, as recommended by the Director of the Botanic Gardens, is desirable.

8. In order to secure uniformity in controlling and directing improvements in different branches of Agriculture in the various Provinces, and to consider the special needs of particular industries from time to time, the Commission would recommend the establishment of a Central Board of Agriculture, with a member of the Executive Council as President, with one or two Government Agents and the Director of the Botanic Gardens as official members, and with two or more unofficial members while all Government Agents and their Assistants should be corresponding members. This Board would receive reports of all improvements in existing branches of Agriculture of experiments with new products, of inquiries into diseases or other enemies of plants, &c., and would furnish Government once a year with a full and comparative report as to the work it the different Provinces, while advising from timn to time on any agricultural question that mighe arise. To such Board might be left for consideration and report the question if further scientists should be temporarily or permanently attached to Peradeniya at this time ; also the details and working out of several other improvements suggested in the Memoranda, Notes, or other papers of the Director of the Gardens, the Government Agents and other writers, which will befound in the Appendix to this report.

9. As the agricultural resources and prosperity of the Colony develop, tbe Commission would like to see a special Agricultural Department gradually evolved, the Board being presided over by the most efficient of the Government Agents (who should also be a member of the Executive Council), with Provincial and District Boards to correspond with the central institution. But at the outset, the Commission think a start may well be made with one Central Board (utilizing existing means), and having for its main object the maintenance of continuity of attention by the Revenue Officers and Headmen to any well-considered schemes for improvement in cereal or garden cultivation, or in live stock, which have once been fairly started in their Provinces or districts, while also taking cognizance of the great planting industries, of diseases affecting them, or of proposals of for their improvement, or for adding to the list new products deserving of practical attention.

10. Finally, the Commission would recommend that some encouragement be held out to young Civilian Cadets to qualify for their duties by a course of agricultural study in Europe before coming to Ceylon.

The TROPICAL AGRICULTURIST

MONTHLY.

Vol, XX. COLOMBO, AUGUST 1st, 1900. No. 2.

CHILLIES:—THEIR CULTIVATION AND USES.

Capsicum, *Linn.; Gen. Pl., 11., 892.*

(From "Economic Products of India.")

THE greatest confusion exists in Indian literature as to the cultivated species of Capsicum. Popularly the larger fruits are usually designated Capsicums, and the smaller Chillies. According to Firminger, the powdered seeds of the latter constitutes Cayenne pepper. That author, in his *Manual of Gardening for India*, states that there are a great many varieties of Capsicum grown in India, some of which are very ornamental when grouped together.

The writer can at most hope that he has thrown the various vernacular names approximately under their corresponding botanical species. Much remains still to be done in order to clear up the ambiguities which exists in the literature of the Indian Capsicums. Many of the vernacular names appear to be given to all the species alike.

Habitat.—A native of equinoctial America, most probably of Brazil. Commonly cultivated for its fruit throughout the plains of India, and on the lower hills such as in Kashmir, and in the Chenab valley up to altitude 6,500 feet. When grown on the hills it is said to be very pungent. There are seven varieties, differing chiefly in the length, shape and colour of the fruit, some being round, others oblong, obtuse, pointed or bifid, smooth or rugose; and red, white, yellow, or variegated. It is probable that most Indian authors have confused this species with C. minimum, which see.

History.—"This species has a number of different names in European languages, which all indicate a foreign origin, and the resemblance of the taste to that of pepper. In French it is often called *poivre de Guinee* (Guinea pepper), but also *poivre du Bresil, d'Inde* (Indian, Brazilian pepper), &c., denominations to which no importance can be attributed. Its cultivation was introduced into Europe in the sixteenth century. It was one of the peppers that Piso and Maxgraf saw grown in Brazil under the name *quija* or *quiya*. They say nothing as to its origin." (*DC. Orig. of Cult. Pl.*) Chillies are not mentioned by any Sanskrit writer, consequently their introduction into India must have taken place at a comparatively recent date. It is probable that the Portuguese brought the fruit from the West Indies. Up to the present time the cultivation of the plant is carried on more extensively at Goa than at any other place on the western coast, and capsicums are well-known in Bombay by the name of *Gowai mirchi* (Goa pepper)" (*Dr. Dymock, Mat Med. W. Ind.*). Hove alludes to Capsicum as grown in Bombay in 1787 and expresses no astonishment at its existence in India.

Cutivation of Capsicums.—"A light well-manured soil is the best for all kinds, in which the plants should be picked out at about four inches apart when they attain a growth of three inches; and afterwards put out into a bed of rich light earth when they attain six inches in height, giving them a good supply of water and keeping them clear from weeds" (*The Gardener*).

Medicine.—Dr. Stewart says that the fruit is used externally in the form of plasters and taken internally in cholera; it is eaten from a conviction that it counteracts the effects of bad climates.

As a drug, red pepper is considered by the natives as stomachic and stimulant, and is used externally as a rubefacient (*Dymock*). "It has been employed with success as a topical application to elongated uvula and relaxation of the pendulous veil of the palate. Made into a lozenge, with sugar and traga-

canth, it is a favourite remedy for hoarseness with professional singers and public speakers. In putrid sore-throat whether symptomatic or strictly local, gargles of an infusion of red pepper are often very usefully resorted to" (*O'Shaughnessy, Beng. Dispens.* 468). "It is employd in medicine in combination with cinchona in intermittent and lethargic affections and also in atonic gout. It is a valuable adjunct to bitter tonics, and other stimulants in weak states of the stomach; in cold leucophlegmatic habits, dyspepsia and flatulence, and as a gargle in relaxed states of the throat it is highly extolled and has also been used with success in the advanced stages of rheumatism. In native practice it is given, in conjunction with asafœtida and sweet flag root, in cholera. By German physicians it is supposed to be particularly injurious in gonorrhœa,' (*Murray's Pl, and drugs of Sind*).

Dr. Sakharam Arjun says that the fruit is used as a stimulant in snake-bite.

Chemical composition.—"Bucholz, in 1816, and about the same time Braconuot, traced the acridity of capsicum to a substance called *casicin*. It is obtained by treating the alcoholic extract of ether, and is a thick yellowish red liquid, but slightly soluble in water. When gently heated it becomes very fluid, and at a higher temperature is dissipated in fumes which are extremely irritating to respiration. It is evidently a mixed substance consisting of resinous and fatty matters.

"Felletar, in 1869, exhausted capsicum fruits with dilute sulphuric acid and distilled the decoction with potash. The distillate, which was strongly alkaline and smelt like *conine*, was saturated with sulphuric acid, evaported to dryness and exhausted with absolute alcohol. The solution, after evaporation of the alcohol, was treated with potash, and yielded by distillation a volatile alkaloid having the odour of conine.

"From experiments made by one of us (F.) we can fully confirm the observations of Felletar. We have obtained the volatile base in question, and find it to have the smell of conine. It occurs both in the pericarp and in the seeds, but in so small a proportion that we were unsuccessful in isolating it in sufficient quantity to allow of accurate examination.

"Dragendorf states (1871) that petroleum either is the best solvent for the alkaloid of capsicum; he obtained crystals of its hydrochlorate, the aqueous solution of which was precipitated by most of the usual tests, but not by tannic acid.

"The colouring matter of capsicum fruits is sparingly soluble in alcohol, but readily in chloroform. After evaporation an intensely red soft mass is obtained, which is not much altered by potash; it turns first blue, then black, with concentrated sulphuric acid, like many other yellow colouring substances. By alcohol chiefly *palmatic* acid is extracted from the fruit, as shown by Thresh in 1877.

"The fruits of Capsicum fastigiatum have a somewhat strong odour; on distilling consecutively two quantities, each of 50lb, we obtained a scanty amount of flocculent fatty matter which possesses an odour suggestive of parsley. Both this matter, as well as the distilled water, were neutral to litmus-paper and the water tasteless. We separated the latter and exposed the remaining greasy mass to a temperature of about 50°C., when it for the most part melted. The clear liquid on cooling solidified and now consisted of tufted crystals, which we further purified by recrystallization from alcohol. Thus about two centigrammes were obtained of a natural white stearoptene having a deciedly aromatic, not very persistent taste, and by *no means acrid*, but rather like that of essential oil of parsley. The crystals melted at 38°C. On keeping them for some days at the temperature of the water-bath, covered with a watch-glass, some drops of essential oil were volatilized, which had the same taste and did not solidify; the crystals were consequently accompanied by a liquid oil When kept for some days more in that condition, the crystals themselves began to be volatilized, and the part remaining behind acquired a brownish hue. This, no doubt, points out another impurity, as we ascertained by the following experiment. With boiling solution of potash, the stearoptene produces a kind of soap which on cooling yields a transparent jelly. If this is dissolved and diluted, it becomes turbid by addition of an acid. This pr b-ably depends upon the presence of a little fatty matter (a suggestion which is confirmed by the somewhat offensive smell given off by our stearoptene if it is heated in a glass tube.

"BUCHHEIM'S 'CAPSICOL' is in our opinion a doubtful substance.

"Thresh (1876-77) succeeded in isolating a well-defined, highly active principle, the *Capsaicin*, from the extract which he obtained by exhausting Cayenne pepper with petroleum. From the red liquor dilute caustic lye removes *capsaicin*, which is to be precipitated in minute crystals by passing carbonic acid through the alkline solution. They may be purified by recrystallizing them for either alcohol, either, benzine, glacial acetic acid, or hot bisulphide of carbon; in petroleum *capsaicin* is but very sparingly soluble, yet dissolves abundantly on addilitiou of fatty oil. The latter being present in the pericarp is the cause why *capsaicin* can be extracted by the above process.

"The crystals of *capsaicin* are colourless and answer to the formula $C_9H_{14}O_2$; they melt at 59°C., and begin to volatilize at 115°C.; but decomposition can only be avoided by great care. The vapours of *capsaicin* are of the most *dreadful aridity*, and even the ordinary manipulation of that substance requires much precaution. *Capsaicin* is not a glucoside: it is a powerful rubifacie t, and taken internally produces very violent burning in the stomach" (*Pharmacographia*),

Special Opinions.—§"Stimulant and rubefacient, useful in dyspepsia; recommeuded in infusion as an external application to the eye" *Assistant Surgeon Nehal Sing, Shaharanpur*). "Chiefly used as a condiment and considered to be stomachic" (*Assistant Surgeon Anund Chunder Mookerji, Noakhally*). "Antimalarious to a certain extent" (*H. D. Masani, Surgeon H. M.'s 30th N. I., Bombay Karachi*). "Carminative, cooling medicine. The decoction with opium and friend asafœtida seeds is used in cholera. In the form of gargle it is useful in stomatitis and sore-throat. It is an ingredient in what is called *masala* in the Decan, Guzerat, and Cutch" (*W Barren Surgeon H. M S. 25th N. L. I., Bombay Bhuj Cutch*). "The capsule is innocuous; the seeds, as well known are powerfully irritant" (*R. T. H. Morar*). Chillies are applied by natives to dog-bites. An infusion made with 4 drams of chillies and a bottle of boiling water has been found useful in severe sore-throat" (*Assistant Surgeon Bhagwan Dass, Rawal Pindi*), "In delirium tremens in 20-grain doses" (*Surgeon-Major George Cumberland Ross, Delhi*). "Is used in liniments as a rubefacient; in cholera pills with camphor and assafœtida; as an application to elongated uvula and relaxed throat it is very useful" (*A. Surgcon*). "Active principle, an acrid oil-capsaicin. In dyspepsia, a good pill is made with equal parts of capsicum, rhubarb, and ginger" *C. M. Russel Civil Surgeon Sarun Bengal* "Internally it has a stimulant action on the bowels and helps to relieve constipation" (*Surgeon-Major A. S. G. Fayakar Muskat.*

Food.—The fruit when green is used for pickling and when ripe is mixed with tomatos, &c., to make sauces. It is also dried and ground for use like Cayenne pepper (*Treasury of Botany.*)

The consumption of chillies is very great, and both rich and poor daily use them; they form the principal ingredient in all chutnies and curries; ground into a paste, between two stones, with a little mustard oil, ginger, and salt, they form the only seasoning which the millions of poor can obtain to eat with their rice (*Balfour's Cyclop.*) Dr. Dymock gives

the value of Ghati chillies at R3½ per maund, and Gowav, R2½ to 4 per maund of 28lb in Bombay.

Capsicum, fastigiatum, *Blume*. See C. minimum, *Roxb.*

C. frutescens, *Linn.*; *Fl Br. Ind. IV.*, *239*.

Habitat.—An annual, cultivated throughout India. Supposed to have been recently, comparatively speaking, introduced from South America. According to the best authorities, this and the other species of Capsicum, now cultivated in India, have no Sanskrit names. Of the Indian cultivated species this is perhaps the commonest, as it is also the largest, being sometimes cultivated in the hedges around fields. It is grown during the cold weather on light sandy soil in most parts of the country, and especially so in Bengal, Orissa and Madras. The Fruit, when ripe, is generally of a bright red colour; it is then picked and laid out on mats to dry in the sun.

Opinions differ slightly as to the plants which afford Cayenne pepper. Speaking of this species, De Candolle says: "The great part of the so-called Cayenne pepper is made from it, but this name is given also to the product of other peppers. Roxburgh, the author who is most attentive to the origin of Indian plants, does not consider it to be wild in India" (*Orig. Cult. Pl*) Simmonds writes that "the Cayenne pepper of commerce is obtained chiefly from the pulverised chillies or fruit pods of one or two species of Capsicum (C. annuum, *Linn.*, and C. fastigiatum, *Blume*). So also in the *Kew Official Guide* (p. 100) the dried and pulverised rind of the pods of C. annuum and its allies is said to make the best Cayenne pepper.

Medicine.—Chillies are used as medicine in typhus and intermittent fevers and in dropsy; they are regarded as stomachic and rubefacient. In native practice they are prescribed in gout, dyspepsia, cholera, and ague *(Atkinson)*.

Special Opinions.—§ "When taken in curry in unusual quantities, chillies cause, in many instances, great irritation and burning in the rectum, especially after defœcation, attended also with scalding and frequent desire to urinate; mixed with ginger and mustard, they form a powerful rubefacient paste" (*Assistant Surgeon Shib Chunder Bhattacharji, Chanda, Central Provinces*). "A dose of ten grains of finely powdered capsicum seed, given with an ounce of hot water, two or three times a day, sometimes shows wonderful effects in cases of delirium tremens" (*Surgeon R Gray, Lahore*) "Stimulant, aromatic, and stomachic. I use the tincture and powder largely in the preparation of cholera mixture and pills, also in gargles for sore-throat" (*Brigade-Surgeon S. M. Shircore, Murshedabad*) "A powerful stimulant used as a gargle in sore-throat, also in dyspepsia and loss of appetite" (*Brig.-Surgeon F H Thorton Monghir*).

Food.—In every Indian bazar chillies may be purchased although not natives of India, the cultivated forms, at the present date, are everywhere met with and constitute an indispensable ingredient in native curry. They are "much used for flavouring pickles. By pouring hot vinegar upon the fruits all the essential qualities are procured, which cannot be effected by drying them, owing to their oleaginous properties; hence chilli-vinegar is in repute as a flavouring substance. In Bengal the natives make an extract from the chillies which is about the consistence and colour of treacle. A form of soluble Cayenne was sent from British Guiana in 1867 in the collection forwarded to the Paris Exhibition" (*Simmonds, Trop, Agri, 480.*)

The pods are dried on a hot plate or in a slow oven and then pounded in a mortar. This powder is then passed through a handmill until it is brought to the finest possible state, thereafter it is well sifted and preserved in corked glass bottles for use (*Treasury of Botany.*)

Capsicum grossum, *Willd Fl. Br. Ind. IV. 239.*

Bell Pepper.

Habitat.—Not much cultivated in India; native place uncertain,

Food.—Cultivated to a limited extent in gardens, but chiefly for Europeans, who either cut this capsicum in stews or have it openod, stuffed with certain spices, and pickled in vinegar. The thick fleshy skin is not so hot as that of the other species.

C. minimum, *Roxb.*; *Fl. Br. Ind., IV., 239*; *Wight Ic., t. 1617.*

Bird's-eye Chilli.

Habitat—Cultivated throughout India, but not extensively; closely resembles C. annuum, but is distinguished by the more acute corolla lobes, the smaller seeds, and by the pod being erect, nearly cylindrical and yellow when ripe. It is generally known as Bird's-eye Chilli. This "is found in many parts of India, principally in the southern districts, growing in waste places, gardens &c., in an apparently wild state. It is also found abundantly in Java and other parts of the Eastern Archipelago under similar conditions. There is, however, good reason to believe that, in common with the rest of the genus, it was originally brought from some part of the American Continent. It is now cultivated to a large extent in the tropics of both the old and new worlds" *(Bentley and Trimen.)*

Medicine.—The *Pharmacopœia of India* describes the fruit as an acrid stimulant. "In atonic dyspepsia, and in diarrhœa arising from putrid or crude ingesta in the intestines, and in the vomiting of bilious remittent fever, it acts beneficially. In scarlatina it has been used with great repute in the West Indies. In various forms of cynanche, and in hoarseness or aphonia, depending upon a relaxed condition of the *chordæ vocales*, it has been found a useful adjunct to gargles. As a rubefacient and counter-irritant, the bruised fruit, in the form of poultice, acts energetically; added to sinapisms it greatly increases their activity." Acts as an acrid stimulant, and externally as a rubefacient used in putrid sore-throat and scarlatina; also in ordinary sore-throat, hoarseness, dyspepsia. and yellow fever, and in diarrhœa occasionally also in piles" (*Baden Powell*).

"In *Scarlatina*, the following mixture has attained much repute in the West Indies: Take two table spoonsful of bruised Capsicum and two teaspoonsful of Salt; beat them into a paste and add half a pint of boiling water; when cold, strain and add half-a pint of Vinegar. Dose for an addult, one table-spoonful every four hours; to be diminished for children according to age or the severity of the attack. The same formula forms an excellent gargle in the *sore-throat which accompanies this disease* as well as in ordinary *relaxed, sore-throat, hoarseness* &c." (*Waring, Medicines.*)

Food.—This small "chilli" is rarely used by natives, but by Europeans is steeped in vinegar and mixed with salt; in this form it is employed as a seasoning in stews, chops &c.

(From "Treasury of Botany.")

Capsicum.—One of the genera of *Solanaceæ*, deriving its name from the Greek word signifying 'to bite,' in allusion to the hot pungent properties possessed by the fruits and seeds. The genus consists of annual or biennial plants, frequently with a somewhat woody and bushy stem; a wheel-shaped corolla; five stamens protruding from the corolla, their anthers converging at their points, and opening by longitudinal slits; and a two to four-celled ovary, becoming, when ripe, a membranous pod containing several seeds. The shape of the fruit varies very much in the different species of the genus.

C. annuum, a native originally of South America, but introduced into India and elsewhere, furnishes the fruits known as Chillies; these, as well as the fruits of *C. frutescens*, and several other species or varieties, are used to form Cayenne pepper. For this purpose the ripe fruits are dried in the sun or in an oven, and then ground to powder, which is mixed with a large quantity of wheat flour. The mixed power is then made into cakes with leaven, these are baked till they are as hard as biscuit, and are then ground and sifted. The Cayenne pepper of the shops is, however, usually largely adulterated

with red lead and other less objectionable substances. The hot taste seems to be due to a peculiar acrid fluid called *capsicin*, which is so pungent that half a grain of it volatilised in a large room, causes all who respire the contained air to cough and sneeze. It is remarkable that the narcotic properties, which are possessed by most of the *Solanaceæ* to a greater or less extent, are not present in *Capsicum* — though this is open to some doubt, as it is said that some of the American species have narcotic proderties residing in the pulpy matter in which the seeds are imbedded, this pulp being absent in those kinds which are used for their pungent properties.

Capsicum fruits are used medicinally, in powder or as a tincture, as an external application, or as a gargle in certain cases of sore throat, particularly those of a malignant character, and internally as a stimulant in cases of impaired digestion, &c. Several kinds are cultivated in this country, as objects of curiosity, and for the sake of their fruits. [M.T.M.]

The species of *Capsicum* are chiefly natives of the East and West Indies, China, Brazil, and Egypt, where they are much esteemed for their pungent fruit and seeds, which, under the name of Cayenne Pepper, or Chillies, form an indispensable condiment, which Nature herself appears to have pointed out to persons resident within the tropics. According to Sir R. Schomburgk, the natives in Guiana eat the fruit of these plants in such abundance as would not be credited by a European unless he were to see it (*Jour. Hort. Soc.* ii. 153). In Jamaica the species most esteemed is the Bonnet Pepper (*C. tetragonum*), the fruits of which are very fleshy, and have a depressed form, like a Scotch bonnet. The shrubby Capsicum, or Spur Pepper (*C. frutescens*), is a native of the East Indies, and has been in our gardens since 1656. It forms a dwarf bushy shrub, with white flowers, and bears numerous small oblong obtuse pods, which are very pungent, and in their green and ripe state are used for pickling, as well as for making Chilli vinegar. This is done by merely putting a handful of pods into a bottle, and afterwards filling it with best vinegar, which in several weeks will be fit for use. But the chief purpose for which this species is cultivated is for making Cayenne pepper, which is often prepared by drying the pods on a hot plate, or in a slow oven, and then pounding them in a mortar, and passing them through a hand-mill until the whole is reduced to the finest possible state. After this has been done, the powder is to be sifted through a thin muslin sieve, and preserved in well-corked glass bottles for use. The common annual Capsicum, or Guinea Pepper (*C. annuum*), was introduced into Europe by the Spaniards. It was cultivated in England in 1548, and is sufficiently hardy to thrive in summer against a south wall in the open air, and mature its fruit. The colour, direction, and figure of the latter is very variable—some being yellow, others red, and others black. In a green state they are used for pickling, and when ripe are mixed with tomatos, &c., to form sauces. They are also dried and ground for use like Cayenne pepper. The Berry-bearing Capsicum, or Bird Pepper (*C. baccatum*), is indigenous to both the East and West Indies, and has been grown in this country since 1731. Its pods are erect, roundish, egg-shaped, very pungent, and when ripe are dried and used for the same purposes as those of other kinds of *Capsicum*. They also form one of the chief ingredients in the preparation known in the West Indies as *man dram*, which is usually resorted to by those effected with loss of appetite or weak digestion, and consists of cucumbers sliced very thin, shallots or onions chopped very fine, a little lime juice and Madeira wine, to which is added a handful of the pods of this pepper, and the whole are then mashed together, and mixed with as much liquid as may be thought necessary. Besides the three species noticed as being the kinds most generally cultivated, there are many other species and varieties occasionally grown for the sake of their pods, all of which yield a warm acrid oil, which acts powerfully on the stomach, and is thought to correct flatulency, and assist digestion. [W.B.B.]

AGRICULTURAL EDUCATION IN GREATER BRITAIN.

PAPER READ BEFORE THE FOREIGN AND COLONIAL SECTION OF THE SOCIETY OF ARTS, ON TUESDAY, FEBRUARY 27, 1900.

BY R. HEDGER WALLACE.

(*Continued from Vol. XX., page 7.*)

It is a matter of regret to learn that agriculture is not yet taught in the schools of this colony, for, in the paper read at the "International Congress on Technical Education" by the Emigration Agent for the Colony of Queensland, it is stated that lessons in agricultre had been introduced into the programme of instruction for country schools, with practical lessons in horticulture, for the school children of Brisbane and suburbs. Queensland is, however, peculiarly situated, as within its borders both branches of agriculture are carried on—the tropical and the temperate.

The college lately established is near Brisbane, and the three years' course of study iclndes the following subjects.—

First Year.—Agriculture, horticulture, dairying, carpentry (industrial), agriculture, horticulture, (lectures) arithmetic, book keeping, chemistry, drawing, English composition.

Second Year.—Agriculture, horticulture, dairying, blacksmithing, (industrial), agriculture, horticulture, dairying (lectures), anatomy and physiology, botany, chemistry, entomology, geology, physics, surveying.

Third Year.—Industrial (special work), agriculture (lectures), agricultural chemistry, bacteriology, botany landscape gardening, meterology, mechanics, veterinary science, zoology.

There are also four State Farms in Queensland, at Westbrook, Hermitage, Gindie, and Beggenden, and their object is to carry out experiments for the benefit of the farming community in the district where they are located. (Unlike the farms in New South Wales, facilities for students gaining experience is not afforded at these Queensland State Farms.) Agricultural education is also furthered by the employment of instructors in fruit culture, viticulture, tobacco culture, and coffee culture, and the issue of various publications.

Passing now to Victoria, it may be said that agricultulal education in this colony follows very much on the same lines as that of New South Wales. Agriculture can be taught in the State Schools, and it is an optional subject in some of the teachers examinations. It used to be taught in the State School Teachers' Training Institute, before that institution was abandoned. Lectures on dairying are being given at present in the country schools, and proving a success. Nothing however, has yet been done in regard to school gardens, or the practical demonstration of agricultural principles in rural schools, as is done in South Australia. In the Schools of Mines throughout the colony, both agriculture and agricultural chemistry may be taught, and the curriculum of the Victorian Technical Schools includes agriculture, fruit-growing, and veterinary science. A Royal Commission, I may note, has lately been appointed, and is now dealing with the present educational system of the colony, and investigating as to the best systems of teachnical and agricultural teaching, as found in Europe and America. The whole system of teaching in the colony is therefore likely soon to be re-modelled.

The interest of purely agricultural education are in this colony entrusted to a Council of Agricultural Education, which represents the Agricultural Societies and the Government. Two colleges have been established by this Council—one at Dookie, in the north-eastern district and near to Sheppartoin; the other at Longerenong, in the Wimmera district, and near to Horsham. The latter college, which is placed near the Mallee lands, and admirably adapted for demonstraining what can be done in farming with

irrigation, has been, however, closed for some time, but it seems to have been only a temporary measure, for I believe it is now again ready to receive students.

It was originally intended, I believe, to found two more colleges one in the south-eastern and the other in the south-western districts, but this intention has not been carried out. The great feature in the colleges controlled by the Council of Agricultural Education in Victoria is that the instrucrion is free, the only charge being for maintenance. It is optional with students to remain one or more sessions at the colleges, but before a student can obtain his diploma he must have been in attendance for at least two years, while the maximum term of attendance permitted is three years. The course of instruction is the same in both colleges, and comprises elementry chemistry, botany and geology, some agricultural chemistry and economic entomology, advanced English to the understanding of technical expressions, arithmetic, mensuration, surveying, book-keeping, practical work on the farm, instruction in field operations, the use of farm implements and machinery, and the management of stock. Very special prominence is given to practical work at these colleges, and half of the students' time is devoted to field work. All students must be over the age of fourteen on admission and each college has accomodation for forty students.

A new school of viticulture has recently been established at Rutherglen in the northeastern district and is directed by an expert from the college of viticulture at Montpelier, France. A school of horticulture has also been in operation for many years at the Government Horticultural Gardens at Burnley, near Melbourne. Here the number of students are limited to 25, and the term is also restricted to one year, the instruction being free. A Government scent farm was also carried on for some years to give instruction in scent flower farming, but is now closed for the time being, as sufficient interest was not taken in the industry. A small experimental tobacco farm has, however, been recently established near Wangaratta by the Government tobacco expert, who was engaged from the United States and for the past two years has been giving instruction to growers. It is now proposed, I am informed, to still further extend the scope of agricultural education by the establishment of a dairy and cheese school, and a large sum of money has recently been voted for the purpose, so that these institutions will probably be established shortly. Like the other colonies, Victoria also employs experts to give instruction in dairying, fruit growing, viticulture tobacco growing, and the cultivation of fibre and oil-producing plants, and issues bulletins.

Next I note what has been done in respect of agricultural education in the adjoining colony of South Australia. Though this colony extends through the continent, and within its boundaries you find tropical, subtropical, and temperate, cultivation, education in agriculture is limited to the southern portion of the colony. In reply to my enquiries, the Agent-General for the colony, who when in South Australia was mainly instrumental in introducing the teaching of agriculture into the State schools, was good enough to advise me that—

"(1) Agriculture is taught as a specific subject in the elementry state school, in the *country*. (2) There are no farm schools, but several secondary agricultural schools for lads of 12 or 13 years. (3) We have the Roseworthy Agricultural College, and one high technical school of agriculture. (4) The study is encouraged in primary schools, where teachings can rise the percentage of their results by teaching agriculture and similar subjects."

The technical school of agriculture mentioned was opened in 1898 in Adelaide. At this school the subjects taught are Englsh literature, composition, advanced arithmetic, algebra, plane geometry, mensuration and land surveying, mechanical drawing agriculture (theoretical and practical) fruit culture,, and viticulture. For instruction in chemistry, physics and carpentery, the scholars attend the School of Mines. Students from the Teachers' Training College also attend this school to get from the master a practical insight into the methods of teaching agriculture, so that in due course they might be appointed to schools where instruction in agriculture is to form an important feature of the work. From the report of the South Australian Minister of Education for 1898, it seems that the Board of Inspectors in the colony are in favour of the teaching of agriculture in the schools. This deserves notice, for a study of the reports of the Departments of Education in the other colonies will show that a good deal of opposition to the introduction of agricultural teaching in these colonies has come from members of the Inspectorate.

Passing next to the technical schools in South Australia, their curriculum also includes wool sorting and dairy work as subjects of instruction. Turning now to purely agricultural education, like the other colonies already mentioned, South Australia has an Agricultural College, located at Roseworthy, about 35 miles from Adelaide. This college was opened in 1885, and the course of instruction includes practical agriculture, chemistry, botany, geology, surveying, levelling mensuration, book-keeping, entomology, and veterinary science, and also viticulture, œnology, fruit culture, and wool sorting. The course is a two years' one but students who fail to obtain a diploma may remain a third year. The age for admission is 14, and all students are required to take part in farm work; but only half the time considered necessary in the Victorian colleges to be devoted to practical farm work is insisted upon at Roseworthy. The laboratory and science teaching generally is however recognised to be at Roseworthy in advance of that at the Victorian institutions. Again, like the other colonies, South Australia employs experts to give instruction in viticulture, horticulture, and dairying, and publishes a journal.

The last colony on the Australian continent yet to be mentioned is Western Australia, the Agent General of which advises me that:—

"(1) Agriculture is partially taught in the State schools of Western Australia. (2) There are no farm schools in the colony. (3) At present no agricultural school exists, but the desirablity of establishing such a college has been brought before the Government. (4) The Educational Department encourages agricultural training in the State schools"

I have been unable, however, to learn in time or this paper how agricultural training is encouraged, and what methods of teaching agriculture, in the State schools of this colony, are employed.

Coming now to Tasmania, this colony has what is termed a "Practical School of Agriculture" at Ulverstone, on the north-west coast. This school is under the patronage of the Tasmanian Government and has been selected by that Government to afford technical instructions in agriculture in the colony, and is subsidised also by the Government in order that special classes may be held at a low fee open to farmers and others in the district. Unlike the other Australian agricultural schools or colleges, it is not a Government institution. The basis or foundation of school is the Ulverstone Grammar School to which first an agricultural side has been added for boys, and then a further addition of a distinct and separate branch, including a farm, for grown up students. Agriculture is not taught in the elementary schools of this colony, but theoretical tuition in agricultural chemistry is sometimes given in the higher grade schools or colleges, though nothing of a very definite nature is taught. Occasionally lecturers are engaged to travel through the country and give instruction on agricultural subjects. There is also what is practically a department of Agriculture, which issues publications, and can command some scientific advice.

In New Zealand the circumstances are different, for agriculture can be taught in the elementry schools in

Standards IV., V., and VI., and its teaching is encouraged by a provision that "if agricultural chemistry be efficiently taught, no other elementary science shall be required in these Standards." I have already drawn attention to the favourable opinion held of agriculture as a subject of instruction by the South Australian Board of School Inspectors, but in the report of the New Zealand Education Department, 1889, I find the reverse of the picture. The Chief Inspector, for instance, in his report, says, "The general science course, again being taken up in a good many schools where agricultural science was formerly preferred. This is a change to be welcomed, for the educative value of the two courses, and the facilities they offer for experimental illustration, are very unequal." In the same paragraph he further states that "with history treated only as a subject for reading, and the extravagances of the syllabus in geography, higher arithmetic, and agricultural, science rigidly pruned, there would be time to do honest educational work all round, and little excuse, but incapacity for not doing it." This is, of course, a matter for debate among experts. I simply regard it from what might be termed the ordinary ratepayers' point of view, and would say that the teaching of agriculture in the schools cannot be successful when the subject is regarded by the inspectorate in the light these extracts indicate. Like the neighbouring colonies, New Zealand also has an Agricultural College at Lincoln, near Christchurch. This college is one of the affiliated colleges of the University of New Zealand, which grants certificates and a degree (Bachelor of Science) in agriculture to those students who follow the prescribed course and pass the necessary examinations. For the degree in agriculture a student must first pass the matriculation examination, and attend two years at a university college and then two succeeding years at this Agricultural College. The course of instruction at Lincoln extends over two years, and students are not received if under sixteen years of age. The students' time is also equally divided between lectures and practical work as follows:—On one day the first-year students receive lectures, and the second-year students work on the farm; on the following day the second-year students receive lectures, and the first-year students work on the farm, and so on. The subjects taught are agriculture, chemistry, general and agricultural; botany, general and practical; entomology, general and agricultural; geology physiography, and meteorology; veterinary science, applied mathematics and mechanics, land surveying and levelling, drawing, and book-keeping.

In addition to this general agricultural college, a dairy school, is about to be established, and instructors from Canada have already been appointed.

CULTIVATION OF **PEPPER** IN THE BOMBAY PRESIDENCY.

A *Note by* J. W. Mollison, Esq., M.R.A.C., *Deputy Director of Agriculture, Poona. To which is added an account of Manures used in Spice Gardens.*

The two useful papers, by Mr. Mollison, given in these pages, are reproduced from the *Bombay Bulletin* by the courteous permission of the Survey Commissioner and Director, Land records and Agriculture, Bombay.

The commercial product here dealt with is the dried fruit of a vinelike plant which is found wild in the forests of Malabar and Travancore. The plant is cultivated largely in Southern India, Siam, Malay, Cochin-China, and other tropical parts with moist hot climates. A rainfall of 100 inches or more appears to be necessary. The plant is a large climber. The leaves are glossy, acute, cordate. The flowers are pendulous spikes and the fruit red berries, the size of peas in racemes. The berries are fleshy. The pulp covers a soft stone. The plants in climbing, cling by adventitious roots very closely to any support. In the Kanora gardens pepper is trained on the *supari* palm trees.

How Propagated.—The plant is propagated by layering or from cuttings. The former is the preferable plan. When the betel palms have been seven or eight years permanently planted, pepper is planted at the roots of the trees. If a long healthy vine, from an established plant, can be stretched to reach the root of the betel palm, this vine is layered in the leaf-mould manure which surrounds the roots of the palm. The pepper vine takes root freely in this manure, and when it has done so, is severed from the parent plant and trained on the palm stem. Two or three vines are layered to one palm. The best months for propagating by layering or otherwise are June or July. The young pepper plant grows rapidly. The main vine should branch freely into subordinate vines, so that a number of vines can be trained straight up the palm. They are fully secured to the stem by bands stripped from the sheaths of fallen leaves of the betel palm. The bands are tied about a foot apart, and in well-managed gardens are renewed annually at the top and twice a year at the bottom, but in a young plantation a band must be put on from time to time as the vines grow. The main and subordinate vines grow up the tree to a height of five feet or more per annum. Luxuriant growth and free branching are encouraged by heavy applications of good manure given annually for three years after plantation. Subsequently the pepper participates in the general cultivation given to the betel palms and an application of manure is given for both crops every second year. The manure is heaped over the bared roots of the betel trees and pepper plants in a circle round the stems, and if plentiful a big basketful is given to each betel palm, less being given if manure is scant. The basket is saucer-shaped, about 3 feet in diameter and 15"—18" deep in the centre. The best manure for pepper, betelnut, and all other crops of the garden is made from green leaves and twigs plucked or pruned in the monsoon and used as litter in the byres where buffaloes and other cattle stand, and thence removed to a deep manure pit every day or second day with the dung and urine of the cattle. This manure is sufficiently decayed by the following March, and is applied in that month or in April. The pepper plants in an established plantation rise to a height of 15 to 20 feet. Throughout their whole length they send out horizontal branches which are generally about 18" long. The foliage in healthy plants is from the ground upwards fairly dense, but in an established plantation some of the older vines die. Then the foliage becomes less dense unless the plants are renewed by new layers. A plantation is in bearing three or four years after it is started, and if the old vines as they get worn out are at once replaced by new layers, the plantation should keep in vigorous growth and bearing for a long period. The flowers appear in July and August and the berries are ripe in March. The yield depends upon liberality in manuring and careful management, also upon the rainfall. The rainfalls of June and July are important as these cause the plants to produce many flowers, but if the rains come in heavy downpours subsequently the inflorescence may be destroyed before it fairly sets. If there is a long break after the first rains the flowers may wither. With light showers, however, a full crop may be expected.

Its Yield.—The vines on one palm when in full bearing yield in a good season about 1,000 clusters on an average. The clusters vary in size; but 1,000 should yield about 7 seers of dried pepper (a seer* = 24 tolas).

The plants, the flowers, and the fruit are delicate in the sense that they are damaged by rough handling. Therefore ladders are used when the vines are bound to the palms and the berries plucked. The ladders are straight single bamboos, with the alternate side branches cut off about a foot from the stem. These provide the steps of the ladder. A wooden hook is rigidly attached at the top end of the ladder and

* 1 Bombay seer = ·7 lb.

secures it to the palm above the level of the tallest pepper plants. The ladder is slightly inclined in a certain direction when in proper position and then can be safely used as it cannot well slip.

HOW PLUCKED.—The bunches are plucked by hand and placed in an oblong cane basket slung horizontally behind the workman by a rope round his waist. The rounded ends of the basket project a little on either side so that the basket can be conveniently filled by either hand of the workman. When plucked all the berries in a bunch may be equally and fully ripe, but ordinarily the bunches are plucked when the berries are mostly green and just changing in colour. The berries may or may not be sorted as they are plucked. If they are sorted those fully ripe are separated. These are soaked in water for seven or eight days or heaped, so that the pulp ferments and then rubbed by hand or on a coarse cloth if the quantity is small or trampled under the feet of coolies if large. The pulp is thus rubbed off the inner "stone." The stone furnishes the white pepper of commerce. The pulp is completely removed by washing in baskets in running water. The pepper is then dried by exposure to the sun for about a week. This has also a bleaching effect, and the pepper becomes pale-grey or pale-drab in colour. It can be bleached a whiter colour by chemical agency. This white pepper is only prepared to a limited extent in the Kanara forests. The chief product is black pepper. It is got from unsorted berries which are heaped up for four days. The green berries then get softer and change colour, and the pulp of all is more or less squashed. Then the berries are spread out and dried. The skin and part of the pulp adhere as a dry, dark-coloured wrinkled covering to stones and the pepper is black in appearance. White pepper is worth R10 to 11 per maund. Black pepper is worth R7 to 8 per maund.

Manures used in Kanara Spice Gardens.

The owners of spice gardens in Kanara depend chiefly upon leaf-mould for manure. They have never used manure of any other description and have no faith that ordinary cow-dung manure, oilcakes, or other concentrated manures would serve thier purpose equally well. They consider that the best leaf-mould manure is got from the green leaves and small succulent branches of certain trees which during the monsoon are used as litter under the feet of cattle tied during night and the greater portion of the day in sheds. This litter is freely used—five large head-loads being brought daily for above twelve cattle. The litter having absorbed the urine and dung is removed daily or every second day and put in square pits which are generally about 8 feet deep. These pits are dug in situations where they catch the whole direct rainfall, which is very heavy, and possibly also a good deal of drainage water from higher levels. The subsoil is very retentive, and there is probably not much drainage through the subsoil from the manure pits, but the contents of these pits must be continuously wet during the monsoon. For each acre of garden an owner would like to have four cattle. He owns always a milch buffalo or buffaloes, but keeps no work cattle as all the garden babour is manual. If he does not own sufficient cattle, he hires them, feeding them gratis for the value of the manure produced. The hiring of cattle is a common practice. They are chiefly fed on dry grass which is of very inferior description. They probably also eat part of the litter as some of the leaves used are liked by cattle. Milch buffaloes get safflower cake or cotton seed, both imported from Hubli Dhârwâri District), and it is rather significant that the gardeners think leaf-mould got from buffalo litter is best for manure. Some owners feed cotton seed or cake to all their cattle in the monsoon, and I have no doubt they find it pays to do so, because ordinarily the cattle are, during this season, miserably thin and unhealthy. Many cattle are brought in from Dharwar, but only survive a few seasons in the feverish climate of Kanara.

In the fair season the cattle get a good deal more freedom, still they are kept in the sheds for probably about fifteen hours in the twenty-four and the sheds are littered freely. The rough grass is supposed to be given as fodder, but is spread all over the floor in the sheds and the cattle eat only a small proportion of it. Again, at this season dry leaves are collected and also used as bedding. But the gardeners think dry fallen leaves poor stuff and discount the value of such as manure. The manure put in the pits in the hot weather has a full year to decay, the manure being used always in February and March. That which is made during the monsoon has less time to decay, and the gardeners attach particular value to the green leaves and twigs of certain trees collected during the monsoon because such decay very quickly. Such leaves are generally large and fleshy and are much more easily collected than smaller ones. A man can collect and carry to the cattle shed five head-loads per day. The leaves and braoches of other trees are also held in high esteem for leaf-mould, because the manure produced has tho reputation of destroying insects and grubs which would be harm-ful to the plants in the garden. The trees which provide leaves of the latter class have all unquestionably astringent properties, and it is perhaps reasonable to believe that vegetable matter containing astringent resins or volatile oils might destroy insect life or that insects would not be likely to harbour in such material. The gardeners assert that since they have been denied the use of the leaves of certain reserved trees grubs and borers have become destructive to their cardamom plants and betel palms, these insects causing damage first at the roots.

It is impossible for me to say what weight of manure is actually applied per acre. But judged by the eye, I think it is certain that the application is at least equal to a heavy dressing for ordinary garden crops. It probably approximates thirty ordinary cart-loads per acre per annum, perhaps more.

The invariable practice is to put the leaf-mould immediately over the roots round the stems. The circle would be 3 or $3\frac{1}{2}$ feet in diameter. It is urged that the leaf-mould, if unprotected, would be washed away by heavy rainfall, and this is perhaps true, and in consequence a good deal of branchwood cut green in the hot weather, so that the leaves adhere, is used to cover the leaf-mould. The branchwood which is most desirable is such as will slowly decay and has astringent properties, *i.e.*, has the power of keeping destructive insects away. The branches of *Jambe* (Xylia dolabriformis) and *Nelli* (Phyllanthus Emblica) have the two qualities referred to in a special degree. The branchwood used does not readily decay. It affords considerabl protection to the leaf-mould. A year after it is applied the leaves have decayed and the branches are partly rotten, still they would break the force of heavy rain. It might be urged that a covering of soil over the leaf-mould would be sufficient protection, especially as the soil of these gardens is of a decidedly adhesive character. It is possible that this adhesiveness would tend to exclude air and moisture from the leaf-mould and prevent it serving its purpose as manure. But I do not believe such would be the case. At Bassein in the Thana district, with a rainfall as heavy as that in Kanara, the manure given is put round the roots of the plantains, betel-vines, and other crops much in the same way as at Kanara and protected by a covering of soil. The soil is, however, a light alluvial sand and the manure is not washed away. The manure used at Thana is cow-dung manure and castor-cake, chiefly the latter, and it is given in several applications every year. The question is, can a manure of this class be economically substituted for a portion at least of the very heavy and very expensive dressings of leaf-mould now applied. I consider that the leaf-mould manure is expensive, even although its production requires only labour in collection and the keeping and feeding of cattle.

Castor-cake and safflower cakes are produced on a large scale in the Dharwar district and are obtainable at very moderate rates by the Kanara gardeners. It might, therefore, be advisable to experiment with these manures and prove their effect.—*Agricultural Ledger.*

THE TAPPING OF RUBBER TREES IN THE CHARDUAR RUBBER PLANTATION, ASSAM, 1899.

In the Assam Secretariat letter No. 9 Forests—388R. of 23rd January 1899, the Chief Commissioner's sanction was given to the experimental tapping of the rubber trees in compartments Nos. 1 to 4 of the Charduar plantations. The following report shows the results of the operations:—

2 *Results of Operations.*—The accompanying statement gives these results:—the areas of the operations, the numbers of trees tapped, the yield in rubber, the average yield per tree and per acre, and the cost of the operation. The areas include the above four compartments, and also the 8 acres of the Bamoni Hill plantation in Tezpur, the results for each being shown separately.

3. In the statement attached, a distinction is made between—

(*a*) Trees tapped, which had been previously untapped, or only moderately tapped.

(*b*) Trees previously heavily tapped, or suppressed trees.

The results were, from the four campartments:—
for (*a*) trees ·90 lb. per tree;
for (*b*) „ ·23 „ „ „

The total yield of the four compartments was 2,947 lb. of rubber. As will be seen from the following remarks, the low outturn is probably partly due to rain, which, during the operations, washed away a considerable proportion of the rubber before it was dry. The rubber was sent to London and sold, the results appear below.

4. *Description of Operations.*—Mr. D. P. Copeland, Deputy Conservator of Forests, Darrang Division, in his report on the operations which he conducted, refers to the close supervision required to prevent theft, and describes in detail the operations of tapping, collecting, drying, etc.

In accordance with instructions, the girth of the bole and the measurements of the crown were recorded in the cases of 10 per cent. of the trees tapped, and these trees were labelled.

The work of tapping and collecting the rubber, which commenced on 24th January, and continued till 31st March, was at first tried with Mikir and a few Garo coolies on the daily wages usual in the locality—8 annas a day. Owing to the unsettled weather, it was found that this system was too costly, the rain necessitated stoppage of operations from time to time, and work elsewhere had to be found for the tappers; again, the coolies had no interest in the outturn. After the tapping operations had been completed in compartments Nos. 1 and 2. the work in compartments Nos. 3 and 4 was therefore given out on contract, under close supervision to prevent theft, to a Nepalese contractor at R30 a maund, and to local Assamese, not so good at the work, at R20 a maund, the cleaning being arranged for separately at one anna a seer. The results in the yield per tree and cost of tapping and collecting were therefore better in the cases of compartments Nos. 3 and 4. It appears that the Nepalese are the best men for this work.

Position of cuts.—In compartments Nos. 1 and 2, treated by Mikir labour, the system adopted was to make the cuts regularly one foot apart down the stem of the tree, these cuts being horizontal, and not exceeding 8 inches in length and 2 inches width. Aerial roots and branches, less than a foot in girth, were not tapped. It was afterwards found that no fixed rule could be laid down, and that the experienced Nepalese tappers make the cuts 2 feet, and often further, apart, and the length of the cuts varies with the girth of the bole. Again, they avoid making the cuts immediately one below the other, and locate them alternately, as below:—

The position of the cuts appears to have more effect on the yield than their number.

Collecting.—In compartments Nos. 3 and 4 the contractor included the tapping, and the work of pulling the rubber off the tree after coagulation. The rubber takes four or five days to "set" on the surface of the tree before it can be collected. This work of collecting took as long as the tapping.

Weather.—One of the essentials for success is said by Mr. Copeland, to be settled weather. If rain occurs within two days of tapping, the milk is washed away, and the loss is heavy, while which remains on the stems loses part of its elasticity, becomes brittle and discoloured. The operations were greatly hindered by the frequent rain, both in outturn of rubber and in cost of labour, since work had to be stopped and employment found elsewhere for the labour.

Tarring.—As soon as the rubber was pulled off the trees, the cuts were coal-tarred, 17 barrels of tar being used for the 322 acres.

Cleaning.—Unless the rubber was cleaned immediately after collection, pieces of bark and chips of wood and other impurities imbedded in it were difficult of removal. The work of picking out these foreign matters was done by contractor at one anna a seer, the loss in weight on the first weightments being about 8 per cent.

Drying.—After this cleaning, the rubber was spread to dry—at first in the sun—but as this seemed to make some of the rubber brittle and discoloured, and made some to melt, the system of drying in the shade was adopted. The loss from dryage is reported to be about 1 per cent. only.

Yield.—Weighment of the rubber was made for each compartment separately on the spot, as soon as it was pulled off the trees. A reference to the statement will show that for compartments Nos. 1 and 2, the yield from the trees of the (*a*) class was 0·79 lb. per tree. For compartments Nos. 3 and 4, however, the trees of which were tapped by skilled labour, the yield was 0·97 lb. per tree, or 22·8 per cent. more than for compartments Nos. 1 and 2. Mr. Copeland thinks the difference would have been still more marked, had it not been for the rain, which did more damage to rubber in course of collection in the last two compartments than in compartments Nos. 1 and 2. The yield per tree is given in the statement, as also the yield per acre.

Cost of Operation.—The statement gives the cost of the operations of tapping the trees and collecting and cleaning the rubber, which comes to seven annas two pies per pound of rubber. At the foot of the statements, however, are given the details of other expenditure incurred on the operations, the whole being about three times the above sum per pound of rubber. To this it is necessary to add the cost of freight to London, insurance and agents' expenses, as is done below. Mr. Home was present during part of the operations.

5. In future operations, the work should be done earlier in the season, so as to avoid the rains of February to March.

6. The question of re-tapping the same trees next season and annually, as originally proposed, is under consideration.—*Indian Forester.* E. G. Chester.

RUSTY NAIL WOUNDS.

Treading on an upturned rusty nail sticking out of an old board is a very common accident. Children who are in the habit or running about barefooted are especially liable to such an accident, and fatal consequences often ensue, lockjaw and subsequent death being often the reult. "Pansy" contributes to the *Australian Farm and Home* the following very simple remedy in such cases, which is at all events well worth a trial:—The remedy is simple, always on hand, and can be applied by anyone; and what is better, it is infalliable. It is simply to smoke the wound, or any bruise or wound that is inflamed, with burning wool or woollen cloth. Twenty minutes in the smoke will take the pain out of the worst case of inflammation arising from the wound. People may sneer at this remedy as much as they please, but when they are afflicted just let them try it.—*Queensland Agricultural Journal.*

THE TEA AND PRODUCE COMMITTEE.

REPORT FOR THE YEAR 1899-1900.

The Committee has held four meetings during the year.

The chief business of the year has been the work carried on by the India and Ceylon Joint Committee in respect of the attempt to abolish the 1-lb. draft allowance per package of Tea, and the subsequent prolonged negotiations with the Tea Buyers as to the agreement arrived at in August last for a new system of weighment of Tea by the Customs. It is unnecessary here to go into the details of the various incidents in the dispute, which were set forth at length in the exhaustive minute issued by the Joint Committee on 12th December last. The ~~issue in~~ Nov mber last by the Board of Customs of Port Order 39-1899 seemed for a few days to have brought the matter to a settlement, but the subsequent suspension of that order before the date when it was to come into force quickly reopened the controversy. The Tea Buyers then suggested as an alternative settlement the acceptance of Port Order 39-1899 in consideration of certain alteration in the Sales Conditions being agreed to, and proposed a Conference of Buyers and Importers to consider these alterations. Your Committee on 11th December last nominated Mr. Alfred Brown to represent Ceylon interests at the Conference, and for the intervening five months that gentleman has been constantly engaged in the negotiations. The thanks of the Committee are due to him for his labours.

No agreement has yet been come to in regard to the propoaed alterations, but in view of the recent reduction in the Bulking and Taring rate for Tea at the London Warehouses and the consequent withdrawal of objection to the separate taring of London bulked Teas, your Committee recommended a settlement of the long pending dispute on the terms of the original agreement of 2nd August last. This has now been brought into effect by the issue by the Board of Customs of PortOrder 42-1909, which comes into operation on 1st June.

The Committee is glad to be able to report that some measure of success has attended the efforts, made in conjunction with the Indian Tea Association, to obtain a reduction in the London Warehouse charges on Tea. The reduced scale of rates for Bulking and Taring mentioned above came into force on 1st March, and it is now announced that the Tea Clearing House has decided to increase the discount allowed on other charges from 10 per cent to 15 per cent. The Committee does not consider this last concession to be adequate, and will not relax its efforts until a further reduction is obtained.

Matters of minor importance that have engaged the attention of the Committee are the import from Ceylon into this country of spurious Cinnamon, Mr Hughes' report on selected samples of prepared Cocoa, and the equalization of tares in the case of Tea by the insertion into the packages of loose pieces of lead or wood.

At the request of the Committee of the Planters' Association of Ceylon, representation has been made to the London Fire Offices Committee for a reduction of the rates of premium for Fire Insurance in Ceylon.

The duty on Tea imported into this country was raised in March from 4d to 6d per pound.

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UDAGAMA TEA AND TIMBER CO.

REPORT.

The report now before the shareholders embrace a period of 15 months from 30th September, 1898, to 31st December, 1899.

During the early portion of the period under review the weather was very unfavorable for tea and later on some crop was lost through want of labour (Singhalese). Only 142,879 lb. of tea were obtained from all the estates; nevertheless the loss of the previous year (R8,162·09) was turned into a small profit of R2,070·81.

Prices obtained were encouragiug 32·45 cents per lb. being the average for the 15 months. The cost however was heavy—31 cents. Plucking and weeding were both very expensive.

A crop of 170,000 lb. has been estimated for 1900, it is hoped that it will not cost 25 cents per lb. The new clearings present a splendid appearanoe and will give a very large yield in 1901. The effect of manure also on the older estates is now shewing itself, Ginnidomine is looking very well and will give a very good crop.

Homadola has never been of much value to the Company being widely apart from the rest of the estates and situated eight to nine miles from the Factory, your Directors have therefore accepted an offer for its lease for five years for the sum of R1,100 per annum.

A block of 754 acres of forest on Homadola was sold early in 1899 for R25 per acre, the proceeds were applied to the cost of the new factory under arrangements with the debenture holders.

SAWMILLS.—The profit made during 15 months amounted to R1,759·68; the work was very much impeded by the great difficulty in obtaining labour owing to the rush for plumbago. Transport of timber from the forests was very expensive and mill hands scarce and dear.

Only 49,685 chests were made during the 15 months against 58,210 during the previous 12 months. The price of tea chests have now risen very considerably there is a prospect of a much better result during the ensuing year.

In addition to the loss in interest shewn in the accounts a sum of R8,199·50 is due to the preference shareholders for interest. This is not payable until sufficient profit has been made to meet it.

It is the duty of the shareholders to appoint an Auditor for the year 1900, and a Director in the place of Mr. R D Kershaw who retires by rotation and eligible for re-election.

TEA CONSUMPTION AMONG NATIVES.—The Manager of Messrs. Lipton Ld. writes to the *Indian Planters' Gazette* as follows:—"I notice a paragraph in your issue of 23rd instant written on somewhat the same lines as your leading article of 2nd June, in which you appear to take it for granted that nothing is being done to approach the European population in India regarding the consumption of Indian tea. I would point out that there is one firm in India which has done, and is still doing, more towards bringing Indian teas to the notice of the inhabitants (both European and natives) of this country, than is done probably by anyone else. In nearly every bazaar in India, you will find that (thanks to the labours of Lipton Ld.) Indian tea is being sold, and is thereby being brought to the notice of an increasing number every day, and it is, therefore, hardly correct to say that there is no organized effort to push Indian teas among the inhabitants of India."—We wonder if the same policy is being pursued by Messrs. Lipton, Ld, in Ceylon, or if natives are left to find out the advantages of tea-drinking by themselves.

TRINIDAD BOTANICAL DEPARTMENT:

(EXTRACTS FROM THE ANNUAL REPORT OF THE SUPERINTENDENT ROYAL BOTANIC GARDENS, (J. L. HART, ESQ., F.L.S.,) FOR 1899.)

ESTABLISHMENT.—Mr. Millen acted as Assistant Superintendent from November to March when he was succeeded by Mr. W Leslie from Royal Gardens, Kew. Mr. Millen took up the duties as Curator of the new Botanic Station which was started in Tobago, in March.

The staff is now as follows:—

1 Superintendent, J H Hart, F.L.S.; 2 Curator, Tobago, H Millen; 3 Assistant Superintendent, W Leslie; 4 Clerk, H C Massy; 5 Gardner, Government House, J Bailey; 6 Cacao Instructor, Tobago, W E Caines; and 7 Herbarium Assistant, Pauline McLean.

METEOROLOGY.—The rainfall of the year was very small, and the driest since 1885, only 46·76 inches having fallen. In 1885 only 43·22 inches fell.

HERBARIUM.—Over 200 sheets of specimens have recently been returned from Kew where they had been sent for determination. Among the plants new to Trinidad, are several Mainland species, as was to be expected. Last year I recorded the determination of a new species of Lucuma, and I have collected seed specimens during the year which show that there is yet another undescribed species, of this genus to be registered for Trinidad. Growing seeds were secured, and we have numerous young plants at the Experiment Station at St. Clair where the plants can be grown on to maturity. Cacao disease has demanded attention, and a report received from Mr. Massee of Kew shows that in all probability the diseases prevalent in Trinidad are similar, if not identical with those of Ceylon. The disease causing the death of Tangerine oranges has also been studied during the year and found to be due to a micro-fungus which attacks the stem of the plants at the ground line. This was sent for examination to Kew. Mr. Massee's report runs as follows:—

DECEASED ORANGE TREE FROM TRINIDAD.—The tree has been killed by a fungus called *Botryodiplodia diplocarpa Ellis & Everht*, which appears on the surface of the stem under the form of black warts that have burst through the bark. The fungus was first observed attacking orange trees at Pointe a la Hach, La, U. S. A. (Signed) GEORGE MASSEE, 8th January, 1900.

This fungus is most destructive to varieties of *Citrus nobilis* (Tangerine, Manderine, &c.) and also the St. Michael's. It is less so to the Seville or bitter orange. It is probable therefore, that by grafting on the latter stock, the effects of the disease may be largely mitigated. In some districts in Trinidad it is almost impossible to get the Tangerine to live but for a short time, and many trees are suddenly killed out, which a few weeks previous were pictures of health. The disease is seldom discovered until it has gone beyond remedy, and I would therefore counsel frequent examination of the stems at the ground line, and when found to be effected they should be dressed with a wash of sulphate of copper and lime, which we have commenced to use apparently with success.

Margravia elegans, Kr. & Urban; M. Hartii, Kr. et Urban; Duguetia lucida, Urban, and *Inoa Hartii, Urban*, are the names of four new species sent on to us from the Berlin Herbarium. *Polypodium tijuccanum*, Radd., was also registered for the first time as a Trinidad plant during the year by our *confrère* of British Guiana, G S Jenman, Esq. In 1895 I reported that the Herbarium Cabinets were full, but as yet no new ones have been added. This work will be more conveniently carried out at St. Clair, and will be commenced I trust during the ensuing year. Our Cabinets are all made of West Indian Cedar (*Cedrela odorata*) from trees cut upon the Establishment, and are made by the regular employés of the department.

Considerable interest has lately been shown in connection with leguminous plants as agents by which nitrogen is made available in the soil for the use of other plants.

Several genera and species have been examined, and the nodules containing the nitrifying bacteria have been examined, the bacteria found, coloured, and mounted for future reference. The "Saman" tree, *Pithecolobium Saman*, has been found to proproduce *nodules* containing abundant bacteria.

A very large number of specimens of the local flora have been brought in during the year, dried and mounted; and our work in the old quarters is now cramped for want of room. His Excellency the Governor has authorized a provision on the estimates of £500, for the erection of a new office and Herbarium at St. Clair, where ample room will be arranged for. The Herbarium will be transferred as soon as the new quarters are ready. and subsequently all office work of the Department will be done at St. Clair. Provision has also been made on the Estimates for a new microscope of modern pattern with apparatus for biological work; and in the new quarters a suitable room will be provided for its use. The microscopic work on the cacao fungus, carried on during 1899 in the Trinidad Herbarium, elicited commendations from the Director Royal Gardens in the Kew Bulletin, when reporting work on the fungus by the Kew Staff.

Reports on the above were published in the Trinidad Bulletin at the time they were received. The main points were, first: That a fungus, *Phytophthora omnivora*, was found to be very destructive to full grown cacao pods; second: A fungus *Nectria Bainii* was also found upon the pods, whether parasitic or not has not been determined: third: Upon the bark of cankered trees another species of *Nectria* was also found which is supposed to be similar to that causing canker in Ceylon. (Signed) —GEORGE MASSEE.

EXPERIMENT STATION, ST. CLAIR.—All the work on the new establishment was last year recorded under the head "Economic Section." The new station is, however, primarily, an establishment for carrying out the larger portion of the work of the Botanical Department, and embraces Agricultural, Horticultural, Arboricultural and Botanical duties, with various sub-divisions. The station itself is divided into three principal sections. The 1st or eastern section is principally devoted to fruit culture. The 2nd division is being laid for Botanical purposes chiefly, and will contain the new offices of the Department (shortly to be erected) and all cultivations of Botanical interest, or of scientific and decorative value. The third division is laid out in trial plots for the various economic plants, and for the raising and testing of seedling canes. It contains the nurseries, tool houses, experiment and potting sheds, propagating houses, stables and work-yards, &c., &c.

The work carried on by the Department when all arrangements are completed will be as follows:—

1. Agricultural and Horticultural experiments and trials including the raising and testing of seedling canes.
2. The propagation and distribution of timber trees, economic and decorative plants (by sale or otherwise.)
3. The cultivation and trial of different classes of native and imported trees and plants of Botanical interest.
4. The study of diseases of plants, occasioned by insects, fungi, &c., &c.
5. The collection from forest and roadside of Botanical specimens, in view of the preparation of a Flora of the island of Trinidad, and for scientific reference.
6. Collecting, importing, and growing the best varieties of tropical fruits, to prove their value for Trinidad.

7. (A.) Training men and boys in Agricultural and Horticultural work. (B.) Training young men after leaving school who intended becoming Planters. (C) Providing lectures for the school teachers of the Educational Department, who are to teach Elementary Agriculture in schools.

8. Distributing information by Bulletins, Reports and Correspondence.

9. The importation and growing of newly discovered plants from various countries.

10. The maintaining of exchanges of plants, seeds and specimens with Botanical establishments—Foreign and Colonial.

11. Conducting Agricultural Examinations of men boys, cadets, school teachers, &c., &c.

12. Keeping and recording Meteorological and Seismographical Observations.

13. Overlooking current Foreign and Colonial Literature and Exchange, for articles on tropical ultures likely to be of use locally.

14. Inspection of Railway Stations annually. Official attendance at Agricultural Society's meetings, and other miscellaneous duties.

Mr. Leslie who was appointed to the department as Assistant Superintendent, has immediate charge of St. Clair, and is practically its "Curator." The work is, however, directed by the Superintendent, who makes long visits for the purpose, and who, when the department office is ready, will of necessity spend the greater part of his time at this establishment. The St Clair Establishment has been proclaimed under the Ordinance No. 33 of 1898 as set apart for the cultivation of vegetable products, and Regulations have been made for the good government thereof.

PEPPER NIGRUM.—Some few years ago an attempt was made to grow and fruit Piper Nigrum which was partially successful, and ripe berries in fair quantity were produced. Many of the vines planted however did not assume the fruiting stage. It was observed that during the vegetation period the leaves of the vines were *cordate* in form, but that when fruiting is about to commence it may be known by the difference in the shape of the leaves, as the plant is then clothed with leaves which are decidedly *lanceolate* in form. As soon as the latter appear the flowers follow.* Grown as we now grow it, the crop sets and ripens readily, and we are able to obtain yearly supplies of well ripened berries, these have been in some demand for seed purposes with European seedsmen, our vines being the most easily available, and probably the only source of supply in this hemisphere. The vines are planted at the foot of trees of *Erythrina corollodendron*, which are planted in rows ten feet apart and six feet in the row. There appears to be no special difficulty in growing regular crops, as we have had them under these conditions for the past four years. Much has been said about male and female forms of vine, but it has been observed here that when planted in a proper place and under suitable conditions, all the forms of *Piper Nigrum* will seed freely. There is a form, however, which if propagated will fruit when in a diminutive state and does not climb, which produces berries at one foot from the ground. We have one-tenth of an acre of *Piper Nigrum* at St. Clair growing extremely well.

RUBBER—(*Hevea brasiliensis*) "*Para Rubber.*"—This tree grows well with us but the yield of *latex* appears from a single experiment to be insufficient to warrant its being largely planted except on swampy or riverside lands subject to floods. Our largest tree has a girth at 3 feet above ground of 58 inches, and is 40 feet in height. Young trees at St. Clair planted in ordinary soil in July 1898, are now 14 feet in height, and in diameter at the ground line 1·6 inches. Our largest tree bore a shot crop of seed this year, but sufficient plants have been raised to satisfy the demand. Trees of *Hevea confusa* are bearing seeds, but these have not been largely sown as the rubber produce by this tree, so far, is found to be of inferior character.

* See figures I. and II.

We recently sent seed safely by post from Trinidad to British Honduras. From seeds of the Orinoco rubber sent us by Dr. Bovallius only four plants were raised. These have been planted out and are growing slowly on our south-western boundry, St Clair. *Kicksia Africana* or "*Iré Rubber.*"*—Our block of this, is one-fifth of an acre in extent, the oldest trees of which are over 8 feet in height. They commenced flowering early in 1899, and towards the end of the year several have seed well advanced to maturity. In my last Annual Report, I called attention to the fact that a species of *Kicksia* was said not to produce rubber. That our plant produces good rubber is not left to doubt, as rubber of excellent quality has been made from it. A specimen of the fruit has been sent to England by request of the Kew Authorities to determine points of nomenclature which had arisen. The tree appears to thrive in our climate, and if it will produce sufficient rubber must become valuable. We shall be able at an early date to test the trees. So far there appears to be abundance of *latex* even in the driest weather; although the tree can stand a large amount of sun, it appears to grow quicker in the young stage when it is fairly shaded.

Central American Rubber.—(CASTILLOA ELASTICA).—This plant thrives well in Trinidad and has proved itself very hardy under trying conditions. We have reports which show that although the weather has been extremely dry, many lots of plants have stood the hardship extremely well. Several thousands of plants have been sold and also large quantities of seed. Our largest tree planted by Mr. Prestoe many years ago is over 60 feet in height and yields large crops of seed yearly. A tree planted in 1888 is over 40 feet in height and 51 inches in girth at 3 feet from the ground. It yields abundant latex. The plantation of this rubber made at St. Clair in July 1898 has grown well, some of the plants are 11 feet high and over 2·86 inches in girth at the ground line. Later on, it is intended to test these trees for *latex*, and they are planted thickly for the purpose.

A simple machine has been brought out by Messrs. Christy & Co. of 25, Lime Street, London, for preparing the latex from Castilloa. It is called the "Beta" Separator and is an improved creaming or washing process. Rubber made with one of these machines has been shown and pronounced very fine in Mincing Lane, London. The machine is simple in the extreme, and its working easily understood from the concise direction issued. It can be worked by a man and a boy, and will coagulate 50 to 100 lb of rubber per day. The machine is small and sufficiently handy to be carried to the trees, but a stream or well of clean water is required for washing the *latex*. Castilloa promises the best of any of the rubbers, so far local cultivation.

THE DATE PALM, (*Phœnix dactylifera*.)—For many years seedlings of this plant have produced fruit and seed very freely, the size of the fruit varying on different plants. Learning that the best kinds of dates were borne by trees raised from "suckers," an application was made to the Government to allow of an importation being secured of the best marketable kind. It was ascertained that these could be obtained from Algeria, and a vote was sanctioned in 1899 Estimates for this purpose, a part of which was expended in preliminary expenses. It is intended to plant these trees in a small grove at St. Clair. The Date Palm has always been associated with the arid Desert, and formerly everyone was content to grow them in the driest and poorest possible position. It now appears that the best Dates are grown in rich valleys. By following this initiative, it is hoped that we may succeed in producing good yearly crops. Our trees are expected to arrive during 1900. The fruit of our seedling trees like all other seedlings, is variable in quality, but in some instances sweet and wholesome, though too small to be of value.

COFFEE.—*Coffea Stenophylla.*—The plantation of *Coffea Stenophylla* in common with everything else has suffered from drought, but in the best shaded por-

* Now Funtumia elastica.

tions, the trees are doing well. Our largest trees at the old garden have again borne well and the coffee produced has been shewn to be excellent in quality, the bean resembling that of the Mocha variety of Central Arabia. Among the seedlings raised are plants so distinct from the type that there can be little doubt that they are either natural hybrids, or widely ranging seminal varieties. These plants have flowered and the flower is larger than that of the type and somewhat different in form. When the fruit appears there will be further indication of origin, as the purple colour of the berry of the type is a well marked feature. In the second year's showing, there has also appeared one or two of the same type. The leaves are larger, darker in colour, and the plant grows and stands drought and sun far better than the type.

Abbeokuta Coffee.—Trees of this coffee have fruited for the first time, and their appearance indicates that this kind is merely a form of *Coffee Liberica.* It has, however, a somewhat different habit of growth, and appears to be even hardier than that kind, and stands the sun better. The berries are much smaller than Liberian and have much less mucilage surrounding the parchment covering, yet the beans are of fair size. It is a kind which deserves extensive trial.

Minerva Coffee.—This coffee has again produced a good crop, and I consider is one to be highly recommended for general culture. This year's crop has been largely sold to French buyers for their Colonial possessions but sufficient is on hand to supply the local demand.

Golden Drop Coffee.—This is an Indian variety planted at St. Clair, as reported last year. It is now flowering, and a crop of fruit will, I trust, be ripened in due course. It is extremely healthy and is growing rapidly and well.

ORANGES (*Citrus aurantium.*)—The orange trees in the avenue planted last year have grown well and produced fruit, but have been attacked by fungus at the base of the stem. Some little attention has been paid to grafting and budding oranges and a few of the best varieties have been secured, but for want of proper appliances (which it is hoped to provide this year) no large numbers could be worked off. It is found that neither grafts nor buds can be depended upon to grow if left in the open; and close cases to maintain a certain and regular humidity, must be put in use, before any quantity can be established in this manner. In a large grove of some 2 acres of seedling oranges planted by my predecessors there is ample evidence of the variation which occurs when the sweet orange is raised from seed; for all though the oranges have a family likeness, still, the flavour and character of the pulp is found to vary in a very wide degree, for on no two trees is fruit to be found the same in appearance and quality. The following testimony in favour of Trinidad oranges has been received from His Grace the Duke of Rutland, to whom a small parcel was sent from trees growing in the Garden attached to the Superintendent's quarters:—"I thank you heartily for the basket of Trinidad oranges. They were served at desert yesterday and voted excellent. They were ripe, with thin skins and of fine flavour. Such oranges ought to command a ready market in England, and I hope the efforts you speak of will have the effect of opening a good market for them here. (Signed) Rutland."

Bergamot Orange.—A section of land one-tenth of an acre is planted with seedling Bergamot oranges. The plants were raised from seeds received from the district in Italy whence comes the famous Bergamot oil. The variation in the leaves of these plants is clearly marked. Many so-called "Bergamots" exist in the West Indies, but it is doubtful if any of the best oil producing kinds exist. The variation is perhaps more marked than with any other species of the *Genus, Citrus*; but it is hoped that some of our seedlings will prove to be the true oil producing variety. To make sure, however, that we have the right kind, we shall endeavour to import grafted plants direct from the districts known to produce the best oils.

Tangerine Orange *(Citrus nobilis).*—A grove of the above, planted in 1892, has fruited for the first time this year, and the flavour and size of the fruit is quite as variable as with the ordinary sweet orange. It must therefore be concluded that no reliance can be placed upon any variety of the Genus, Citrus, coming entirely true from seed. Two trees of the variety of *Citrus nobilis* mentioned in former reports, as the "Grenadine" orange fruited together during 1899. These two trees were raised from seeds taken from a single Grenada fruit in 1883. The one tree produced fruit four to five inches, while the other gave oranges only two to three inches in diameter, and the quality and size were equally at variance.

FODDER PLANT (*Pennisetum triflorum*).—This is a grass originally introduced and grown in Jamaica at the Government Cinchona plantation, while the writer was in charge. It was sent from thence to the St. Lucia Station, and thence on to Trinidad. An accurate area of one-fortieth of an acre was planted and cuttings were made as follows:—

July,	1899	...	407 lb.
August,	,,	..	445 ,,
October,	,,	...	279 ,,
December,	,,	...	246 ,,
			1,378 lb.

This gives a value of nearly twenty-five tons to the acre per annum of the green product. The experiment will be continued to determine its value in comparison with other grasses. It is certain, however, that the unedible portion is quite small when compared with the popular Guinea grass, but this must be shown exactly as also must the loss in drying to enable its true value to be ascertained. We hope to get a full analysis during the coming year in connection with these details.

FRUIT TREES.—A number of the best varieties of Mangoes have been planted, and the following kinds are growing freely:—Gordon, Peach, Malda, Peters, *Amelie, Divine Julie, Chinoise,* or Chinese, Father Louis, De Boissiere, No. 11, *D'Or,* Mistake, Nina, Apricot, Maraval, *Dudouce.* A large area of seedlings have planted to prove the amount of variation from seed. Our best kinds of mangoes have been largely propagated by grafting, and the demand is steadily increasing. Grafted plants of the best French kinds were introduced from Martinique, and His Excellency the Governor has sanctioned the importation of sets of the best East Indian kinds from Bengal, Madras and Bombay, which it is hoped will add to our list of first-class kinds. It is to be noted that trees of the old East Indian kinds were introduced under the names of "Malda," "Peach" and "Peters." Looking up the nomenclature in Watt's "Economic Products of India," it appears that in "Malda" we have the name of a race or class of Mango, and it cannot be doubted by those who know them that the three fruits mentioned are simply varieties of the one class, and indeed little worthy of distinctive names. Dr. Watts after stating that he is indebted to Mr. Maries of Darbhangah for the information states: "The cultivated Mangoes of India have arrived at a great stage of perfection and consist of very numerous races, although these are unknown to most people, except as Bombay's, Lungrah's, and Malda's. The many dozens of sorts sold in the Bazaars under these three names have given the idea that there are only three Mangos fit to eat. These three names really represent three distinct strains of cultivated fruits. It is interesting to note the changes that have taken place in these fruits. The form and shape has continued almost the same as the wild varieties, but the flavour has developed from "*tow and turpentine*" to something too exquisite to express in words, each variety having a flavour of its own." From a following paragraph it is apparent that the East Indian kinds have been secured by practising

selection from seedling kinds, for Dr. Watts says: "The sweet ones were allowed to grow while the sour and worthless were cut down and used as fire-wood." Mr. Maries reports further of the cultivated sorts of Mangos, he says: "I have collected upwards of 500, and from these have selected 100 good ones; and these have been grown on model plantations." A numerous list of varieties with Indian names is given, among which appears the "Peters" and "Malda." The "Afooz" is the so called Bombay Mango, of this it is said: "It is really not a Bombay fruit at all.' The Bombay Mango of the upcountry gardens is said to be "Durbhangah Bombay." Of the Gopalbogh it is said "A Malda sort." This is the celebrated Malda kind said to be equal to the "Afooz." The "Afooz" is classed with the "Malda" and all are of the so called Bombay type. It is to this class that the Mangos belong—called in the Trinidad garden "Peters," "Peach" and "Malda." The "Gonraya Malda" is spoken of as one of the finest Mangos of India. A second class of Mangos is called Kerbuzza Mangos, called Kerbuzzas or Melons from the musk scent they possess. Of these it is stated there are three good kinds. The third class of Mangos are called Badayas or true Malda's and of these several varieties are mentioned. Two other classes are noted but the produce is of no importance.

It will thus be seen that the nomenclature of mangos is somewhat indefinite, even in India, and considering the numerous seminal varieties which have sprung up since the introduction of the tree to the West Indies, it is not to be wondered at that differences of name should arise in the Western tropics. Our work in Bulletin giving figures of the varieties will help to correct the nomenclature in no little degree, as has already been seen.

FIBRES.—A section was devoted to the growth of of the native Abutilon *Aperiplocifolium*. The produce was sent to England and reported on as being worth £16 per ton. The facility with which this fibre can be prepared by hand, points it out as a suitable article for cultivation where cheap labour can be had.

The yield was as follows:—1—Per acre. Raw material 1·08 tons; 2—Percentage of dry fibre obtainable from raw material 42·6 per cent; 3—Yield per acre, dry fibre 9·25cwt; 4—Value per acre £7 8 0.

SISAL HEMP.—The plant producing Sisal Hemp (*Agave rigida var. sisalana*) grows very fast in Trinidad and produces fibre of the finest quality. I do not consider however that it is likely to be largely planted, while Cacao and Sugarcane can hold their own. A nursery reserve is always maintained and plants can be had at all times.

YAMS. (*Dioscorea of sps.*)—The cultivation of yam has been continued, and the 1899 trial gave following return:—

Variety.		Average yield per plant.		
Red yam	11	plants gave	7	lb. per plant
Seedling	11	,,	9·27	,,
White yam	50	,,	17·58	,,
St. Lucia	16	,,	25·18	,,
Cush-cush	66	,,	6·07	,,
Negro yam	19	,,	17·57	,,
Yellow yam	5	,,	10·00	,,
Chinese yam	10	,,	19·80	,,

The "St. Lucia" yam is a large and coarse white kind of very good flavour. The "Negro yam" is the best white yam of the set, and the "Yellow yam" is the best of the other kinds. The Red yam is a variety of the ordinary white, and is of good flavour.

SUGAR.—Mr. John Turner, Attorney for the Straits Sugar Planting Co. Ltd., has recently been prospecting Batu Pahat in Johore, with a view to obtaining a concession of 500 acres of land there, for the purpose of sugar planting. The Company is making giant strides, in the direction of extending its sphere of labour and business.—*Perak Pioneer*, June 20th.

A FARMER'S EVERYDAY LIFE.

(*By Cosmopolite.*)

No. VIII.

The latter part of the month of May is devoted, almost entirely, by farmers to getting the ground ready for

THE TURNIP CROP,

and in sowing the seed, what with ploughing and grubbing the ground, collecting the growth, setting up the drills, and then manuring, covering and sowing the seed, this may be considered the most important and most laborious work in connection with the cropping of the land. According to the rules of good husbandry the allowance of manure to the acre is estimated at 12 loads of cattle and 5 cwts. of artificial, but as I have already stated, not being a believer in the latter class of manure, I, in preference, put 25 loads of cattle or other bulky manure to the acre, and find that although entailing a much greater amount of carting and labour in general, the result is always a very much better crop. The idea of using artificial manure at all is in order to bring the plants rapidly up to the hoe, and for this purpose quick-acting fertilizers, such as superphosphate, nitrate of soda or potash are used, but as a matter of fact if the land is in good heart, no such assistance is required, and I find my turnip plants ready for hoeing, without any help from artificials, quite as soon as those of my neighbours; and not having been forced at all, they run less risk of *setting* and are in no danger from canker or finger and toe disease. When I first came to this farm the turnip break was so diseased that about 20 loads of roots to the acre was all the crop I got, but 40 to 45 loads is now my average, and disease is unknown. I may say, therefore, without undue boasting, that my system has proved both satisfactory and profitable. It is not my desire in these articles to lay down the law to any one who intends to adopt farming as a pursuit; I merely wish to give instances in my own experience which appear to me to have worked out more successfully than would have been the case, had I followed the rule of thumb-style of procedure, so common amongst agriculturists. Who am I that I should dogmatize on a subject that has been before the public ever since Adam delved in the garden of Eden, and for the first time set his early ash-leaf kidney potatoes, or whatever his specially favorite vegetable was. If I wished to give a reason to my readers as to why they should believe in the system of farming which I have adopted in opposition to the customs of followers in the old beaten track, I might hint at my own age and the many years I have devoted to farming, but I know that that would be considered but a feeble reason and I might bring upon myself the accusation of being my own brass band, for in this age of free education and enlightenment, we do not hold the aged in respect because of the experience they have gained, but because it is mostly the old men that have all the money. But to return to my muttons—and for want of a better, le

MUTTON

be the theme of my following remarks.

Last autumn the price of breeding ewes, for some reason or another, went up very considerably, and at the same time a drop of several shillings per head took place in the price of feeding sheep. In this district every one began plunging on the former class, while the latter kind were practically unsaleable and as is my usual custom I at once proceeded to do what my neighbours were *not* doing and rushed all my breeding ewes into the market, where I got extravagant prices for them, filling their places at home by the purchase of feeders. I had remarked that owing to drought in Australia the statistics of that country showed a reduction in the number of sheep there of 20 millions, which in my opinion meant a shortage in the supply of frozen mutton to this country. The war in South Africa, which had just broken out, I knew would be the means of diverting transport vessels from their regular beat between this and America, and so the supply of cattle and sheep from the West would undoubtedly be curtailed. Putting therefore two and two together I felt convinced that fat sheep would be booming in the near future, so I plunged to a certain extent, and bought a few hundred more than I usually do at that season. Things turned out exactly as I had hoped they would, and mutton has been throughout the past six months higher in price than for 18 years and the sheep which I bought in autumn, I have resold at from two to three times the price I paid for them. Nothing surprises me more than the indifference paid by my brother farmers to

THE PRICES QUOTED IN FOREIGN MARKETS

when, if they would only take the trouble to think for a moment, it must be patent to them that it is the foreign market which rules the home one and not *vice versa*. The grain merchant who purchases my oats asked me once, how it happened that I always sold to him just before a big drop took place in the price of corn. My answer seemed to surprise him. I told him that in my foreign papers I noted when a number of ships laden with oats cleared for this country and calculating as to the time when they might be due here, I sold the week in advance—before the importation had brought down the price. He seemed to think that I exhibited a vast amount of cleverness in so doing, but I myself fail to see it in that light, merely considering my action as that of one of ordinary common-sense. There are some who might object to doing as I did with regard to the purchase of feeding sheep as being of too speculative a nature; but speculation enters into every action that one does, even to going to church. How often does not put a rupee into the plate at the door of the Kirk, fondly hoping to hear in return a sermon worth more than that sum, and yet finds that the discourse which he is favoured with cannot be valued by the most liberal of valuators at more than two annas! In another case, however, my foresight was at fault. I read, in my New Zealand papers, that owing to the war

THE PRICE OF OATS

in that country had gone up with a bound from 8s to 16s per quarter, and naturally I concluded that we home farmers would benefit also, so I held my crop for a rise. Alas! however, the rise never came, and rather than sell at the price offered by the grain merchants, I fed my sheep on oats, and refused to buy feeding stuffs from the dealers; so that they, by refusing to give us the rise which we were justly entitled, to lost two commissions, one on the purchase of grain, and one on the sale of feeding condiments. I speak in the plural because I succeeded in persuading many of my neighbours to do as I myself was doing, and so this has not been a very successful year for the grain merchants, who, no doubt, will bear this in mind when we have another little war on our hands, and when, I hope, they will give us poor down-trodden farmers, the rise in the price of our grain to which we may be considered justly entitled.

PLANTING IN SUMATRA.

NOTE FROM SERDANG: EAST COAST OF SUMATRA.

The Coffee Dealers are having a long innings this time at the expense of the unlucky producer. Four years or so ago, Liberian Coffee was quoted for a considerable time in Singapore at $45 per picul of 133⅓ lb, the top price touched, if I remember right, being $57·50. Then without a word of warning, it went "just plunk," as they say in Drumtochty, to $16 and slowly recovering to about $20 has remained there or thereabouts for a weary enough time. For a few days last January and February it received to about $25 and many of us were then hopeful that the cycle of low prices was at end, and better days were in view: but it appears that we were mistaken and the last Singapore quotation is $19 only. Verily pride goeth before a fall, and a haughty spirit is brought low by over-production. It has however been proved that a stand-out lot will always command its own figure in Europe, and the secret of a good sample of Liberian Coffee is quick drying.

Our stand-by in Serdang as I have written before is

CROPS.

These continue abundant, and low prices are not such a serious matter as they would be in less favoured parts. Pests are fortunately almost unknown. The foe H V is like the poor in that it is always with us. But, thanks be, our poor are few and far between; and no one's rest is as yet disturbed by dreams of leafless estates. The conditions are much in our favor. The soil is, as I have often remarked, first class, and there is no overcrowding. The total area under coffee in not 15,000 acres, and all this is interspersed with jungle, big and small, and lalang.

It is worth noting that a bad tree is invariably bad

FROM THE ROOTS.

Be it bad with leaf-disease, canker, or even attacked by caterpillars, pull it up and you will find the roots either double fanged, cork-screwed, bumble-toed, or club-footed. To me the most remarkable thing is the avoidance of healthy trees by caterpillars. We have no Egyptian plague of these, as in the Native States a year

or two ago, but occasionally there is a small visitation of a beast that appears to be the same as the cinchona caterpillar which wrought such havoc in Ceylon in years gone by. But in no single instance have I known it attack a healthy tree. It is ever useful in young coffee in drawing attention to "wasters" which otherwise might escape notice. Out with such an one, and, as sure as cows have tails, the roots will be found defective.

It should further be remembered that here in Serdang, coffee is a comparatively new introduction and its natural enemies when attempting to establish themselves find, owing to the richness of the soil, such a lusty bush, that they can make little or no impression on it, and retire discomfited. I may in fact say that a bad plant is only owing to bad planting.

W. T. M'K.

10th June.

IMPORTATION OF TEA INTO FRANCE (EXPORTS DEDUCTED.)

[Extract from *Le Travail National*, 13th May, 1900.]

Years.		Kilos.		Increase per cent.
1880	..	408,000	..	100
1881	..	438,000	..	107
1882	..	456,000	..	112
1883	..	491,000	...	120
1884	..	523,000	...	128
1885	..	473,000	..	116
1886	..	542,000	..	133
1887	..	543,000	...	133
1888	...	491,000	...	120
1889	..	523,000	..	128
1890	..	603,000	..	148
1891	..	602,000	..	147
1892	..	645,000	..	158
1893	...	676,000	..	165
1894	..	692,000	..	169
1895	..	718,000	..	174
1896	..	754,000	...	184
1897	...	765,000	..	187
1898	..	826,000	..	202
1899	..	876,000	..	214

Remarks.—This represents the excess of imports of tea into France over exports. Much tea is imported into France and held in Bond in Marseilles and elsewhere for exportation to Switzerland, Spain, Italy Algeria, Morocco and Dahomey. Some even goes to Turkey. None of them is shown, nor does it shew the country of origin.

THE BANANA AND TYPHOID.—The uses of the banana are claimed to be many and various. The latest is both unique and important. According to the belief of Mr. William C Usery, M D of St. Louis, the banana is the very best food obtainable for typhoid fever patients. In this disease he explains, the lining membrance of the small intestines becomes intensely inflamed and gorged. Eventually it begins sloughing away in spots, leaving well-defined ulcers. At these places the intestinal walls become dangerously thin. A solid food, if taken into the stomach, is likely to produce perforation of the intestines, and dire results will follow. Therefore, solid food or foods containing a large amount of innutritious substances are dangerous, and are to be avoided. The banana, although it may be classed as a solid food containing as it does 95 per cent nutrition, does not possess sufficient waste to irritate these sore spots. Nearly the whole amount taken into the stomach is absorbed and gives the patient more strength than can be obtained from other food.—*P M Herald*, June 20.

INDIAN TEA SEASON 1990.

PRACTICAL CRITICISM OF CURING AND MARKET.

The two opening sales of the season have, so far, not done much to raise a planter's spirits, for the prices obtained are very near the cost of production, in some instances below. The brokers say that, so far, no good teas, or teas of special merit, have as yet turned up, but we fail entirely to see how this can be the case from all districts. It is quite possible that one or two districts might show inferior quality, but the universal condemnation takes us somewhat aback. If it is true, the sooner an enquiry is made into the cause the better it will be for the industry, and at present an excellent opportunity for t e New Agricultural Chemist just arrived for proving his merit. We can scarcely put it down to our planters having lost their cunning, for every year sees them supplied with new machinery, supposed to be of a modern and better type, and with closer attention to plucking and cultivation, we must say, we fail to fathom it. In former years Assam teas commanded a very much higher average than the other districts, but sales so far this year bring those down to the level of Cachar and Sylhets, and considering how much more expensively the Assam Valley gardens are worked than those in the Surma Valley, the same prices spell ruin. In former years, there were many notable marks in Cachar especially, that commanded Assam prices, but, lo ! the mighty have fallen also, and those marks which it would be invidious to mention are down on a level with the "ruck" Can the brokers or agents explain how this phenomenon has come about ? for phenomenon it is. The teas, so far as one can judge by appearance, are as good as ever they were, yet they don't bring the money —and this is the main thing. Has the exhaustion of the soil anything to do with it? Have the seasons changed, or what ? There is no doubt the chemistry of tea is in its infancy yet ; but still, we fail to see how teas turned out in identically the same manner, with better machinery, fetch annas less per pound than they did even, say, a couple of years ago. Has anything gone wrong with the new machinery that the planter did not bargain for? Do the new dryers not retain the volatile oils so well as the old ones, or what? The brokers may, we allow, underestimate the dullness of the market, but they cannot surely do this so much as the extent of the drop in prices would lead one to believe. Allowing for a drop of, say, two or three annas within the last three years, *i.e.*, about an anna annually, the average price of the whole crop sold in London does not indicate this over all : but it is most distinct in particular cases ; and it is this we would like to see explained away satisfactorily. Has the new drying machine deteriorated the leaf in manufacturing, producing only what a broker would call a *dry* tea, *i.e.*, a tea without much in it ? Another point worthy of consideration is the amonnt of rolling given. This has been gradually increasing until now nearly double the time is given on the rolling table to what was a few years ago. Has this extra rolling anything to do with the poverty in cup ? We do not say that these, or any other processes during manufacture (to which we may allude), are answerable for the poor teas now being produced ; but merely suggest them as points for our practical planters to consider and weigh well. There has been also a great craze for cool fermentation or oxidisation, but we do not know how far the industry has been benefited by it, or

if any planter could say what actually has been the benefit. Then, again, the planter may be wrong in his modes of cultivation, and thus tend to weaken the bush; but this question should soon be set at rest by Mr. Mann, who has come out from home with very high certificates of merit, and there is no doubt there is ample scope for his abilities in the different districts, and it is fortunate he has been engaged for a number of years. A few years ago, when *bhil* gardens were opened up, there was a great hue and cry about their produce, that there was nothing but water on infusion in the cup, &c., but if one looks over the sales nowadays there is nothing like the difference existing in price that used to be the case; and Sephinjuri Bheel Company this year, with between a 6d. and 7d. average, have done almost, if not quite, a record in profits. Undoubtedly the 2d. per lb. extra duty has had a good deal to say to the great depression now existing; but we consider this is now as much below reality as the opening sales of 1899 were above that, and although we do not think 1900 will be a record year for prices, we think that prices just now are unduly depressed, considering that the figures of export are only about half last year, and are probably a true index of the state of manufacture in the districts. The Dooars are all behind, we believe, as also many parts of Assam, Cachar, and Sylhet, which, as we are now getting well into June, means an average crop; at any rate not a bumper one like last year. With the war now nearly over we hope the market may look up a little; but we trust our planter friends will try and solve the reason of the poorness in cup, and be able to counteract it, either by other modes of manufacture, or improved methods of cultivation, or both combined.—*Indian Planters' Gazette.*

TEA WEIGHING IN LONDON.

NEW CUSTOMS REGULATIONS, 1ST JUNE, 1900.

The following is the wording of the Customs General Order 42-1900 *re* Tea Taring, which came into force on the 1st June, 1900.

"When the scales have been carefully balanced, a half pound weight is to be placed in, or attached to, the weight scale; the weight of the packages must then be taken to the pound only, the weight scale preponderating according to the usual practice in taring. The half pound weight placed in the scale is to be ignored in recording the tare."

TARES.—In order to obtain full benefit from this new regulation, Managers should arrange that the weight of the empty packages (including, lead, nails, screws, bands, etc.) should be SOME 3 OR 4 OUNCES *under* THE HALF POUND, say for example, 20lb. 5oz. The Customs would then take the weight of the package as 20lb.

GROSS WEIGHT.—Having made the tares of an equal weight, the package should be filled with as much Tea as it will conveniently hold, the gross weight to be A FEW OUNCES *over* THE POUND.

There being no occasion for the net weights to be alike, it is unnecessary to crush the Tea into any particular package.

As the Customers disregard all odd ounces in weighing gross, it is not to the advantage of the Producer for the package to weigh many ounces over the pound, four or five being sufficient to allow for evaporation, leakage and variation in scales.

The following are examples of good and bad packing under the new Customs methods of weighing:—

GOOD PACKING.

	lb.	oz.		lb.
Actual gross weight of package ..	124	4	Taken by Customs as	124
Actual Tare of package	24	4	do do	24
Actual net weight of package ...	100	0	Taken by Customs as	100

there being no loss in weight, a condition which could never have occurred under the previous method of weighing, the odd ounces both in gross and tare having been given against the Producer; these totalled from a few ounces to nearly two pounds, irrespective of the one pound draft allowance.

BAD PACKING.

	lb.	oz.		lb.
Actual gross weight of package ...	124	15	Taken by Customs as	124
Actual Tare of package	24	9	do do	25
Actual net weight of package ..	100	6	Taken by Customs as	99

showing a loss of as much as 1-lb. 6-oz., besides the 1-lb. trade draft.

GOW, WILSON & STANTON, *Tea Brokers,* London, E.C

"TROPICAL AGRICULTURIST."—Planters and others who have preserved the back numbers of volumes of this publication will be glad to learn that the long-desired "Topical Index" to the whole 19 volumes will shortly appear and a copy will be forwarded to each subscriber.

REASONING POWER OF PLANTS.—Do plants reason? This seems a strange question but it is asked by the daughter of a prominent Mexican planter, who has been making a series of experiments, and publishing the results in a Mexican newspaper. Among the many experiments made by this young lady naturalist of Mexico the most suggestive was made with a morning glory plant. This young lady drove a nail in the wall some distance from the tendril of a morning glory plant. The tendril began at once to grow toward the nail. The nail was shifted; the tendril shifted its course. Five times the nail was shifted, and five times the tendril shifted its course. Finally a cord was hung up to tempt the tendril, and it shifted its course toward the cord and left the nail which it had five times persisted in following. The young lady asks: How did the plant know that the nail was there? And how did it know that the nail was shifted? When the cord was stretched at an equal distance away, how did it know the difference between the cord and the nail? She also asks: Why do the tendrils of the morning glory prefer a cord of continuous support, such as a cord, wire, or lath, or rail, rather than a peg or nail, which does not give this continuous support? Why when presented with on equal choice between the two, will they invariably choose the continuous support? After asking a series of questions logically springing from the facts cited and others, she concludes by asserting that plants really reason.—*Indian Gardening.*

THE TEA MARKET.

ANNUAL REVIEW.

38, Mincing Lane, June, 1900.

The issue by the London Brokers' Association of statistics for the twelve months ending 31st May brings an opportunity of looking into the position and prospects of tea, and of trying to find out what light the past season throws upon the future.

The task is rendered difficult by the unusual events which have occurred to disturb the regular course of business and to place the figures relating to consumption in a position which makes them for a time of little value for the purpose of comparison with statistics of previous years.

At the beginning the position was a strong one. The increased use of Indian tea during 1898-99 had reduced stocks to a low point; had raised prices for both Ceylon and Indian to a level which promised well for growers; and had made it evident that larger supplies could be taken here, and were necessary in order to satisfy the demands of other markets. For reasons connected with the nature of the competition among distributors, which we explained at the time, prospects were then especially good for planters who could secure heavy crops at a low cost price, and for those who could produce tea of fine quality. These prospects have for the most part been realized; but results have been very irregular, and the unequal distribution of the good profit attaching to the production of tea has caused embarrassment, and disappointment to many who have been accustomed to rely upon the security of an average yield of good medium quality.

The hope of an active business at the outset was deferred by the dispute arising from the proposal to do away with the 1 lb. draft. A settlement based upon a compromise was agreed upon, but when this was found not to be acceptable to all concerned, Her Majesty's Customs declined to carry it out in face of the objections raised.

A new and more equitable method of

WEIGHING THE CHESTS

has however, at length been adopted, which should to some extent lessen the loss in weight sustained by Importers. It is a difficult matter to reconcile conflicting interests when touching customs of trade, especially when, as in this case, they have the prescription of nearly a century's usage, being based upon the "East India Conditions" prevailing in the days of the old Company.

The friction caused by the dispute subsided, but business was interrupted and a counter-combination was organised by the buyers. To meet this, concerted action on the part of the Indian Importers followed, in order to control the quantity brought to Auction —while the Ceylon Importers, having to deal with a crop arriving all the year round, preferred to go on selling as before.

Opinions differ whether the regulation of the

INDIAN AUCTIONS

has been beneficial. It was probably instrumental in maintaining quotations for common teas, notwithstanding the great increase in their production —which is held by some to account for the decline in the value of good medium grades—but it has not been altogether agreeable to those who had to keep back tea that it was inexpedient to hold. We doubt, however, if the average value of the crop has been affected, for subject to variation in quality this must always depend upon the relation which the total supply bears to the total requirement, and not upon mechanical arrangements governing a week's or a month's sales.

When free supplies were eventually brought to sale the usual active autumn trade developed, marked by the high prices paid for a while for fine tea, and by the anomaly of declining prices for good medium kinds whilst common sorts were rising above the level of last season. Later on came the unfortunate catastrophe in Darjeeling; the signs that production, stimulated by the high price of common tea, was exceeding estimates; and the sharp advance in the Bank rate—affecting the stability of the market.

In January and February the large purchases made by those who anticipated an increased duty enabled importers to sell freely though prices were gradually weakening: but they had not sold enough when the premature announcement of the Budget brought business to a standstill. The incidents connected with the Budget are too recent to need recapitulation, beyond recording that the strain upon the Trade's resources entailed by the clearance of some 40 million lb. in advance of requirements left them unready buyers and was followed by changes in price adverse to holders.

Some time may pass before the effect of the

ADVANCE IN DUTY

becomes clear. The fall in the value of inferior kinds since the Budget is a natural result of superabundant supply, and has, we think, no connection with the higher duty, which would be more likely to increase the demand for the cheaper sorts if, as we fear may be the case, distributors find that owing to the advance in the retail quotations their sale of low-priced teas increases at the expense of those of higher value.

It is so difficult to find a reason for taxing to the extent of 75 per cent of its value a product of British industry now regarded as a necessary of life to the working classes, that reduction of the tax will naturally be expected when the emergency is past; we must, therefore, be prepared for interesting if somewhat restless markets in the future before each successive Budget day.

In the meantime we do not fear any serious reduction in the quantity actually used here, because tea is such a cheap and wholesome beverage,—but hand-to-mouth trading will be more than ever the retailers' policy, and may cause some shrinkage in the quantity cleared. The range of value will depend upon the character and dimension of the crops. It will be well if they are of somewhat higher class than the last crops, for if the supplies show a large increase two years in succession, failing the attraction of better quality, lower prices will be needed to draw buyers and stimulate trade. It must not be forgotten that every producing country has increased its contribution to the world's requirements—the total increase being more than 50 million lb.—and that no market is now likely to be short of stock.

Writing a year ago we intimated that we could use a total of 275 million lb. Had our importations been confined to that or a little more, producers would have done extremely well, notwithstanding high rates of exchange and freight; but 300 millions have been sent (weighing in London 293 millions), an increase of 32 millions upon last season's supply, which has proved to be more than the market could absorb without a reduction in the average value.

It is not certain to what extent

HOME CONSUMPTION

has expanded during the year, the increased clearances since 1st January being misleading. Taking the Board of Trade returns, as the most complete, it is seen that from 1st June to 31st December there was an increase of four million pounds in the quantity duty paid, being at the rate of about seven millions per annum; but during that time common teas were so dear that retailers were working on the smallest stocks possible, we, therefore, think that the increase may have been as much as ten million pounds during the year, an opinion to which the very prosperous condition of trade and industry lends support. On this assumption, had nothing occurred to disturb the figures we should now be recording that about 278 or 280 millions had been used at home or sent abroad, and that in place of the inadequate stocks held a year ago we had now in hand only the supplies necessary for working a trade of the large dimensions now reached.

Believing this to be a reasonable estimate of the position, we contemplate with composure a total im-

portation of 285 or 290 million lb. during the coming season, to include about 150 millions from India, about 110 millions from Ceylon, with 25 or 30 millions from China and Java. This would seem to be as much as will be required; unless, therefore, some limit of production be found, it will be necessary to dispose of larger quantities of Ceylon and Indian tea abroad in order to avoid an over-supply here. The probabilities are that a limit will be reached by natural process, and that neither India nor Ceylon will for the second time give a yield largely in excess of expectation; there is not, moreover, the same inducement to pluck freely as there was a year ago, when common teas were 1d to 2d higher than they are now.

The possibility of

HEAVIER SHIPMENTS FROM CHINA

is a contingency, its total export having recovered from 107 millions in 1898-9 to 115 millions in 1899 1900, but there is little reason to fear it, seeing that the quotation of 6d. for common tea ruling here last year did not attract very much more than when the price was 4½d. The fact is that retailers only use it in the last resort, and *good* China tea cannot be obtained cheaply enough or in sufficient quantity to affect the position. Japan continues a strenuous competitor in the States and Canada, but not elsewhere. The produce of Java finds increasing favour now that so much grown from Assam seed is coming in: the shipments were nearly 13 millions in 1899.

We record with satisfaction an increase in the amount of business transacted by

PRIVATE CONTRACT

sometimes at separate quotations, sometimes at an all-round price, and chiefly in low or medium grades sent in large lines, negotiations over the smaller quantities of finer tea being usually too prolonged to enable much business in these kinds to be adjusted in the time at the disposal of buyers. The drawback of being tied to the Auction Room and the advantage of an alternative have been realized, and it is seen that a free private-contract market open to any sellers wishing to make use of it would lessen some of the difficulties that meet them.

The

STATISTICS

at foot speak for themselves, and disclose a larger business at a lower average price, with steady, if not rapid increase in the Colonial and foreign demand for our teas. With the permission of our friends we add the particulars of some of their Indian crops sold in London.

WM. JAS. & HY. THOMPSON.

Summary of the exports to all parts from the several sources of production:—

	1898.	1899.
From Indian (season) ..	157.210.000	175,000,000
Ceylon do ..	119,000,009	138,000,000
*China do ..	107,000,000	115,000,000
Japan (year) ..	40,500,000	45,830,000
Java do ..	9,720,000	12,850,000
	433,430,000	486,680,000

* Not including about 34,000,000 lb. sent overland to Russia, and 64,000,000 lb. of Brick Tea sent abroad in 1899.

SUGAR AND PINEAPPLES.

We extract the following from the report by Mr. Chas. Ford, Superintendent of the Botanical and Afforestation Department:—

Forestry.—Planting to the extent of 54,582 trees has been continued in the island, and Kowloon in ten different localities, and in various new and old roads where trees would thrive.

NEW TERRITORY.

His Excellency the Governor when travelling in the territory came to the conclusion after seeing the Sugar-cane growing there, that new varieties of cane might be introduced, and at His Excellency's request I have made arrangements for new varieties to be obtained from different countries, some of which have arrived and been planted near Ha Tsun.

His Excellency also obtained two Chatanooga Sugar Mills, which this department had fixed in the new territory, and exhibited the working of to the sugar-growers there. The advantages these mills possess over the native mills may lead to their extended introduction.

I have also obtained improved varieties of Pineapple-plants from Ceylon, which will be useful introductions to the districts where Pineapples are now cultivated to a considerable extent. The best fruits from the new territory are now brought over to Hong-Kong, and canned at a factory at West Point.—*Gardeners' Chronicle*, Jnue 23rd.

BRAZIL COFFFEE NOTES.

A correspondent writes to the *Imperio* that the coffee crop along the lines of the Paulista railway is small and of inferior quality.

A telegram of the 25th instant states that the S. Paulo coffee crop has been injured by heavy rains. In districts in which the gathering of the crop had commenced the loss is estimated at twenty per cent.

It may be confidently assumed that the losses incurred in the coffee market through the imposition of quarantines on account of the bubonic pest will have to be borne by the planters. The heavy crops and the large stocks in consuming markets will give the buyer sufficient advantage over the seller to enable him to dictate terms.—*Rio News.*

THE INDIAN TEA TRADE.

THE export figures for the year 1899-1900, ending 31st March, are as follows in the Indian Customs Accounts:—

12 MONTHS, 1ST APRIL TO 31ST MARCH.

	1897-98.	1898-99.	1899-1900
Tea—	lb.	lb.	lb.
To United Kingdom	137,655,857	139,245,995	154,161,492
Russia ..	689,271	500,889	467,451
Canada ..	593,532	1,044,256	1,932,943
United States ..	929,704	1,413,624	2,744,854
China ..	565,274	883,307	1,248,857
Persia ..	1,464,394	3,456,791	1,953,900
Turkey in Asia ..	1,336,970	2,598,281	2,149,414
Australia ..	6,792,654	6,306,135	8,362,797
Other Countries	1,424,161	2,021,394	2,016,419
Total lb...	151,451,817	157,470,672	175,038,127

For imports we have :—

12 MONTHS, 1ST APRIL TO 31ST MARCH.

	1897-98.	1898-99.	1899-1900
Tea—	lb.	lb.	lb.
From Ceylon ..	1,059,716	1,108,686	570,161
China ..	1,689,564	1,751,653	1,921,826
Other Countries	765,733	799,103	711,124
Total lb. ..	3,515,0 3	3,659,442	3,203,111

TEA, CINNAMON, COCONUTS AND RUBBER—Mr. Vigors, in his Administration Report on Kalutara District for 1899, states that about 300 acres were added to the area in Tea, and 297 to that of Cinnamon, about 50 acres of Coconuts; while Para Rubber was freely put out in tea and special lots were likely to be bought to be planted this year with Rubber.

ADVERTISING OF INDIAN TEA.

AMERICAN AND FOREIGN MARKETS FUND.

Indian Tea Association,
Royal Exchange Building, Calcutta, 16 June.
(TO ALL PROPRIETORS AND AGENTS OF TEA ESTATES.)

DEAR SIRS,—I am now directed by the General Committee of the Indian Tea Association to invite contributions from All Proprietors and Agents of tea estates to this Fund for the year 1900-1901.

2. During the past year the Committee of the Association in London in administering the Fund, and in projecting measures for future work, have devoted their attention mainly to three objects. Firstly, to the continuance of the work in America; secondly, to the best means of developing the tea trade on the Continent of Europe; and, thirdly, to the effective representation of Indian tea at the Paris Exhibition.

3. The work in America has been carried on by this Association conjointly with the Ceylon Association. The representative in the United States of the latter body—Mr. W. Mackenzie—has acted during the year as joint agent of the both Associations. His efforts in behalf of the industry have been eminently successful, the quantity of Indian and Ceylon tea taken by the United States and Canada in 1899 being 17,226,000 lb., as compared with 13,609,000 lb. in 1898. This is, the Committee think, a most gratifying increase; and they propose to continue, and, if possible, extend their operations in the coming year both in the United States and in Canada. They will again co-operate with the Ceylon Association; and they are confident that the satisfactory results of the past year will be repeated.

4. The second main object which the London Committee have kept steadily in view throughout the year is the development of the markets in the various countries of Europe. To that end they have deputed Mr. J E Musgrave Harington on a mission of enquiry into the conditions and prospects of the trade in Russia, Germany, Turkey, Greece, Italy, Holland and elsewhere. Mr. Harington is making special enquiries into the facilities now existing in those countries for supplying tea; and also into the question of the possibility of increasing the demand for it. On receiving his report the London Committee propose to follow it up by active measures of exploitation on lines somewhat similar to those adopted in America by Mr. Blechynden. That is to say by an extensive system of advertising; by assisting those already engaged in trade; and by establishing new agencies at places as may be deemed advisable.

5. The work which is being done in connection with the Paris Exhibition is so well known as to need only a passing reference. Every effort is being made to direct the attention of visitors to the Exhibition to Indian tea, and to encourage them to use it. Facilities are also afforded to purchasers for obtaining supplies outside the Exhibition. There is good reason to hope that, as a result of the representation, a considerable impetus will be given to the consumption of tea in France, where at present the trade is comparatively insignificant.

6. I am now to turn to the question of the increased production of Indian and Ceylon teas, which in the opinion of both the London and Calcutta Committees, constitues the chief reason at the present time for extending consumption in foreign markets. From the figures * it will be seen that while production during the past five years has increased by 30 per cent., consumption in the United Kingdom has risen by only 15 per cent. With an enhanced import duty there is not the smallest ground for assuming that in the near future consumption will show a more rapid rate of increase But, on the other hand, it is practically certain that the production of tea will be considerably augmented in the present and following seasons. The extensions now coming into bearing, and the more general application of scientific principles to cultivation, leave little room for doubt as to the accuracy of this assumption.

7. It is therefore evident that unless vigorous and determined measures are now taken to stimulate consumption in countries other than the United Kingdom, it will soon be impossible to avoid an overstocked market and lower prices in London. That those evils should be avoided is essential to the well-being of the industry; and the Committee accordingly now appeal to all Proprietors and Agents to contribute in behalf of the gardens under their direction in order that a comprehensive foreign market programme may be undertaken. What that programme is to be has already been indicated; and ample funds will be required if it is to be carried out in an efficient and satisfactory manner.

8. The Committee would particularly appeal to all Proprietors and Agents who have hitherto held aloof from the Fund. That the extension of consumption in foreign markets has now become a matter of vital importance to the industry has already been shown; and it is therefore clearly necessary that the measures now being taken by the Association to promote that extension should be supported by the industry with complete unanimity. By no other means can success be fully achieved; and as the resulting advantages are shared proportionately by all, it is but reasonable that the funds required should be similarly raised.

9. The basis for contributions will be the same as in previous years, viz.:—

4 annas per acre on the area under cultivation; and
½ anna per maund on the production;

and I am to ask if you will be good enough to intimate not later than the 15th August next on the subjoined form your willingness to support the Fund on this basis,

Yours faithfully, W. PARSONS, Secretary.

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* PRODUCTION IN MILLIONS OF LB.

		India.	Ceylon.	Total.
1895	..	135	98	233
1896	..	148	108	256
1897	..	148	116	264
1898	..	153	120	273
1899	..	175	130	305

CONSUMPTION IN THE UNITED KINGDOM IN MILLIONS OF LB.

		India.	Ceylon.	Total.
1895	..	116	74	190
1896	..	123	80	203
1897	..	125	85	210
1898	..	133	83	216
1899	..	134	85	219

—*Indian Planters' Gazette.*

CEYLON SHARE MARKET: VARYING VALUE OF SHARES.

VALUE OF SHARES BETWEEN JULY, 1899 AND JULY 1900.

Name of Company.	Amount paid up.	Value per Share 1st July, 1899. (Share Report 30th June.)	Value per Share on 1st Jan., 1900. (Share Report Jan., 5th.)	Value per Share on 2nd July, 1900. (Share Report June, 29th.)
CEYLON PRODUCE COMPANIES.				
Agra Ouvah Estates	500	950	1000	900 B
Castlereagh	100	100	95	90
Ceylon Hills	100	30	30	—
Ceylon Tea & Coconut	500	500	500	500 (noml.)
Ceylon Provincial	500	500	500 B	500 T
Claremont	100	15 B	25	—
Clunes	100	95	100	—
Clyde	100	90	70	40 B
Doomoo	100	70	60 B	65
Drayton	100	135 B	150 B	—
Eila	100	50 B	62½ B	60
Estates of Uva	500	350	300	225 B
Glasgow	500	962½	925 B	935 T
Great Western	500	640	640	640 B
Gangawatta	100	—	—	—
Hapugahalande	200	250	275	200 B
High Forests	500	550	570	525
Do. part paid	350	400	400	400
Horrekelly	100	85	—	—
Kalutara	500	400	390 B	360
Kandyan Hills	100	47½	70	67½
Kelani Tea Garden	100	65	50	40 B
Kirklees	100	140 B	145	120
Knavesmire	100	77½	—	65
Kanapediwatte	100	90	100	90
Maha Uva Estate	500	575	500	425
Mocha	500	700	—	600 B
Nahavilla	500	500	475 B	450
Neboda	500	—	500 B	500
Ottery	100	110 B	—	—
Palmerston	500	425	415	400
Penrhos	100	107½	100	95
Pine Hill	60	50	50	42½
Pitakande	500	1,000 B	1,000 B	—
Putupaula	100	100	120	—
Ratwatta Cocoa	500	350 B	—	—
Rayigam	100	55 B	70	55
Roeberry	100	60	50	—
Ruanwella	100	75	70	40 T
St. Helier	500	505 B	500 B	510 B
Talgaswela	100	32½	25 B	—
Do. 7 % Pref.	100	70 B	—	—
Tonacombe	500	450	450	450
Udabage	100	65	—	—
Udagama Tea & Timber	50	10	10	—
Union Estates	500	300 B	300	—
Upper Maskeliya	500	500	500	470
Uvakellie	100	70	70	65 T
Vogan	100	90	87½	80
Wanarajah	500	1,150	1,145	—
Yataderia	100	380	375	375
CEYLON COMMERCIAL COMPANIES.				
Adam's Peak Hotel	100	60	40 B	—
Bristol Hotel	100	85	85 B	95 B
Do. 7 % Deb.	100	102½ B	105 B	107½ B
Ceylon General Steam Navigation	100	195 B	205	215 B
Colombo Apothecaries'	100	125	135 B	142½ B
Colombo Assembly Rooms	20	12½	12½ B	12½ B
Colombo Hotels	100	280	303	300
Colombo Fort Land and Building	100	80 B	92½	—
Galle Face Hotel	100	167½	147½ T	145 B
Kandy Hotels	100	80	112½ B	117½ B
Mount Lavinia Hotel	500	400	300	150 B
New Colombo Ice	100	162	172½ T	175 T
Nuwara Eliya Hotels	100	35	27½	30
Public Hall	20	15 B	15 B	15 B
Petroleum Storage Ord.	100	—	—	—
Do. 10 % Prefs.	100	—	—	—
Station Hotels, Kandy	100	40	30	30

NOTE.—B = Buyers, T = Transactions. The rest are Sellers' Quotations.

COORG COFFEE: RECORD PRICES.

Record prices were obtained at the public sale in Mincing Lane on the 22nd ultimo, when Messrs. R J Rouse and Co , put up seven bags shipped by Messrs. Morgan and Son marked "C I Palkimad" presented by Mr. Coolavandra Appiah, of Coorg, to be sold for the benefit of the Disabled and Wounded Soldiers' Fund. The lots were advertised to be sub-divided, if necessary, to suit the requirements of patriotic consumers, and they realised the following prices :—

Bag		cwt.		s.	
1	..	1 2	...	152	per cwt.
1	..	1 2	...	160	do
1	..	1 2	...	162	do
1	..	1 2	...	165	do
1	..	1 2	...	200	do
1	..	1 2	...	199	do
1	..	1 2	...	204	to 230

The last bag was divided into six lots, and the samples realised 5 shillings per lb. The sale began by a reference from the Chairman (Mr. Rouse) to the relief of Mafeking and to its gallant defence, in which the whole Empire took the utmost interest, the universal feeling being that what effected one portion of the Empire affected the whole—this being exemplified by this sale. Three cheers were given for Lieutenant-General Baden-Powell and his gallant garrison. At the conclusion of the sale, after singing the National Anthem, it was resolved that the best thanks of the coffee trade be tendered to Mr. Coolavandra Appiah for his donation, and the meeting concluded by singing "For he is a jolly good fellow."—*Madras Mail*, June 20.

A FARMER'S EVERY-DAY LIFE.

No. IX.

(By Cosmopolite.)

For some years now the burning question amongst agriculturists has been

"THE LABOUR BILL,"

which goes on increasing yearly in the same ratio that prices decrease for farming products.—which is another way of saying that a farmer is, in a manner of speaking, obliged to burn the candle of his capital at both ends. It is not that farmers grudge giving good wages to their servants, far from it, indeed they would gladly give them double the amount if the prices they obtain for their stock and grain would go up, so as to justify them in so doing. Residents in the cities complain that the agriculturists are all leaving the country and migrating to the towns, where they do the work at half the wages which formerly obtained there, but these grumblers don't—or wont—see that they themselves are to blame for the present state of affairs. If they would eschew from buying frozen tuberculous beef, from Australia, margarine butter, from the horse ranches of America, weevilly oats from Russia and the slops and refuse of other countries which are shot into our markets, as if Britain was the great dumping ground of the world, then farmers would be encouraged to cultivate more land at home than they do, would find employment for those men whose presence is objected to, in the cities, and thus there would be retained, in our own country, millions of money which, at present, goes to provide our enemies with the means of keeping up armies and navies for our undoing. I fear, however, that the dwellers in towns will not do anything of the sort; they prefer eating the cheap but nasty food of our enemies, even although they see their children, when fed on this offal, growing up a degenerate race, because it leaves themselves all the more money to spend in drink and amusements. It is a grievous thing to see men and women, who have been accustomed to farm work and the fresh air of heaven all their lives, driven to the towns for employment which they are not accustomed to, and to eat food which soon takes the colour of health from their children's cheeks, and causes themselves to seek, in drink, the forgetfulness of their own miserable existence of semi-poverty and of the poisonous atmosphere of their cheap lodgings in town. When I came to this farm the labour question was raging, and to reduce his labour bill, was the aim and object of every intelligent farmer. At that time no one in this district, had endeavoured to

REDUCE EXPENDITURE BY CULTIVATING LESS LAND,

so I, as usual, proceeded to do what my neighbours were *not* doing and at once laid down so much land in permanent grass, that I reduced the staff of labours, usual for a farm of this size, from 10 men to three, and from four pairs of horses to one pair. Of course my policy, at once, became the talk of the district—and contemptuous sort of talk at that—and several practical farmers spoke to me, in a friendly spirit, warning me against the errors of my ways, and telling me that from their own personal knowledge of my farm, it would never lie down in permanent pasture. That the last four or five tenants had all tried it, and that the grass had died out during the third year, compelling them to fall back on cropping. Whilst thanking them for their good advice, which I know was well meant and in all good faith, with the pig-headedness of the Scot, I went on my own way, and succeeded in laying down permanent pasture of excellent quality, which every year is improving, till at the present time, some that I have, which is 10 and 12 years old, now carries just three times the stock per acre to what it did when I took the farm. But perhaps my greatest triumph has fallen to my lot this year, when owing to a cold, hard and backward spring, the grass in the district can scarcely provide a bite for the cattle. In my case the old grass with its close sole, retains every drop of dew that falls which has helped on the grass, and the stock in my parts are wading in luxuriant feed, while those same practical farmers, who warned me against attempting to grow permanent pasture on my farm, have sent me 150 of their cattle to graze in my parks, paying me 2s a head per week, and this because their own barren pastures were starving the stock.

ANOTHER GREAT ADVANTAGE

which is derived from the laying down of permanent pasture, beside reducing the labour bill is found in the long rest which the land gets during the time it lies in grass, for; when put into crop again after a dozen years of grazing, the crop is generally found to be a double one, whilst the turnips which follow are not only a heavier crop, but are of better quality and free from all disease.

The month of June sees the last of the sheep-shearing in our district, a work that I am particularly fond of, reminding me as it does of those early days, forty years ago, when I learned the noble art in the back blocks of New Zealand and afterwards burst forth in Australia as a perfect "ringer" of the shed; and how pleasant are those thoughts, for surely one may be said to live twice who can enjoy the recollection of his former life! Farmers twenty years my junior, when they see me on the shearing-floor, going round a sheep with the old "ringer's" stroke of my youth, confess that they cannot buckle to such a job: that only a man with a first-class guttapercha back, with a hinge in the middle of it, need attempt that, hardest job a farmer can set himself to do. But to me it is work and pleasure combined and I hope I may long be able to hold my own with the shears. It may not be generally known that up to this time I have been, I believe, the only exporter of

WOOL FROM CEYLON.

It happened so long ago as in 1875, when a flock of fifty sheep arrived in Colombo from Australia and owing to the heat experienced during the voyage their fleeces were all hanging about them in tatters and they looked a disreputable lot indeed. I volun-

teered to shear them if I got the wool to myself and the agents gratefully consented to this. I sent a Tamby into the Pettah to hunt up a pair of shears for me, which after much trouble he succeeded in doing—an old blunt and rusty pair, but which I promptly got in working order—and next morning I polished off 28 of the sheep before breakfast, finishing the remainder on the following morning. The appearance of the sheep was so greatly improved that they fetched excellent prices, averaging 48s each, and I shipped the wool home to London receiving in due course, upwards of £10 as the nett result of the sale. Sheep have always been a specially attractive study to me, and I have been exceedingly fortunate in my dealings with them. Some years ago I noticed that, in our local markets, black sheep always fetched a better price than white ones, and being ever ready to take advantage of any such fancy on the part of the public, I determined to breed black sheep. At that time a pure Shropshire Down ram lamb was born on my farm, which could only be considered as a freak of nature, as it was jet black. This lamb I kept for stud work and mated it with a lot of Shropshire Down ewes, the result of which was about 80 per cent of black lambs. As these lambs came to maturity, they not only proved larger than ordinary Shrops, but gave heavier fleeces, and the wool realized a better price. The sheep themselves sold in the market at extraordinary prices and my black Shrops have now, for some years been celebrated in the district. Need I say that I have continued to breed these ever since, although the original ram has departed this life long ago and one of his descendants reigns in his stead.

No doubt readers of these notes will have remarked by this time, that my policy has always been to avoid the beaten track, and to farm in my own way. An article that everyone has for sale cannot be expected to give other than a very ordinary price ; but that which only one man has it in his power to place on the market, brings as a general rule, nothing short of a fancy price. While on the subject of sheep let me mention another operation in which I have proved most successful. About ten years ago farmers got an awful scare from the reckless way in which Government permitted cattle suffering from tuberculosis and pleura to be landed from America and the Continent, spreading disease all over Britain. Like my neighbours, I took fright and promptly sold off all my cattle, as there happened to be good prices agoing at the time, replacing them by purchasing sheep, which are not liable to take the diseases above mentioned. Then I converted my cattle byres so as to feed sheep in them, and proceeded to fatten these during the months of winter and spring, sending them to market at a time when few fat sheep are for sale, and consequently, prices rule high, and, by this means I have been able to turn off 300 to 400 fat sheep every winter. About 18 months ago the agricultural press went crazy on the subject of

THE HOUSE FEEDING OF SHEEP,

and since then the subject has been thrashed bare, each one giving his experiences, none of which, however, appear to me to have been very successful. Lately it has come to the knowledge of the public that I have been engaged in this work for ten years, and with great success, so I have been receiving letters from all conditions of men, asking my advice, and how to go about the feeding of sheep in the house, what food to give them, how to treat them, and in short, to tell them all I know on the subject,—so that they might go in and oppose me in the fat market. Not being a born idiot, I have succeeded so far in not giving myself away, but merely writing a few platitudes on the subject, winding up by saying that the only royal road to success in the house feeding of sheep is *to look after the work yourself* Doubtless, in course of time, others will learn for themthemselves, as I did, and feeding sheep under cover will become as general as feeding cattle, and when that day comes, I suppose I will be obliged to pull myself together, and think of some other operation that my brother farmers are *not* doing, and set to work again in order to keep a few years in advance of those agriculturists who stick to the beaten track and the rule of thumb.

PLANTING IN STRAITS SETTLEMENTS: SELANGOR.

The acreage under European cultivation has been fully maintained in the face of a bad year and a large additional area has now come into bearing. It is to be feared that most of the native coffee plantations, which were started when prices were high and have since been abandoned, are now too far gone to be capable of resuscitation. Planters have paid much attention to rubber, especially the Para variety (*Hevea Braziliensis*), of which a number of plants approaching one million were put out in 1899. The trees have been in some places set out among the coffee, in others they are in plantations by themselves. The cultivation of the indigenous native rubber, Rambong *Ficus elastica*, has also received attention. When the prospects of Liberian coffee were at their worst, the cultivation of coconuts was resorted to as an alternative source of profitable planting. The industry has been steadily continued, both by Europeans and natives, and a reliable source of future profit thus brought into existence. The single estate upon which ramie has been grown is still in the experimental stage. The questions remaining for solution relate more to the nature of the machinery and the cost of preparation, than to the growth of the fibre. The proprietors are well satisfied so far as they have gone, and propose to further extend their operations in the near future.

As stated in an earlier paragraph, the European Planters have been striving against adverse market rates, as to which a measure of relief came only with the end of the year. That all should have persevered in the face of on apparently hopeless outlook reflects great credit upon our proprietors, and though it would perhaps be premature yet to predict that better times are in store for coffee, it is satisfactory to know that the difficulties which have had to be faced have created and fostered economical methods of working which will be of value to the estate owners for all time. Nor will the hardships which have been experienced be devoid of benefit if they have the effect of impressing upon the pro-

pretors of coffee lands the necessity of seeing that their produce is well cured in addition to being well grown. It appears to be admitted that insufficient attention was paid to this point in the past; that the prevalence of high ruling rates rendered growers less careful than they should have been of the condition of the exported article; but now that the Selangor Planters' Association has in its recently published annual report publicly called upon its members to co-operate in effecting an improvement in this respect, and that admonition has been productive of a generally expressed desire to obtain better machinery, we may reasonably expect that the produce of the future will no longer occupy an inferior place in public estimation on account of want of condition. So much capital is now being invested in rubber planting that it may be well that means should be taken, before the trees arrive at maturity, to acquire, possibly by examination in other countries, a practical working knowledge of the most effective and most economical methods of collecting, treating and shipping the produce. That which is new to planters in the Malay Peninsula is well understood elsewhere, and it would be a thousand pities that the supply of the future should be effected, either as to its quantity or quality, by the effort to acquire the necessary experience by unassisted endeavour.

Very little advance was made in native plantations in 1899. The scheme for the cultivation of rice by His Highness the Sultan, referred to in the Administration Report for 1898, still remains in abeyance. Rice growing in the district of Kuala Selangor has made some little progress, but the unhealthiness of the Coast districts has lately been such that all forms of industry have been somewhat suspended. Effective drainage works were again carried out in Kuala Selangor, and a commencement was made with the formation of the channels for the irrigation of a selected area of land in the Kuang district of Ulu Selangor, the whole of which will eventually be occupied by rice planters. A consignment of seed padi was obtained from Siam, and distributed among the districts for the purpose of improving this year's rice crop.

KUALA LANGAT DISTRICT,

RAMIE, COFFEE RUBBER, COCONUTS.

PROGRESS OF CULTIVATION AND RAMIE.—The progress of Mr. Cyril Baxendale's experiment in the cultivation of ramie constitutes one of the most interesting events in the agricultural history of Kuala Langat. On Jugra Estate there are now some 44 acres planted with several varieties of ramie; the largest of which attains a height of some nine or ten feet and flourishes with considerable luxuriance. My taking charge of the district was almost contemporaneous with the starting of this valuable experiment, and I have been much impressed by the thorough and business-like way in which it has been carried out. At the beginning of the year, a machine for producing fibre was worked on the estate. In September Mr. Baxendale brought out from England a machine to produce ribbons, and this appears to give satisfactory results. The experiment having occupied a longer period than was anticipated, an extension of the reserve of 2,000 acres granted in 1898 has been applied for. Amongst the ramie, coconuts, rubber and bananas are planted, and an additional 120 acres have been opened for the two former products.

RUBBER AND COCONUTS.—The other estates of 100 acres and upwards are extending cultivation by planting rubber and coconuts. For this purpose 80 acres at Bandar have been felled by His Highness the Sultan, and 120 acres are being opened on Klanang Estate, which will bring up the cultivated area on the latter estate to nearly 400 acres. On Denmark Estate rubber and coconuts are being planted amongst the coffee. Most applications for small holdings in the Jugra portion of the district are made on an undertaking to plant coconuts. Said Ahmit, son-in-law of the late Sultan, has felled and fenced for his purpose 70 acres of recently obtained land. But in many cases the actual planting has not progressed as quickly as I should desire. Owing to the number of wild pigs in the district, the planting of coconuts in small holdings, unless preceded by fencing, is a Sisyphean task; and I am afraid that many of the natives, more especially the Malays, have not yet sufficiently recovered from unfortunate ventures in the cultivation of coffee, to brace themselves for another serious agricultural effort.

COFFEE.—Those cultivators whose coffee was well advanced before the slump in prices have kept their gardens in a condition, which, under the circumstances, is surprisingly good; though I fear that comparatively few understand the economy of systematic weeding. Owing to the relative quickness of returns, coffee is a form of cultivation which, provided only that fairly good prices are anticipated, has considerable attractions for the native cultivator. In this connection, it is interesting to record the receipt in June of fifteen applications from Chinese for small holdings at Telok, made with a view to planting coffee as a catch-crop for rubber.

PEPPER AND GAMBIER.—The pepper crop on the Sepang Estate of the Chee Woh Kongsi amounted to 5,212.13 pikuls, as compared with 4,639.76 pikuls in 1898. The quantity of gambier collected was rather less than in the previous year, but this was partly due to a difficulty in procuring and keeping labour, owing to the much higher wages obtainable on the construction of the Labu Valley Railway. Encouraged by the high price of pepper, the owners of this estate are making additions and improvements to their pepper plantations. In January 214 Chinese applied for small holdings, of 25 acres or less, for the planting of gambier and pepper between the boundaries of this estate and the Labu River. The coconut trees round Jugra Hill are answering to systematic treatment and have greatly improved in appearance. In other parts of the district the beetle gives but little trouble.

COCONUTS IN KUALA SELANGOR DISTRICT, 1899.

I am glad to report that the cultivation of coconuts is largely on the increase. Wild pigs, however, do enormous damage amongst the younger trees and cannot in some places even be kept out by the ordinary sized "gagar" enclosing the plantation. I have been shown places, at Ujong Parmatang, where the young trees have had to be renewed perhaps four or five times before they have grown up. Barbed wire fencing would keep them out, but the

"raiats," are not sufficiently well off, they say, to bear the initial expense of procuring it.

The Selangor Coconut Oil Company's mill has been in working order throughout the year This district does not supply sufficient copra to enable the factory to keep going, but a certain amount is imported into Kuala Selangor from Jeram, Bernam and Telok Anson. I understand from the Manager, Mr. R S Meikle, that there is a ready sale for the "poonac"—the refuse of the copra when the oil has been extracted—it is used for feeding horses, cattle and pigs, and is, I believe, extremely nourishing. Most of it is shipped to Australia, but a portion is sold locally and in Kuala Lumpur.

The coconut beetle does not appear to do a great deal of harm, except in a few places in this district, and the provisions of the Enactment for the preservation of coconut trees enables the District Officer to deal with cases reported where owners have taken no measures for checking the inroad or increase of the beetles on their estates.—*Administration Reports.*

NEGRI SEMBILAN.

Planting in Straits.

From the Report for 1899 of Mr. E W Birch as British Resident, we quote a few passages:—

It is a pleasant duty to again report upon a year of great prosperity for the Negri Sembilan and my only regret is that the Coffee Planters did not share in that prosperity. Some valuable estates were sold at prices which must prove remunerative to the purchasers unless the cultivation of coffee is to be entirely abandoned, an eventuality which, in view of the ups and downs of the market for agricultural produce during the past twenty years, it is unnecessary to consider seriously. I am glad to state that the Coffee Curing Mill, which I have long advocated, has been established at Port Dickson. The price of Tin fluctuated between £89 and £150 per ton, remaining for about three months at over $80 per pikul. The average price for the year works out at about $72 and to it may be attributed a great increase in the Revenue of the State, very appreciable profits to the Miners, immense returns to the Farmers and a large influx of Chinese labourers. The Duty of Tin produced no no less a sum than $556,858, which is almost equal to the whole revenue of the State in 1897. It exceeded my estimate by over $330,000. The value of Tin exported was more than four and a quarter millions of dollars. The most satisfactory feature, however, is that the output was 57,300 pikuls, or 11,150 pikuls more than in 1898.

GREEN TEA MANUFACTURE:

PROCESS OF MANUFACTURE ON BRUNSWICK ESTATE.

(BY THE H. DRUMMOND DEANE SYSTEM.)

[Although already published, it is well at this time, to repeat these instructions again.—Ed. *T.A.*]

(I) Take the green leaf straight from the field and steam at once in Deane & Rae's Machine (a long narrow revolving box); full steam must be turned on for 5 minutes and then shut off, the leaf is then kept in a steam box for another 10 minutes, the box kept revolving meanwhile, in order that each leaf may get the full benefit of the steam. The leaf is then examined, and if found pliable (like slightly under withered leaf) it is taken out and spread on tats to drain off the superfluous water; if the leaf is not found to be sufficiently pliable another 2 minutes in box should be allowed. Some time should be allowed for draining off the water.

(II) A suitable quantity is then taken to the roller and rolled for half an hour *lightly*, after being discharged, all lumps (of which a great many will be in evidence) must be carefully broken by hand, or it may be put into dryer for a short time before going to roller.

(III) The roll is then taken to the drier and partially fired to rid it of excess of moisture, care being taken not to allow it to become crisp.

(IV) It is then rolled again for one hour. Owing to the brittle quality of the leaf after it has been submitted to the steaming process, it is not possible at any time to apply weight to it in rolling. After discharge from roller, the leaf must be again carefully broken by hand.

(V) Then final fired. This last operation must be thoroughly completed, care however being taken that temperature is not allowed too high (say D.D. Sirocco 210 degrees to 220 degrees should be the maximum), as the leaf very easily *blisters*, also a "toasted" flavour (which is objectionable) may be imparted to the tea. Firing should be as brisk as possible, as it adds to the pungency of the tea, the points mentioned above being carefully observed.

SIFTING PROCESS.

The bulk is first passed through a

No. 12 sieve and called young Hyson
then ,, 10 ,, ,, Hyson
,, ,, 8 ,, ,, Hyson No. 2

and what remains on top of No. 8 has to be broken through it.

Dust from Young Hyson should be mixed with the lower grades.

There should not be more than from 10 to 12 per cent of dust altogether from the other grades, which is called "Twanky," and is sometimes mixed with Hyson and Hyson No. 2.

AMERICA'S NEW POSSESSIONS.

ENORMOUS GROWTH OF AMERICAN TRADE.

Here are figures showing how American exports to Cuba, Porto Rico, Hawaii, and the Philippines have grown in three years:—

Fiscal Years.	Cuba. Dollars.	Porto Rico. Dollars.	Hawaii. Dollars.	Philippines. Dollars.
1898	9,561,656	1,505,046	5,907,155	127,804
1899	10,619,377	2,685,848	9,305,470	404,193
*1900	25,000,000	3,600,000	14,500,000	2,500,000

* May and June, 1900, estimated.

—*Sell's Commercial Intelligence.*

Electric Light on a Perak Sugar Estate.—What is believed to be the first electric lighting plant in Perak, was installed in Gedong Sugar Estate, Began Serai, a few days ago. It is working most satisfactorily. The above Estate, expects to receive very shortly, the materials for a factory of the latest type, the mill and crushing plant of which, will be the largest ever imported into the East, with a new type of evaporators and crystallizers, altogether capable of turning out about 40 tons of sugar daily.—*Perak Pioneer*, June 20.

THE MANUFACTURE OF "GREEN TEAS" IN CEYLON.

No one has a better right to discourse on the subject of pure "green" teas in connection with our Ceylon industry than Mr. Drummond Deane; for the pages of our *Tropical Agriculturist* bear witness to the fact, of Mr. Deane having been about the very first to experiment in the manufacture of green teas and to offer to instruct his brother planters in regard to the same. If we are not mistaken, Mr. A. E. Wright got his first lesson from his neighbour, the whilom "laird of Kintyre."

We direct attention to the long letter on the subject which has reached us from Travancore. In it Mr. Deane refers to his early experience as a maker of green tea; to the great praise given, both locally and in America, by experts as to the quality of his product, and to the fact that he had brought out a small patent in connection with the preparation. But when all is said and done, we may ask what came of the industry which was then the subject of so much encouragement and praise? It is quite evident that it would not have been abandoned, even temporarily, by Mr. Deane, or Mr. Wright, had it shown much profit; and that of course must continue to be the practical test to apply at the present time. Apart from the "bonus" which, even if renewed, cannot do more than provide for a very limited quantity, the individual planter will be sure to ask. "If I make green, in place of black, tea, am I likely to get 1d, ½d, or even ¼d more per lb."? If, on the other hand, he finds that, while for his "black" tea he can get 6½d a lb., for the green he can at most secure 6d, no amount of persuasion is likely to change his course. We speak of the individual planter. The case is rather different in respect of large Companies or extensive proprietors. It may be very good policy for such to make a proportion of "green tea" even if it fetches a poor price comparatively, in order to relieve the pressure on the "black tea" market; and it is here where the Colony will look for a good lead from some of our mo e extensive and prosperous Tea Companies. In Travancore, too, a good deal of green tea ought to be made to supplement the shipments from Ceylon.

OUR PEARL FISHERIES: THE NEED OF SCIENTIFIC INVESTIGATION; AND OF A MARINE BIOLOGICAL STATION ON THE COAST OF CEYLON.

We direct attention to a long and thoughtful letter on the above subject from Mr. Oliver Collett, of Lower Dikoya, who is well-known to scientists, as well as his brother-planters, as an enthusiastic Naturalist of no mean attainments in the Department which he has made more peculiarly his own. We say so much in order that his letter may receive the attention it deserves from the local Government, and that it may especially come under the notice of His Excellency the Governor. Sir West Ridgeway is aware of the important scientific, as well as practical, work performed at the Marine Biological station at Port Erin in the Isle of Man. We had the pleasure of learning a good deal about this station in 1896, with a party of the British Association, guided, if we remember rightly, by Dr. Herdman, F.R.S, &c., Professor of Natural History in University College, Liverpool. We are not going into any details; but curiously enough we find that Professor Herdman, along with Professor R. W. Boyce, Mr. G. C. Bourne, and Professor C. S. Sherrington, was appointed in 1895, "to report on the Elucidation of the "Life Conditions of the Oyster under Normal "and Abnormal Environment, including in "the latter the effect of sewage matter and "pathogenic organisms." This investigation was carried on—and was the subject of successive Reports to the British Association all through 1896, 1897, and 1898. We may, therefore, conclude that Professor Herdman—who, from his connection with the Isle of Man, is, probably, well-known to Sir West Ridgeway—would be about the very best scientific authority to advise the Ceylon Government at this time on what should follow on Sir Wm. Twynam's History and Report, and whether a scientific investigation and the establishment of a Marine Biological Station near the site of our Pearl Fisheries is justified by the circumstances. Professor Herdman is too busy and important a man to come to Ceylon himself—except it were on a flying visit—and therefore our Government may be sure of an impartial opinion on the Papers placed before him.

We have no doubt there are some amongst the community who entertain strong doubts as to science being able to help us in this matter, and that our proposition, if carried out, would simply mean a waste of public money without any practical results; and they point to the mission of Mr. Holdsworth, F.Z.S., with its absolutely negative result, and still later to the investigation held by Mr. Edgar Thurston for the Madras Government. Now, it is quite true that Mr. Holdsworth's inability to help us, after five years' labour on our shores, was a bitter disappointment to Governor Sir Hercules Robinson and the whole community; and served to cast discredit on scientific aid from that day to this. But what does Sir Wm. Twynam show (as repeated by Mr. Collett) —that Mr. Holdsworth never saw a Pearl Fishery and never even during his five years as Ceylon Naturalist, had the opportunity of joining in an inspection of a bed of pearl-oysters on one of the banks off our shores. His five years were absolute blanks in these respects. Then let us think of scientific progress since 1865-1870! Why, Marine Biology was an unknown study thirty years ago. Sir Wm. Twynam, oo, is ignorant of the fact that, apart from Mr. Thurston's Monograph, there is much useful information to be gathered from other Colonies and countries bearing on Pearl Oysters. We have before us, as we write, for instance a Report by "W. Saville Kent, F.L.S., F.Z.S. Commissioner of Fisheries, Queensland" on "Oysters and Oyster Fisheries of Queensland" dated 30th June, 1891, which deals with pearl-shell fisheries and is illustrated by coloured plates of the various oysters and of some of their enemies, and with pictures of oyster banks, collections of spat, and plates illustrating the Embryology of the oyster. This Report we received from Dr. Haddon, of the Royal College of Science,

Dublin (since F.R.S., and Professor of Cambridge University) who wrote of "Saville-Kent" as an able man and that he was going on a special mission to North-West Australia, to study the Fisheries there. What further Reports Mr. Saville-Kent has published, we do not know; but enquiry ought to be made of both the Queensland and West Australian Governments as the owners of Pearl Shell as well as Pearl Fisheries. Then we have also dug out of our collections, a "Report upon the Pearl Fishery of the Gulf of California by Charles Townsend"—illustrated with photographs; and a "Report upon certain Investigations relating to the Planting of Oysters in Southern California, by Charles H. Gibbert," also with plates—both Reports being dated 1891 and addressed to the Washington authorities. Most probably the investigation was continued and further Reports ollowed, and perhaps, from California, Sir Wm. Twynam might learn of Pearl Oysters being artificially cultivated. But, in any case, we think Mr. Collett and ourselves have said enough to show that the Ceylon Government should take action—and it Professor Herdman were consulted, he could probably lay his hands on *all* the literature on the subject from America, Australia and India (and possibly referring to Chinese experiments with Pearl Oysters) before giving his opinion as to what could be done by Science in connection with the CEYLON PEARL FISHERIES.

OUR PEARL FISHERIES.

A PLEA FOR SCIENTIFIC INVESTIGATION.

Watawala, July 1.

DEAR SIR,—After reading your recent editorial remarks (see above) upon Sir William Twynam's Report on our Pearl Fisheries, and after a perusal of that valuable and elaborate account, the question is naturally forced upon one: Is it not passing strange that we still remain, after more than a hundred years of occupation of the island, in almost complete ignorance of the habits and instincts of the pearl-bearing mussels of the Gulf of Mannar?

The paramount importance of the question becomes evident when we remember that the total revenue derived from the Pearl Fisheries since 1796, amounts to no less than one million pounds sterling; and this in spite of the fact that some of the most promising of our fisheries were spoiled by the remarkable, and, so far altogether unaccounted for, disappearance of the "oysters," just as they were about to arrive at maturity.

The fact that the two oldest authorities upon our Pearl Fisheries (Sir W Twynam and Captain Dounan) hold diverse opinions regarding the probable cause or causes of these disappearances, shews how very much there is yet to be learned of the whole subject.

To the zoologist, it is at once clear that this and other vexed questions can only be set at rest by a thorough and systematic investigation into the Natural History and Life Conditions of the Pearl Oyster—more particularly in its early and post-larval stages.

At present we are without any reliable data or accurate information upon those points; and it is not impossible that it may be found that there are many agencies affecting the health and well-being of the pearl-oyster which may be brought, in a greater or less degree, beneath artificial control.

The few attempts at systematic investigation that have been made, appear to have been abandoned before any real knowledge of the subject had been gained. The labours of Dr. Kelaart (1857-9), which gave promise of the best results, were unfortunately brought to an end by his sudden death; and the employment of Mr. Holdsworth by Government in 1864 for a period of five years, appears to have led to no increase in our knowledge of the subject: for the simple reason that his energies were never properly applied. Sir W Twynam tells us that "he did not see a fishery, and did not witness an inspection of a bank with a bed of oysters on it, young or old." He also points out that "as the supposed term of a Pearl-oyster's existence is seven years, a Naturalist would not be able in five years to complete his researches and be in a position to lay anything definite before Government." And, finally, Sir William says: "No Naturalist has yet, so far as I am aware, reared Pearl-oysters in an aquarium, tank, reservoir, or enclosed portion of the sea from minute spat to maturity, ascertaining their exact condition at various stages of growth."

But while we in Ceylon have been content to remain in ignorance, the study of Marine Zoology in other parts of the world has during the last quarter of a century, made remarkable progress. The return home of the "Challenger" expedition in 1874 gave an impetus to the investigation of this important branch of natural science which has already led to valuable results. Marine Biological Stations have been established in different parts of Europe and America, which have greatly facilitated methods of research. The life-history of a number of our principal food-fishes has been worked out, and we are now familiar with many of the conditions of life in the sea which were formerly quite unknown.

For instance, it has been ascertained that marine life is, in many respects, almost as localized as that of the land; and that certain groups of plants and animals are *characteristic* of particular areas. We also now know that certain depths of the ocean contain organisms which are only to be met with in their own particular water strata—in accordance with what is known as the law of bathymetrical distribution.

Again, it has been discovered that almost all marine animals and plants are extremely sensitive to variations in the temperature, and in the specific gravity, and salinity, of the medium in which they live. These facts make it at once evident that all of these conditions must be observed and recorded before any attempt at artificial propagation, or cultivation, in any particular locality, can be expected to be successful.

No planter would attempt to grow tea in Jaffna, or coconuts in Nuwara Eliya; and, arguing by analogy, it is possible—nay, probable—that the marine life of our shores will be found to vary with every increase in the depth of the water, in precisely the same way that our land fauna and flora are modified by every change in the elevation of the land; climate in Ceylon being almost entirely determined by altitude.

Now, the *Mollusca* are—perhaps more than any other class of animals—greatly influenced by their environment. Take the land-shells for example. Their distribution is so local that an experienced collector can at once name the locality in which any particular species is likely to be found. In

Ceylon, it is almost always possible to judge the altitude at which any special kinds are to be sought for; and it cannot be doubted that similar conditions will be found to apply to our marine shells.

Thus, while the Tamblegam pearl-oyster (*Placuna placenta*) can easily be propagated and reared in the shallow waters near Trincomalee, as Dr. Kelaart amply shewed, the true oriental pearl-oyster (*Meleagrina fucata*) of the Gulf of Mannar, will only flourish at a depth of from 6 to 8 fathoms,—and this is perhaps the reason why all attempts at cultivation both here and off Southern India have hitherto failed.

It is possible that the oysters live far out at this depth in the Gulf of Mannar* in order to avoid the floods and sand storms from the northern rivers. The antipathy of oysters to sand was long since pointed out by the late Frank Buckland. The following allusion to it is to be found in the pages of "Punch" (1880):—

'Tis the voice of the oyster—I hear him complain,
"I *can't* live in this place; here's a sandstorm again!
I had settled at rest 'mid the rocks and the tiles,
They had made me a home, but this sand, how it riles,
It gets into my shell and the delicate fringe
That I use when I breathe; and I can't shut my hinge
When the grit lodges there; so the crabs come at will,
Since my poor mouth is open, they feed and they kill.
I've complained to Frank Buckland who quite understands
But he can't undertake to abolish the sands."

In 1892 a proposal was made by Lady Blake that a Marine Biological Station should be established in Jamaica as a memorial to Colombus. The idea was warmly supported by Professors Huxley and Ray Lankester, who suggested that the Government of Jamaica should initiate the scheme, and make the proposed Laboratory part of a Biological and Physical Survey of the Island. Special stress was laid upon the importance of having an observing station of this kind *in the tropics*, where the fauna and flora of the sea are so marvellously rich and varied.

The coasts of Ceylon are swarming with interesting forms of life, as we know from the writings of Hæckel and the brothers Sarasin; and while there are our Pearl-fisheries, of immense value, to be safe-guarded, there is also an important Chank fishery, which is undoubtedly capable of considerable development. An Experimental Station established at Negombo or Mannar for the investigation of the entire Natural History of the Gulf would almost certainly quickly repay the cost of its initiation and upkeep.

And the issues at stake are surely sufficiently large to justify the establishment of a small but first-class Marine Biological Station, similar to that which is doing such splendid work under Professor Herdman at Port Erin in the Isle of Man?—Yours truly.

OLIVER COLLETT.

"Para" Investments.—The American consul at Para is still trumpeting for the investment of American capital in the Amazon valley—in rubber estates, railways and all sorts of things. No one should be misled in this matter. If the American capitalist is inclined to take any such risk he should spend at least six months at Para and Manaos before deciding.—*Rio News*, May 22.

Correspondence.

To the Editor.

"GREEN TEAS IN CEYLON."

Stagbrook Estate, Peermaad, June 24.

(To the Editor, "Times of Ceylon.")

Sir,—I notice in your leading article on June 20th, you are dead against the production of green teas, and quote an extract from a letter of Mr. A E Wright to support your argument.

As against that view of the matter allow me to quote from Mr. F F Street, which appeared in the *Ceylon Observer* and "Times of Ceylon" on 21st January, 1890:—

"I consider there is a great future for Ceylon green teas of the quality and character lately produced by Mr. Deane, and I am decidedly of the opinion, that when these teas are made in sufficient quantity and become known that they will in time drive the China article out of consumption, in the same way as Indian and Ceylon black teas have and are still doing.

"These are the teas the Ceylon Planters' American Tea Company would do well to begin the campaign with in America, as the taste is already established there for these unfermented teas. Americans will then have an opportunity of judging of the *superior quality* of pure Ceylon greens as compared with faced China teas of the same class." Then he goes on to say:—

"As specimens of what green teas should be in cup, and infused leaf they are about as desirable as it is possible to make them."

So much for your argument that it will take us some time to learn how to suit the world's markets with green teas.

Again I quote from a letter published in the *Ceylon Observer*, of April 11th, 1890, (and I think "Times of Ceylon"?) from Messrs. Busk and Jevons, of New York:—

"We have shown these teas to several of the trade, and they invariably pronounce them finest to choicest Japans in the cup, and say they will have to be sold as such."

Many more such opinions could be quoted were I able to collect all the correspondence I had on the subject. Among others a letter from one of the largest houses in Japan, Messrs. Fraser Farley and Varnum of Yokohama in which they reported on my samples as superior in liquor and flavour to anything they could get, but not up to their Japan teas in appearance.

I now come to Mr. Wright's reply to your questions, and I must say it is a very unsatisfactory one, as it is misleading. It is true that green tea manufacture is, when a factory is making black and not green teas, a source of trouble—otherwise the one is as simple as the other. It is true also that rather more firewood is used, but even if Mr. Wright's figure of *double* is correct (which I beg leave to doubt) it is only an extra cent per lb. probably, and against this you have the entire saving of withering accommodation and spreading of leaf.

Your readers may take it from me that the cost of making green tea is no more than manufacturing black, and if green tea alone

is made, the outlay in withering accommodation is at once saved. It would be cheaper all round in manufacture I am certain, but the outturn is not more than 22 per cent., as against 25 per cent. of black.

If Mr. Wright would publish the invoices and account sales of all the teas he has sold, and been paid a bonus on (which in itself is a big profit in these days) it would be of great use, and if you will add here the enclosed cutting from the *American Grocer* it will speak for itself as I believe the teas referred to are from Mr. Wright? Mr. Rutherford and Mr. Mackenzie are level-headed men, and know what they are doing, and I believe that so soon as green teas are shipped in any quantity, a market will arise and prices be remunerative to many estates which are now averaging from 7d to 7½d or even less for Black Teas. Will you kindly insert at foot of this letter copy of my letter to the *Ceylon Observer*, and I think yourselves of 1st August, 1890, which I enclose describing the patent held by myself and Mr. Rae, as newcomers may unwittingly infringe that patent which not only applies to the "machine" but to the process of applying steam to green tea leaf.—Yours, &c.,

H. DRUMMOND DEANE.

(*Enclosure referred to.*)

CEYLON GREEN TEAS.—Thus the *Canadian-Grocer*:—"Yes green Ceylon teas are a great factor on the Canadian and American markets at present, and are going to grow very rapidly," said P C Larkin, of The 'Salada' Tea Co. "We had shipments on the ss. "Maria," ss. "Beatrice" and ss. 'Clan MacLean,' all arriving within in ten days of each other, and they go out just about as fast as they come in. We had four repeat orders by mail in one day; that is, four orders without any solicitation came in direct on post-cards or letters, These remember, are 'repeats,' showing that the goods 'are going,' and that they please the public. We notice lots of others now taking up Ceylon greens, but there are Ceylon greens and Ceylon greens. In the course of a couple of years, they will have the same position in the green tea trade that Ceylon blacks have today in the black tea trade. To be sure, they cost a little more than Japan teas, but they give the dealer better profit, and, as they are much stronger than Japan teas, they go further and are, therefore, just as cheap to use, besides being of very much finer flavour and strictly without coloring."

GREEN TEAS: PATENT PREPARATION OF, IN CEYLON.

To the Editor Ceylon *Observer*,

DEAR SIR,—Some particulars of our invention which renders the manufacture of true green teas, simple and inexpensive, may b of use to your readers. We have, as you are aware, patented the method as well as the machine in Ceylon, and hope shortly to do so in India. Our patent covers—(1) A method of rendering tea leaf pliable for purposes of rolling or twisting without resort to the process known as withering. (2) A machine for carrying out this method on a scale large enough to suit the largest factories. Green teas may be divided into two classes—Oolongs or Semi-green teas, which are partially fermented, and true green teas, which are wholly unfermented. These teas are the most popular class of tea in use in North America as shown by the fact reported to the inventors by Mr. F. Street, the local tea expert, that, out of a total export of 51,000,000 lb. of China tea to the United States last season up to the middle of November, only a very little over 1,000,000 lb. of tea corresponding to the ordinary Ceylon black leaf was imported, while of Oolongs there were imported 14,000,000 lb. and of the unfermented class, which are the true green teas. no less than 32,000,000 lb.

In view of the desire in Ceylon to introduce teas of this island into the American market it is thus shown to be highly desirable that teas should be manufactured of the unfermented class, and that a method and apparatus for insuring the manufacture thereof should be perfected.

Oolongs consist of tea leaves, withered either artificially or naturally, by hot air or on hot plates, sufficient to enable them to be rolled, when they are straightway fired.

The result of this process is that the effect called by some fermentation and by others oxidization is partially produced, and this effect prevents the leaves from being uniform in colour and causes them to vary from an olive green to a light brown.

True green teas are made only of leaf which has never been fermented or oxidized and, when infused, should show a uniform yellowish green colour which could never be obtained had either oxidization or fermentation taken place. The production of these teas has hitherto been found impracticable in Ceylon, because leaf could not be rendered sufficiently soft or pliable to be rolled or twisted unless by its being withered either naturally or artificially by hot air or hot plates, which withering is in itself a degree of fermentation or oxidization.

It was therefore requisitive to find a method of obtaining pliability necessary for the rolling or twisting process by other means which would prevent all fermentation or oxidizations. The inventors claim to have discovered after long experiment, and to have been the first in Ceylon to practise their discovery of a method by which tea leaf is rendered sufficiently pliable for rolling by a method heretofore entirely novel in Ceylon, which process not only produces pliability but absolutely checks all fermentation or oxidization. Full particulars of the machine can be obtained from Messrs. Brown Rae & Co., our Agents at Hatton, and, with each machine, instructions necessary for its use will be issued.—Yours faithfully, (Signed) H. D. DEANE.

August 1st 1890.

FURTHER NOTES FROM MR. DRUMMOND DEANE.

Travancore, July 9.

DEAR SIR,—In *re* your leading article of 29th June, anent manufacture of "green teas," you say:—"It is quite evident that it would not have been abandoned, even temporarily, by Mr. Deane or Mr. Wright, had it shown much profit." The reason, I abandoned it was twofold:—

1. I had at that time (10 years ago) a contract with a well-known Queensland firm to give them as much "pekoe" as I could make at 9d per pound sterling f.o b. in Colombo. My bl ck teas, by *this contract*, were then averaging about *10d per pound*. It was impossible to make only the "finer" and "common" grades into "greens", and though the average I was then getting, of nearly 9d nett, per pound on green teas, was satisfactory, there was a drawback.

No. 2 (which would not affect a Company, but seriously affected the private producer) viz. whereas by selling pekoes in Queensland, I got cash on the nail with the Bill of Lading, and by

selling in London I would (10 years ago, remember) draw (free of charge) up to 10d per pound under my Letter of Credit against Bill of Lading.

By shipping green teas, then quite a new industry, I could draw nothing on my American friends; but all teas were sold at my risk, and account sales and their result remitted in due course which meant at least three months. What present average prices for "greens" may be in America, I cannot say?

Mr. A. E. Wright could to a certain extent solve that problem, "an' he would" indeed. I think it only due to the "Thirty Committee" who have paid him a handsome bonus, that they should ask him for his invoices for publication, and if the prices are better than many sceptics think, it is all the more reason he should continue to enjoy his bonus as the fruit of his pioneering, but *if* the prices are very poor, though deplorable, it does not at all follow that others may not obtain better ones. Indeed if he practises the *exact* method of sorting as published by him in his memo of manufacture to the "Thirty Committee," I feel sure better results could be obtained. Again, be it noted, it is impossible to make green teas and black teas together, without sacrificing the care needed in the manufacture of each class. I have yesterday written to your contemporary, the "Times of Ceylon", fully, perhaps too fully, on the question of green tea manufacture, and asked him to pass it over to you in case you are prepared to give up so much space in your paper. The most important point in *that* letter, and one which I hope, Sir, you will use your influence to bring about, is; that the "Thirty Committee" should not blindly hand over ten cents per pound on every invoice of green tea *shipped*, but should appoint a paid green tea expert) I know of none better than Mr F. Street) to sample one package of each grade of each invoice on which royalty is paid. I should not, by this, mean in any way, that no lower grade teas were to get the royalty, far from it. But I most strongly hold the opinion, that, until more is known of the method of making "green teas", much harm may be done by the shipment of an article, fondly imagined by its exporter to be a true "green tea," and yet something entirely different. To a certain extent this view is borne out by "J. B.'s" letter to the "Times of Ceylon" of 2nd July, recommending Messrs. Davidson's "withering machine" for the manufacture of green tea; also their roller. Now the latter suggestion is quite sound and I have, some days before, written Messrs. Davidson on the subject giving them two suggestions, which, if they carry out, will probably make their roller the best green tea roller in the market, viz. :—1. A movable screw weight that can be clipped to the sides of the machine, and removed at will, for pressing the steamed juice (or water and juice) out of the roller before *commencing* the roll. 2. Having holes drilled at bottom of roller to take away the said water and juice rapidly. But of his first suggestion to use their "withering machine" he would by so doing completely prevent the making of "green tea',', the very essence of the manufacture of which is that there must be no oxidisation or fermentation of the leaf. If therefore, our friend "J. B.'s" advice were followed, the result would be an "'Oolong" and not a *green tea*.

I am open to correction on the following point at the moment, but am certain it was the case years ago, that ordinary "Oolongs" were not in it with pure "greens;" in fact my opinion is that, as a rule, "greens" that by accident had got more or less oxidized or fermented were shipped as "Oolongs."

The Formosa Oolong is quite a different article, but I have never heard of their being made successfully out of "Formosa", and plenty of people have tried to my knowledge with the best information before them, which point to soil and climate being the chief factor as regards their flavour. Apologizing for the length of this yarn.—I am, sir, yours faithfully,

H. DRUMMOND DEANE.

HOW TO MAKE GOOD GREEN TEAS.

A VALUABLE LETTER OF ADVICE.

Dear Sir,—I am afraid I am taking up too much of your space; but, after reading your report of Mr. Rutherford's views on the green-tea question, would ask your indulgence once more, to put the following opinions before those who are starting green-tea manufacture. If these teas are to be a success from the first—and there is no reason why this should not be the case with care—let me beg of those commencing to be in no frantic hurry to start off with large breaks of tea before they have thoroughly mastered the details of manufacture. Like all new industries, there is a certain unwritten law that can only be learnt by experience, no matter how clear the rules for manufacture are, as explained by myself, Mr. Wright or other pioneers; and it is probable that there will be found several petty obstacles to be overcome. What suits one set of machinery will be slightly different with another, and so on. What I would suggest, at any rate for a month, s that not more than one roll of green-tea shonlid be made a day in each factory new to the work. This, though giving a little trouble in washing the roller out and cleaning the firing machine trays, can easily be done "if insisted on" in any reasonably well-equipped factory. If leaf was brought in, say, at 8 a.m. for a roll, it could be finished before noon and put away With these small lots of tea every two or three days, I would suggest careful sorting, and the proportions being taken and samples sent to Mr. F F Street or any other "green-tea" expert, for report as to liquor and make. By the end of a month the manufacturer will know exactly what is wanted, and what he can do with the machinery at his disposal. By several men starting on these lines Ceylon green teas will be all of a class, and will command attention in America; otherwise, if all the first experiments are made in large quantities and shipped, the result will be disastrous to all concerned, and a bad name earned to start with. The following hints may prove of service:—

Plucking may be *coarser* without detriment, provided "hard," "bhanji" is strictly eliminated from the basket; *whole leaf* teas *must be aimed at*, and all fannings eliminated and kept separate; a good "broken pekoe" grade would be a *bad*, almost unsaleable green-tea; the small strong fannings from broken pekoes and pekoes can be kept separate and shipped as "Hyson" fannings; the coarser fannings as "Twankay." These teas are made into cakes or brick-teas as they are called. Now, in steaming, do not oversteam, or you will get a pulp; nor understeam, or your leaf will break in the roll; in rolling the less

weight used the better; but, before the machine is started, there is no objection to putting down the weight to get rid of steam water.

For every sorting a small lot of little round globules often occur. Keep these, and when sufficient, glaze them and class them as "gunpowder." With leaf coming in the evening, it can, after the first passage through the dryer, be left until morning to be rolled and finished off. It is (except in very wet cold weather) dangerous to keep leaf unsteamed through the night, as a small percentage of withered leaves spoils the appearance of your infused leaves in the cup, and gives a distinctly different taste to the tea, of what, I believe, is called the "Oolong" flavor.

In packing your finest teas I should use 3/8 in. boards of Cryptomeria Japonica, and this thickness is sufficient for 60 lb. and under, if matted or sewn in Hessian of a cheap variety. The cost is only fractional over the cost of half-inch packages, and the hoop-iron and hooping nails, both of which are saved in the *matted* package. Neatness of marking is advisable and two to three oz. over the nett lb. should be put in each package.

If "Momi" wood chests are used, use nothing under half an inch. All Japan teas, however, go in 3/8 in. Cryptomeria wood. I would suggest that if the Planters' Association give the present bonus, that they should only do so on teas *passed by Mr. Street* or any expert in Colombo, as sound good teas. If this is not done, a lot of rubbish will shortly find its way to America and do more harm than good. At present there is nothing to prevent a man sending away any rubbish he likes and claiming the ten cents. I consider this of vital importance, and urge the immediate attention of the "Thirty Committee" to this point.

I also hope the "Thirty Committee" will ask Mr. Wright to give them for publication invoices of all the teas they have paid him a bonus on. It will be interesting to follow the prices and the proportions of the grades in each invoice.—Yours, &c.,

H. DRUMMOND DEANE.

Peermaad, July 7.

P.S.—The teamaker at the Kellie Group factory was with me through all my experiments (Mr. H Patterson). I am glad he has a good situation. If his services could be spared to one or two of the larger concerns starting green tea manufacture, he would probably be of great use in helping to avoid mistakes.

THE TEA INDUSTRY:

HOW TO SECURE THE 8d. AVERAGE AGAIN.

Sir,—Take a

200 acre estate giving 500 lb. per acre=100,000 @ 6½d	£2,708
180 acre, (*i.e.*, =200 less 10 per cent) giving 500 lb. per acre=90,000 @ 8d...	£3,000
His gain on a year's working is =	£292
Deduct cost of simply weeding the 20 acres out of plucking at 1/ = (75 cts) = ...	£1
	£291

If therefore, we can, by reducing our output by 10 per cent, bring prices back to an 8d average, it will be clearly good policy to reduce our acreage, but, will men do it? No, they will not, unless a bonus is paid them out of the Cess, sufficient to cover cost of weeding the acreage out of plucking. There must be some inducement?—Yours truly,

OLD PLANTER.

THE POSITION OF THE TEA INDUSTRY.

London, June 20.

Dear Sir,—The speech of Mr. Rutherford at the meeting of the Ceylon Association last week, following on the very interesting and valuable circular of Messrs. Gow, Wilson & Stanton, will furnish reflection to everyone interested in the tea growing industry of Ceylon and India.

Rapid as has been the increase in consumption of British-grown teas of late years, production has now far out-stripped it. The balance on hand from last year was enormous, and so far this year the shipments to all countries from Ceylon are far ahead of last year. It is too soon to estimate the Indian outcome, but there is no reason to suppose it will be under that of 1899.

The market is now getting the benefit of the crops from the enormous areas planted in 1896, 1897, 1898, the full effects of which, however, are still to come. So far as we know, a comparatively small area of new land has been opened since 1898; but in Ceylon manuring is now helping to swell the output, and to complete the demoralization of prices already injuriously affected by extensions of area.

The rapacity of London dealers has often, and with reason, been blamed as the cause of the gradual yearly fall in prices—a fall that went on inexorably whether supply exceeded demand or fell short of it:—

In 1890 the production of Ceylon and Indian teas was	..	152 millions.
Consumption in all countries	..	150½ ,,
In 1898 Production was	...	273 ,,
Consumption in all countries	...	278 ,,

Yet the average price in 1890 was 10½d and in 1898, 8d.

The price has fallen regularly about ¼d a year, whether production exceeded consumption or not.

AVERAGE PRICE, CEYLON AND INDIAN TEAS.

1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
10½	10⅓	9¾	9¼	9	8¾	8½	8½	8

Seeing that during those nine years our teas had practically secured the whole British trade, while exports to other countries rose from 16 to 62 millions, we might have expected prices to have been maintained, instead of which, however, they fell 25 per cent.

The public did not reap a corresponding advantage, for packet teas remained at prices fixed ten years ago—for instance 1s, 1s 4d, and 1s 7d. Wholesale prices are now much lower than in 1898, the fall being now in pence instead of farthings; yet except for alteration in duty, the public pays the same price.

The recent fall needs no rapacity to explain it. It is due entirely to over-production, and the question is, How can Tea Garden owners apply such a remedy as will speedily give them a living wage, or interest on their investments?

Two or three methods suggest themselves—the first and most certain and immediate in its effects would be that all tea grown, say in July, should be either destroyed or held off the

London market. It might be shipped to Russia and sold there for whatever it would fetch, but for the danger that it might be sent from there to London. It is beyond doubt that were 10 or 12 millions diverted in some such way from this market and a shortness of supply thus created, more money would be got for the remainder of the crop than for the whole at present prices.

As a case in point, taking the last series of ten years — the year which gave the shortest crop of Australian wool, had the largest return in total price. Again coffee has risen 30 per cent on what is a still unconfirmed short estimate of the Brazil crop.

A second method, equally sure, though slower in its action, would be that planters should aim at quality rather than quantity, and pluck 10 per cent less.

A third method is to make the teas the American public drink. This I have constantly urged for five years, but, of course, while tea planting was profitable, there was no chance of an audience. *No*, with true British stubborn wrong-headedness, we said :— "Let the American tea drinker abandon his coffee and green teas and pay his devotion to the Ceylon article, just as we choose to make it." The American ear is not so easily tickled. Our black tea has displaced black Chinas in America to a considerable extent, but we have made no progress against green teas, which are used to three times the quantity black teas are. Had we been sensible enough to begin to make teas for America five years ago, our present difficulties would not have arisen. But then the extension of planting would have gone on, and we must in the end have out-paced consumption. Our blind persistence in trying to make converts, has perhaps happily allowed the evils of over-production to be earlier apparent to us.

To get speedy relief in this way, Ceylon might make during the next few months, say three to four million lb. of green teas—*entirely uncoloured artificially* (Such teas have already been made from sea-level up to nearly 5,000 ft.) and ship them to America. If carefully made, I believe, these teas would sell at a price quite as good as we are now getting for black teas. But even were there a loss on them, the gain by taking that quantity off the market here would amply compensate.

India could make the same quantity of coloured greens, and dispose of them in a similar way. There are such a number of varieties of unfermented or under-fermented teas ranging from pure Japans to Formosas and Oolongs used in America, that the teas would sell, even if not true to any particular type.

But shippers would require to have Agents to protect their interests, unless prepared to sell them at ANY PRICE, as the few large importers would do all they can to have the goods "smashed" out at auction. And we cannot blame them :—they have costly establishments in China, Formosa and Japan. They have had the trade in their hands for many years, and are not likely tamely to submit to have it snatched from them. As Mr. Rutherford pointed out, it would pay Ceylon and India to get a quantity off this market, even if growers of black tea made good the loss on green teas.

If either of the first two methods is adopted to help us *speedily*, I believe the green tea business will increase so rapidly in America as to prevent our again falling into the present slough. What it wants now is *careful nursing and direction*. The chief difficulty just at present is to get the tea ; but arrangements now being made will, I hope, overcome this, without at the same time flooding our young market too soon with crude or faulty teas, which might upset the good opinion many judges in America have formed of Ceylon greens.

Then, as Messrs. Gow, Wilson and Stanton suggest, the South American markets might be tried. Russia too is making remarkable progress with our teas. One gentleman asked at the meeting what Green teas were worth in America. Well, like Ceylon, the prices quoted in papers just to hand, ranged from 5d. to 1s. 1d. One report I see is to the effect that Japans are stronger and rising in price, while Ceylons and Indians are weaker on reports from London. There is more sale for Japans over 8d. than for Ceylons over that price.

All we want is *unanimity*, which should easily be attained in the community of educated men, when faced by what is, if not *ruin* to all, at least *that* to many, and pinched rations to the rest. The only question is, Has the true cause of this "lash of necessity" yet been recognised ? What can it be but over-production ? Shorten the supply and instead of a ring of buyers, organized to dole out to the grower only as much as will keep him alive, you would find them as Americans would say, "tumbling over one another" to get the stuff.

In a case before the Courts today, I see that peaches costing ½d. each at the Cape, were sold here at 65s a dozen. Why ? *Because scarce* at a certain season of the year.

These suggestions are to meet the need for *immediate relief*. For the future, say beginning early next year, what is needed is much more extensive pruning before the great rush of leaf, which comes with the April rains. Teas made in April and May lack quality, and their quantity is so great that they smash the price every year in May and June. A leading distributor here said to me quite recently :—"We have no sympathy with the Ceylon planter now. Here you are pouring in millions of pounds of poor pointless teas, which, if we buy, we must get into consumption within two months, as after that time they are worthless, except to make bulk in blends. They have no keeping quality."

WM. MACKENZIE.

OUR TEA INDUSTRY : HOW AN "OUTSIDER" VIEWS IT.

The Jungle, July 10.

DEAR SIR,—I am not a tea planter, but take a general interest in our staple interest, and have been reading the recent utterances of various authorities on Over-production and Reduction of Prices It has struck me that one branch of the subject has not received any elucidation, viz , the additional income from the additional quantity produced, and the reduction in cost of production in dealing with larger quantities. Do not these savings act as offsets to

the reduction in price. Thus an increase in production from 350 to 500 lb. per acre would stand as follows :—

	d	c		
350 @	10 =	70 @ 1/2	=	R255*
500 ,,	8 =	50 ,, 1/4	=	250
Loss per acre			=	R5

or 1 cent a lb.—to be covered by reduced cost of production, less cost of manure and other charges attendant on dealing with the increase in bulk, *i.e*, transport, chests, etc.

I cannot follow the question further, but would be glad to see it worked out and ventilated.—Yours truly,

IGNORAMUS.

*["Ignoramus" is true to his name, seeing he works out 350 @ 70 c to equal R255 in place of R245—where is the loss? There is actually a gain of R5 per acre so strengthening his argument; but 50 cents is too high an average—many do not get 35 cents —ED. *T.A.*]

OUR TEA INDUSTRY—THE QUESTION OF THE DAY.

Upcountry, July 10th.

DEAR SIR,—It is highly interesting to me to read all the different schemes which are appearing in our local papers with regard to the best way to face the burning question of our planting day.

First, let us take Mr. Rutherford's plan of making 25 per cent. of an output into green teas and try if we can't ram, cram, and jam it down the throats of the Americans and Canadians.

If Mr. Rutherford is sure we can produce as good an article, and place it in those markets as cheaply as they are now shipped from Japan and China across the Pacific, by all means let independent planters and Companies shew us the way as you wisely suggest. My impression is that this tea is landed and sold much cheaper than we can do it and that practically we shall be trying to capture these great tea-drinking countries to little or no purpose or at any rate it will take a long time to get the wedge in.

Those in the trade have always held, I believe, that the nearer we get to China and Japan in prices the better our Indian and Ceylon Teas will take everywhere for the simple reason they are better worth the money, and the result will be, I think, that while the ousting process goes on our prices will harden. It is just possible we may manage to ship in the future 10 per cent. at least of our teas as greens, but it appears to me that it would pay us better than going on spending the cess money in pushing and advertising our products in places where they simply don't want black teas, if the Planters' Association would pay our planters a bounty on all greens we ship and at the same time promise a yearly bonus on every acre now in bearing they discontinue plucking and pruning and allow to rest, sufficient to defray the cost of weeding such resting acreage. It would do our estates no harm to let 10 per cent of the plucking area grow up for a year or two taking another portion of the estate in due course, if kept free of weeds. By these means, I have no doubt our total export will be reduced quite 25 per cent, thus arresting, in a great measure, overproduction which is pulling us down to close on non-paying point. Manuring and increasing the yield would find their own level, and, so long as the former is not increased and our plucking acreage is reduced, we need not fear; and further extensions, too, will, I think, be reduced to a mere nothing, once people see we are compelled to *put on the breaks.*

By a judicious planting of shade trees in suitable localities, thereby reducing cost of weeding, I think a considerable saving can be effected, for practically there will be no weeds ; at any rate. This work can easily be done by the pluckers, they being made to weed each square before plucking. Doing this work in this way three or four times per mensem, there should be little weeding to do. Ramasamy, who has had a grand innings the last decade or two, should be made to give up his high-flown ideas *re* advances, which he has little intention of paying, and head kanganis' pay and kanganis' names should be *stoutly refused.* A long pull and a strong one, and a pull all together and we may get the ship off the rocks; but, something, both here and in India, must be done or she'll bump herself to pieces. Railway freight should be reduced on our best paying lines at once, on all up and down estate traffic.

Direct supply of our teas should be encouraged by every possible means and thereby get rid of that monster, the middleman.—Yours faithfully,

SYN AR Y HUND.

FODDER, GRASS AND AUSTRALIAN TREES.

British and Colonial Seed Warehouse,

Swanston Street, Melbourne, 22nd June, 1900.

DEAR SIR,—We thank you for copy of your valuable paper of 16th May, duly to hand and note remarks *re* "Maram Grass," We are at a loss to understand how it could be described as "A splendid fodder both for fattening and milk production," it being worthless for such purposes. This view is borne out by reference to the following authorities :—Baron F Von Mueller, the well-known scientist and for many years Government Botanist for Victoria, in his work "Select extra-tropical Plants," page 337, he says, "like Psamma Baltica and Elymus arenarins, they can be used for paper material, for tying, and for mats. *They are not touched by grazing animals,*" London's Encyclopedia, page 57, describes its use for fixing sand against the action of winds and tides, adding :—"Mats are made of it, and it is used as thatch." Vilmorin Andrieux & Co. simply describe it as Reed grass, Seasand grass.

We think these statements fully justify our description which was based on local observation and render any further comment unnecessary.—We are, dear sir, faithfully yours,

LAW SOMNER & CO.

P.S.—By this mail we are sending you our catalogue thinking you may feel interested in the timber trees of Australia now being largely introduced into India and South Africa, see pages 98, 99 and 100.

L. S. & Co.

[The above letter refers to an extract given some time ago by a correspondent from a colonial journal praising "Maram Grass" for fodder purposes.—The catalogue sent us is a very full one and the list of the "Hardwood Timber Trees of Australia" is particularly attractive.—ED. *T.A.*]

NEW LONDON CUSTOMS RULES: TEA TARING IN LONDON.

(*General Order 42, 1900 Customs House, May 28th 1900.*)

Tea Taring.—Regulations as to weighing with an added half-pound weight, increase in number of "Tarers" for averaging, and separate taring of bulked tea.

(1) The Board direct that, on and after the 1st June, 1900, in taring whether separately or for averaging purposes, any package of tea of which the gross landing weight was more than 28 lb. the weight of the empty package be ascertained as follows:—

When the scales have been carefully balanced, a half-pound weight is to be placed in, or attached to, the weight scale. The weight of the package must then be taken to the pound only, the weight scale preponderating according to the usual practice in taring. The half-pound weight placed in the scale is to be ignored in recording the tare.

(2) The Board further direct that, for average taring, the number of packages for "Tarers" prescribed by paragraph 61 of General Order, 127/1892, be increased as follows:—

When in a chop or bed, the number of packages of the same size and description of tea is

	20 or less	3	tares to	be taken	and
from	21 to 60	5	,,	,,	,,
,,	61 ,, 120	7	,,	,,	,,
,,	121 ,, 400	9	,,	,,	,,
,,	401 ,, 700	11	,,	,,	,,
,,	701 and upwards	13	,,	,,	,,

Two or more beds in one chop may be tared together on the foregoing scale.

(3) Every package of tea bulked in the United Kingdom shall be separately tared.

General Order 102/1894, respecting taring of bulked teas, and the as yet suspended London Port Order 39/1899 are hereby cancelled.—By order of the Board, (Signed) John Courroux.

A NEW TEA DISEASE.

Mr. A. Brown, of the Glenfruen Estate, Devala, brought before the meeting of the Planters' Association in Ootacamund on the 10th instant, the correspondence that has passed between himself and the District authorities regarding the ravages of a new tea malady of a fungus character. It appeared in May of this year in a nursery, and destroyed no less than 75,000 seedlings. In 1898 and 1899 Mr. Brown's seedlings perished, as he supposed, at the time, from drought, but as he now suspects from this new disease. He addressed Dr. Watt on the subject last year and forwarded samples of the diseased seedlings but these were not received in a condition to admit of examination when Dr. Watt returned to Calcutta from Burma, and he therefore was not able to accurately determine the disease. Dr. Watt sent some of the seeds to England, and received a reply in May last, from which he gathered that the seedlings were affected by eelworms. This malady, he said, was of a very alarming nature. For some years past it had been rapidly extending all over the world, and attacking every class of plant. Dr. Watt further informed Mr. Brown that his were the first samples of tea affected by the disease that he had received, remarked that he had met with what appeared to be eelworms in coffee during his late visit to the Wynaad, and concluded by asking that fresh samples of the diseased plants might be sent, promising to offer suggestions as to treatment. In an earlier communication on this subject, Dr. Watt recommended washing the plots affected thoroughly and repeatedly with Bordeaux mixture, which consists of 50 gallons of water, 6lbs. of copper sulphate and 4 lbs. of unslaked lime.—*Madras Mail*, July 12.

AGRICULTURE IN THE WEST AND EAST.

We cannot forego the pleasure of publishing the following gratifying letter received by a recent mail from Dr. Morris, C.M.G., Imperial Commissioner for Agriculture in the West Indies:—

Imperial Department of Agriculture for the West Indies, Barbados, 30th May, 1900.

I am in receipt of your letter of the 20th April, and I am greatly concerned to find that you have not received the publications of this Department. Your name was amongst the first to whom I had arranged to forward every thing published at this office. I cannot understand how it is that our sendings have gone wrong.

I have pleasure in forwarding, by this mail, copies, of the "West Indian Bulletin" Nos. I and II, and a Pamphlet issued on "Moth Borer in Sugar Cane." The third Number of the "Bulletin" will be out in the course of another week and a copy will be sent to you in regular course. I assure you that I shall be happy at all times to be of service to you in this part of the world, as I entertain the warmest appreciation of your kindness in regard to everything connected with the *Ceylon Observer*, and your numerous publications on planting subjects in the tropics.—With very kind wishes. Believe me, Very sincerely yours, D. Morris.

IMPROVEMENT IN TEA MANUFACTURE.

It is very satisfactory to know that "perfection" has, by no means, been attained, in respect of the various processes observed, or in the final result as regards the preparation of the tea leaf for market and consumption. There is plenty of room in several directions for the exercise of the inventive faculties, of our planters, engineers, etc. And it is especially interesting to note that the latest alleged improvement—and patent machine—comes from a gentleman who bears an historic name in the mercantile and pioneering annals of Ceylon. Mr. John Armitage, in the "forties" and "fifties," was one of the most prominently enterprising and successful of our colonists: he had brought from South America a great deal of experience to turn to account here; and he rapidly became a leader among our merchants. The present inventor of an improvement in tea manufacture is his son, Mr. H. T. Armitage, and elsewhere we take from our evening contemporary, an interesting account of the process. We shall be glad to learn what other practical planters think of it. Already it has secured a special measure of success; and we heartily trust it will do for many more estates, what it has realised for Dunbar in raising the average value of its teas, some nine cents per lb.

OVER PRODUCTION OF TEAS.

To the Editor of the *Home and Colonial Mail.*

SIR,—It would perhaps be unnecessary to reply to Mr. Hughes' letter in your last issue, were it not that he appears—unintentionally, no doubt—to have drawn wrong inferences from my letter, in order to air his hobby of manuring.

I pointed out that the average fall of one farthing per pound per annum for ten years was due to the rapacity of dealers rather than to over-production, but that over-production was clearly the cause of the recent much more rapid fall. Mr. Hughes says the steady fall is probably due to a decline in quality. But the fall has been in both Indian and Ceylon teas, practically the only teas consumed. The prices of 1s, 1s 4d, and 1s 7d, seem fixed to consumers. If rapacity has nothing to do with this steady fall, where do dealers buy the finer and dearer teas to blend with the teas of Ceylon and India so as to justify the same price to consumers as was charged ten years ago, when teas cost them 3d. more?

I did not say teas made in July were inferior—on the contrary we know they are about our best teas. I did say the most certain method of improving the price was to keep a month's crop off the London market. This merely to emphasize the fact of over-production.

He who would advise general manuring under present circumstances, with the certain result of further over-production, would deserve to rank with those who refuse help to drowning men, unless such help is paid for. I quite agree with Mr. Hughes when he says "there is plenty of scope for a higher individual price." But where is the foolish Quixotic dealer who would pay this higher price while over-production is rampant. Again, a general, not individual, higher price is necessary to sustain the industry.—Yours faithfully, WM. MACKENZIE.

July 4, 1900.

TEA SAMPLING.

TO THE EDITOR OF THE HOME AND COLONIAL MAIL.

SIR,—I venture to draw your attention to a matter which in my judgment merits the strongest condemnation, namely, the manner in which tea is sampled at present in many of the dock warehouses. A dealer buys a break of, say, 100 chests in sale, on a sample which possibly weighs three ounces. Immediately after sale he sends to the warehouse for, say, eight pounds from eight of the chests; and the supposition has always been that the dock company opened eight chests and furnished him with a pound from each, charging 4d per chest for the service rendered. But, can it be believed that in numbers of tea warehouse two or three pounds are taken from one chest—possibly from a chest already open, so that the benefit to the buyer of getting eight separate samples from as many different chests, not previously sampled, to enable him to check his purchase, is entirely lost. But he is nevertheless charged 4d. per package for opening eight chests, and at the same time deprived of the power to ascertain if the bulk is equal to sample or whether the break is regular in quality or not; in fact, it is quite possible for the dock company to scamp the bulking of the tea, and escape detection afterwards till the buyers chance of establishing a claim for irregularity has lapsed under the public sale conditions. Surely this is a matter which the Brokers' Association should look into if the honourable traditions of the tea trade are still to be maintained.—I am, &c,

D. F. SHILLINGTON.

THREE NEW SPECIES OF EUCALYPTUS.

By R. T. Baker, F.L.S., Curator, Technological Museum, Sydney.

Eucalyptus Oreades, sp.nov. A "Mountain Ash."—A tall tree with a smooth whitish bark down to the ground, or sometimes leaving a lighter rough bark 6—8 feet from the ground.

E. Maculosa, "Spotted Gum."—A tree rarely exceeding 60 feet in height, usually from 20—40 feet (W.B.). Bark smooth to the ground.

Eucalyptus Patentinervis, "Bastard Mahogany."—A medium-sized tree as far as seen, with a stringy bark similar to that of *E. resinifera* Sm

ON TWO NEW SPECIES OF CASUARINA.—By R T Baker, F.L.S., Curator, Technological Museum, Sydney. From the proceedings of the Linnean Society of New South Wales, 1899, Part 4, October 25th. Casuarina Cambagei, sp. nov.—"Belah."—A tree attaining a height of from 70 to 100 feet, diœcious, glabrous; branchlets glaucous or dark green in the slender form, ascending, internodes varying in length up to half an inch; not prominently angled. Casuarina Luehmanni, sp. nov.—"Bull Oak."—A fair-sized tree, attaining a height of 70 to 80 feet, or rarely 100 feet, and a diameter of from 1 to 1½ feet, rarely 2 feet. Bark furrowed, brittle, and easily removed. Branchlets robust, light coloured or glaucous, under a line (¾) in diameter, about the same thickness as in *C. glauca*, Sieb. the internodes ribbed, 6 lines long, glaucous, the nodes yellow, sheath-teeth brown or black, short, acute, 9 to 12 in the thorl, mostly 11.

BRAZIL COFFEE NOTES.

Telegrams from abroad state an accord has been reached between Brazil and Italy in regard to the duties on Brazilian coffee. It is also said that France has consented to knock off 20 francs, which in our opinion is not sufficient.

The *Commercio de S. Poulo* of the 23th ult., says that recent torrential rains have greatly prejudiced the coffee crop in the Ribeirão Preto district. At Mocóca and other points the rains have knocked off much fruit, the damage being estimated at one-third of the crop.—*Rio News* June 5.

A São Paulo telegram of the 10th inst., says that in three Italian steamers 3,000 Italian laborers had left that state for Italy. This at the beginning of the coffee picking season is a bad sign. The planters cannot be managing well if laborers are leaving the country just at the time when they are most wanted.—*Rio News.*

AMERICA TO GROW GREEN TEAS!—Just as we in Ceylon are making every effort to send green teas to the American continents, lo and behold! the black-tea-producing country in South Carolina intends to take up the pursuit. We quote as follows from the *Planter* of June 7th, but let no local planter be alarmed, in spite of the apparent success of the Carolina plantation:—

Dr. Charles U. Shepard, Special Agent in charge tea culture investigations, writes to us from "Pinehurst," Summerville, South Carolina:—"The experimental irrigation which I am now introducing into my tea gardens should materially increase the leaf production. According to my best results, it would seem possible to produce decidedly more than 500 lb. of dry tea per annum per acre. Can you favour me by sending any printed data as to the best methods followed in India in the manufacture of *Green tea*? . . . As yet I believe no good results have followed the attempts to apply mechanical processes to this manufacture."

DIMBULA VALLEY (CEYLON) TEA COMPANY, LD.

ANNUAL REPORT.

Directors' Report to be submitted to the Shareholders at the fourth annual ordinary general meeting to be held at the Cannon Street Hotel, on Monday, the 25th day of June, 1900, at 12 o'clock noon. The Directors beg to submit the General Balance Sheet and Profit and Loss Account for the year ending 31st March last. After bringing forward £802 12s 9d from last accounts and providing for general expenses, London office expenses, and £500 for depreciation, the net amount at credit of Profit and Loss Account is £18,894 5s 8d.

	£	s	d
Dividends aggregating 6 per cent. less Income Tax have been paid for the 12 months on the Preference Shares amounting to ..	£3,440	2	0
An Interim dividend of 4 per cent, less Income Tax on the Ordinary Shares, has been paid, and amounted to ...	4,586	12	0
It is proposed to pay a final dividend of 6 per cent on the Ordinary shares making 10 per cent. for the year, and which will amount to	6,879	13	1
It is proposed to carry to a Reserve Fund	2,000	0	0
Thus leaving to be carried forward to next year a balance of ..	1,987	13	7
	18,894	5	8

The past season was a normal one in the Dimbula District, the yield from the Company's estates being at the rate of 512 lb. per acre from tea in bearing, or a total of 1,079,829 lb. against the previous year 930,281 lb.

The cost of cultivation and placing the crop on board ship in Colombo was 25·77 cents per lb. as against 29 cents for '98-'99 crop.

The total crop realised (including 110 cwt. coffee) £42,558 10s 7d or an average for the tea of 9·49d per lb., against £39,127 13s 4d or 10·09d per lb. the previous year. Exchange averaged 1/4 15/32 per rupee, against 1/4·29.

The freight, warehousing and selling in London, including Fire and Marine Insurance from the field to the prompt date, cost ·90 of a penny, and too much credit cannot be given to the Agents for their care and economical working.

The estates are as usual in a good state of cultivation, and the thanks of the Company are due to the Manager and his Staff for the ready and willing manner in which they have co-operated with your Board to this end.

To be in accordance with the usual custom of Tea Companies, and to facilitate the operations on the estates, the Directors consider it advisable that the Financial Year be closed on the 31st December annually, instead of 31st March as at present. They propose bringing this alteration into effect forthwith, making the present year one of nine months only.

During the year Mr. T C Owen was elected a Director in the place of the late Mr. C J Rowe.

Mr. W Forbes Laurie retires by rotation, but being eligible, offers himself for re-election.

Messrs. Singleton, Fabian & Co., the Auditors to the Company, retire, and being eligible, offer themselves for re-election.

JAMES SINCLAIR, Managing Director.
BERTRAM F. WHITE, Secretary.

14th June, 1900.

BOGAWANTALAWA DISTRICT TEA CO.

ANNUAL REPORT.

Report presented at the Third Ordinary Annual General meeting of the Company, held at the office of the Company on Wednesday, 27th June.

The Directors have the pleasure to submit the balance sheet and accounts of the Company for the year ending 31st March 1900, duly audited.

The yield of Tea largely exceeded the estimate and the cost of production has again been reduced, but the average price of the Tea sold in London compares unfavourably with that of the previous year, the market having been very dull for the last three months.

The Ceylon expenditure includes £300 13s 7d spent on planting 84 acres with Tea and felling and clearing a further 13 acres, as well as £420 13s 2d the cost of a new Turbine and of altering the watercourse in Elbedde.

The total yield was 1,209,451 lb. Tea plucked off 2,185 acres, of which 1[illegible]4 acres are only in partial bearing, being at the rate of 553 lb. per acre all round, costing free on board at Colombo 22·61 cents or 3·69d per lb. The gross average price of the 1,186,433 lb. sold in London was 7·98 per lb.

The crops for the current season are estimated at 1,121,000 lb. tea.

The gross average at which drafts were negociated was 1/4 5-16 per rupee against 1/4 5-32 and 1/3 9-19 in the two previous seasons.

The Directors desire to place on record their appreciation of the services of their Manager and his staff in Ceylon.

STATEMENT SHEWING RESULTS OF WORKING FOR THE THREE YEARS ENDING 31ST MARCH.

Season.	Acreage Plucked.	Total Tea Crop.	Yield per Acre.	Cost of Crop per lb. f.o.b., Colombo.	Gross average per lb. Tea sold in London.	Average rate of exchange per Rupee.	Dividends Preference.	Dividends Ordinary.
	Acres.	lb.	lb.	d.	d.			
1897-98	2,041	994,413	487	4·22	8 20	1/3 9-16	6	6
1898-99	2,081	1,031,782	495	4·12	8·71	1/4 5-32	6	7½
1899-00	2,185	1,209,451	553	3·69	7.98	1/4 5-16	6	7½

The Profit for the year amounts to ..		£15,241 14 0	
To which has to be added Interest ..		100 14 6	
And the Balance from last year of	£1,061 14 7		
Less Income tax, 1898-99 ...	435 1 4		
		626 13 3	
			£15,969 1 9
Interest on the Mortgage Debentures has been paid, *less* Income Tax ...		406 0 0	
Dividends on the per cent. Preference Shares for the 12 months were paid on the 11th October, 1899, and 2nd April, 1900, *less* Tax ..		5,394 0 0	
An Interim Dividend of 2½ per cent. on the Ordinary Shares was paid, *less* Tax, on the 10th January, 1900 ..		2,416 13 4	
Income Tax to April, 1900, has been paid ..		466 11 4	

It is proposed :—

To pay a final Dividend of 5 per cent. on the Ordinary Shares, making 7½ per cent. for the year, which will require *less* Tax ..	4,833 6 8	
To transfer to Reserve (increasing this account to £3,000) ...	1,500 0 0	
And to carry forward to next year the balance of ..	952 10 5	
		£15,969 1 9

The Director retiring on this occasion is Mr. Alfred Tabor who being eligible offers himself for re-election.

Mr. John Smith the Auditor also retires and offers himself for re-election.

ROBERTSON, BOIS & Co., Agents & Secretaries.

SCHEDULE OF THE COMPANY'S ESTATES.

Estate.	Tea, full bearing.	Tea, partial bearing.	Tea, not in bearing.	Forest.	Grass.	Chena and Patena.	Total.
Kirkoswald	756	—	22	*87	12	—	877
Bridwell	382	—	36	35	5	15	473
Elbedde	605	100	—	27	15	—	747
Bogawana	338	4	26	44	6	18	436
Total	2,081	104	84	193	38	33	2,533 acres

*About 13 acres felled and prepared for planting with Tea.

CEYLON ESTATES INVESTMENT ASSOCIATION, LIMITED.

ANNUAL REPORT.

The Directors beg to submit the Accounts for the year ending 31st March 1900. The crop harvested amounted to 296,673 lb or 59,521 lb in excess of the previous year. The average price obtained was, however, about ⅝d per lb lower.

The Balance at the credit of Profit and Loss Account, including £207 15s 11d brought forward from last year is	£1,879 10 8
which the Directors propose should be applied in payment of a Dividend at the rate of 5 per annum, free of Income Tax,	1,550 0 0
and that the balance of	£329 10 8

be carried forward to next year.

The Directors who retire at this time in conformity with the Articles of Association are Mr. Robert King and Rev. Peter Grant, D.D. They are eligible and offer themselves for re-election, and the Directors recommend the election of Mr. Gavin Whitelaw as Director. The Auditors, Messrs. Moores, Carson & Watson, C.A., also retire, but are eligible to be re-appointed.

ROBERT KING, Chairman; BROWN, FLEMING and MURRAY, Secretaries.

DUMONT COFFEE COMPANY, LIMITED.

ANNUAL REPORT.

Report to be presented at the Fourth Annual General meeting of the Dumont Coffee Company, Limited, to be held at Winchester House, Old Broad Street, London, E.C., on Friday, the 22nd day of June, 1900, at 12 noon.

The Directors submit the General Balance Sheet and Profit and Loss Accounts for the year ending 31st December, 1899. The profit for the year amounted to the sum of £11,761 4s 5d; carried forward from 1898, £2 325 8s 3d=£14,086 12s 8d. Interest at 5½ per cent per annum has been paid on the Debentures amounting to £21,989 0s 0d; interim dividend on the Preference Shares paid in July, 1898 (together with income tax th reon), brought forward in the balance sheet last year £15,000 00d=£36,989 0s 0d; leaving a balance proposed to be carried forward of £7,097 12s 8d. The coffee crop amounted to 93,301 cwt., against 41,476 cwt, for the previous year. Of this, 31,687 cwt. were sold in London, and the remainder in Santos and New York. The gross average price realised for all the Coffee was equivalent to 29s 4½d, landed in London, taking the exchange at 7½d per milreis, which is the rate fixed by the and tors for the year's accounts. During the greater portion of the selling season, the coffee market was at a lower level than ever recorded during the last half-century, and for this reason, the average price obtained for the Company's crop was unfortunately extremely low. The spot price for good average Santos coffee for the five months, June to October, 1899, was 26s 10d per cwt., the rise in the coffee market not taking place until the end of 1899, and the beginning of 1900, by which time the greater portion of the Company's crop had been sold; the present price is about 38s 6d per cwt. As the Company's pulped coffee formed the greater portion of the earlier part of the crop, it obtained a lower average than the unpulped coffee, which did not come forward for sale until the latter part of the season. The Directors have satisfaction in recording that the large crop of 93,301 cwt. was well harvested in good time, which was due to the now completed railway system over the property, and to a well organised labour force under European management. The Shareholders will be glad to know that "Dumont" coffee has established a good name in European markets on account of its superior flavour as compared with Santos coffee generally, and now commands a better price than other Brazilian coffees on the London market. This the Directors consider attributable to the complete system of drying grounds and strong sheds with which the properties have been equipped, as well as to the careful work of the staff. Mr. G A Talbot visited the property in September last, in accordance with the desire of the Shareholders as expressed at the last annual general meeting. He was then able to go carefully into all details of expenditure with the Company's manager and staff, with the result that the Directors have been able to effect economies in working. The manager reports favourably on the condition of the coffee trees, both old and young, and estimates the current crop at 75,000 cwt., which at present prices would yield a considerably increased profit as compared with the year under review. The weather recently has been somewhat unfavourable, but cabling on the 31st May last, the manager reports:—"I have hope that 'Dumont' estimate may probably be obtained." There are now 10,918 acres in bearing, and 2,343 acres of young coffee, making a total of 13,261 acres planted. Major F B McCrea and Mr. C A Carlisle have, since the last meeting, ceased to be Directors of the Company, and Mr. Stratten Boulnois has been appointed to a seat on the board. Mr. H K Rutherford and Mr. G Talbot are the retiring Directors, and, being eligible, offer themselves for re-election

KELLIE (CEYLON) TEA PLANTATION COMPANY.

ANNUAL REPORT.

The following is the report of the directors submitted at the meeting held on the 5th inst., for which we are indebted to Messrs. Aitken, Spence & Co.:—The directors beg to submit herewith the accounts for the year ending March 31st, 1900.

The balance of profit and loss account, after writing off 10 per cent. depreciation in value of machinery and buildings is (including £333 7s 9d brought forward from last year)..	£842	1	0
Out of this sum the Directors recommend a dividend of 3½ per cent. on the preference shares	350	0	0
Leaving to be carried forward to next year	£492	1	0

The tea crop for last season amounting to 345,220 lb. is largely in excess of any past year, mainly attributable to the careful application of artificial manure on different parts of the Estates. The Directors purpose continuing the treatment as may be required.

Prices for tea have not been maintained, and the average of the Company's crop is barely 5½d per lb., against fully 6¾d per lb. last season. This has negatived almost entirely the profit which was expected from the increased yield.

The Directors have excellent accounts of the cardamom clearing, and have decided to increase it from 40 acres to 70 acres. This work is now in hand. A small quantity of cardamoms have been taken off the 40 acre clearing, which shews good quality.

The Engine and Boiler being too small for present requirements, besides being considerably worn after so many years use, the Directors have decided to replace at a cost of between £500 and £600. The order has been entrusted to Messrs. Brown & May.

One Debenture Bond for £500 has been paid off during the year. Mr. Spence retires, by rotation, from the Direction, and being eligible, offers himself for re-election. The Auditors, Messrs. Brown, Fleming and Murray, also retire, and offer themselves for re-appointment.

Rhea Again.—We have not lately heard much of rhea locally; but with the Northern line open, we should hear more of it in a few years. The following news published by the *Friend of India*, is encouraging:—"A new demand, which promises to be permanent, has arisen for rhea. Messrs. Thirkell & Co., of Fenchurch Street, London, have written to the Secretary and Curator in the Indian Section of the Imperial Institute, to say that they are prepared to take at £15 per ton, all the rhea ribbons that India can produce for some years to come, and they offer to supply at £40 each, decorticators which are capable of preparing about ten cwt of stuff a day. Government has been asked to foster the cultivation of rhea as much as possible. In forwarding the correspondence on the subject to the Bengal Chamber of Commerce, Dr. Watt, the Reporter on Economic Products, observe that Messrs. Thirkell & Co. require the rhea ribbons in ther crudest form."

TEA ESTATE CULTIVATION IN CEYLON.

(*By Chairman Dimbula Valley Co., Mr. John Sinclair.*)

THE QUESTION OF USING ARTIFICIAL MANURES

I shall quote a paragraph from an otherwise interesting circular issued by a firm of tea brokers, Messrs. Gow, Wilson nda Stanton, to whom, by the way, tea planters owe much for information which they evidently spare no trouble or expense in obtaining from all parts of the world. The paragraph is as follows:—"Again have producers asked themselves whether manuring will develop permanent strength and vigour sufficient to withstand the strain of continued pluckings, especially in the event of over-production reducing the prices so low that artificial manure cannot be afforded." Now, apart altogether from scientific opinion, the question has been abundantly answered by exp-rience of at least twelve years that artificial manures not only do not develop weakness, but absolutely the reverse, even when pplied with the specific object of increasing the yield, and that by these repeated applications not only are the owners of estates not living on their capital—as it was rather inaptly termed by a gentleman recently in explaining to his shareholders his ideas on the subject, and to whom I shall have presently to refer—but, as I will show, are adding to the capital value of their gardens. If tea drops below the price at which artificial manure can be afforded, woe betide those gardens, which, without it, never yield over 300 lb. per acre. I will tell Messrs. Gow, Wilson and Stanton that but for the use of the very manure they depreciate, a very large number of tea gardens could not for some time now have met expenditure, to say nothing of leaving profit. There are many gardens which have been, by the judicious use of artificial manure, brought from maximum crops of 300 lb. per acre per annum to 700 lb. and over yearly—the former only capable of being laid in London at about 6d per lb. and which, whilst the average price was 8d, left some profit, but which for some time now, and certainly today, would barely have paid cost of production; while 700 lb. has been put in London for less money—namely, 4½d to 4¾d per lb., also a better tea, and even today leav something for profit—the bushes, too, after all those years of the treatment I speak of, as vigorous as could be wished for, in fact, raised in many cases from having a low job appearance to the very best. Whatever apperehension is professed by some, a walk round the gardens I refer to will demonstrate to the merest tyro that there is no sign of defunction about, and those who saw the places prior to manurial applications can have but one opinion—namely, that the estates are better in every way, and look like lasting longer than non-manured ones.

SCIENTIFIC OPINION.

Now for a little scientific opinion. Probably many of you will have heard of the discussion which has taken place in Ceylon regarding a speech made in London by a director of a large and successful tea Company at a recent meeting of shareholders, the purport of which, I rather gather, took the shape of a warning to planters and those interested in tea to avoid the use of artificial manures, or, to put it more correctly, forcing manures, otherwise the effect would be

dangerous. Now I think I know most of the fertilisers used and the quantities applied, and in no case is there, in my opinion, an approach to overforcing. Now, as more weight may be given to this gentleman's words than they are entitled to, and holding the position he does in one of the most successful tea companies in Ceylon—a success, as he would be the first to admit, not in any sense owing to the exercise of special acquaintance with manuring operations applied to tea—I cannot let his views pass unnoticed, especially as he quoted, in support of them, the authority of perhaps the greatest living scientist of the day—namely, Sir John Lawes, Bart., of Rothamsted. It is of the greatest importance that it be known that the gentleman I refer to has evidently misunderstood Sir John. I trust, therefore, you will bear with me in giving you the facts regarding that, as well as my own opinions derived from a practical experience of 40 years of agriculture in this country and in Ceylon. The director I refer to was telling his shareholders and the world the policy he recommends in the cultivation of that company's gardens, and warning all and sundry against the use of artificial manures, more especially sulphate of ammonia, as being too foreing and exhausting. He winds up with the following words.—"I have also consulted Sir John Lawes, who, you all know is a great authority on agricultural chemistry and he deprecates the use of forcing manures, such as sulphate of ammonia, as being undesirable to use." Now, gentlemen, this rather astounded me, for I have kept myself all these years fairly in touch with the experiments made by Sir John Lawes and his collaborateur at Rothamsted, and applying what I had gathered from that source to tea cultivation, I felt that either the gentleman had not supplied Sir John with all the data which would be necessary for him to form an opinion as to what would be the most suitable manure for the tea plant, with which he (Sir John) had probably no practical acquaintance, or what was even more likely, that Mr. ——had misunderstood what had been said to him. I wrote to Sir John to that effect, giving him all the information I could regarding the tea plant, and I quoted the opinion which had been attributed to him in the abovementioned speech.

SIR JOHN LAWES'S OPINION.

It was as I had supposed, but his letter speaks for itself. It begins :—"I regret to find that Mr. ——has somehow mistaken my views in regard to the character of manures suitable to the tea plant. This is rather singular, as I told him that some very fine Peruvian guano, said to contain 8 to 10 per cent. of ammonia, had been imported, and I thought it would be a valuable manure for the tea plant. Except tobacco, I should think that the tea plant would require a greater abundance and more forcing manure than any other crop grown." There is more to the same effect, but that, gentlemen, is Sir John's opinion. I would only add that the utmost care should be exercised by planters in obtaining opinions from scientific authorities on points on which, without all the data, it is impossible for them to arrive at a correct conclusion; and when they do obtain it to be sure they understand it, otherwise, as in the case I mention, much harm may follow. If a scientist in agriculture, who never saw a tea bush growing or cultivated, were asked whether this or that manure would be too forcing or cause exhaustion in the long run, the answer would probably be :—"Yes," because he could only bring to bear on the subject his knowledge of what those manures would do for a turnip, wheat or hay crop; but there is a great difference. A tea bush on your properties is pruned, or more correctly speaking, is cut across the hard wood say, 2 feet or less from the ground; the next knifing it gets is 24 months after! In the meantime it has thrown out shoots and grown up to a height of 5½ feet and has produced something like 4,000 lb. of succulent leaf per acre, which, when manufactured, turns out 1,000 lb. of tea. This, gentlemen, is all that is removed from the soil—namely, 500 lb. per acre per annum; the bush before pruning has a mass of green leaf and stalk, as well as matured wood, which, when cut off, weighs not less than 5 lb. per bush, or a total per acre of 20,000 lb., which, if dug into the soil, probably returns more plant food to the roots than has been removed in crop, and for the reason that the tea bush derives a great deal of its nourishment from the atmosphere, the larger proportion of which, along with that derived from the soil, being returned to it in prunings. There, gentlemen, is all the difference between the tea and the hay, wheat and turnip crops which are entirely removed from the soil, and to which if forcing manure only were applied the soil would cease to respond. The tea bush is not usually grown for its seed, which is, of course, a greater strain than growing leaf only. Were it grown for seed production, stimulating manures would have to be avoided. The finest soil, whatever the altitude above sea level, produces in greatest abundance the highest class of tea—that is, the soil which contains in an available form for assimilation by the roots all the different ingredients required for the plant's nourishment. If it is not there in its proper proportion or if any are wanting you will never get a healthy bush or a good tea. Place them within reach of the roots and you constitute a condition even in poor soil which will give you a higher class of tea than your neighbour who does not.

THE MAIN CAUSES OF EXHAUSTION.

You will naturally ask. Why require to add anything further than your prunings, since you say your tea crop does not exhaust the soil? Well, if cropping were the only cause of exhaustion that might be pertinent, but there are two other sources vastly more impoverishing than that of the removal of 500 lb. per annum of tea crop, and these are points which men, seeking aid from a scientist in this country, should not overlook, these are—however well drained the field may be—the removal of the soil by the tropical showers falling on our steep hill-sides and carrying it to the rivers; and even worse than that, the washing in solution to the nearest drain of much of the food ingredients. It is a mistake to suppose that during the heaviest rain, even although wash is not apparent on the surface, it all sinks into the soil; a great deal of it oozes below the surface—carrying, as I say, in solution, much plant food—to the nearest drain, especially where surface soil has been disturbed for manuring purposes. This can often be proved by the appearance of a saline deposit on the upper side or walls of the drain. Entirely different is the case in this country; rarely, if ever, is soil washed away, and rain which falls on the comparatively flat fields finds its way to the subsoil drains, and carries little or nothing away in solution. In tea fields there is no such thing as a subsoil drain

they are open surface drains and act in the manner stated. These, in my opinion, are the main causes of exhaustion on Ceylon tea gardens, and is the reason why additional fertilisers, other than prunings, become necessary in a lesser or greater degree, turning on the configuration of the field and the methods adopted immediately after planting, to stem the wash of soil as well as to protect as much as possible this oozing away by the heavy rains we are subject to. Old coffee estates, such as those I spoke of as yielding but 300 lb. an acre, which suffered from both causes, besides from heavy coffee crops, could only have paid as tea estates for the last year or two by the use of fertilis rs, and proprietors of such would indeed be short-sighted to give up their manuring operations with the idea of leaving a better margin of profit. But there is another class of garden, such as those comprising the Dimbula Valley Company's, or, indeed, the bulk of those which were in the coffee days called the young districts, taken from jungle between the years 1865-1885, and which, owing to leaf disease, had their coffee fields denuded of coffee before exhaustion from cropping could take effect, and which by experience gained in the older districts, whereby protection from wash was seen to be imperative, were drained, even before planting with coffee, and so had their original soil practically untouched when the tea plant was substituted for coffee. This is another class of garden, requiring different treatment and justifying a different aim altogether from that followed on the older estates.

THE POLICY OF THE BOARD.

As this is what must interest you, as proprietors of the Dimbula Valley Estates, I will now explain the policy we have hitherto followed in cultivating your properties, and which will assuredly be followed, if I can have my way, so long as I have anything to do with the management. It is well known that if tea bushes on such gardens can be kept in condition, the more frequently they can be plucked the better will be the class of tea produced. Well, our aim is in this direction, and if by plucking every eighth day, or even less, all the year round, you can succeed in getting a strong and vigorous flush—by helping the bush with fertilisers—every eight days, instead of, perhaps, every ten or twelve, you will get, not a larger quantity, but the same quantity as if the bush got no assistance, but of a much higher class of tea. I think it would be a great mistake on an estate with a normal yield of about 500 lb. an acre, without assistance from manure, to add manure in order to get 700 lb. or 800 lb. of inferior tea, which latter is perfectly possible on such estates. Support your bushes for quality, not quantity and in doing so you will in your prunings return more to the soil than is removed in crop. This, gentlemen, is the policy which we are carrying out on your estates, and if the proprietors or company who go to sleep at such a time as we are passing through in tea do not wake up, but adopt some retrograde policy such as that advocated by Messrs. Gow. Wilson and Stanton, woe betide them. You will see that our yield last season was but 512 lbs. per acre, whilst it could readily have been made one-third more. You see, its cost f.o.b. was 25·77 cents per lb. You also see our net profits, and can therefore quite easily judge whether the policy we are carrying out is a sound one. I have no manner of doubt myself, and I am sure the best experts will agree with me.—*Financial Times*, June 26.

TEA TRADE OF KIUKIANG IN 1899.

The annual reports of Mr. T F Hughes, Commissioner of Customs at Kiukiang, are always worth reading, Mr. Hughes's long experience and his habits of observation making his remarks on the course of trade as interesting as the facts on which he bases them. When Kiukiang was opened to foreign trade, it was prominently a tea port; its prominence in this direction dwindled away as the United States took to drinking Japanese tea and Great Britain Indian and Ceylon tea. But Mr. Hughes thinks that the tea business is not irretrievably lost. He says:—

The export of Black Tea in the year under review amounted to 131,145 piculs, or more than 9,000 piculs in excess of the quantity in the preceding year which was itself an advance on the figures of the year before. Brick Tea has also been steadily progressing during the last few years: its export in 1897 was 32,839 piculs, in 1898 it advanced to 33,831 piculs, whilst in 1899 it totalled 43,352 piculs. Green Tea also shows signs of improvement, but as it chiefly passes through this port now to be dealt with at Shanghai, it need not be further dwelt upon here. The reports by experts on the Tea market of the year under review are not so rose-coloured as our figures might lead one to expect. It seems the Keemuns were not, on the whole, as good as in the previous year, whilst the Ningchows were disappointing, the famous Ningchow district, in fact, being likely to be outdone by the preference shown nowadays for the stronger Hankow Oanfa district Teas. A gentleman well versed in the trade favours me with the following interesting remarks:—"The demand for Indian and Ceylon Teas is growing more and more all over the world, and as Chinese teamen refuse to introduce machinery, it is only a matter of time until the China Tea trade dwindles down to a very small item. To an educated palate a fine Keemun is much preferable to Ceylon or Indian; but it is 'strength' (strong cup) that the public now calls for, and the Indian and Ceylon Teas supply this, owing to careful cultivation and machinery preparation. The export of Indian and Ceylon Teas to Russia (hitherto China's biggest Tea customer) is increasing by leaps and bounds." This authority evidently believes, like many others, that by the aid of machinery and more careful cultivation, the Chinese could easily produce Tea in abundance, to suit the present taste of the public, just as Ceylon and Indian teamen do; and if the Government went further and did what other Governments, with such an ancient and valuable industry to revive and foster, would be almost sure to do, namely reduce the export taxes and duty, it is, I think, almost certain that the Tea export from China would ere long regain its old supremacy; indeed it would be hardly too much to say, anomalous as it may appear, that the very reduction of the Tea duty would, by the expansion it would create in the export, before long increase the Tea revenue, whilst the augmented wealth and prosperity of the producing districts would give an impetus and activity to general trade which would be far-reaching in its effects, and would ultimately redound to the well-being of the Government and the country.—*N.-C. Herald*, June 27.

"The Sulphate of Ammonia" misconception, as finally described by Mr. Melville White, elsewhere, does not reflect credit on Mr. G. A. Talbot's estimate of the amount of commonsense appertaining to his brother-planters. To suppose that anyone applied this artificial manure by itself for a series of years to tea, and that it was to have the same effect as on grass land at home, is rather too—too much altogether!

PLANTING NOTES.

Tea Planting: Guatemala and India Contrasted.—Tea planting in the Guatemala, we are aware, could never become a great industry, but we merely mention the fact of the desire of the Government of that State to develope the resources of the country, whereas in this highly civilised land it is the other way about. Every possible check is put to the progress and growth of private enterprise by Europeans, whom the jealous officials still appear to regard in the light more or less of interlopers.—*I. P. G.*, July 14.

Green Teas.—We hear of considerable activity in a number of factories towards beginning the manufacture of green teas; and it is quite expected that half a million lb. will be exported by the end of this year and not less than two millions of "greens" next year. If India gives a fair trial (and its offer of about nine cents a lb. should be an inducement) and makes three or four millions lb., by the end of 1901, the American market should be fully tested so far as British-made "greens" are concerned.

Empire of India and Ceylon Tea Company (Limited).—The report for 1899 states that for the greater part of the year there was good seasons to expect satisfactory results, but at the height of the selling season the market value of medium and fine teas fell heavily, and the fall in price from the beginning of November represents a loss of fully £10,000. The excess of the Indian crop over the outturn of the previous year affected general prices unfavourably, except those of low grades which were maintained by exceptional causes. The mismanagement reported to the shareholders last year necessitated heavy expenditure on some of the gardens in order to bring them up to a high state of efficiency. The net profit for 1899 is £19,853, to which must be added £146 brought forward, together £19,999 After providing for the dividend on the preference capital there will remain a balance of £9,049. The directors recommend a final dividend of 3s. 6d, per share, making, with the interim dividend already paid, a total distribution of 4½ per cent. per annum on the ordinary capital, carrying forward £60.—London *Times*, June 25

Anglo-Ceylon and General Estate, Co.—We publish on another page today the annual report of this Company in which the directors recommend a dividend of 4 per cent on the consolidated stock. There was a large increase in the crop obtained from the tea estates in Ceylon and the quality had been well maintained, but there was a falling-off in price owing to the state of the market. The year had also been more favourable than the previous one for the production of cocoa and the price had advanced. Owing to wet weather there had been a diminution in the sugar crop in Mauritius. Interesting statistics are given as to the acreage in different products. On the Ceylon properties there are 5,606 acres of tea in bearing, 285 in cardamoms and 991 in cacao in bearing interplanted with coconuts not in bearing. In Selangor there are 19[illegible] acres of coffee not in bearing interplanted with coconuts and rubber and 95 in coconuts and rubber; while in Mauritius the Company owns 4,270 acres (principally of course in sugar) besides being interested in other estates.

Tobacco at Jaffna.—This staple product of this Peninsula is now sold here at a fancy price. The average price of a *Param* of tobacco is R250 as against R150 in previous years. This rise in the price is owing to the heavy damage caused to the crop by the floods of April last. The quantity of tobacco usually exported from here to Travancore and Cochin was between 50,000 and 60,000 bales. It is estimated that only about 35,000 bales will be available for export this year. The merchants have already purchased more than half the quantity grown here this year and the remaining quantity also will be in the hands of merchants in another fortnight. The tobacco used in the manufacture of cigars also commands unusually high price. Jaffna is not, therefore, a loser by the destructive floods of April last.—"Hindu Organ," June 27th.

The Rubber Industry in India.—The *Pioneer* of the 5th July gives the following concise summary of what has been done by the Indian Government to foster a rubber-producing industry:—

The great demand for indiarubber in the European and American markets, due in great measure to the bicycle-craze and to the use of rubber-tyres on cabs and carriages, should be carefully noted in this country. Mr. Ribbentrop, in his recent pamphlet on Forestry, gives a short history of the rubber industry in Assam, which is instructive in its way. In 1873 Mr. Gustav Mann, foreseeing that the natural rubber-resources of the Province would dry up sooner or later, started the Charduar plantation, and by the end of 1884 some 890 acres had been stocked with *Ficus lastica*. Mr Mann wished to add at least 200 acres annually for an indefinite period and the Government of India favoured this proposal, but the Local Government, having no spare cash, took but a languid interest in the operations and in 1889 the plantation only covered 1,043 acres. Then the Inspector-General of Forests took up the matter and in the next four years 860 acres were added, or slightly more than the annual increase advocated by Mr. Mann. In 8194 the Local Government again threw cold water on the scheme: a calculation was made showing that the net profit realised amounted to only R60 per maund, and this was not sufficient to justify further expenditure. The fact was that the planting had been badly done. The establishment of new nurseries had been neglected, and, "instead of providing a proper continuity of healthy young nursery plants, the undersized and suppressed specimens from the old nurseries were used, which accounted for the comparative want of success in the final plantings of 1893." Matters rested until 1896 when Mr. Hill, then officiating as Inspector-General of Forests, visited the plantation and recommended that the work should vigorously be taken in hand again. New nurseries were established and better results were obtained. In 1898-99 experimental tapping of the trees was tried, and when the rubber was put on the market the net profit realised was R93 or 50 per cent more than that earned in 1893. It has now been temporarily settled to extend the plantation by another 1,000 acres in the next five years. The moral of the story is that unless new nurseries are formed every year, good planting material will not be forthcoming and the industry will lapse into its old state. There is no financial difficulty connected with these nurseries if properly managed; and, moreover, it should be noted that the tea-planters lately have begun to grow *Ficus elastica* on their waste lands, seeing a possible source of extra income from the rubber-tree. In this adventure they should receive every encouragement and the surplus saplings from the nurseries might well be made over to them free of charge as suggested by Mr. Ribbentrop. The Assam rubber-industry is well worth fostering, particularly just now when the profits from many tea-gardens are so small.

THE ROYAL BOTANIC GARDENS, PERADENIYA.

CEYLON.

A few notes, written in the middle of February, on what may be termed a typical tropical garden, may have some interest. Probably at no other time of the year is the contrast between such a garden and an English one greater; not, however, that the latter is without charms even now, more especially in the memory of residents in a land where perpetual summer reigns, and Nature is practically never at rest.

Situated at an elevation of about 1,500 feet above the level of the sea 7° north of the equator, and with a mean annual temperature of 77° Fahr. (as low as 68° being seldom experienced), the features of the vegetation at the above headquarters of the Botanical Department in Ceylon may claim to be fairly representative of those which generally characterise the equatorial regions, and which, when available, are an unfailing source of interest and fascination to the botanist and horticulturist alike. Flanking the approach to these gardens of 150 acres, and close on a century old, is a row of tall, spreading trees, about 140 feet high, with remarkable buttressed trunks and flattened roots, the latter meandering over the ground, suggesting huge saurians. These the new-comer will be surprised to learn, notwithstanding a fair acquaintance with hot-house plants, upon which he is likely to reflect with pardonable pride, are Ficus elastica, an old favourite pot-plant.

On either side of the principal entrance stands a stately African Oil Palm (Elæis guineensis), the gate pillars being completely draped with Bignonia unguis-cati of Brazil, which bears a profusion of beautiful yellow flowers, and occasionally its curious long pods, which are from three feet to five feet in leugth. Immediately on entering, the visitor is confronted with a very fine oval group of Palms, containing some sixty species, representing all parts of the tropics; whilst forming an effective undergrowth amongst these are several species of Cycads. Overshading the drive on the left is seen a good example of the amazingly luxuriant habit, combined with extreme beauty, which is peculiar to certain tropical climbers; this is the Thunbergia grandiflora, which, though soon becoming an unmanageable weed if permitted, is here allowed to form a dense screen of evergreen foliage, studded with large mauve flowers, reaching, by the support of tall trees, to a height of from 70 feet to 80 feet from the ground. Passing round to the right the completely shaded Nutmeg-walk is reached, and few walks offer more temptation to visit than this. The Nectarine-like fruits hanging from the Nutmeg-trees in abuudance, and in all stages of development, mixed with the flowers, some just "setting," others ripe and splitting open, displaying the large brown nut enclosed in the pretty bright red mace; the various other spice-trees—Clove, Allspice, Cinnamon, &c.—all are apt to make the stranger find some justification in Heber's "spicy breezes"—

"Where every prospect pleases,
And only man is vile."

Stretching out from the oval Palm group is the straight main central drive (see Supplement in present issue), which shows a portion of this, but it is impossible, even for the camera, to do justice to the scene, such is the wealth of colouring, the grateful coolness (which can only be fully appreciated in the tropics) from the chequered light, the indescribable mixture of odours, the chatter and cooing of bright-plumaged birds, and the murmur and buzzing of insects. Rising gradually from verges of Amaryllids, is a diversified collection of flowering and foliage shrubs, herbaceous and bulbous plants, shaded by a background of tall trees, interspersed with Palms.

One of the photographs sent represents the Monument Road, which leads to a cenotaph erected to the memory of a former director of the gardens. This stands on a knoll overlooking large expanses of undulating lawns, the lake, the Talipot Avenue (Corypha umbraculifera, the giant of Palms), the handsome bridge of Satinwood (Chloroxylon Swietenia) spanning the river which forms the boundary of the gardens. Along either side of the road is a row of circular beds, planted with more attractive or unique shrubs, and fringed by the large white-flowered Amaryllis solandræflora and others. Over-arching the nearer end are two of the gorgeous-flowered Flamboyant trees (Poinciana regia), half hidden by Petræa volubilis, an exceedingly beautiful climber, producing here in great profusion its sprays of violet and turquoise-blue flowers; whilst the farther end is shaded by magnificent specimens of Terminalia Belerica, Pometia eximia, &c., attaining to gigantic proportions; here also are some Australian Coniferæ—Agathis robusta, Araucaria Cooki, A. Bidwilli, &c.; whilst close to these are such interesting and handsome trees as the Durian tree (Durio zibethinus), which produces excellent but malodorous fruit; the famous Upas tree (Antiaris toxicaria) of Java; the double Cocoanut-Palm (Lodoicea sechellarum); the Mammee-Apple (Mammea americana) of the West Indies; the Brazil-nut tree (Bertholetia excelsa); and the brilliant-flowered Amherstia nobilis and Lager-strœmia Flos-reginæ.

Passing through the Liane Drive there are seen some spleudid Lianes, the great copyright of the tropics. Here in the tangle of untraceable festoons of huge and embracing climbers, which soar to the highest tree-top, abound the flying squirrel (Pteromys Oral), an animal of nocturnal habits, similar to a light-brown cat in appearance, and measuring over four feet from head to end of tail, and about the same in expanse of wings. Different from this, and somewhat smaller, is the Flying-fox (Pteropus Edwardsii), a reddish-brown frugivorous creature, of gregarious and nocturnal habits. Certain trees, if tall enough, find special favour with the Flying-fox, colonies of which sleep together during the day, suspending themselves by their hind-legs to the branches, and thus sway gently in the breeze till dusk. Sir John Lubbock said that in the tropics "everything seemed to climb to the light." Plants, beasts, insects, and reptiles climb, the latter including snakes as well as lizards, from a few inches to five and six feet in length.

Continuing on from Liane Drive, a fine solitary specimen of Ficus elastica is suddenly presented in view. The extraordinary character of the roots, resembling bulwarks or fortifications, may be seen to advantage. Creeping up to the topmost branches is the large white-flowered Cereus triangularis.

Incidentally, a tree of Ficus religiosa at Anuradhapura — once an imposing city, and capital of Ceylon, which the merciless jungle buried for centuries, but the ruins of which have lately been partly unearthed—is the oldest historical tree in existence. It was planted 288 years B.C., so that it is at least 2188 years old! This species is endowed with miraculous powers in native religion, and promotes the spiritual welfare of the Sinhalese and other Asiatics. A true Buddhist will sooner sacrifice his pay than cut a twig or pull a seedling of this tree.

In the flower-garden is an octagonal plant-house to the right. Appeariug above the latter is the crown of the wild Date-palm (Phœnix sylvestris), next to this being the straight and spiny stemmed Acrocoryue sclerocarpa. A tall cluster of Palms with slender stems is Oncosperma filamentosa, and in front to the left is a handsome specimen of Phœnix reclinata, behind which are Calyptrocalyx spicatus, Livistonas, &c. Here also is a variety of the more ornamental tropical climbers trained on trellis-work arbours, where they are seen to advantage. In the beds and borders the most

showy Cannas, the variegated red and white Pineapple (Ananas sativus, var. variegata), Caladiums, &c., make a brilliant display.

Passing through a Fernery and the Palmyra Avenue (Borassus flabelliformis), the visitor comes upon the imposing avenue of Royal Palms (Oreodoxa regia, see *Gardeners' Chronicle*, May 12th, 1900, fig. 96). New and longer avenues of this and other handsome Palms which have of late been planted, may be expected to form in time striking features in the landscape of these gardens.

Purely deciduous trees in the tropics are comparatively rare, and when they do occur they generally do not cast their leaves for the purpose of resting, but for bursting into blossom, followed by the fruit. A good example of this is the silk Cotton-tree (Bombax malabaricum), the large red, edible flowers of which cover the ground for weeks after the leaves have disappeared. Nothing can be more suggestive of a snow storm than when the pods of this tree burst, during wind and rain, and their cottony contents are wafted about thickly in the air.

Taking the river-drive round the arboretum, the scenery is most picturesque. Mirrored in the Mahaweli river (the largest in Ceylon), which surrounds the gardens on three sides, are the feathery plumes of tall Bamboos, giant trees and Palms draped with luxuriant climbers, with imposing hills in the background. A single clump of Dendrocalamus giganteus ("Giant Bamboo," and monarch of the grass family), over 120 feet high, curves gracefully over the river (see *Gardeners' Chronicle*, August 27th, 1881, fig. 54). Apart from the scientific department—the Herbarium, Library, Museum, and Research Laboratory, &c.—there are other features in these gardens which prove equally attractive and interesting to the stranger, but fear of trespassing on your space forbids the mention of more.—*H. F. Macmillan*, June 23rd.

PLANTING IN NYASSALAND, B.C. AFRICA.

22nd May, 1900.

We have the same

BLIGHT ON TEA

here as your estates are troubled with. It came on my tea for the first time during a spell of dry weather in the middle of our rainy season. I also noticed jungle plants, chillies, sou-sop, and bullock heart trees had the same blight, losing their flush of tender leaves and their growth was retarded for about a month. I have no doubt this blight was due to the sudden stoppage of rain, a very unusual thing at that time of year. The tea seems to have recovered and is growing well again. I have just finished gathering a crop from my

FIRST SHADE COFFEE

of over eight hundredweights per acre. The plants are three years old last month, and look as if they had not borne a bean so fresh and green with only a yellow tree here and there where overborne. I do not intend to extend tea cultivation, but in case of accidents to shade coffee (as experienced by the scorching of one's coffee in the open) I mean to have 8 to 10 acres to fall back upon for seed.

CEARA RUBBER

does well here. I have trees four years old 15 feet high with a stem 14 inches in circumference, but what the yield of rubber may be, later on, remains to be seen. I will tap one or two trees in about 18 months' time and let you know the result. Our climate seems to suit Ceara, and if tapped when the sap begins to rise, after the tree is done wintering, the yield should be as much as in its own country.

CACAO.

Only one tree that I know of exists in the country and Mr. Moir of Landerdale is the lucky owner. This climate, however, does not seem to suit this product, for the tree is only about 5 feet high with 3 feet branches and is now some six years in the country. Every care has been taken to keep wind and weather from the plant, and manure has been lavished on it, but it does not thrive; our winter months nearly kill it. Thermometer goes down to 48° and we have often frost in June at night.

GREVILLEAS AND GUMS

do well here: what do you think of Grevillea Robusta eight years old, 100 feet high and 5 feet in circumference at 3 feet from the ground?

I am going to try a kraal this coming dry season,

ZEBRAS

swarm in a certain locality I know of, well suited for the job; and the natives delight in such vacations. In the olden days they used to dig pits and erect fences and drive the game into the pits, but they do not understand catching game alive, they want "nyama" meat. I will let you know my success.—Adieu! H.B.

P.S.—I never get an *Observer* that I do not see the death of somebody I knew when in Ceylon: fancy good John Fraser, John Bagra, and Alex. Ross gone over to the majority, it makes one wonder, when such men go over the border so early, when our turn will come, warning one to watch and be ready. H.B.

PLANTING IN PERAK.

(From the *Administration Report* for 1899.)

The total area of agricultural land alienated in Perak amounts to 244,215 acres, and the chief products

RICE, SUGAR, COCONUTS, LIBERIAN COFFEE, AND RUBBER.

Rice is cultivated throughout the State, but especially in the districts of Krianand Kuala Kangsar, and a large proportion of the Krian *padi*, which is planted almost exclusively by Malays, is sent to be husked in the mills at Penang, whence it is returned to Perak in the form of rice. Irrigation schemes, in connection with the cultivation of rice, are being carried out by Government, or with Government assistance, in every district, and the last harvest was a good one; but the supply of locally grown rice is still quite insufficient to meet the requirements of the State. The cultivation of sugar is being rapidly extended, both on European and Chinese plantations, in all the coast districts. Owing to the low market price of coffee, especially during the earlier months of the year, little, if any, new land was brought under cultivation, but large areas were planted with rubber of various kinds, chiefly *Parà Rambong.* The revenue collected by the Forest Department amounted to $122,616. The work carried out chiefly consisted in the demarcation of reserves, the establishment of nurseries, and the issue and supervision of passes for taking timber and jungle produce. Thirty miles of forest reserve boundaries were cleared and demarcated during the year; nurseries and plantations of rubber (Parà and Rambong), and valuable timber (Merbau. Chengal and Mahogany) were established at Taiping and Pondok Tanjong, in the District of Larut; and, owing to the strict supervision of the Forest Officer and his Assistants, there is now comparatively little illicit cutting of timber and collection of jungle produce, although

the export duties are not infrequently evaded by Chinese smuggling firewood to Penang from the coast districts. This system of smuggling, however, which is chiefly carried out by means of *tongkangs* (Chinese sailing boats), will soon be rendered much more difficult, if not entirely suppressed, by placing a steam launch at the disposal of the Forest Department. The high price of tin has caused an exceptional demand for timber and firewood, in connection with pumping engines and smelting furnaces; and the export duty on Mangrove, the best kind of firewood, has been specially raised, as the supply is scarcely sufficient for local requirements. The Government nurseries are well stocked with tropical fruit trees, as well as with pepper and nutmegs, and the following economic plants, not hitherto grown here, have been added during the year and are so far doing well:—Jamaica Grape Fruit, Cola Nut, Central American Rubber (*Castilloa elastica*), and Japanese oranges. Owing to the great demand for seeds of the various rubber-and gutta-producing trees, special attention has been paid to the cultivation of these trees, including Parà Rubber (*Hevea brasiliensis*), Getah Rambong (*Ficus elastica*) and Ceara Rubber (*Manihot galziovii*). The vegetables and roses grown on the Larut hills were less successfully cultivated than usual, and this comparative want of success is ascribed by the Superintendent to an abnormally wet season.

BURMA AS A COUNTRY FOR SETTLERS: UNOCCUPIED HILL RANGES.

A very instructive contribution on the above topic has appeared in a recent number of the *Pioneer*, setting forth the too little known advantages of Burma as a land where colonists will find it to their advantage to settle and utilise the resources of the country. The article is signed "M. H."—initials to which we can attach no name with any degree of certainty; but it is evidently written by one who has the future development of Burma at heart, and yet knows the country sufficiently well to be aware of its disadvantages which he does not conceal from his readers. Rice, the cultivation and export of rice in Lower Burma, was the first product to bring the country into notice, coffee following in its train. But it was not till Upper Burma was annexed that European attention was turned to the new territory, where hitherto it was thought that natives alone could live:

Thus it was, no doubt, that Burma became known as a country unsuitable for European settlers or planters, such as have taken up land in Ceylon and in various suitable districts of both Northern and Southern India, and until the annexation of Upper Burma there is no doubt that this generally accepted view of the resources of the country was a fairly correct one. It is true that even before the annexation of the Upper Provinces, attempts were made to grow coffee in one or two districts where a sufficient altitude could be obtained, but the character of the country of Lower Burma, lying as it does for the most part only a hundred feet or so above sea level, precluded the possibility of favourable climate being found, except in one or two exceptional localities. Such coffee as was produced, however, has been pronounced to be of excellent quality, and to have held its own in the market against that grown either in Ceylon or in India.

The annexation of the new territory brought within our rule a vast dry tract, extending from the old frontier of British Burma to the borders of Assam and China. East north and west of this, is the untried field whose "points" the geographical advocate would define:—

Commencing on the west, if we refer to a map we see that the hills which contain the Irrawaddy Valley on this side are the ranges called the Chin Hills, and that the average distance from the river, to which they may be said to run parallel, is some 30 miles, roughly speaking. Now in these hills without penetrating very far from the plains altitudes of up to 5,000 and 6,000 feet are obtainable, and although, perhaps, only the higher peaks reach the latter height yet plateaus, suitable for cultivation, may be found averaging the former height, while lower than this localities abound which appear suitable from the point of view of space, soil, water, and drainage, for the cultivation of tea, coffee, wheat and rubber, as well as for the growth of European fruits, which have been already tried in these hills and found to do well. The country is, however, for the most part densely wooded, and a certain outlay of time and capital would necessarily have to be expended in clearing the ground, but this is also the case in most new districts either in Ceylon or India. Two advantages are most evident in the districts to which I refer firstly, that these hills are most excellently supplied with water, streams and small rivers intersecting them in all directions, some of the latter being navigable for country boats, and thus establishing communication with the Irrawaddy, into which they all eventually find their way; and, secondly, that as the hills run generally parallel to the Irrawaddy for many miles north and south suitable localities for every sort of cultivation can be found within a large area, the whole of which is within easy and reasonable distance of the great trade artery of Burma leading to the third largest seaport of our Indian Empire.

The supply of hired labour, it is stated, would depend on the goodwill of the people—up till recently somewhat turbulent, among the Chin Hills; but likely to improve as the feeling of trust is inculcated by our rule. Passing round to the east of the hills running from Rangoon to Mandalay, the writer comes upon the Shan States whose great recommendation (in contrast with the country just described) is its peaceful character.

Commencing then with the Southern Shan States we have a territory of some 40,000 square miles, a hilly country with mountain ranges running through it from north to south, the intervening space between these almost parallel ranges being high-lying table lands of considerable extent. This table-land consists largely of rolling undulating country, sparsely dotted with clumps of bamboo surrounding villages of Shans and other hill tribes, its width from west to east is some forty miles and roughly it may be said to include about 2,000 or more square miles. The soil is clay gravel and sand, and for miles the eye sweeps over masses of grassy upland, no jungle and in fact few trees appearing, beyond clumps of pine and bamboo in feathery patches. The people who inhabit this country are a different race to the Burmans although there is no doubt, a certain admixture of Burman blood amongst them. They have, however, one common characteristic that of a quiet peaceable disposition, and in this respect differ entirely from the hill tribes living to the west and north of Burma.

Coffee and tea, it is believed, would grow well in the land above alluded to,

As far as coffee is concerned we have a certain amount of data to go upon, the most important of which is that coffee is already grown successfully in the Karen Hills, which lie only a little to the south of the part of the Shan States here alluded to. This one coffee plantation is not of new formation, but has been producing successfully for many years, and although of small extent it yields most excellent returns. There can then be very little doubt that similar ground suitable for coffee may be found in the above portion of the Shan States, which lies only some 100 miles north of the existing plantations, and in the hills which, as will appear from the map, are a part of the same range as those of Karenni.

Lastly we have the question of climate, reference to which is still more encouraging, and a general summing-up of the conditions of life and work in the Shan States, which should tempt many dissatisfied colonists from elsewhere to the heart of this attractive region:—

The climate is a delightful one for Europeans. There is no part of the year when out-door work cannot be engaged in throughout the whole of the day, and with due precautions as to clothing and good housing there is absolutely no doubt that the climate is an exceedingly healthy and bracing one. There are now large tracts of country as peaceful and well governed as any of the districts in Ceylon, India, or Assam, where life and property would be absolutely secure, both in the Southern and also in the Northern Shan States. There is suitable soil and climate, and a very large choice of locality and altitude.

After this well-informed eulogium, we can hear a few of our readers exclaiming: "Who would not go to Burma?" But what to grow: why not cinchona and camphor trees? Any planter dissatisfied with tea sales at 6½d and in search of "fresh fields and pastures new," might do worse than ship to Burma, and proceed

"from Rangoon to Mandalay."

A FARMER'S EVERY-DAY LIFE.

No. X.

(*By* "*Cosmopolite.*")

In these notes I have frequently made use of the expression

"A PRACTICAL FARMER,"

and, perhaps, it would be as well for me to give some definition of this somewhat vague appellation, such at least as I have been given to understand the expression to mean. A practical farmer is said to be one who thinks he knows a deal more than he really does, and, whenever I have heard a man boastfully priding himself on being a practical farmer, I have surely found, on enquiry or from personal knowledge, that such a man is one who is self-opinionated and who speaks contemptuously of those who try to be guided by science as "book-farmers." Such a contempt has he for this class that he shows it by reading no books himself; by possessing a greatness that never descends to reading an agricultural paper, and by blindly walking along the track that his father and grandfather went before him. He farms on the old short course shift, has more weeds than crop on his ground, wastes his time by attending every market within a radius of twenty miles and bemoans the hard times, instead of taking the goods the Gods provide him and trying to be thankful. But what, more than anything else, I notice about the self-styled practical farmer is the slovenly state of his steading; straw and turnips lying about wasting, the dykes broken down, and the liquid manure running across the roads and down past his dwelling-house. Of course, the practical farmer grows poor crops, nor will he try to learn how to improve them, because, forsooth, he considers that what he does not know about farming is not worth learning. Another peculiarity of the practical farmer is his

DISINCLINATION TO PAY HIS MEN,

the wages due to them; he invariably does so with a very bad grace, and, not unfrequently, gets rid of the man who asks for the money to which he is justly entitled. Some of them even make a point of getting drunk when asked by any of their servants for some of their wages, a proceeding for which I can find no excuse. I have always considered it a very humiliating thing for any one to be compelled to ask for what is his own, so that I have made a point since I took this farm of paying my men every fourth Monday which enables them to go with cash in hand to the shops, and thus buy goods at a much lower rate than if they had to ask for credit. I see no reason therefore, for a practical farmer becoming suddenly and dangerously excited, because asked to pay what he knows is justly due to his men; he himself is paid hard cash for everything that he sells—stock, wool or grain—and why should he not also pay cash? Now that Government is sending to the different parishes,

LECTURERS ON VARIOUS SUBJECTS,

the practical farmer may be improved of himself, for, although he would never dream of listening to any lecture on any farming subject, feeling convinced in his own mind that he knows more about it than the lecturer does, still his own children go—just for the fun of the thing—and they pick up a few new notions which in course of time they may utilise. Lately I took a ride on my bike round a district which is still celebrated as the home of many practical farmers, and I felt quite melancholy as I gazed on the many nice homesteads surrounded by fine trees, looking gloomy, deserted and disreputable. Here and there a farm, evidently in the hands of an *un*-practical farmer, looked like an oasis in a desert, its garden as trim and well kept as those of the practical farmers were weedy, overgrown and desolate. I was told that the laird of the property on which these farm were was in the hands of mortgagees, and could not afford to help his poor struggling tenantry. But I failed to see what claim the tenantry had for help; they took their farms at their own valuation, and should have been prepared to implement the conditions of their leases without bemoaning their fate; and the fact of some of them doing well, although by no means holding the best farms, showed that it was the illiterate practical farmer

who was the stumbling-block, and not the man who was ever ready to go with the tide and fit his work to the present times regardless of what his father did before him. I returned home from my trip, well-pleased that I lived in a district where the practical farmer is practically unknown and the pushful, hardworking one is the general sample. Referring to the

GOVERNMENT LECTURERS

that have visited our parish, let me say a word. The dairy-maid, who gave a course of lectures on the making of butter and cheese, received, I am sorry to say, scant courtesy from her audience, each farmer's wife or daughter, who attended, having openly declared that she did not know her work, because they each considered their own commodities superior to anything that could be made from instructions out of a book. Here the cloven hoof of the practical farmer showed conspicuously in the behaviour of his wife and daughter. The cooking classes, however, were a great success, the only fault the pupils had to find with their teacher was that she did not show them enough of ways of making fancy biscuits, toffee and sweets of all sorts. One lady, a wistful *ingènue* of about fifty, who attended these lectures, and who is a bit of an amateur cook in her own way, went so far as to praise the work of the teacher, and what more could be wanted than that as setting the seal of superiority on her efforts? The laundry classes also proved the source of much improvement in the style of washing and clear starching in the district. Farmers, who formerly came to church with collars hanging limp-like around their necks, after the fashion of those of the late Mr. Gladstone, now have them standing erect at the sides of their heads, like the blinkers of a horse, and the flannel shirt front, which was once conspicuous at markets, has now given place to the immaculate dickie, like to the product of a steam-laundry, My own experience and observation lead me to the conclusion that the farmer who is constantly boasting about his being so practical is one whose example is to be avoided. His regular attendance at sales and markets seems to have the effect of transforming him, in a few short years, into a first-class tippler and a scandal to his relatives. When the rèveille from the poultry yard wakens him in the small morning hours after a market day, he possesses a thirst worth pounds to a publican and no liquor to be had, nor money wherewith to buy it. Then he curses his fate and wishes he had been appointed a parish councillor or member of a school-board, for well he knows that those who get the handling of the charities of a town are the ones who grow rich and have always plenty of money wherewith to quench their thirst and this he says with a blushing nose and 16 annas worth of scorn in his voice. How many of those practical farmers have I not seen, who, having lost their farms through drink and ignorance, have gravitated to the cities where they are lost in the crowd and the only difference their presence seems to effect there is the enlargement of the police station. But enough of the self-styled practical farmer, and as the Maori would say "Let the *tangata haurangi* (drunken man) slide."

I am sure no one would fancy that any connection existed between

THE WAR IN SOUTH AFRICA AND THE PEAT BOGS OF BUCHAN,

but that such is the case, I think I can show. When our Government determined for the good of mankind to kill off the few thousand Boer farmers in the Free States, they not only sent upwards of 100,000 troops to Africa besides some 30,000 colonials, but they called up all the militiamen and reservists in the country to go into active service. At first the farmers in Britain rejoiced at the removal of these, because those two classes of men are the lowest of the low and from their ranks come all the tramps, incendiaries and light-fingered vagrants. But when the time came for casting the peats, behold the labour for that purpose was found conspicuous by its absence—for these very reservists, etc., are the class that generally do this work; and now we find the price of peats has gone up considerably, not because coals are dearer, not because peat bogs are scarcer, but because the militiaman and reservist are wanted to fight for the shareholders of the mines of South Africa. "Sweet are the uses of adversity," some one says, but however admirable that sentiment may be in the abstract or when applied to others, none of us have any desire for a practical and personal test. Therefore we object to the rise in the price of peats and wish the war was finished and our medal-bedecked vagrants and tramps told off to the duty of casting peats once again.

FERMENTING TEAS BY THE REFRIGERATING PROCESS.

A VISIT TO DUNBAR ESTATE AND AN EXPLANATION OF THE PROCESS BY THE PATENTEE.

[A representative of our evening contemporary furnishes the following report regarding the cool fermentation of tea patented by Mr. H. T. Armitage of Dunbar estate.]

The process of cool fermentation of tea up to the present, has shown results of a highly satisfactory character; in fact, so successful has the new system turned out that ti is considered that since its inauguration in August of last year, the price of Dunbar tea has risen nine cents per lb. This is not, of course, divulging a secret, as the fact is made clear by a comparison of the published price list.

THE PROCESS.

The process which Mr. Armitage has patented, and for which he holds the rights in India and Ceylon, is that of fermenting teas by means of a refrigerating machine worked by compressed ammonia and connected with hermetically sealed cold rooms by a coil or pipe, which enters a tank fixed above the cooling rooms. "One advantage," Mr. Armitage remarked "is that the same ammonia goes through the machine continuously, so that you only have to renew it when a leakage occurs, or something of that nature happens."

The temperance, could be brought down to freezing point, but that there was no necessity to bring it down below 45 degrees, at which point it has been found that fermentation ceases. The process does away with the water tanks, cold cloths, fans, etc., which are at present in general use, and substitutes cold-rooms in their stead. This means, practically, bringing the Nuwara Eliya temperature right down into the low-country. When we saw the machine at work the temperature inside the cold-rooms was 50 deg., whilst the temperature in the factory at four o'clock on a rainy afternoon stood at 67 deg. Generally the temperature outside is about 70 deg.

A NEAT MACHINE.

The refrigerating machine is neat in appearance, and takes up very little room. It is named the "North Pole" and is of Danish manufacture, and turned out by Taxen, and Hammerich on Schous' patent. Mr. Armitage's machine takes about 2½ horse-power to drive it, the power being supplied by a water wheel (an alternative to which is an oil engine), and has a cooling capacity of about 3,800 cubic feet; that is to say, it would keep a room of 3,800 cubic feet in size at a temperature of 40 deg. It is capable of cooling about 250,000 lb. of made tea per annum.

ITS COST.

Regarding the cost of the machine, Mr. Armitage stated that there was very little to reckon with beyond the initial cost. "This machine," he said, "delivered free on board at Copenhagen, cost about £280, including royalty. The next size machine requires 3¾ horse-power to drive it, and is, of course, more expensive and has a larger cooling capacity."

There are, of course, a great many ice-making machines in Ceylon, but the one in Mr. Armitage's possession is the only one that has yet been applied to the manufacture of tea. It may be interesting to state how the idea occurred to Mr. Armitage. On a voyage home he noticed the cold-rooms on board, and the idea struck him that this process of cooling might be made suitable for fermenting tea. He ultimately carried this idea into effect with the satisfactory results already indicated.

ITS ADOPTION IN THE LOW-COUNTRY.

Speaking with regard to the adoption of the process in the low-country, Mr. Armitage stated that there the machine would require a little more horse-power to work it, because of the higher temperature of the water. "We have tried some experiments with low-country as well as up-country leaf, which has been sent us by rail, and the results have turned out most satisfactorily," he said. Mr. Armitage's tea-maker tends the machine, and this would probably be the case on most other estates, as the attention required is not a serious matter. The Sole Agents for the machine in Ceylon are Messrs. Brown & Co., who lay themselves out to arrange for the importation of the machine and, doubtless, could supply estimates for putting up the whole plant.

THE COLD-ROOMS.

Mr. Armitage has a couple of cold-rooms, with a cubic capacity of about 800 feet, and this requires the running of the machine for only three or four hours a day. The walls are first of cement and brick, next is a filling of coir fibre, which is considered to be a non-conductor, and then comes an inner wall of cement and brick. The doors, similarly constructed show a depth of over nine inches. Inside the rooms are angle iron ledges upon which the trays are run in. Above the door of the first room is an apparatus by which a single tray can be taken out so that some idea can be had of how the fermentation is going on, and avoiding the necessity of opening the main door and letting in the warmer atmosphere. The object, too, of having two cold-rooms, is that one is a criterion of what the other is like, the advantage of which is obvious. A record is taken of the temperature at the time the tea is put into the rooms, and during the process of fermentation the average is 51° or 52°. It may be mentioned, in passing, that no fans are used, and one great advantage of the cold-room is that there is a total absence of draught.

"The merit of this process," observed Mr. Armitage, is that we are not plucking fine. Except the newly pruned tea, we are plucking to the extent of two-and-a-half leaves and the bud. Other people who pluck fine get a higher price for their tea, but our prices, if you consider the medium plucking, are very satisfactory."

From the results so far achieved it would appear that the process fully justifies a trial of it in other parts of the island, where anything that will help to raise the price of tea will be cordially welcomed.

INSTRUCTIONS FOR MAKING GREEN TEAS.

FOR EXCELSIOR ROLLER AND TWO 8-TRAY SIROCCOS.

1. Warm the machine by turning on full steam for half a minute. Then place 200 lb. leaf in the machine (freshly gathered) and with 20 to 25 lb. steam in the boiler, steam for 2 to 3 minutes; with 40 lb. steam, 1½ to 2 minutes is sufficient.

The cylinder should never be filled more than on a level with the two steam pipe nozzles at a time, or the leaf will not be evenly steamed. If more leaf is wanted to fill the rollers, it can easily be steamed while the first lo is being put in the roller. The cylinder must be turned round slowly by coolies.

2. When the requisite amount of leaf is in the roller, put on full weight and stand a cooly on top without working the roller for two minutes; this will get rid of most, if not all the water caused by steam, and this must be thrown away. The leaf, before going into the roller, should be perfectly flaccid.

3.—Roll five minutes without weight, and throw away that water or juice; then roll ten minutes half weight; then pour back the juice from this roll into the roller and roll five minutes with hardly any pressure, so as to retain as much juice as possible.

4.—Put this semi-rolled leaf on to Sirocco temperature about 260 degree—and fire for about twenty-five minutes, passing the trays backwards and forwards pretty smartly, and turning the leaf as the trays come out. At the end of this time the leaf should begin to turn an olive green, and feel quite gummy, and be no longer wet.

5.—Take the semi-fired leaf from the Sirocco and put back in roller. Roll five minutes lightly, five minutes hard, and five minutes medium, then break roll (in Souter's breaker); be careful after breaking thus, whether by breaker or by hand;

to thoroughly break up the balls or clots into which the Tea forms. I greatly recommend a Souter's breaker.

6. The leaf being thoroughly broken up, replace in Sirocco, and with temperature of 230 to 280, fire for about 15 minutes until the leaf is like chamois leather—soft, with a tendency to getting crisp, but yet not crisp.

7. Roll again: first five minutes hard, and then about five minutes more, lightly, to get twist, then break roll once more, and finish by final firing at a temperature of 200.

The sieves I used for my break were Nos. 12 and 10, and the balance broken through a No. 8. All the fannings must be most carefully taken out as well as the dust. What Tea will not go through an "8" can be broken up and mixed with the fannings.

I named the Teas:—

No. 1.	New Season's Extra Choicest Green Tea.		
No. 2.	do.	Choicest Ceylon Green Tea.	
No. 3.	do.	Choice do.	do.
No. 4.	do.	Green Tea Fannings,	
No. 5.	do.	do. Dust.	

and headed the Invoice with the words "Ceylon Uncolored Green Teas."

H. D. DEANE.

MANUFACTURE OF GREEN TEAS:

IN DEHRA DOON.

The method of manufacturing green tea in the Dehra Doon district for the Central Asian market, is as follows:—

Manufacture can be commenced as soon as the leaf is plucked, but as it is more convenient to manufacture a day's plucking at once, the leaf plucked during the day is allowed to be all night in the leaf shed, spread out from two to four inches deep, and is constantly turned over to prevent heating.

The process of manufacture is as follows:—A large iron *karai* or pan 36″ in diameter by 12″ deep, is heated almost red hot, and when ready is filled with green leaf, which is rapidly turned about to prevent burning, until it has become quite soft, and the mass reduced to about half its former size. This process takes about three minutes. It is then thrown on the rolling table and while the next panful is being prepared, is rolled by the tea-makers. As the leaf is perfectly soft and flaccid, the rolling is done in the same time as the panning takes. If there is any sun, the rolled leaf is then thinly spread out in it until it becomes a blackish green and is very sticky to the touch or if cloudy, is put in *chalnies* over charcoal fires until in the same condition. It is then put into smaller iron pans 25″ in diameter by 12″ deep, which are only heated to such a degree that the hand cannot be kept on the iron. These pans are about half filled, and the leaf is kept turning over until it has become quite soft again, when it is again rolled. When the day's batch has all been rolled a second time, the small pans are filled to the brim, the heat being gradually lowered, and the leaf is cooked, being constantly turned about as before for about four hours, when it is almost dry to the touch. If a large quantity of the two classes of gunpowder are required, it is then screwed up in bags (as described in our last issue) but this is not necessary nor indeed advisable at present, as the gunpowders do not bring the same prices as Young Hyson and Hyson, a quantity of which classes become gunpowder in the screwing. The tea may now be left for weeks in the bins before being classed and coloured, but we will suppose that the next process takes place next morning. The small pans should be heated to the extent of burning the hand if kept on the iron for a short time, and about half filled with the tea, which is worked rapidly from side to side until it assumes a light greenish tint, which will take about an hour and-a-half. It should then be classed, fanned and picked. Before being bagged for market, about the same quantity is put into the pans, heated to the same degree as before and is again worked rapidly to and fro for about two hours until it has assumed all the bloom it will take,—usually a whitish green; but if the leaf is hard and old when plucked, the colour will turn out yellow green, and will require colouring matter, usually pounded soapstone. It is in this last panning that the colouring-matter is put in, but I believe the Europeans in this district do not use it unless requested to do so by the native buyers. It is easily detected by taking a handful of unadulterated tea and breathing on it, when it will be found that as the damp dries off the bloom will return, but will entirely disappear in adulterated tea. The tea is then packed hot in 200-lb. bags composed of an inner cloth and an outer gunny bag, and is despatched in this state to market. In heating the pans, wood is always used, as it is quite as efficient as, and much cheaper than charcoal.

IN ASSAM.

The following method of making green tea in Assam is furnished by an old tea planter:—In making green tea, the flush, *i.e.*, the bud and first two leaves of the young shoot, after being picked and weighed, is carried at once into the factory, and large iron pans, twent-five inches in diameter, and five inches deep, fixed in brick-work over hot wood fires, are piled up with the fresh leaves. The operator in charge then rapidly turns the leaves round, at first with his hand, but afterwards, when the leaves get too hot, with a couple of pieces of wood, like large spoons, until they become perfectly flaccid. The contents of the pans are then thrown out on the rolling table or if machinery is used into the rolling machine, and thoroughly rolled with a sort of figure-of-eight motion until every individual leaf has become twisted and lost some of its sap. The leaf is then taken and spread out thinly on sheets in the sun, or if there is none, as is often the case in the manufacturing season, on fine wire gauze or bamboo trays over charcoal fires, until it turns a greenish-black, and becomes very sticky to the touch. It is then transferred to the rolling tables or machine, and gets a few minutes rolling to retwist any of the leaves that may have been uncurled, and is then put into deep iron pans, measuring thirteen inches in diameter by nine in depth, fixed like the large ones, but slightly sloping forward, in brick work over furnaces, in which there is a hot fire. A man stands opposite each pan, which is filled full, and the mass is turned over and over slowly for about three hours, when it has become almost dry. It is then put into long narrow bags, which are filled as full as possible, and then screwed up tightly, this operation having the effect of turning a large quantity of the larger and coarser leaves into gunpowder, and thereby enhancing their value. Next day the bags are opened, and

the contents—exactly resembling in appearance the Carrigean moss used in Ireland in boiling linens—transferred to the storing bins, where the tea will keep in this state for a long time. To complete the process, as soon as the factory hands have leisure, a slow fire is lighted in the furnaces under the deep pans, which are filled about one-third, full of the unfinished tea, and an operator then proceeds to work the tea to and fro in each pan with his bare hand as hard as ever he can for about an hour, until the combined friction and heat have caused each individual particle of tea to assume the beautiful green bloom that distinguishes green from black tea. It is at this point that the Chinese colour their teas with foreign substances, as, unless the tea has been made from young succulent leaf, it will now appear of a dirty yellow colour, instead of being greyish green. I never knew Indian green tea to be adulterated with any deleterious colouring matter, although we have sometimes been asked by the Central Asian merchants to put a little ground soapstone in to give the deep green colour that their customers appreciate.

After this colouring process the tea is sieved into different classes and is then ready for packing. It is usually put into 200 lb. cloth and gunny bags, as it does not require lead-line chests like black tea.

Green tea-making, although taking a longer time than black tea, is a comparatively simple process, and does not require the anxious attention which must be given to the manufacture of black tea to make one a successful manager.

IN JAPAN.

The following explains the mode of preparation of green tea in Japan. "The firing and preparation of tea for market, as practised in Japan, is as follows:—The Japanese green tea may be divided into three general classes; coloured, uncoloured, and basket fired. The leaf used for all these is from the same plant, differing only in quality, condition, etc. All teas used by foreigners are first fired by the natives in the places where grown. If a grade of coloured tea is to be made this fired leaf (four or five pounds) is taken and put into iron pans or bowls, which are heated sometimes up to a temperature of 212° Fahrenheit. The leaves are then rapidly stirred by hand against the smooth iron surfaces some twenty minutes. A teaspoonful of thoroughly pulverised soapstone (saponite) and five grains, or so, of powdered Chinese indigo are placed in the pan, and thoroughly rubbed into the leaf for about 20 minutes more, when half a teaspoonful of soapstone or gypsum and pulverised tamarack bark (a species of larch) is added, and the stirring and rubbing is continued for 20 minutes more. It is then put into cold pans and simply cold rubbed against the iron surfaces until it has the required polish, which is arrived at in from 40 minutes to an hour. This is the ordinary way of preparing coloured tea. Other materials are perhaps sometimes used, but, so far as I can learn, all are as harmless as these mentioned. The different manufacturers, of course, vary the process a little now and then to produce slight changes of colour. The leaf is then run through three to five sizes of sieves, till all the dust and loose colouring matter is separated. The shrinkage is about 12 per cent. This colouring process is considered beneficial to the leaf, tending to preserve its shape and flavour. There can be no doubt that the Japanese prepared teas are far superior in purity to the Chinese. In colouring Chinese teas various drugs are used that are deleterious to health, unless it be that the heat to which they are subjected render them innocuous. Prussian blue is frequently used instead of indigo in their green, and black lead in their black teas. Uncoloured teas are made in the same way and quantities, and rubbed against the iron pans until the surfaces have the desired polish, and are then sifted until nothing but the whole leaves are left. Basket-firing is done in bamboo baskets, shaped something like our hour glasses, which are shaken over hot pans. The leaf is put into the upper lobe of the basket and worked into the lower, and so, back and forth, until finished. The loss of weight is about 3 per cent." —*The Planter*, July 14.

PLANTING NOTES.

A PLAGUE OF CATERPILLARS IN JAMAICA.—Specimens of a large caterpillar from the tobacco plantations of Jamaica were exhibited at the Royal Botanic Society on Saturday. During the past year or two they have increased so rapidly that negro children are employed to collect them, and on one plantation where 5,000,000 have been destroyed.—*Daily Chronicle*, June 25.

EMPIRE OF INDIA AND CEYLON TEA COMPANY.—The working of this Company during the past year has not been so successful as anticipated, but in the circumstances a dividend of 4½ per cent must be considered satisfactory. The properties in Assam are reported to be in good condition, but the Ceylon gardens are said to require very areful looking into.

FOREST TREE CULTURE IN MYSORE.—From a Mysore Forest Conservancy Report some time ago we take a suggestive passage. Close planting is properly advocated and it is indicated that the casuarinas in India, like the larches in Britain, rapidly and largely improve poor soil by the deposits of their foliage and the effects of shade and moisture. Mr. Hutchins also advocates close planting. His remarks on the subject are extracted below :—

"With the exception of two plantations, Kadgudi and Benganur, now the best, all the old planting was done at five yards apart. All the planting is now being done at three yards apart which gives 538 trees to the acre. I estimate that the first thinning would be necessary in about eleven years, when a quarter of the stock would be taken out and that the yield of the poles at that age would reimburse the extra cost of thick planting. From a cultural point of view, there is no doubt of the great superiority of dense over sparse planting. Many trees on ordinary soil in this climate remain bushes unless planted close. *Cassi Florida* is an example of this. This is the best tree I am acquainted with for sowings and one of the worst for planting. In the growth of a plantation, the point at which the trees meet in a mass overhead and kill the ground herbage, is well marked, and the sooner it is arrived at, for many obvious reasons, the better. This is the more to be striven for with casuarina on account of the excellent forest soil which forms rapidly as soon as this stage is reached. When planting on inferior soils, no satisfactory growth can be expected till this soil is formed The plantations east of Bangalore are on soil good, bad and indifferent. Most of it belongs to the last class, but there is a great deal too bad to plant, and here seed is being sown. As yet this closing overhead has only been quite reached in the Benganur plantation. The above remarks apply to forest trees, especially those raised by sowing the seeds broad-cast or in shallow pits, as distinguished from fruit trees regularly planted in deep pits and watered."

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Castilloa Elastica Cervantes.—Orders being booked for the coming crop of seeds available in June and July, selected seed from very old trees. R. N. Lyne, Esq., Director of Agriculture, Zanzibar, writes under date 24th August, 1899:—"Please send me 200 seeds of Castilloa Elastica for further trial; the seeds of Castilloa you sent me last August germinated very well." Price and particulars in our Circular No. 32; special quotations for large orders according to quantity; immediate booking necessary to avoid disappointment.

Hevea Brasiliensis (Para Rubber).—Orders being booked for the coming crop available in August and September, 1900. This is the only crop of seeds in the year. All orders should reach us before the end of July to avoid disappointment, as we have to make arrangements in time; guaranteed to arrive in good order at destination. We have already booked a large number of orders. A leading Sumatra Planter, who ordered 50,000 Hevea Brasiliensis seeds last year writes under date 27th February, 1900:—"I received your favor of the 12th instant, out of which I learn that you booked me for 100,000 Hevea Brasiliensis seeds for August and September on the same conditions as before, but at the price of—— per thousand." Plants can be forwarded all the year round in Wardian cases. Price and particulars as per our Circular No. 30. A Borneo planter writes dating, Sandakan, 17th August, 1899:—"The last lot of Para seeds turned out very well." Our shipments of Para plants last year has exceeded over 300,000 to different countries. Special terms for large orders on application.

Kickxia Africana (Lagos Rubber).—One of the staple articles of commerce in Lagos grow very vigorously, realizing over 3s. per lb. in the Liverpool market. Seeds and plants, price on application.

Hancornia Speciosa (Mangibeira Rubber).—Besides the value of rubber, it bears delicious fruits, which is a great favourite with the Brazilians, cultivated for both purposes. Seeds and plants, price on application.

Coffee Arabica Liberian Hybrid, Maragogopie Hybrid, C. Stanophylla and other varieties. Price of seeds on application.

Ficus Elastica (Assam and Java Rubber).—Seeds supplied with instructions; price according to quantity. This tree grows equally well in high and low land, in forest and grass land, its cultivation being extended largely by the Indian Government. For price of seeds with particulars as per our Circular No. 33.

Manihot Glaziovii (Ceara or Manicoba Rubber).—Fresh seeds available all the year round; price as per our Circular No. 31.

Urceola Esculenta (Burma Rubber) and **Landolphia Kirkii** (Mozambique Rubber).—Seeds and plants, both are creepers.

Cinchona Seeds.—Different varieties.

Sterculia Acuminata.—(Kolanut). Superior quality, seeds and plants; price on application, packed to stand the transit well for several months, a hardy tree, cultivation easy.

Erythrina Lithosperma.—Thornless variety, new crop of seeds ready in December, May and June. Price according to quantity on application.

Seeds and Plants of Cinnamon, Nutmeg, Clove, Sandlewood, Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign Countries for 1899-1900 are now being forwarded to applicants in different parts of the world. Also Descriptive Price Lists of Seeds and Plants of Fruit Trees, Bulbs, Tubers and Yams, and Orchids.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms, &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons and Dracinas, now being prepared and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address:
William, Veyangoda, Ceylon.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

Correspondence.

To the Editor.

OVER-PRODUCTION OF INDIAN AND CEYLON TEA AND THE REMEDIES.

London, E C., July 5.

Dear Sir,—I do not know whether your attention has already been directed to the letter of Mr. William Mackenzie, which appeared in the *Home and Colonial Mail*, of June 22nd; but, if not, I should like to do so now, and at the same time to add that I sent a criticism of the same by myself which appeared in the issue of the 29th.

Curiously enough, the paper containing my communication contains also a full report of the speech of Mr. James Sinclair, the Chairman of the Dimbula Valley Tea Company, on the occasion of the 4th annual meeting, of the speeches made at which I was quite ignorant. You will see that Mr. Sinclair recognises that for estates whose present average outturn does not exceed 300 lb. tea per annum, manuring is necessary in order to make such estates produce remunerative results at the present low prices, and that if such estates cannot afford the cost of manuring woe betide such gardens.

As pointed out in my letter our most experienced agriculturists fully recognise the necessity of some kind of manuring for all crops, and provided that the climate and rainfall are suitable, the poverty of the soil need be no bar to successful cropping under the influence of judicious manuring. Of course, economy and suitability must be studied in the selection of the particular manures, and these manures should further be adapted to the soil and elevation of the estate, for the higher the elevation the more nitrogen is required.

Certainly there are estates the soil of which is of so coarse a character, and so poor in quality, that it would be better to allow such land to go out of cultivation and to concentrate attention upon the cultivation and manuring of land better adapted to tea.

It is to points such as these that proprietors and shareholders should direct energetic action, for in these times of low prices, it is essential that personal attention should be given to the management.—Yours faithfully, JOHN HUGHES.

THE CULTIVATION AND MANURING OF TEA: REFERENCE TO SIR JOHN LAWES, BART.

Binfield Manor, Bracknell, July 6.

Sir,—Mr. Talbot, under date the 2nd instant, has favored me with a copy of the letter sent you by last mail. He does not in so many words say so, and I have had no opportunity of seeing him on the subject; but I take it he is under the impression, from the quotation he gives you from Sir John Lawes' letter of the 28th June, that he did not misunderstand that gentleman as I stated he did in the reference to it in my speech to the Dimbula Valley shareholders.

At the risk of appearing to labour the point, whether he did or not, whilst I am willing to leave my letter to Sir John Lawes, (copy of which I enclose) and the quotation from his reply read at the annual meeting of the Dimbula Valley Company to speak for themselves, I must dwell on the fact in order that planters may have the fullest information on the points at issue. With regard to the further opinion which he obtained in writing from Sir John, so that there should be no "misconception on the point", I am afraid Mr. Talbot himself hardly grasps it. In his speech at the C.T.P. Co. meeting he was deprecating the use of forcing manures and referred to sulphate of ammonia as one he deprecated the use of, and intimated that he was backed up in this by Sir John Lawes. Sir John, however, in his letter to me expresses surprise that Mr. Talbot should have misunderstood him, vide quotation from Sir John Lawes's letter to me. The further opinion, although to some extent a qualification of what he wrote to me and for a reason I shall explain, bears out my contention that he does not think that sulphate of ammonia is too forcing, in ordinary doses of course. He says: "My objection to sulphate of ammonia does not arise *because it is a highly nitrogenous manure* (the italics are mine) but because it removes lime from the soil and I find that the Ceylon soils are rather poor in lime"—that is, he does not object to it because it is a forcing manure but because it exhausts the soil of lime. Excepting that he would not disapprove of its use unless on the score that he does not think it the most economical medium of giving a continuous supply of nitrogen to the plants, this is entirely different from saying it is too forcing or dangerous to the life of the tea plant.

At the date Sir John expressed surprise at being misunderstood by Mr. Talbot he was not aware that our soils were deficient in lime, and only came to know of it when he perused the soil analysis given in Messrs. Bamber's last pamphlet, which I presented him with, after the Dimbula Valley meeting; and in talking the subject over with him, he told me that his conversation on the subject of ammonia salts with Mr. Talbot was quite in a casual way; he thus had not the data at that time to enable him to arrive at the somewhat modified opinion he now gives. No one who knows Mr. Talbot would ascribe to him a desire to mislead his fellow planters; but in studying the Rothamsted experiments which he clearly does not fully comprehend and in making his deduction public he is not only doing so, but himself as well. For instance, his personal opinion is "seeing that where sulphate of ammonia has been applied for a series of years on permanent pastures patches of grass are dying out," he is "more than ever convinced that the use of this manure is attended with risk to the tea plant." Now in the first place he is in error in calling the experiment one on "permanent pasture." *It is on permanent grass land* producing hay which has been mowed and carried off the field, every pound of it, twice each year for a series of years, and not *pasture for grazing purposes.* In one case the ammonia, *and that fertiliser only,* let it be noticed, has been applied for a series of years. If it had been grazed upon, and only the nitrogen and phosphates removed in the process of cattle-feeding on the field, Sir John would tell him even sulphate of ammonia used by itself would not have had the effect he describes. But where can Mr. Talbot point to a single instance

of a tea field having been manured with sulphate of ammonia alone, or to the extent of two to three cwts. per acre as in the Rothamsted experiments. Half of the smaller dose named and that always in combination with other manures is the quantity generally applied in Ceylon. One may just as well conclude that salt is dangerous to the human race because it would be attended with fatal results if no other food were taken.

I hope at an early date to meet Mr. Talbot at Rothamsted and to see him convinced that there is much yet to be learned before he can venture to apply what he sees there to tea planting and I regret there has not been an opportunity of doing so before, but I could not allow his speech on these matters to pass unnoticed, if for no other reason than that his remarks seemed to me to reflect on those who differ from him and who know he spoke without book, which the London tea shareholder could not.—Yours faithfully

JAMES SINCLAIR.

(Copy.)

1st June, 1900.

SIR JOHN LAWES, BART, ROTHAMSTED.—Dear Sir,—I take the liberty of addressing you on a subject which is causing some commotion amongst tea planters in Ceylon in respect of manuring Tea Plantations, and as your authority has been given for a statement made by Mr. Talbot, who is a director of a large Tea Company, in recently addressing his shareholders, I am most anxious to have it verified by you as I cannot help thinking that by a misapprehension on the part of Mr. Talbot an opinion has been attributed to you which, if all the conditions under which the tea-bush is planted, grown and cultivated, had been laid before you, you would not have given. I am well aware how frequently opinions are attributed to scientific men which have been formed through incorrect data having been supplied to them. I may mention that I was a practical agriculturist in this country from 1859 to 1868, having been born on a farm and brougbt up to farming, and for 32 years have been in the management of coffee, cinchona, and tea estates. During that time I have kept myself in touch with your experiments at Rothamsted whenever I could find an account of them in print. When, however, I come to apply what I have gathered from my study of these to tea cultivation, I am disposed to think that Mr. Talbot has unwittingly misinterpreted you or that, perhaps when you have the data which I shall here supply, you may modify the opinion attributed to you. Mr. Talbot in his speech, in referring to the danger of using forcing manures, to the tea plant is reported to have said :—" I have also had the advantage of consulting Sir John Lawes whom you all know as a great authority on Agricultural Chemistry and he deprecates the use of forcing manures such as sulphate of ammonia as being undesirable to use." Now I have no doubt that manures, such as sulphate of ammonia and nitrate of potash, etc., used immoderately are to be deprecated as a fertiliser for tea, but I differ entirely from Mr. Talbot when he holds, as he seems to, that those who have been cultivating largely and applying these manures are doing it to an extent which will endanger the normal life of the tea bush by forcing or impoverishing their soils.

To enable you to form an opinion on this and to give your advice as to whether any of the ingredients of the Mixture I, in common with most others in use, I give you the analysis of a fair sample of the soil to which it is applied. (Here follows soil analysis and description and quantities of different manures applied). On the high lands of Ceylon the bush is pruned, or more properly speaking, cut across the hard wood two inches above the previous pruning and practically all the foliage thus pruned falls on the ground, the healthier and more manured the bush has been the greater the bulk of green foliage, but on an average on the estates I refer to each bush gives not less than 5 lb. of prunings which are often left to decay on the surface, but on well-managed estates are buried in holes or mulched in with some such mixture as I have given above. This pruning is done once in 24 months, the weight of prunings therefore, combined with the natural fall of the leaf during the 24 months would run to about 9 tons per acre when green. During the two years between prunings the green leaf taken off the bush for manufacture into tea would weigh about 4,000 lb. before being manufactured: this is all that is removed from the soil per acre as against five times the weight of prunings returned to it. The questions therefore I would ask are the following:—

1. Considering the amount of prunings returned to the soil whether mulched in or not, do you think any of the mixtures named too forcing, and if not, were the quantities doubled what would be the result?

2. Could the castor or rape cakes or any part of the mixture be left from a soil such as that of which I have given an analysis provided the prunings are carefully mulched in a green condition?

To make it more clear to you, I ought to have stated that the tea bush being an evergreen its prunings are quite unlike that of any bush in this pruned in the early spring, the green portion would probably be two-thirds of the whole weight, one-third being matured wood. It is very difficult to say what the life of a tea bush is under normal conditions, but if we take it at 50 years I think the yield would be 350 lb. per acre per annum with no aid from fertilizers, thus the total yield would be 17,500 lb. during its life. Against this on a similar soil the same yield would be got in 32 years with the cultivation we give our estates.

Is there any reason to conclude that the latter would be nearer its limit of life than the former? My experience of 10 or 12 years' manuring operations points to the contrary, but I should be very glad to have your opinion.—I am, dear sir, yours faithfully, (Signed) JAMES SINCLAIR.

[*Please note.*—The answer to this letter was quoted by me in addressing the meeting of the Dimbula Valley shareholders.]—J. S.—See page 112.

GREEN TEA MANUFACTURE.

Stagbrook, Peermaad, Travancore, July 11.

SIR,—In *re* your article* of July 6th in which you ask what my terms for "royalty" on my "process" and "machine" are, I may briefly state that the price of the machine *covers all royalties*, and in comparison with other patent tea machines, the price as advertised by my agents, Messrs. Brown & Co., is a moderate one. What I wish the public to understand is that, if they prefer to use any other "steaming machine" or process of applying steam to "green tea leaf," which is the substance of what I believe my patent covers, that in *that case*, I hold them liable for a special royalty of R250, which must be paid to my agents, Messrs. Brown & Co., for myself and partner in the patent. I do not, of course, expect to exact a royalty on *all* green tea manufactured in Ceylon. "Oolongs," which as most planters are aware, are a *species of Green Tea*, have been made before my patent, and can be made, free of royalty, so far as I am concerned. The leaf for them is rendered pliable by *hot air*, but the fermentation or oxidization is not *ever thoroughly checked* by that process, and, therefore, the

* Local "Times."

"infusions" more or less show signs of fermentation; and, when this is the case, would only get "Oolong" prices and not be classed as "Pure Green Teas," however they were marked.

I have today wired my agents, Messrs, Brown & Co., to advertise that the "royalties" are all *covered in the price of the machine*, and I trust this will be satisfactory to the planting community.—I am, etc.,

H. DRUMMOND DEANE,

THE MANURING OE TEA: DIFFERENT VIEWS.

London, June 29.

Sir,—At the annual meeting of a Ceylon Tea Company held this week the Chairman took me to task—he did not mention my name, but it is obvious he meant me—for the opinion I had expressed deprecating the use of what I termed forcing manures and quoting an extract from a letter from Sir John Lawes to show I had mistaken the opinion he had given me on the use of Sulphate of Ammonia. As I am most unwilling that there should be any misconception on this point and wish that cultivators in Ceylon should have all the information possible on it, I asked Sir John Lawes to give me his opinion in writing and he has been good enough to write to me as follows:—

"June 28.

"Dear Mr. Talbot.—My objection to Sulphate of Ammonia does not arise because it is a highly nitrogenous and soluble manure, but because it removed lime from the soil and I understand that the Ceylon Soils are rather poor in lime." * * *

As far as my own personal opinion goes I must say that after again studying the Rothamstead experiments and seeing that where Sulphate of Ammonia has been applied by itself for a series of years to the permanent pasture, patches of grass are dying out, I am more than ever convinced that the use of this manure is attended with risk to the tea plant.

I have learnt, too from the Rothamstead experiments that when Sulphate of Ammonia is applied, it forms nitrates and a certain proportion of nitrogen passes away quickly with the rain whereas this does not occur where potash and superphosphates are used—hence the advisability of using Basie Slag with Cake Manures.—Yours truly.

G. A. TALBOT,

MR. TALBOT'S EXPLANATION.

July 17.

Sir,—Mr. Talbot's explanation does not seem to simplify the difficulty very much. He agrees that, because sulphate of ammonia *applied by itself* over a series of years, to grass land, appears to be detrimental, therefore, it is so also to tea. Herein, are two fallacies; (1) tea and grass land are scarcely identical and (2) no one in Ceylon, so far as I know, except Mr. Talbot perhaps, has applied sulphate of ammonia, by itself, for a series of years, to tea. Where, then, is the so-called explanation?

Of course, what Sir John Lawes says about its removing lime from the soil is true enough and if carried to excess is detrimental; but this is a difficulty which the practical man can meet and does.—I am, &c.,

A MELVILLE WHITE.

CAMPHOR CULTIVATION.

Kandy, July 18th.

Sir,—At the request of the Committee I herewith transmit copy of a letter received from the Director, Royal Botanic Gardens, on the subject of camphor cultivation.—I am, sir, yours faithfully,

A. PHILIP,

Secretary to the Planters' Association of Ceylon.

Royal Botanic Gardens, Peradeniya, July 11th.

Sir,—The rise in price of camphor, caused by the recent establishment of a monopoly by the Government of Japan, renders it possible that camphor may become a profitable minor product here. I am carrying out a series of experiments with this in view, and should be grateful to you if you would lay this letter before your Association at its next meeting and obtain for me, if you can, any information on the following points:—

(1) Names of estates trying camphor (a good many plants have been sold by this department in recent years). (2) Approximate age of trees, number growing, soil, climate and elevation in which growing, and present size of trees, and whether they grow freely and branch and leaf much. (3) Whether owners are willing to supply a few lb. of prunings for experiments in distillation of camphor.

I propose to work up all information received and all elsewhere available on the subject, with instructions for cultivation, results of distillations, &c., into a circular to be published later in the year.

Any who care to try the cultivation can obtain plants from the Superintendent, Hakgala Gardens, Nuwara Eliya, at 25 cts. per plant.—I am, sir, your obedient servant,

(Signed) John C. Willis, Director, R.B.G.

PRODUCE AND PLANTING.

Japanese Tea.—We recently referred to a Consular report from Tokio which did not take a very cheerful view of the outlook for Japanese tea. A Yokohama report is in a similar strain. It points out that although a yearly grant of 70,000 yen (£7,000 is made by the Japanese Government to the tea guilds for the purpose of extending the sale of Japan teas, no improvement is taking place; on the contrary, the export of Japan teas has been decreasing for some years past. "Nor," adds the Consul quoted, "have foreign tea merchants, who are equally interested with the Japanese dealers in the practical and profitable disposal of this sum, appeared to have participated in any of the benefits—if such have resulted—which this measure was intended to confer." The chairman of the Yokohama Chamber of Commerce paid a visit to the United States with the object of inquiring into the conditions of the tea trade, and seeking the removal of the duty on tea by directly conferring with the President of the United States. The result of his mission we have yet to learn, and meanwhile the Japanese are reminded that in Canada, thanks to "extensive advertising" and such methods, the teas of Ceylon have made rapid progress. In this connection it may be mentioned that the growth of the trans-Pacific trade between the United States and Japan has apparently suggested that higher freight rates may be safely imposed. The representatives of steam lines between Japan and San Francisco have lately held a conference at the American Pacific port, the result of which has been a decision to raise the freight rates for tea, curios, matting, raw silk, and silk fabrics imported into the United States from Japan. The rates for imports from the United States to Japan were also, it is stated, to be raised on the average about 25 per cent.

TEA SAMPLING.—A correspondent above draws attention to a state of affairs at many of the London Tea Warehouses which is scarcely credible. If the facts be as stated a case for immediate investigation by some competent authority is urgently called for. What guarantee can a buyer have if all the samples which are furnished to him at the docks are taken from one chests ? Of course this is a matter which does not immediately concern planters, but we feel sure they would strongly condemn any such practices if they were brought under their notice ; and we can scarcely believe that the management of the various tea warehouses can have the remotest idea of such reprehensible conduct on the part of their servants. But it is proper that inquiry should be made, as the complaint is a serious one.

OVER-PRODUCTION OF INDIAN AND CEYLON TEA, AND THE REMEDIES.

(To the Editor of the *Home and Colonial Mail*).

SIR,—I was unable to be present at the annual meeting of the Ceylon Association, but I have carefully read the interesting communication from Mr. William Mackenzie, published in your issue of the 22nd, and can imagine the feelings of despondence, if not of positive despair, that the views expressed in that letter are likely to produce in the minds of shareholders in at present unsuccessful tea companies. In the first part of the letter it is stated that "production has far out-stripped consumption," and further on that "in Ceylon manuring is now helping to swell the output, and to complete the demoralisation of prices already injuriously affected by extensions of area." But after these two statements comes the following: "The price has fallen regularly about ¼d a year, whether production exceeded consumption or not."

If the last statement is correct, there has been a steady fall in prices quite irrespective of relative production or consumption. This steady fall is probably due to a decline in quality, and the only really practical method of removing this pretty generally admitted fact must be the adoption of improved cultivation, judicious manuring, and scientific manufature. Instead of regarding manuring as deterimental to the tea industry, it may fairly be contended that the planter is only following in the steps of all experienced agriculturists, who have found that every crop requires some kind of manuring.

It is now upwards of twenty-two years since I went out in 1877 officially for the Ceylon Planters Association to report as an agricultural analyst upon the manures best adapted to Ceylon coffee and tea soils. After making a very extensive tour of seven weeks through the planting districts, several months were devoted to the analyses of the soil sent from these localities, and since then at great number of soils have been forwarded to me for examination and report, especially during the last two years. With the knowledge thus obtained I have every hope that the application of judicious manuring will be of the very greatest benefit to the Ceylon tea crops. The soils for the most part are poor in the important ele ents of plant food, but the climate and rainfall are both most favourable in Ceylon to the production of frequent flushes of leaf ; so that I d not think proprietors should be discouraged by present prices, but rather bestir themselves to energetic action.

I cannot agree with the first remedy suggested by Mr. Mackenzie, namely, that all tea grown in July should be either destroyed or held off the London market, for, instead of doing this, if July tea is inferior, I should recommend that no tea should be made in July ; certainly it should not "be shipped to Russia and sold there for whatever it would fetch," becasue that proceeding would be calculated to preju ice the name of Ceylon tea.

With the second remedy recommended, namely, to pluck 10 per cent. less and aim at quality rather than quantity, I however, fully agree ; for it is to the improvement in quality that planterrs should look to if they wish to improve prices.

Tea is judged by its quality and purchased according to its quality and strength, so that each individual estate or groups of estates under one management should seek to get a better price according to the care taken in cultivation, manuring pruning, and manufacture.

As to the third remedy suggested, namely to make teas suitable to the American palate, that is a matter that may safely be left in the hands of the author, whose experience of American tastes rightly places his opinion above any doubt, and I think planters would do well to follow the advice given on this point. In spite of the general increased production of Indian and Ceylon tea there is plenty of scope for a higher individual price if attention is properly directed to the points named. Some of our poorest soils can be, and have been, made to yield remunerative crops under the influence of suitable manures, a favourable climate, and personal attention ; as, for instance, the early crops of potatoes in Jersey and the spring flowers in the Scilly Isles.

Tea planters, therefore, and those interested in tea properties need not despair, but rather direct attention to careful detail in the growth and manufacture of tea.—Yours faithfully,

JOHN HUGHES, F.I.C., Agricultural Analyst,
79, Mark Lane, E.C., June 26, 1900.

THE STRENGTH OF CEYLON TIMBERS.

THE current number of the *Imperial Institute Journal* has an interesting article by Prof. W. C. Unwin giving a comparison of the strength of Ceylon and European timbers. Very definite deductions from any set of tests on a limited number of logs must be accepted as subject to correction, but Mr. Unwin has compiled a table of European timbers representing fairly, as he thinks, what is accepted as the average of such results as are most trustworthy. Oak, elm, ash and red pine are included, and it is shown that their heaviness in pounds per cubic foot, W, is 52, 54, 47 and 37 respectively ; their crushing strength in pounds per square inch, f.c. 10,000, 10,300, 9000, and 5,800 ; their transverse strength in pounds per square inch, 12,000, 8,000, 13,000, and 8,300 ; f.c. W 193, 320, 191, and 157 ; f.b. W 230, 235, 277, and 224. Broadly speaking, the strength of timber increases with its heaviness. The most valuable timbers for structural purposes are those which have considerable strength without excessive heaviness. The pine timbers so largely used are not only easy to work, but they have good strength in proportion to their heaviness. In the figures just quoted the strengths have been divided by the weights per cubic foot, and the results are given in the last two sets. Com-

pared in this way, elm is superior to oak, and even red pine is not much inferior. The second table deals with Ceylon light, medium, and heavy timbers under the same headings. Sapu, Lunumidella and Walukina as light woods stand at 41·4, 20·4 and 32·4 respectively in heaviness; 3,490, 3,200, and 6,100 in crushing strength; 7,820, 9,510, 5,720, and 9,010 in transverse strength; 84, 157 and 188 f.c. W; and 188, 280 and 280 f b. W. In medium woods the heaviness of Jak is given as 43·4, the crushing weight 7,550, transverse strength 6,840; f.c. W 174; and f.b. W 157; Del 48·1, 6,500, 9,310, 135 and 193; Halmilla 49·9, 7,630, 15,450, 153, and 310; and Suriya 50·3, 6,230, 11,600, 124 and 233. With regard to heavy timbers the figures for Satinwood are 64·3, 5,350, 8,740, 86 and 140, and for Milla 60 9, 6,630, 14,760, 109 and 242 respectively. Taking the light wood, it is clear that as regards strength in proportion to weight, Lunumidella and Walukina stand best. Lunumidella, is not absolutely as strong as red pine; but in proportion to its weight it is even a better timber. Walukina is weaker than ash, and about the same strength as red pine. Of the medium woods, Halmilla is strongest in proportion to its weight, and Suriyamara stands next. The heavy timbers do not give very high results. Satinwood has greater transverse strength than oak, but the strength in proportion to weight is not so good. Milla and Chomuntiri have a little greater transverse strength, but their crushing resistance is low.

COFFEE IN BRAZIL: THE DUMONT CO.

To understand the position properly it is necessary to go back to the statements in the prospectus issued in 1896, and the following table shows the yield of coffee for each of the past eight years :—

	Yield in Cwts.		Yield in Cwts.
1892 ...	34,000	1896 ...	74,400
1893 ...	37,000	1897 ...	66,600
1894 ..	45,000	1898 ...	41,500
1895 ...	75,000	1899 ...	93,000

The prospectus stated that there were 7,000 acres in bearing, for which the company paid £910,000; 6,000 acres of young coffee, for which £240,000 was paid; and £50,000 was included in the purchase price for land alleged to be suitable for coffee planting. A certificate was given that in June, 1896, there were 4,426,600 coffee trees on the estate, which, at the usual average of 300 trees per acre, would give an area of 14,750 acres planted, and of these 194,000 trees, or 650 acres, were planted in October and November, 1895. At the present time, therefore, the youngest trees on the estate as acquired must be five years old, and, as the plants come into bearing at four years, the whole of the new ground should have yielded berries last season Yet, curiously enough, Mr. Talbot, who visited the property last year, gave the following figures as to the age of the different fields in September last: —

4,000 acres, 17 years and over
6.300 do between 4 and 17 years
3,000 do under 4 years.

It would be extremely interesting to know when and where these 3,000 acres of young trees were planted, but we cannot throw any light on the mystery, which is deepened by the repeated assertions at the meeting that the yield of 93,000 cwt. represented an average of 8½ cwt. per acre. The area in bearing on this calculation would therefore be about 11,000 acres, whereas according to the prospectus there ought to be at least 13,000 acres in bearing. The only conclusion we can arrive at is that 2,000 acres (nearly one-third) of the old ground, for which the company paid £910,000, have already gone out of cultivation; and if 3,000 acres are under four years of age they must have been planted since the property was taken over on land which, probably, is not suitable for coffee cultivation. All that Mr. Talbot could say about the land (for which £50,000 was paid) outside the Dumont property was that the directors "believed" that it was good for coffee, although it had not as yet been proved. But then the directors are apparently prepared to believe anything.

Another point to which we would direct attention is that according to Mr. Talbot's own figures, there are now 4,000 acres over seventeen years old. Writing about the company's affairs a year ago, we were able to give the directors some information about the peculiarities of coffee-growing, and the had evidently profited by it, for they now tacitly admit the accuracy of our statements on matters which they either ignored or suppressed when the prospectus was issued to the public. We pointed out that coffee plants reached their maximum bearing at the age of from twelve to sixteen years, and that thereafter they yield good and bad crops alternately for a few years, the average steadily decreasing till the land is completely exhausted and no more use for coffee growing. We showed that a good crop was due in 1899, and that the directors' estimate of 75,000 cwt. would probably be exceeded, having regard to the new ground coming into bearing. As a matter of fact the yield was 93,000 cwt., but, according to the ignorant and misleading prospectus estimate, it should have been 130,000 cwt. For the current year the estimate is only 73,000 cwts., although part of the 3,000 acres of young coffee should come into bearing, so that the directors have been forced to admit the truth about the alternate bad crops, although a year ago they scoffed at the theory as inapplicable to the Dumont property.

Obviously, therefore, the 4,000 acres over seventeen years of age will soon cease to yield and, on the assumption that between 2,000 and 3,000 acres have already been abandoned, £910,000 of capital will have been wiped out of existence before the shareholders receive any return on their investment. Mr. Talbot made a great point of the fact that the fields between six and ten years old in 1896 had improved when he saw them again in 1899, but that is exactly what any coffee-planter would have expected. On the other hand, he admitted that the younger fields were very disappointing, and that tends to confirm our view that planting has been attempted on land totally unsuited for the purpose.

ANGLO-CEYLON AND GENERAL ESTATES COMPANY, LTD.

EXTRACTS FROM ANNUAL REPORT.

The net profit, with the balance of profit carried forward from the previous year, after debiting the Debenture Interest and placing £5,007 12s 11d to Reserve, as shown in the audited accounts annexed hereto, amounts to £17,201 1s 5d, and the Directors recommend the payment thereout of a Dividend of 4 per cent. on the Consolidated Stock of the Company, leaving a balance of £7,201 1s 5d to be carried

forward. This Dividend will, if assented to by the meeting, be payable on the 20th July, 1900, at the London Office of the Company's Bankers.

The year in Ceylon was favorable to the production of Tea, and partly on this account, and owing also to the considerable acreage of young Tea which has recently come into bearing, a large increase was obtained from the Company's Estates. The Tea crop, which in the previous year amounted to 1,541,691 lb. from the Estates' leaf and 25,121 lb. from bought leaf, rose to 2,064,515 lb. and 70,103 lb. from the Estates and bought leaf respectively. The crop of Cocoa amounted to 1,938 cwt. as against 274 cwt. in the previous, very unfavorable year. The gross price of the Company's Tea was equal to 7.70 pence per lb. as against 8.59 pence per lb. in the year 1898-99; this difference is fully accounted for by the general fall of prices in the market, the quality of the Company's Teas having been well maintained. The average price of the Cocoa was 73/3 as against 70/1 the previous year.

In Mauritius continued rains during the months of August and September delayed the ripening of the canes, and caused a considerable diminution of the expected crop, for the canes, though large, were inferior in quality, and the general yield of Sugar was poor. Prices for Sugar in Bombay ruled low until almost the end of the financial year, and increased rates were only obtainable for the latter part of the Company's crop. 116,187 tons of canes were handled on all the Estates in which the Company is interested, and produced a crop of 10,723 tons of Sugar, as against 13,526 tons in the year 1898-99. Owing to the poorness of the season under review the realisations from La Flora and the Highlands Company's lands sold to cultivators were somewhat restricted. Out of R81,564 received, R50,000 were diverted to pay off the remaining charges and of the rest, part was employed in providing cheaper transport for Britannia, while the balance has been applied to the reduction of the value of the Mauritius Assets.

The result of the working of the Estates in Ceylon and Mauritius respectively is given in the Profit and Loss Account, calculated at the average rate of exchange of 1/4⅜ as against 1/4½ in the year 1898-99.

The prospects of the current year and the condition of the Estates, both in Mauritius and Ceylon, are reported to be good. A statement of the acrages is given in the Schedule annexed hereto.

Mr. C E S Bishop, under the provisions of the Articles of Association, retires from the Board, and, being eligible, offers himself for re-election.

The Auditors, Messrs. Welton, Jones & Co., also retire from office, and have expressed their readiness to act if re-elected.—By Order of the Board,

21st June, 1900, Henry Greey, Secretary.

CEYLON TEA ESTATES.

Estates.	Districts.	Tea in bearing 1899-1900.	Tea not in bearing 1899-1900.	Cardamoms.	Fuel Reserves & Nurseries.	Forest, Chena, &c.	Total Acreage.
Bellwood	Hewaheta, Lower	266	—	57	94	79	496
Craigie Lea	Dimbula	682	27	—	100	—	809
Dangkande	Matale, East	303	25	58	37	109	532
Darrawella	Dikoya	584	11	—	22	58	675
Delmar	Udapussellawa	791	100	3	60	389	1,343
Glendevon	do	409	14	—	43	16	482
Loolecondera	Hewaheta, Lower	1,107	93	95	258	413	1,966
Nilloomally (3/4ths)*	Kelebokka	372	35	72	52	219	754
Sinnapittia	Kadugannawa	335	—	—	80	341	756
St. Coombs	Dimbula, Upper	45	140	—	—	231	416
Stellenberg	Pussellawa	426	89	—	—	74	589
Wattawella	Dikoya, Lower	286	57	—	18	391	752
Continued below		5,606	591	285	764	2,320	9,570

* New Clearings planted 1899-1900 are 4.

CEYLON COCOA AND COCONUT ESTATES.

In Dumbara District.

Estates.	Cocoa in bearing interplanted with Coconuts not in bearing.	Cocoa not in bearing.	Sundries.	Fuel Reserves, Grass, &c.	Forest, Chena, &c.	Total Acreage.
Kondesalle	509	85	43	223	20	880
Mahaberiatenne	482	—	—	116	664	1,262
	991	85	43	339	684	2,142

SELANGOR COFFEE ESTATE.

In Klang District.

Estate.	Coffee not in bearing interplanted with Coconuts & Rubber.	Coconuts & Rubber.	Forest, Chena, &c.	Total Acreage.
Bukit Rajah	490	95	616	1,201

MAURITIUS ESTATES.

Estates.	Under Cane.	Cane lands under rotation.	Other lands.	Total Acreage.
Britannia	1,511	226	770	2,507
Cent. Gaulettes	689	159	915	1,763
Estates in which the Company is interested:—				
Beau Sejour Sugar Estates Company	2,107	1,360	1,243	4,710
Bon Air	466	7	144	617
Highlands	327	96	369	792
La Flora	—	—	268	268

FRUIT IN SOUTH AFRICA.

A man who has a very large estate with millions of fruit trees in South Africa finds that it takes two years for well-trained English gardeners to get used to the soil and atmosphere before they will succeed out there. Trees and grain need very different planting in South Africa, the English modes do not answer there,

The correspondent to the "Women's Agricultural Times," who gives this information, says that as the railway freight makes produce grown far from the coast valueless for England, this estate owner thinks of having his fruit tinned and dried, and for this he might employ ladies who might develop the industry very much. Grapes, oranges, cherries, pears, lovely apples, blackberries, peaches, strawberries, apricots, and even English gooseberries (which require frost), grow in that part of the Orange Free State bordering on Basutoland, yet tons of fruit must rot yearly for lack of means to get it to the coast.—*Home paper*, July 3.

ZOOLOGICAL GARDENS FOR COLOMBO.

A proposal has been made to establish zoological gardens. The position of Colombo is so exceptionally favourable that the success of such an institution is practically assured, but it is open to question how far it should be supported by Government, and how far left to private enterprise.

There may be some difficulty in reconciling the ends of science with those of the promoters. If the institution receives Government support, it must be of value from a scientific point of view, and must not degenerate into a bear-garden, while a number of cheap and common specimens sufficient to attack the ordinary sight-seer would probably serve the purpose of a company better than a really valuable zoological collection.

The question of a site is a serious difficulty owing to the greatly enhanced value of land in the vicinity of Colombo, but this can doubtless be overcome if the undertaking receives the support of Government.—(*Mr. Fowler's Administration Report on Western Province for1899.*)

A YOUNG SCIENTIST AND PATENTEE.

We are much pleased to have the following information from Mr. Carruthers, respecting the son of an old and esteemed friend, and one who will yet, we believe, reflect great honour on Ceylon, the place of his birth :—

"*Re* your note in the *Observer* about H. Martin Leake who is going in for plant pathology, much to my delight, as I am sure no one ever regrets choosing such an intensely interesting corner of biology—this cutting (from advertisements of "Nature" this week) will show that he (H. M. Leake) has already been of use to workers at science by the Microtome which he patented: he made a model for his own use and it had so many improved points, as compared with the 'Cambridge rocker' and other instruments, that on advice and hints from different people, he has patented it. I got the first one made, which I am using now in the Laboratory here, and am quite as pleased with it as I thought I should be, when I talked it over with him and we tested it in the Botanical Laboratory at the British Museum." The advertisement is as follows :—

W. G. Pye & Co., "Granta" Works, Mill Lane, Cambridge. Makers of Physical, Physiological, and other Scientific Instruments. Sole Makers of Leake's Patent Flat-cutting Rocking Microtome. Unsurpassed for ordinary work, unequalled for Botanical work. Price, as illustrated, in Case, £6 6s 0d.

PLANTING NOTES.

Mr. Hart, of the Botanical Department, is offering plants of *Kicksia elastica* for sale. This produces the Ire rubber of the West Coast of Africa, and is doing remarkably well in Trinidad. —*India Rubber Journal.*

Rubber.—The Sandakan correspondent of the *Singapore Free Press* writes :—"I hear it is intended to turn Mr. De Nijs' rubber plantation on the Labuk River into a Company shortly, but whether any shares will be offered to the public or not has as yet not been announced."

Ceylon Tea Plantations Company.—We are very glad to learn that Mr. William Herbert Anderson has joined the Board of the Ceylon Tea Plantations Company, Ld., in place of the late Mr. Henry Tod. It will be remembered that Mr. Anderson sold his Waverley and East Holyrood estates to the Company some years ago; while all who know him will agree with us that we should have difficulty in finding a better man than Mr. W. Herbert Anderson in connection with the Ceylon Planting Enterprise.

The Society of Experimental Fish Culture—held a meeting at the Crystal Palace, not long ago, at which (*inter alia*) Mr. Alfred Allison pointed out that the "society could not have been organised except at great expense, but for the facilities which the Crystal Palace afforded. Anyone who examined the aquaria as he had done would know they were the best in the land. Abundant basins, &c., were there, and in them he had, on bright days, seen fish basking in the sun—a sure sign that they could and did thrive in the Palace waters. With regard to the hatcheries, he believed the shrewd curator used purified water, as he should do, and the comparatively small quantity required for this purpose was quite easily obtainable. By promoting the culture of fish, apart from the likings of fishermen, additional pleasure and most instructive education would be given to the public. Only the other day he had heard from Ceylon of the successful operation there in connection with fish culture, and if they could succeed it was perfectly certain we could also." The correspondent who calls our attention to the above, pertinently asks :—"Why not have an aquarium for pearl oysters attached to the proposed Zoological Gardens for Colombo?" Why not indeed; but first we must get the Zoological Gardens.

FRUIT CULTURE IN QUEENSLAND.

By Albert H. Benson.

THE COMPOSITION AND APPLICATION OF MANURES.

In the previons part of this article I have endeavoured to show the necessity for manuring, how plants feed, and what foods are required by them. I have endeavoured to show that plants reqnire various foods in order to produce payable returns, and that the fertility of a soil is dependent on its containing these plant-foods in an available form. I now come to the import question of the composition of the various manures, and the methods of applying them in order to obtain the best results from any particnlar fruit or farm crop to which they are applied.

The old definition of the term "manure" was a very comprehensive one, as it practically included every material the application of which to the soil would more or less increase its productiveness.

This has, however, been considered too vague, and the term "manure" is now commonly understood to refer to farm mannre, or, as it is commonly called, farmyard manure, stable manure, dung or muck which consists of the solid and liquid excrements of the various farm stock, mixed with more or less straw or other absorbent matter, or to any other refuse matter, mulch, compost heap, &c., obtainable on the farm. All other manures are classed as commercial fertilisers, as in the majority of cases they are not produced by the farmer, but have to be purchased by him.

Farm Manure.

As already stated, this manure is composed of the solid and liquid excrements of all kinds of farm stock, mixed with a greater or smaller propo rtion of absorben matter. Such absorbent matter consists of straw, dried grass or weeds, ferns, cornstalks, &c., or often, in the case of animals kept in towns, of sawdust ashes, road scrapings, &c. It is a general or complete manure—that is to say, it contains all the essential elements of plant food in a more less available form, though not always in the most desirable proportions for all plants. Farm manure is greatly neglected in this oolony, and even where conserved, it is usually so badly handled that the greater portion of its manurial value is either leached out or burnt out before it is applied to the land.

The composition of farm manure varies considerably, and depends largely on the kind and condition of stock producing it, the food they are getting, and the care given to the manure when produced.

Thus the excreta of young animals is alawys inferior to that of adults, as they extract more from their food. The excreta of cows and pregnant animals is also inferior in that they abstract more from their food to produce the milk or foetus respectively. The qnality of the food always influences the value of the excreta; thus when stock are fed on foods rich in albuminous matter such as cow peas, beans, cotton-seed, &c., the excreta is rich in nitrogen. The excreta from well-fed animals is also superior to that of ill-fed animals or those in which the food ration is badly proportioned. The kind and amonnt of the absorbent material used also influence the value of the manure; so does the treatment that it received before it is applied to the land. If thrown out in the open, and the sun, wind, and rain have free access to it, from one-half to two-thirds of its manurial value is rapidly extracted from it, but if kept covered and looked after the loss is only slight. It will thus be seen that it is an exceedingly difficult matter to determine the value of farm manure produced in this colony, especially as there is no analytical data to go on, and the values given by English, German, and American authorities are of little if any guide here, as the conditions under which the mannre is produced are totally distinct. However, in the case of well-fed cows, pigs or horses the manure, if well cared for should be worth at least 5s, to 6s. per ton according to the Sydney standard of manurial values, though the best American anthorities consider that 10s. is a fair average for weel-made mixed farm manure. Besides its purely mannrial value, farm manure has several valuable properties, and it is to this that it is owes its especial value in this colony.

Farm manure contains a large proportion of organic matter which, when added to the soil, tends to improve its physical condition, making it easier to work and more friable. It also tends to increase the powder or the soil to absorb and retain mostnre—a most important consideration in a climate such as this when dry spells are more or less frequent. It also tends to free nnavailable plant food present in the soil and to retain nitrogen.

Most of our soils are deficient in organic matter and nitrogen; hence anything that will tend to improve them in this respect is of the greatest value to our cultivators. Before leaving the question of farm manure there is one other point to be considered, and that is the utilisation of waste farm prodncts and converting same into compost heaps with or without the addition of lime or commercial fertilisers. As a rule, these waste prodncts are burnt or otherwise destroyed, and, in the case of orchards especially, their loss is a very serions one. All weeds, corn stalks, pumkin, vines, banana stalks, leaves, bush scrapings, and all so-called rubbish, which is usually burnt, should be gathered and placed into a heap together with the cleanings out of any ditches, drains, or road sides. The heap should be oarefully built, and have sufficient soil mixed with it to keep it firm and cause it to rot properly, and should be covered by sheets of bark or iron, or by 6 inches or more of soil, to keep off heavy rains when once well wetted through. When partially rotten it should be turned over, and, if desirable, lime can be added, but lime will free the nitrogen present, and if there is not sufficient soil to absorb it as soon as it is freed it will be lost. If desired, phosphatic or potash fertilisers can also be added to the heap when turning and this will greatly increase its manurial value. Such a compost heap shoud be made on every orange-orchard, especially those that have been in bearing for some years, as it will be found to be the best and cheapest way of keeping up the fertility of the soil. The old orange-growers of Cumberland County, New South Wales, always considered a good top dressing of bush rakings and soil—which was practically a compost—the best possible application to the soil, and they often consider that the deterioration of many orchards is due to their inability of recent years to obtain the requisite amount of bush scraping needed for the top dressing of their trees.

There are other manurial agents about the farm that are often neglected, such as the fowl manure and nightsoil, and both of these can either be mixed with the mannre or compost heaps with beneficial results.

Farm manure, including compost heaps, can be applied to fruit trees either in the form of a mulch, or it may be spread over the gronnd and lightly ploughed or forked in. In the case of farm manure to be used as a mulch, the sooner it is used after it is made the better, as there is little if any loss once it is spread over the surface of the land. The disadvantage of fresh manure is that is apt to produce an enormous crop of weeds, whereas, when properly made, the fermentation it has undergone has been sufficient to destroy all weed seeds contained to it. In the case of farm crops it is usually best applied by being spread broadcast over the land and then ploughed in, or if desired it may be placed in drills, and the plants, such as cabbages, potatoes, &c., planted on top of it; for this purpose, however, it is advisable that it be well rotted, as if too fresh it is apt to keep the soil too loose, especially if it is of a sandy nature, and thus cause the plans to dry out should a dry spell ensue. In heavy clay soils that are deficient in organic matter it is

best to apply the manure fresh, as in this state it tends to keep the soil open, and thus render it more friable. No farmer or fruitgrower can afford to neglect farm manure, as is the common practice at present, as, no matter how rich the soil, continuous cropping is bound to deplete it of its available plant foods; and our heavy rains and high temperature rapidly exhaust the humus or organic matter in our best scrub soils, thus rendering them more difficult to work, less retentive of moisture, and deficient in nitrogen. I cannot emphasise too strongly the importance of conserving all farm manures, and I strongly recommend all fruitgrowers and farmers to make the most of all home resources of fertility before they spend their money on commercial fertilisers. Home manures should always from the basis of all manuring, and they should be supplemented.

Commercial fertilisers may be divided into two classes; complete fertilisers and especial or incomplete fertilisers. The former contain all the principal plant foods such as nitrogen, phosphgric acid, and potash, in varying proportions, whereas the latter contain only one or sometimes two of these essential elements.

There are a large number of commercial fertilisers now on the market, a considerable proportion of which cousist of the refuse of our meatworks and boiling-down establishments. These fertilisers consist mainly of blood, bones either fine or coarse, and dried refuse flesh. They very considerably in their composition, owing to the source from which they are obtained, and are valuable on account of the nitrogen and phosphoric acid they contain, but as they contain practically no potash they rank as incomplete fertilisers.

A good average sample of a bone and blood fertiliser should contain from 6 to 7 per cent. of nitrogen, and from 12 to 14 per cent. of phosphoric acid, and be worth from £4 4s. to £5 per ton. The nitrogen is available, and is valued at 10s. per unit—that is to say, each per cent. of nitrogen present in the fertiliser is worth 10s. per ton. The phosphoric acid is insoluble, and is only worth 2s. per unit, and the rapidly with which it becomes available for plant food depends on the fineness to which it has been ground: thus, fine bonemeal is rapidly acted upon by the carbonic acid in the soil, and rendered soluble and available for plant food, whereas coarse bones only become available slowly, and their action lasts over a considerable time. When quick results are required the manure should be ground as finely as possible; but for crops such as fruit trees, which occupy the soil for many years, it is advisable to have a proportion of coars material mixed with the fine, so that the action of the fertiliser may be more lasting. The proportion of nitrogen and phosphoric acid in such manures varies considerably, and it is dependent on the amount of dried blood, bone matter, or dried flesh present. When there is a large portion of dried blood or flesh, then the nitrogen is high: but when there is a greater proportion of bone matter, then the nitrogen is lower and the phosphoric acid higher.

Instead of mixing the blood, bones, &c., together, they are sometimes kept separate and sold as either bonedust or blood-manure.

A good sample of bonedust should contain from 50 to 55 per cent. of bone phosphate, equal to 23 to 25 per cent. in round figures of insoluble phosphoric acid, and about 3 per cent. of nitrogen, and be worth from £4 to £4 5s. per ton.

A good samplo of dried blood should coutain 12½ per cent. of nitrogen, and be worth £6 5s. per ton; and of nipho, 12 per cent. of nitrogen, worth £6 per ton.

Bonedust is most advantageously applied in conjunction with other manures, such as superphosphate, sulphate of ammonia, or sulphate of potash, but if it is used alone it should be applied to the land some time before it is required; otherwise it will not be available on account of its insolubility, but will tell more on the succeeding crops than to that to which it is applied. Blood and nipho, on the other hand, are in a readily available condition, and the crop to which they are applied derives a quick benefit therefrom. They can, therefore, either be applied at the time of planting the crop or can be used as a top dressing by being applied broadcast, and either harrowed, cultivated, or chipped in according to the nature of the crop to which they are applied. Neither blood nor nipho are complete fertilisers, as their manurial value depends entirely on the nitrogen they contain, and, before they can be made complete, must have phosphoric acid and potash added.

A second class of commercial fertilisers are these special fertilisers containing only one element of plant food, usually either nitrogen or potash—such as sulphate of ammonia, nitrate of soda, sulphate of potash, muriate of potash, and kainit.—*Queensland Agricultural Journal.*

(*To be continued*).

OSIER OR WILLOW, CULTURE FOR INDIA AND CEYLON.

The cultivation of Osiers, *i.e.*, species or varieties of Willow which are specially adapted for basket-making, should prove successful, if not a profitable industry, in the hill districts of India and Ceylon. This perhaps is already an established fact in the former country, though apparently Willow culture has never tempted a proper trial in Ceylon. Considering the importance of this industry in Europe, more especially in France and Germany, where it gives employment to many thousands of persons, it is not surprising to hear of fresh interest being manifested in its development in America and Australia. The U. S. Department of Agriculture, Division of Forestry, has lately issued a pamphlet on the subject, dealing with the cultivation and use of Osiers, together with notes on their geographical distribution and characteristics.

Willow-ware should win popularity in India, where the best of timbers are affected by the climate, becoming expanded in wet, and contracted in dry weather. Considering also the universal habit of the natives in carrying everything on their heads—which with even field or factory labourers is practically the only mode of transport—and the immense number of baskets which must consequently be used in the various agricultural and other industries, light Willow baskets should, in certain districts, find a ready demand. Though bamboo or rattan wares, perhaps, answer the purpose equally well, these are not everywhere easily procurable, and in some localities their cost is probably more than what the Willow article could be supplied for. Besides transport-baskets, tea-baskets, manure-baskets, etc., the flexible Willow shoots are fitted for a great variety of useful and ornamental articles of wicker-work, the making of which should prove a favourite and remunerative occupation for many natives.

Willow cultivation involves but little care or expense. A marshy soil by the side of streams or rivers, or round lagoons, such as is unfit for other agricultural pursuits, is the most suitable. No manuring is required, and a renewal of plants is seldom necessary. Propagation is usually effected by cuttings, which should be about 15 inches long and planted in lines 2 feet apart. A crop may be expected in the second or third year. Planted on sloping swampy land, Willows should also serve the purpose of binding the soil and preventing it being washed away in heavy rains.

Among the best Willows for basket-making are: *Salix amygdalina, S. viminalis, S. purpurea S. lucida,* and *S. caprea.*—H. F. MACMILLAN, Peradeniya, Ceylon.—*Indian Gardening.*

ON CEYLON ROCKS AND GRAPHITES *

BY A. K. COOMARA SWAMY, F.G.S.

Ceylon is surrounded by raised beaches, and has been elevated in recent geological times; fluviatile deposits also occur; the gems for which Ceylon is famous are obtained from gravels in the Ratnapura district. With the exception of these recent deposits, the island probably consists entirely of ancient crystalline rocks. Pyroxene-granulites are recorded from several localities; they are dark in colour and greasy in lustre. Foliation is not evident, but it may appear in thin slices. The minerals most frequently present are augite or hypersthene, or both, plagioclase (usually labradorite), orthoclase-microphorite, garnet, quartz, amphibole, magnetite, apatite, zircon, and biotite—the pyroxene and felspar alone being essential constituents. Varieties approach gabbro and eclogite. The texture is granulitic or granular. Centric structures are very characteristic, probably resulting from the corrosion of garnets. Normal granulites are white or grey and usually contain red garnets. The minerals are quartz, orthoclase, and microline-microperthite, plagioclase, and garnet; biotite, magnetite, ilmenite, apatite, and zircon are often present; and the texture is granulitic. Microcline-gneiss, sometimes with hornblende, occurs in conical hills, originating the term domoid gneiss employed by Prof. Walther. The minerals include orthoclase and microcline-microperthite, quartz, plagioclase, biotite, pyroxene, amphibole, pyrite, magnetite, apatite, and zircon. Anorthosite-gneiss, gneissic granite, and pegmatite are also described Dark diorites (containing amphibole, plagioclase, quartz pyroxene, biotite, magnetite, apatite, and zircon), dolerite, hornblende-gabbro, and ophitic quartz-norite are also present. The white, crystalline limestones usually contain pale mica and blue apatite; sometimes also colourless pyroxene. Banded scapolite and wollastonite bearing rocks are found at Galle. Certain rocks, apparently vein products are also described, which contain quartz and calcite micrographically intergrown.

Graphite occurs chiefly in branching veins in igneous rocks, which at Ragedara are granulites and pyroxene granulites. The relations to the matrix are described, and are held to favour the idea of the deposition of the mineral as a sublimation product (Walther), or from the decomposition of liquid hydrocarbons (Diersche). Analyses of several of the minerals, including manganhedenbergite, are given, and a bibliography of the geology of the island is appended.

DISCUSSION.

Professor BONNEY expressed his sense of the importance of this paper, on which he knew that the author had expended great labour. It was interesting to find so great a mass of ancient crystalline rocks practically unaffected by pressure. The relations of the garnets, felspar, and pyroxene were most interesting and suggestive, and so, too, was the mode of occurrence of the graphite. He thought the paper was very valuable as illustrating the formation of a root-like graphic structure, which he thought implied crystallisation under obstruction, while the ordinary rectilinear "graphic" structure (to which the name was originally given) implied that one of the two minerals was not resisted by the other.

Dr. J. W. EVANS referred to the resemblance between the rocks described in the paper and those of Southern India, of which Ceylon was geologically an integral part. Towards the south of the Indian peninsula the ancient sedimentary rocks disappeared, though the extensive granitoid gneiss still continued, The most remarkable fact, however, was the extraordinary development of the chamochite series of Mr. Holland, which appeared to be identical with the present author's pyroxene-granulities. These formed the lofty mountain masses of the Nilgris and Annamalais, and were, it seemed, the chief feature of the most elevated regions of Ceylon. Graphite also occurred in Southern India, not only in dykes in Tavancore, but in flakes in holocrystalline igneous rocks both in Mysore and in British India.

The PRESIDENT also spoke.

The AUTHOR stated, in reply to Dr. EVANS, that small flakes of disseminated graphite occurred in several of the igneous rocks of Ceylon. He distinguished between the graphite occurring thus as a subordinate rock-forming mineral, and the vein graphite which had been deposited after the consolidation of the rocks in which it was found. In conclusion, he heartily thanked the Fellows for the very kind way in which they had received his paper.—*Mining Journal*, June 23.

* Paper read before the Geological Society of London.

PRODUCE AND PLANTING.

ARTFUL JAPANESE.—Japanese tea dealers, with the object of securing good prices, have been diligently spreading reports this season of a shortage of 15 to 20 per cent., in the first crop. It is now said to have been ascertained that the crop is fully up to the average, and even shows an excess as regards the yield of fine teas, considerable stocks of which are being held up-country. Adverse reports were also being circulated respecting the second picking, but here again it is positively asserted, in contradictions of these reports that the conditions have been extremely favourable to increased supplies this year, and that the third and fourth crops will also be abundant.

THE WORLD'S RUBBER SUPPLY.—The total world's supply of rubber today is about 120,000,000 to 130,000,000 lb, valued at about £15,000,000. At the present time lactiferous plants yielding "caoutchouc," or "rubber," are being worked for commercial purposes in Brazil, Bolivia, Central America, East and West Africa whence come the chief supplies, whilst Guiana, the Eastern Archipelago, Madagascar, India, and Ceylon contribute a small quantity to the general stock. More than half the total supply is exported from the Amazon district. Owing to the recuperative power of the tree it is improbable that the available supply of rubber from the Amazon valley will be exhausted in the near future. Also the enormous area over which the estates extend makes it unlikely that unexpected events should occur by which the industry as a whole would be damaged. For the same reason, and owing to the scarcity of labour. it is improbablo that any very sudden increase or decrease of the annual production will occur. The tendency is at present for a slight increase of the total production each year.—*H. and C. Mail*, July 13.

CACAO FERMENTATION.—A report as to experiments on the fermentation of cacao in Grenada forwarded by the Secretary of the Grenada Agricultural Society was referred to the Trinidad Cacao Committee with a view to local experiments of the same nature. They reported that there is no appreciable difference in the ultimate weight of cured cacao by reason of a short or long period of fermentation.—*Trinidad Agricultural Journal.*

ABOUT MALACCA TEA.

(By an Expert.)

I have been reminded about tea from Malacca tea having come into the market; and on tasting it, I find it most excellent tea, and able to hold its own alongside of Indian tea, at a smaller price. My knowledge of tea goes back to a very early period, having hobnobbed in 1863 with old C. A. Bruce who (in 1825) was the discoverer of the tea plant in Assam. He was charged by the old East India Company with starting the proper cultivation of the plant and manufacture of the leaf—the first efforts made to grow and make tea out of China, which has now spread all over India north and south, Ceylon, Natal, Java, the Fiji islands, and now to Malacca! He had a large staff of Chinese workmen placed under him imported from China; and many a story I could relate of his narrow escapes from the wild animals which then abounded in Assam, and from the wilder and more savage tribes who in those days made Upper Assam the scene of their predatory attempts. On one occasion—and this happened in Tezpur which he had made his headquarters and where he hal his bungalow with his wife and children—while he was seated with his family having his evening tea, a wild elephant walked inside the house, carrying door-frames and all round his neck, crushing the frail mat walls, and putting every one to a speedy flight. When I add that tiger used to walk about the then newly-laid-out streets of Gowhatty, which afterwards became the capital of the province, it will be seen through what dangers Mr. Bruce and the early officials there had to go. However pleasant—for they were pleasant—early reminiscences of the early days of Assam and the first growth of tea outside China may be, I cannot linger on them.

I feel sure, and do not make the least doubt, that whoever has begun the tea industry in Malacca knows his work well and thoroughly. I say this from the excellent quality and flavour of "Malacca tea."—*Straits Times*, July 19.

RUBBER CULTURE IN COSTA RICA.

(From a London Merchant.)

You may be interested to hear that rubber is being freely cultivated in the Sarapiqui district and we are starting in the same direction. The Castilloa is a hardier plant than most rubber trees, needs very little weeding after the first year and grows like the jungle tree. Some say that there is no need to fell any of the jungle trees save only the undergrowth, a small distance round the new plant, but I think the sounder opinion is that a little felling is good, though certainly not to the extent that has been carried on in other countries. When Costa Rica is well opened up it will supply a substantial percentage of the world's rubber.

A BICENTENARY CELEBRATION.

The sweet pea is to have a bicentenary celebration of its own; there is to be a conference of a sweet pea growers in London, and an exhibition wholly devoted to specimens of this fragrant and beautiful flower. We can only say it deserves thoroughly all the honours which can be paid to it. The sweet pea is said by some to have been introduced to Britain from Sicily in 1700—hence the bicentenary of this month—but according to another version two varieties made their appearance about the same time, one from the sunny shores of the Mediterranean and the other from Ceylon, and were combined to form the flower as we have it now. It was in its original form of a modest bluish-purple, the exquisite varieties which are now to be found in our gardens having been gradually developed by the Horticulturist's Art; indeed, it may generally be said that, contrary to the common belief, no familiar flower has undergone so great a transformation. The sweet pea has not been much sung by poets, though Keats has an exquisite allusion to it as "on tip toe for a flight" in some of his earliest verses. No nation has taken it for its emblem; it has not ever had any political significance thrust upon it. But its delicious fragrance, its elegant and graceful form, and its adaptability to a great number of decorative purposes make it an immense favorite everywhere. Rich and poor cultivate it alike, and it is an absolutely essential denizen of those sweet old-fashioned gardens which so many talented pens have recently translated into literature for those not fortunate enough to possess them.—*Home Paper.*

JAMAICA PINEAPPLES.

Another shipment of pineapples from Jamaica has been put upon the market, and has again caused a stir in Covent Garden. They consisted of over 500 packages of fruits, and they were in very fine condition when they came to hand. This forms the second direct shipment into this country, the first parcel being sold at prices ranging from 1s 6d to 2s 6d per pine, and the first announcement of which was published in the *Globe* at the time. From an interview with one of the largest importers in the trade, it would seem that the direct trade in pineapples, between Jamaica and London, may now be considered as established on a business footing.—*Globe*, July 12.

RAINFALL RETURN FOR COLOMBO.

Supplied by the Surveyor-General.)

	1895.	1896.	1897.	1898.	1899.	Av of 30yrs.	1900.
	Inch.	Inch	Inch	Inch	Inch.	Inch.	Inch.
January ..	5·00	2·92	3·81	2·32	6·98	3·22	3·72
February ..	0·81	0·35	1·68	1·98	2·78	1·93	0·63
March ..	1·84	5·64	3·66	4·21	0·88	4·78	3·71
April ..	9·34	5·93	10·97	22·81	6·66	11·31	15·12
May ..	10·09	9·31	8·30	5·80	17·73	12·09	10·63
June ..	13·99	8·37	10·14	10·94	9·23	8·37	7·83
July	0·52	2·85	5·24	6·15	1·11	4·38	6·77
August ..	0·92	6·35	9·09	0·97	0·62	3·67	1·67*
September	4·09	10·99	4·58	6·90	1·48	5·01	
October ..	30·36	16·78	4·71	20·60	12 99	14·52	
November..	5·83	19.81	11·66	17·38	8·58	12 66	
December..	9·44	11·76	8·89	3-05	4·44	6·39	
Total..	92·23	101·06	82·73	103·11	73·48	88·33	50·08

* From 1st to 8th Aug. 1·67 inches, that is up to 9-30 a.m. on the 9th Aug.—ED. *CO.*,

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS FOR JUNE 1900.—We append the Monthly Return of rain from which it will be seen that the highest fall in June, was at Padupola in the Central Province. 39·83 inches and the lowest at Vavuniya in the Northern Province, 0·02 inches.

WESTERN PROVINCE.

Negombo, Mr. Bucknall (6) ... 3·43
Kalutara Mr. Gregson (36) .. 10·99
Labugama, Mr. Bond (369) ... 13·49
Henaratgoda, Mr. Silva (33) .. 8·67

CENTRAL PROVINCE.

Katugastota, Mr. Morgan (1,500) ... 6·4
New Valley, (Dikoya) Mr. Ward (3,700) .. 32·21
Helboda (Pussellawa) Mr. Anderson (3,300) .. 21·68
Yarrow Estate, Mr. Penwick (3,400) 14·98
Peradeniya Mr. MacMillan (1,540) ... 11·07
Duckwari, Mr. Edwin (3,300) ... 9·47
Caledonia, Mr. Goork (4,273) .. 16·93
Pussellawa, Mr. Powell (3,000) .. 16·77
Hakgala, Mr. Nock (5,581) ... 9·53
S. Wanarajah Estate, Mr. Tatham (3,700) .. 30·79
Padupola, Mr. Ward .. (1,636) ... 39·83
Mylapitiya, Mr. Fletcher (1,707) ... 0·58

NORTHERN PROVINCE.

Mullaittivu, Mr. Sanmukam (12) .. Nil
Jaffna Mr. Macdounel (8) 0·39
Mankulam, (N. Road) Mr. Walker (167) ... Nil
Elephant Pass, Mr Silva (7) — Nil
Vangalachettykulam, Mr. Oorloff (179) .. Nil
Point Pedro, Mr. Chitampalam (24) ... 1·34
Jaffna College, Mr. Cooke (9) ... Nil
Kayts, Mr. Kretser .. (8) .. 0·89
Kankesanturai, Mr. Pararachasingha (10).. 0·14
Pallai, Mr. Silva (24) .. Nil
Murlkandy, (North-Central Road) Mr. Silva (7) Nil
Nedunkeni, Mr. Sanmukam (122) ... Nil
Chavakachcheri, Mr. Silva (16) ... 0·20
Udupiddi, Mr. Brown (35) .. 1·06
Marichchukaddi, Mr. T. Pillay (14) 0·30
Murungan, Mr. Ramalinkam (52) 0·94
Vavuniya Mr. Walker (318) 0·02

SOUTHERN PROVINCE.

Ella Vella Mr. Caldicott (262) 20·73
Kekauadura, do (150) 22·64
Denagama, do (286) 18·00
Udukiriwila Mr. Lourensz (235) .. 10·49
Kirama, Not received (260) —
Hali-ela Mr. Caldicott (200) 18·45
Tissa Mr. Silva (75) .. 0·78
Matara Mr. Caldicott (15) 9·72
Dandeniya, do (175) 15·95
Urubokka, Mr. Caldicott (890) 23·86
Tangalla Mr. Fox (94) 4·58
Mamadola, Mr. Doole (56) .. 7·96

EASTERN PROVINCE.

Irrakkamam, Mr. Bower (42) ... 0·80
Devilana, Mr. Vanderstraaten (136) Nil
Sagamata, Mr. Bower (40) ... 0·98
Ambare, do (65) 0·99
Kanthalai, Mr. Carte (150) 0·08
Allai, Mr. Carte (95) Nil
Rukam, Mr. Vanderstraaten (120) ... Nil
Periyakulam, Mr. Carte (20) ... Nil
Chadaiyautalawa, Mr. Edge (57) Nil
Kalmunai, do (12) Nil
Rotewewa, do (30) Nil
Lahugala, do (70) 0·50
Naulla, do (30) Nil
Audankulam, Mr. Carte (41) ... Nil
Manalpuddy, Mr. Vanderstraaten (21) Nil
Maha-Oya-Tank, Mr. Vanderstraaten (190) 1·72
Potuvil, Mr. Subramaniam — Nil

N.-W. PROVINCE.

Magalawewa, Mr. Gunaratna (176) .. 7·26
Maha Uswewa tank, Mr. Addams (160) ... 5·50
Tenepitiya, Mr. Churchill (8) ... 9·50
Batalagoda, Mr. Madahapola — 5·55

N.-C. PROVINCE.

Kalawewa, Mr. Emerson (268) 0·70
Maradankadawala, Mr. Emerson (443) ... 1·12
Mihiutale, Mr. MacBride (354) .. Nil
Horowapotana, Mr. MacBride (217) .. Nil
Madawachchiya, Mr. MacBride (285) .. 0·20
Topare, Mr. Jayewardane (200) .. Nil
Miuneriya Mr. Eves — Nil

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) .. 0·65
Haldummulla, Mr. Viramuttu (3,160) .. 3·32
Kumbukan, Mr. Rowland (446) ... Nil
Koslanda, Mr. Rowland (2,258) ... 1·57
Tanamalwila, Mr. Silva (550) .. 1·95
Bibile, Mr. Silva (680) 0·25
Taldena, Mr. Fernando (1,100) .. 0·80
Alutnuwara—Mr. Leembruggen (500) 0·25

SABARAGAMUWA.

Ambanpitiya, Mr. Dassanayaka (729) 13·13
Pelmadulla, Mr. Robertson (480) 37·12
Kolonna Korale (Hulanda-oya) Mr. Dabre (203) 2·86
Avisawella, Mr. Clarke (105) .. 18·89

S. G. O. METEOROLOGICAL OBSERVATIONS FOR FEBRUARY, 1900.

The following is the return of the total fall of rain for February, from which it will be seen that the highest fall was at Maduwanwala, Rakwana 9·86 inches, and the lowest at Mannar and Hambantota 0·02 inches.

Colombo (40) 0·63
Ratnapura (84) 4·19
Puttalam (27) 0·22
Anuradhapura (295) 0·16
Mannar (12) 0·02
Jaffna (9) 0
Trincomalee (12) 0
Batticaloa (26) 1·18
Hambantota (50) 0·02
Galle (48) 3·49
Kandy (1,654) 0·77
Nuwara Eliya (6,188) 0·84
Hakgala, Nuwara Eliya (5,581) 0·97
Badulla (2,225) 1·08
Kurunegala (381) 0·23
Maligakanda, Colombo Mr. Johnson (70) 0·93
Agricultural School Colombo, Mr. Rodrigo 3·50
Passara Hospital, Passara (Mr. Thomasz) 2,200 3·10
Welhelmina, Puttalam, Mr. Ratunyeke (131) 0·13
Horakele Estate, Chilaw, Mr. Beven (50) 0·99
Chilaw Kachcheri Chilaw, Mr. Koch (10) 0·27
Franklands Estate —
Veyangoda, Mr. Beven 0·94
Orange Hill, Ragama Mr. Bury (50) 1·21
Henaratgoda Gardens, Henaratgoda, Mr. de Silva (33) 1·16
Kotua Godella, Rambukana Mr. Windus (550) ..
Eadella or Liberia Estate Polgahawela Mr. Craighead (425) 1·50
Geekianakanda, Neboda Mr. Towgood (200) ..
Polgahakanda, Neboda Mr. Wight (300) ..
Labugama, Hanwella. Mr. Bond (369) 5·19
Bayigam, Horana, Mr. Dawson, (300) 4·79
Kanangma, Avissawella Mr. Cooke (200) 2·44
Dunedin Estate, Avissawella, Mr. Bayley, (400) 1·07
Digalla Avisawella, Mr. Tottenham, (400) 3·76
Pambagama, Avisawella, Mr. Bridgman (600) ..
Avisawella Estate Avisawella Mr. Byrde (250) ..
Yatideriya, Kegalla, Mr. Fairweather — 0·94
Mahawalatenna, Balangoda Mahawalatenna R. M. 4·18
Agarsland Estate Balangoda Mr. Boyd (2,215) ..
Maduwanwala, Rakwana, Maduwanwela R.M. (750) 9·86
Anninkanda, Morawaka, Mr. Anderson, (1,400) 8·05
Panilkanda, Morawaka, Mr. Davidson (1,900) 7·11
St. John Del Rey, Bogawantalawa Mr. Glanville (4,300) 4·22
Friedland, Bogawantalawa Mr. Rammell (5,200) ..
Campion, Bogawantalawa, Mr. Giddeu, (4,840) 3·72
Blair Athol, Dikoya, Mr. Lane (3,641) 2·51
Annfield, Dikoya, Mr. Knight (4,300) 1·54
Maskeliya Hospital, Maskeliya Dr. Poulier (4,200) 6·35
Hope Estate, Hewaheta, Mr. Bagot (5,100) 1·55
Coldstream Estate, Watawala Mr. Spedding (3,800) 1·82
Holmwood Est., Agrapatana, Mr. Gray (5,240) 4·47
Sandringham, Agrapatana Mr. Orchard (5,200) ..
Gingran-oya, Kotmale, Mr. Cox (3,800) 2·36
Labookelle, Ramboda, Mr. Stone (5,000) 2·46
Dunsinane, Pundalu-oya, Mr. Metcalfe (4,800) 1·36
Sogama, Pussellawa, Mr. Eustace (3,500) 1·19
Kurundu-oya, Maturata, Mr. MacMahon (5,150) 3·58
Kabaragalla, Maturata, Mr. Maclean (4,400) 1·51
Maragalla Estate, Moopana, Mr. Betts, (2,200) 2·01
Mupana, Hospital, Mupana (Mr. Sela) (500) 1·49
Madulsima Hospital, Lunugala Dr. Vethecan (3,600) 0·56
Badulluwella Hospital, Badulluwella (450) 3·84
Meerrabedda, Haputale, Mr. Dupuis (3,600) 2·90
Udaheua Estate, Haputale, Mr. Bisset, (4,100) 5·44
Haputale Hospital Haputale Mr. VanReoyen (4800) 0·91
Post Office, Bandarawela, Mr. Mendis (4,035) 0·58
Callander, Ohiya Mr. Green (5,125) ...
Mariawatte, Gampola Mr. Salmond (1,600) 0·48
Orwell Estate, Gampola Mr. Taylor (1,800) 0·62
New Forest, Deltota, Mr. Wardrop (3,500) 1·92
Rajawella, Estate, Telleniya Mr. Miller, (1,500) ...
Lower Spring Valley, Badulla Mr. Rettie (3,650) 0·63
Gouravele Estate, Badulla Mr. Hope (1,200) 0·90
Mousagala Estate, Badulla, Mr. Deaker (4,500) 1·39
Ledgerwatte, Badulla Mr. Rettie (4,000) 1·74
Hambegamuwa Tank, Badulla (RanbandaKorala)
Dea Ella Estate, M'watenua Mr. Vanderslott (800) 2·04
Pathugalla, Kegalla Mr. Sancti (550) 0·51
Sembawatte Estate, N'pitiya Mr. Jamieson(1,600) 1·40
Gammaduwa, Estate, Rattota Mr. Westland (2,400) 2·72
Kobonella Estate, Rangala, Mr. Pole (3,300) 4·14
St. Martins, Rangala, Mr. Ellis (3,600) 4·14
Crystal Hill, Matale, Mr. VanStarrex (1,400) 0·46
Vicarton Estate, Matale Mr. Carde (3,250) 0·15
Matale Mr. Tisseverasinghe (1,208) 0·32
Wariapolla, Matale, Mr. Dickenson (1,200) 0·28
Dambulla, Mr. Sinuatamby (400) 2·02
Kotta Estate, Pallai, Mr. Todd (13) ...
Mantota Hospital, Mannar. Mr. Adams (17) 1·25
Buttala Hospital, Buttala, Mr. Perera ... 0
Police Station, Hatton Police Constable Miskin(1,141) 1·10
Medway Estate Nilaveli, Mr. Abraham, .. 0
Delwita, Kurunegala Mr. Price (490) 0
Woodside, Uragalla Mr. MacMahon (3,000) 0·40
Gillardstown, Wattegama Mr. Hardy (2,500) 1·08
Ja ela Hospital, Ja-ela Mr. Fernando (4) 1·40
Maspana, Uda Pussellawa Mr. Jones (2,000) 2·29

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	900	—	900
Ceylon Tea and Coconut Estates	500	—	500	—
Castlereagh Tea Co., Ltd.	100	..	—	90
Ceylon Hills Estates Co. Ltd..	100	—	..	—
Ceylon Provincial Estates Co. Ltd.	500	—	—	500
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	80	—	—
Clyde Estates Co., Ltd.	100	40	—	—
Doomoo Tea Co., Ltd.	100	60	65	—
Drayton Estate Co., Ltd.	100	1 0	—	—
Eila Tea Co., of Ceylon, Ltd.	100	..	—	—
Estates Co., of Uva, Ltd.	500	—	225	225
Gangawatta	500	—	—	—
Glasgow Estate Co., Ltd.	500	935	—	—
Great Western Tea Co.,	[illegible]	600	—	—
Hapugahalanle Tea Estate Co.	200	—	—	—
High Forests Estates Co., Ltd	500	520	—	—
Do part paid	350	—	—	—
Horekelly Estates Co., Ltd.	100	—	—	—
Kalutara Co., Ltd.	500	—	375	—
Kandyan Hills Co., Ltd.	100	—	—	—
Kanapediwatte Ltd.	100	85	—	—
Kelani Tea Garden Co., Ltd.	100	—	—	—
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	70	—
Maha Uva Estates Co., Ltd	500	—	—	490
Mocha Tea Co., of Ceylon, Ltd.	500	615	—	—
Nahavilla Estate Co., Ltd.	500	—	400	—
Neboda Tea., Co. Ltd	500	—	500	—
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estate Co., Ltd.	100	—	—	—
Palmerston Tea Co., Ltd.	500		400	—
Penrhos Estates Co., Ltd.	100	100	—	100
Pine Hill Estate Co., Ltd.	60	—	42½	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	—	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co. Ltd.	100	52½	—	—
Roeberry Tea Co., Ltd.	100	47½		—
Ruanwella Tea Co., Ltd.	100	—	40	—
St. Heliers Tea Co., Ltd.	500	510	—	—
Talgaswela Tea Co., Ltd.	100	—	—	..
Do 7 per cent Prefs.	100	—	..	—
Tonacombe Estate Co., Ltd.	500	—	450	—
Udabage Estate Co., Ltd.	100	—	..	—
Udugama Tea & Timber Co., Ltd.	50	—	..	—
Union Estate Co., Ltd.	500	.	...	—
Upper Maskellya Estate Co. Ltd.	500	—	450	...
Uvakellie Tea Co., of Ceylon, Ltd.	100	60	—	..
Vogan Tea Co., Ltd.	100	75	76	75
Wanarajah Tea Co., Ltd.	500	1100	..	..
Yataderiya Tea Co., Ltd.	10	...	375	..

Ceylon Commercial Companies

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	..	..	..
Bristol Hotel Co., Ltd.	100	110	115	110 xd
Do 7 per cent Debts	100	107·50	...	..
Ceylon Gen. Steam Navg'n Co., Ltd.	100	—	—	216
Colombo Apothecaries' Co. Ltd.	1 0	142·50	...	142·50
Colombo Assembly Rooms Co., Ltd.	20	12·50	..	...
Do prefs.	20	...	..	..
Colombo Fort Land and Building Co., Ltd.	100	85	—	90
Colombo Hotels Company	100	..	300 xd	—
Galle Face Hotel Co., Ltd.	100	..	—	145
Kandy Hotels Co., Ltd.	100	...	120	—
Kandy Stations Hotels Co.	100	..	30	...
Mount Lavinia Hotels Co., Ltd.	500	150	..	...
New Colombo Ice Co., Ltd.	100	175	180	..
Nuwara Eliya Hotels Co., Ltd.	100	...	30	...
Do 7 per cent prefs.	100	..	..	..
Public Hall Co., Ltd.	20	15	...	..
Petroleum Storage Co.	100	..	.	..
Do 10 % prefs.	100	...	...	..

LONDON COMPANIES.*

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon,	10	8½	9½—10	..
Anglo Ceylon General Estates Co.	100	..	35—45	..
Associated Estates Co., of Ceylon	10	..	3—4	...
Do. 6 per cent prefs.	10	..	0½—7½	..
Ceylon Proprietary Co.	1	...	⅝—⅞	..
Ceylon Tea Plantation Co., Ltd.	10	..	26—27	..
Dimbula Valley Co., Ltd.	5	..	5½—6	..
Do prefs.	5	..	..	...
Eastern Produce & Estates Co.	5	...	5½—5¾	...
Ederapolla Tea Co.,	10	...	8	...
Imperial Tea Estates Co., Ltd.	10	...	..	
Kelani Valley Tea Assn., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	7—8	..
Lanka Plantation Co , Ltd.	10	4½	4—5	..
Nahalma Estates Co ,Ltd.	1	-	¼—¾	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	10	...	10
Ouvah Coffee Co., Ltd.	10	..	5—7	...
Ragalla Tea Estates Co., Ltd.	10	..	10	..
Scottish Ceylon Tea Co., Ltd.	10		13—15	...
Spring Valley Tea Co., Ltd.	10	3	4—5	..
Standard Tea Co., Ltd.	6	..	11—12	..
The Shell Transport and Trading Company, Ltd.	100	..	...	302
Yatiyantota Ceylon Tea Co., Ltd.	10	...	8—9	...
Do. pref. 6 o/o	10	...	9¾—10¼	..

BY ORDER OF THE COMMITTEE.

Colombo, August 10th, 1900.

*Latest London Prices.

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, Aug. 8th, 1900.

Article	Price
Coffee:—	
Estate Parchment per bushel	R·800 to 10·50
Chetty do do	None offering.
Native Coffee per cwt.	None offering.
do F. O. B per cwt.	None offering.
Liberian coffee:—per bushel	None offering.
do cleaned coffee:—per cwt	None offering.
Cocoa unpicked:—per cwt	None offering.
do cleaned do	None offering.
Cardamoms Malabar per lb	R0·90 to 1·00
do Mysore do	R1·25 to 1·60
Rice:—	
Soolai per bag of 164 lb. nett	R9·12 to 9·50
Slate or 1st quality:—per bushel	R3·55 to 3·60
Soolai 2 & 3rd. do do	R3·48 to 3 53
Coast Calunda	R4·12 to 4·25
Coast Kara	R4 00 to 4·12
Kazala	R3·45 to 3·47
Muttusamba Ordinary	R5·37 to 6·00
Cinnamon per lb No 1 to 4	R00·52 to 00·53
do do 1 and 2	R00·60 to 00·62
do Chips per candy	R87·50
Coconuts Ordinary per thousand	R35·00 to 38·00
do Selected do	R36·00 to 39·00
Coconut Oil per cwt	R14·25 to 14·37½
do do F. O. B. per ton	R285·00 to 287·50
Poonac:—	
Gingelly per ton	R100·00 to 105·00
Coconut Chekku do	R80·00 to 85·00
do Mill (retail) do	R85·00
Cotton Seed per ton	R85·00 to 87·50
Copra per candy	
Kalpitiya do	R45·00 to 45·50
Marawilla do	R43·00 to 45·50
Cart Copra do	R37·00 to 43·00
Satinwood per cubic feet	R2·00 to 2·25
do Flowered do	R5·00 to 6·00
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R75·00 to 175·00
Kitul fibre per cwt	R30·00 to 32·50
Palmyra do do	R8·00 to 14·50
Jaffna Black Cleaned per cwt	R14·50
do mixed do	R12·00 to 12·50
Indian do	R8·00 to 11·50
do Cleaned do	R10·00 to 14·50
Sapanwood per ton	R47·50 to 50·00
Kerosene oil, American per cases,	R7·00 to 7·25
do bulk Russian, per tin	R3·12 to 3·20
do Russian per cases	R6·80 to 6·85
Nux Vomica per cwt	R2·00 to 3·50
Croton Seed per cwt	R23·00 to 28·00
Kapok cleaned f o b per cwt	R24·00
do uncleaned do	R5·50
Plumbago per ton, according to grade: Large lumps	R400·00 to 750·00
Ordinary size lumps	R350·00 to 650·00
Chips	R200·00 to 500·00
Dust	R100·00 to 350·00

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 6th Aug. 1900.

Cardamoms:—

All round parcel. well bleached per lb. R1·50
Do. dull medium do. 1·25
Special assortment, 0 and 1 only do. 1·65
Seeds do. 1·35

Cinchona Bark:—

Per unit of Sulphate of Quinine 11c—1½ to 3 o/o

Cinnamon :—

Ordinary assortment per lb. 57c
Nos. 1 and 2 only per lb. 62c.
Nos. 3 and 4 only per lb. 53c.

Cinnamon Chips :—

Per candy of 560 lb R87·50

Cocoa :—

Finest estate red ; unpicked per cwt R48·00
Medium do do " 45·00
Bright native, unpicked and undried " ...
Ordinary do do do " ..

Coconuts—(husked).

Selected per thousand R48·00
Ordinary " R37·00
Smalls " R29·00

Coconut Cake—

Poonac in robins f. o. b. per ton R82·50
Do. in bags none.

Coconut (Desiccated).

Assorted all grades per lb. 13¾c

Coconut Oil—

Dealers' Oil per cwt. R14·37½—Small transactions.
Coconut Oil in ordinary packages, f. o. b. per ton R325·00

Coffee.—

Plantation Estate Parchment on the spot per bus. R10·50.
Plantation Estate Coffee f.o.b. (ready) per cwt.—None.
Native Coffee, f.o.b per cwt.—None.

Citronella Oil—

Ready do per lb. 65c.

Copra—

Boat Copra per candy of 560 lb. R45·50
Calpentyn Copra do do R45·50
Cart do do do R43·00
Estate do do do R45·50

Croton Seed per cwt R22·00

Ebony—

Sound per ton at Govt. depot R175.—As per last Govt. sales. Next sale 3rd September.
Inferior R120.—As per last Govt. sales. Next sale, 3rd September.

Fibres—

Coconut Bristle No 1 per cwt R10·50
Do " 2 " ...
Do mattress " 1 " 3·50
Do " 2 " 3·00
Coir Yarn, Kogalla " 1 to 8 18·00
Do Colombo " 1 to 8 16 00
Kitool all sizes 38·00
Palmyrah 16·00

Pepper—Black per lb 28c.

Plumbago—

Large lumps per ton R750
Ordinary lumps do 650
Chips do 500
Dust do 350
Do (Flying) 150

Sapanwood— per ton R52·50

Satinwood (ordinary) per cubic ft. R2·50

Tea—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	78	52	35
Orange Pekoe do	70	42	38
Pekoe do	52	39	33
Pekoe Souchong do	44	34	28
Pekoe Fannings do	41	30	24
Broken mixed—dust, &c. per lb	37	21	22

CEYLON EXPORTS AND DISTRIBUTION, 1899-1900.

COUNTRIES	Tea. 1900 lbs.	Tea. 1899 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon. Bales lbs.	Cinnamon. Chips. lbs.	Coconut Oil. 1900 cwt	Coconut Oil. 1899 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts No.	Plumbago. 1900 cwts.	Plumbago. 1899 cwts.	Fibre.	Ebony cwts.	Sapanwood cwts.
To U K. ..	72421731	62803137	3756	..	3756	16502	227376	44 022	184697	1396·8	64671	13698	4378227	..	7456415	70450	100141	32218	280	6284
" Austria ..	11057	7338	..	..	..	..	..	1500	19600	5679	2064	17611	59870	...		2	14	...	..	1266
" Belgium ...	6565	9983	54	..	54	417	...	28634	68100	1025	606	52343	232114	45440	...	23656	22306	10747	.	..
" France ..	141686	69707	..	...	..	78	3407	71488	23484	...	.	16094	3602	201	..	104	814	800	220	..
" Germany ..	217996	256023	336	..	336	265	62970	257842	335174	7041	1412	38085	517166	41310	419869	32747	51844	8913	2045	2880
" Holland ..	2000	12860	..	..	..	...	...	..	47040	..	..	..	110536	.	25050	912	5776	200	...	...
" Italy ..	5007	8716	..	..	..	...	519	57100	63392	..	404	1500	..	..	3018		.	..	45	...
" Russia ..	5129695	1958690	128	..	128	..	..	..	...	..	..	40321	..	...	1590	1004	1188	...	..	..
" Spain ..	15130	11800	..	...	..	...	..	128500	25200	..	..	..	...	...	..	..	...	..	..	..
" Sweden ..	49118	35326	9	..	9	..	4051	2400	..	...	206	4403	...	..	..	106	307	...	...	...
" Turkey ..	12843	11007	..	..	..	..	1060	...	10	.	..	1	...	..	2000	...	..	..	...	...
" India ..	437638	299852	75	4	79	...	40140	500	..	36098	36667	128	..	..	51950	800	336	120	..	23
" Australia ..	9339359	9311919	2006	..	2006	20	336	4220	12976	83	373	..	338049	..	..	1637	759	2353	27	.
" America ..	3000450	1597791	85	..	85	561	2201	189000	120400	87499	62148	..	980715	...	..	94617	168959	5911	..	..
" Africa ..	115028	190430	...	..	..	..	1456	100	2408	...	..	..	22530	...	916155	..	..	1446	..	...
" China ..	874682	757113	24	...	24	82	1800	50000	...	827	2880	20	83555	...	..	41	100	...	..	...
" Singapore ..	60552	39567	1	..	1	675	1340	..	..	1927	22333	..	...	..	—	...	..	42	...	..
" Mauritius ..	700	33415	..	..	..	..	...	...	..	..	..	...	...	..	...	..	...	..	..	...
" Malta ..	251378	176552	..	...	..	..	..	..	.	...	...	...	..	..	..	..	..	..	..	...
Total export from 1st Jan. to 6th Aug 1900	92092615	77591226	6474	4	6478	18600	346596	1233306	902441	229810	194061	184204	67 6358	80951	8880047	226073	352544	62260	2617	10453

MARKET RATES FOR OLD AND NEW PRODUCTS

(From Lewis & Peat's Fortnightly Prices Current, London, July 11th, 1900.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt.		
Zanzibar & Bombay { White ,,	Good to fine	£6 a £7 10s
Zanzibar & Bombay { Yellow ,,	Fair ,,	£6 10s a £7 ːs 6d
Madagascar ,,	Dark to good palish	£6 5s a £6 17/6
CAMPHOR, China ,,	Fair average quality	187s 6d
Japan ,,	,, ,, ,,	192s 6d
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 6d a 2s 9d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s 7d a 4s 2d
	Seeds .	2s a 2s ːd
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	1s 10d a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	3¼d a 4¼d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	37s 6d a 47s 6d
CINCHONA BARK.—lb. Ceylon	Ledgeriana Orig. Stem	3¾d a 6¾d
	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅝d a 5⅜d
	Renewed	5¾d a 7½d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb	Ordinary to fine quill	11d a 1s 8d
2nds	,, ,,	10d a 1s 7d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	3¼d a 9d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar and Pemba }	Good and fine bright	3¾d a 4d
	Common dull to fair	3¾d a 3½d
Stems ..	Fair	1¼d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	100s a 115s
	Middling to fine mid .	85s a 95s
	Low mid. and low grown	75s a 82s 6d
	Smalls	55s a 75s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	37s a 45s
COCOA, Ceylon ,,	Bold to fine bold	90s a 100s
	Medium and fair	78s a 87s 6d
	Native	65s a 73s
COLOMBO ROOT ,,	Middling to good	12s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair	£14 a £19
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£18 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	.. .. very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	30s a 40s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	27s
Calicut, Cut A ,,	Good to fine bold	87s 6d a 92s 6d
B & C ,,	Small and medium	35s a 72s 6d
Cochin Rough ,,	Common to fine bold	25s a 33s
	Small and D's	25s a 28s
Japan ,,	Unsplit	24s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	.. ,, red ...	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		67s 6d a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 85s
	Ord. stony and blocky	8s a 25s
KINO ,,	Fine bright	1s a 1s 3d
MYRRH, picked ,,	Fair to fine pale	65s a 75s
Aden sorts ,,	Middling to good	33s a 55s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 2¾d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS
INDIARUBBER, (Contd).		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s 3d
Mozambique ,, {	Good to fine Ball ...	2s 8d a 3s 6d
	Ordinary to fair Ball..	2s a 2s 10¾d
	Low sandy Ball ..	1s 3d a 1s 7d
	Sausage, fair to good	3s 2d a 3s 7d
	Liver and livery Ball	2s 4d a 3s 1½d
Nyassaland ..	Fair to fine ball	s a 3s 4½d
Madagascar ,, {	Fr to fine pinky & white	3s a 3s 3d
	Fair to good black ..	2s a 2s 10¾d
	Niggers, low to fine ..	11d a 2s 8d
INDIGO, E.I. ,,	Bengal—	
	Shipping mid to gd violet	3s 7d a 4s 6d
	Consuming mid. to gd.	3s a 3s 6d
	Ordinary to mid.	2s 9d a 3s 3d
	Mid. to good Kurpah	2s 4d a 3s
	Low to ordinary	2s a 2s 3d
	Mid. to good Madras	1s 7d a 2s 6d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 4d a 1s 4½d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 4d a 2s 6d
Bombay & Penang ,,	110's to 65's	11½d a 2s 3d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable	6s 11d a 7s
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	ːd
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1/0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	6½d a 6⅝
Singapore ..	Fair	6¼d a 6 5-16d
Acheen & W. C. Penang	Dull to fine	5½d a 6¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	40s a 45s
	Middling to good small	22s a 35s
chips ,,	Dull to fine bright ..	10s a 20s
dust ,,	Ordinary to fine bright	4s a 11s
SAFFLOWER ,,	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good .	£6 a £6 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	53s a 59s
SENNA, Tinnevelly lb.	Good to fine bold green	5d a 8d
	Fair middling medium	4d a 5¼d
	Common dark and small	1¼d a 3½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's {	£4 a £5 7s 6d
	D's and B's	
	Small ...	
Mergui ,,	Small to bold ..	£5 15s a £9
Mussel ,,	Small to bold ...	18s a £3
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	15s a 16s
per cwt. Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy {	19s a 26s 6d
TURMERIC, Bengal cwt.	Fair ...	36s nom.
Madras ,,	Finger fair to fine bold bright	25s a 27s 6d
Do. ,,	Bulbs ..	20s a 21s
Cochin ,,	Finger ..	24s
	Bulbs ...	7s 6d
VANILLOES— lb.		
Mauritius ... } 1sts	Gd. crysallized 3½ a 9 in	17s 6d a 27s
Bourbon ... } 2nds	Foxy & reddish 4½ a 8 ,,	15s a 22s
Seychelles 3rds	Lean and inferior ...	10s a 13s 6d
VERMILION lb.	Fine, pure, bright ...	3s 6d
WAX, Japan, squares cwt	Good white hard ,,,	32s 6d a 33s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for August:—

Vol. XII.] AUGUST, 1900. [No. 2.

OCCASIONAL NOTES.

AMONG the more interesting contributions to the latest number of the Royal Agricultural Society's Journal (issued June 30th) are the following:—Fumigation for Insect Pests by William E. Bear; The Comparative Value of Nitrate of Sodium and Sulphate of Ammouium as Manures, by Pro. R. Warrington, M.A., F.R.S.; Experiments on Lucerne by Bernard Dyer, D.sc. We reproduce elsewhere a note on Artificial Changes of Physical Properties of Soils.

We find that we have omitted to refer to a useful Circular issued from the Royal Botanic Gardens, drawn up by Mr. H. MacMillan, the Curator of the Gardens. This Circular deals with fruit trees suitable for cultivation in the low-country and for moderate elevations. It contains general directions regarding planting, propagation, &c., in addition to a list of fruit trees with short notes on each. In a Circular of this nature one does not expect to find a treatise on fruit cultivation, but to those who would desire to have fuller instruction regarding the cultivation of fruit trees we would commend a handy but most instructive publication issued by the Agricultural Department of the Cape of Good Hope, the authors of which are Messrs. P. MacOwan, F.L.S., Colonial Botanist, and Eutace Pillo* Agricultural Assistant. It is entitled a "Manual of Practical Orchard Work," and the general instructions on the subject are well worth the study of local fruit growers.

We direct attention to still another scheme that has been put forward by a practical hand for the agricultural education of the people of the country. There are many excellent suggestions in it, which deserve the attention of those who have been entrusted with the duty of reorganising the system of Agricultural Education in the Island. Of schemes there have been enough put forward already, and it is for the wise heads concerned with the settlement of the question at issue to sift all these and make out a policy acceptable to the Government and calculated to serve the agricultural interests of the native communities.

The fifth and last volume of Dr. Trimen's Flora has just come to hand, though it has been issued some little time now. This volume is principally taken up with the grasses (Graminœe), but it contains as appendices a key to the Orders Genera and Aberant species of Ceylon Flowering Plants, Diagnostic characters of the orders to which the Flowering Plants of Ceylon belong, a paper on the Forests and Waste Lands of Ceylon by Mr. A. F. Broun, Conservator of Forests. A paper on the Distribution of Rainfall in Ceylon by Mr. F. Lewis of the Forest Department. A History of

Ceylon Botany by Mr. G. S. Boulger F.L.S., of the City of London College, Additions and Corrections, Indices of Botanical, English and Nativel names.

We have just received a useful little pamphlet, issued as a Circular from the Royal Botanic Gardens, Peradeniya, dealing with the trees suitable for shade, wind-belts, timber and fue reserves, &c.

CLINICAL NOTES.

Two successful Cases of High Neurotomy (Bracheal).

I performed this operation on the first occasion in December, 1899, on a gharry horse with pegged splints. In this case the animal was operated on under chloroform and the healing was rapid, and the animal was able to be used after three weeks. In the second instance the operation was performed on a horse for ring bones. I prefer this to the ordinary medium or low neurotomy. The operation was performed without chloroform as the patient was very weak. The healing was tardy, yet the animal went alright after three weeks.

Incision of a section of the lateral tendon of the extensor metatarsi.

Two cases of bad spvain were brought for treatment, and these were operated on without chloroform, and the wounds were left opened after the dissection of the tendon. One animal soon after the operation did not show any lameness, and walked pretty will, improving very much in course of time. This animal is now working. The other had to be lifted up after the operation, but it improved after the healing was completed.

Amputation of the Penis in a Bullock.

A bullock was brought with the history that the animal had suffered from a bull-burnt condition of the organ, that a native doctor had advised the client to keep the animal in a pond covering the inflamed organ, that the animal was bitten by a crab, and that putrefaction of the organ continued as an effect of the bite. When the animal was thrown down for operation I had to slit open the whole sheath, and found at last that the penis had to be amputated. Another opening was made about two inches from the scrotoum as the organ was too short for the natural prepuce. The healing was on the whole satisfactory, and I have seen the animal after six months in good working order, and the artificial prepuce doing the duty of a natural one.

D. A. Chinniah,
Veterinary Surgeon.

PRACTICAL HINTS TO HORSE-OWNERS

By A. Chinniah, G.B.V.C.

Chapter II. (*contd.*)—Food and Feeding.

Groundnuts or Earthnuts (*Arachis Hypogœa*) belongs to the natural order legumnioseæ, and as may be expected it is highly nitrogenous. Another important property of groundnuts is that they are equally rich in hydrocarbonatious matter. The seeds are not in use as a horse food, but I am referring to them in connection with my previous remarks when writing about paddy, viz., that if some oleaginal ingredient were mixed with paddy and gram, the mixture should form a standard horse food. Further, it has been found that groundnuts like codliver oil are a specific in some forms of chronic pulmonary disease. Asthma, or broken wind of the horse, is caused pathologists find, by chronic indigestion. This incurable complaint is very common in horses and vulgarly spoken of as "panting" in Ceylon.

Groundnuts are grown in Southern India to a very great extent, and exported to Marseilles for the extraction of oil, by a process kept secret by the French manufacturers. The plant grows fairly well in Ceylon. Groundnut cake is used for feeding dairy cattle in Europe.

Grasses—Grass either dry or green, as I have already remarked, is the food of the herbevera in a state of naturl. In Ceylon only rice stalks are used in a dry state for feeding cattle. For horses it is only of value as bedding in the stable.

Hay is never made here, but it is imported from Australia. It is far more nutritious than straw, for the reason that before the stalks are fully matured, this is cut and turned into hay, and in this process only loose moisture, whereas in the case of straw, the seeds of which are used as horse food, there is very little nutriment left. In Ceylon we do not find the wild grass which grows in the rainy season in India, and which is generally turned into hay; hence the process of hay-making as carried on in India need not be described, but would repeat that good hay ranks as a standard fodder food for horses. In Ceylon hay is so expensive that it can only be used along with other concentrated foods with the object of ensuring proper mastication. On the other hand there are some good natural grasses to take the place of hay.

The Hariali or Dhub grass)known in Tami as 'Arugam pillu,') is botanically named Cynodonl dactylon. This is a sacred grass of the Hindus and it is largely used for feeding milch cows. Its roots and stems are succulent and the woody fibre is easily digested. The grass is so delicate and succulent that horses and cattle relish it highly. It may be said to grow on all soils, and unlike many other grasses it has numerous creeping stems. Another advantage of this grass is that the rootlets are fine and short, springing generally at each node, and hence it can be easily pulled out of the ground and easily got from sand and earth sticking to the roots. I may in this connection remark that it is important that ordinary wild grass as supplied to horses should be free from earthy matter, which when it enters the stomach cause uternal irritation and result in colic.

APICULTURE AT THE SCHOOL OF AGRICULTURE.

Mr. Chas. Andree, the experienced bee-keeper, visited the school at the request of the Superintendent of the institution, with the sanction of the Director, to report on the progress of the experiment in apiculture.

Mr. Andree examined the hives on the 25th July, in the presence of the students, and found two strong swarms at work, but the combs, he unfortunately found, were being irregularly built, and as a result the attempt to manipulate the frames caused injury to the bees and infuriated them. Mr. Andree advised that the hives with irregularly built combs (due to the frames not having been arranged equi-distantly) should be left alone, and fitted with a "super" to induce the bees to build in it. With Mr. Andree's help a convenient super was placed on the hive and we await results. As regards the bees themselves, Mr. Andree described them as a wild tribe of the Apis Indica, and thought that they would prove a constant source of trouble. These bees as we have previously stated were captured at Cotta. In order to facilitate matters, Mr. Andree has kindly promsied to secure one or two swarms of the less belligerent type of bee and send them here from Kurunegala. On the 26th Mr. Andree supervised the building of two hives on the premises. These hives will be probably sent to Kurunegala to be stocked and brought down. The hives on transverse section measure 15 inches square and have a depth of 9 inches. On two sides are frames (which might be made of jak or halmilla wood) into which a glass is fitted, with a wooden shutter over it. The rest of the hive may be made of deal-wood. The wood forming each of the eleven parallel frames within the hive is one-third of an inch thick and seven-eighths of an inch wide. The frames move freely on two rests made of zinc, but are kept at a distance of quarter of an inch apart by means of small nails. The frames as they are arranged in the box should have a space of quarter of an inch between them and the bottom top and sides of the hive. The bars of the frames should run parallel with the side having the glass window. In the new hives Mr. Andree has adopted a new arrangement for the bee hole. Instead of the old single hole 5 inches long and five-eighths of an inch in width, he has provided for two bee holes one above the other, each only quarter of an inch wide. This is intended to keep off the Sphnix atropus or Death's head moth which is the chief enemy to be guarded against. Mr. Andree has had hives full of combs destroyed in a few days by this moth. As soon as the new hives are stocked we intend, as advised by Mr. Andree, to reserve the bee house for these only, and remove the two hives containing the wilder type of bee now at work to some remoter position. This will leave the tame bees undisturbed.

SOME BIBLE PLANTS OF CEYLON.

III. The Mustard Tree.

There has been much discussion as to the identity of the mustard tree (referred to as Sinapi in the Gospels) of which St. Matthew speaks in chapter iii. 31 and 32 of his Gospel: "The kingdom of heaven is like to a grain of mustard-seed which a man took and sowed in his field; which indeed is the least of all seeds: but when it is grown it is the greatest among herbs, and becometh a tree, so that the birds of the air come and lodge in the branches thereof." Again, St. Mark describes it as a tree "shooting out great branches; so that the fowls of the air lodge under the shadow of it." (Mark iv. 31.) St. Luke also speaks of the tree in chapter xiii. 19, likening the kingdom of God "to a grain of mustard-seed which a man took and cast into his garden; and it grew and waxed a great tree; and the birds of the air lodged in the branches of it."

Our Lord also refers to the smallness of the seed in Matt. xvii. 20, and Luke xvii. 6.

The mustard was then a branching tree with small seed, and could not possibly be identical with the small annual herb which produces the mustard of commerce. Dr. Royle after careful examination of the subject has found that the mustard plant of Palestine at the present day answers in every respect to the description of the sacred writers. The tree grows near Jerusalem, on the banks of the Jordan and round the sea of Tiberias. The seed is called Chardal or Khardal, the Arabic, for mustard. The tree is known to botanists as *Salvadora persica* and belongs to the order Salvadoraceae, which is considered nearly allied to the Olive family (Oleaceae). It is found in Persia, Arabia, Palestine, N. Africa, India and Ceylon. The branches of Salvadora are very numerous and spreading, with their extremities pendulous like the weeping willow. The flowers are minute; the berries smaller than a grain of pepper, smooth and red. Each fruit contains one seed which is pungent and used like mustard. The fruit has an aromatic smell, the root bark is acrid and used as a vesicant. The shoots and leaves are eaten as salad, and are also used as camel fodder. The fruit is used medicinally in various ways, and an oil is extracted from the seed. The tree is sometimes referred to as the "tooth-brush tree" from its Persian name; the wood being largely used for making tooth brushes which are supposed by the natives to strengthen the gums and to improve digestion. The wood is described as white, soft and easy to work, taking a good polish, while white ants are not liable to attack it. Weight of wood about 46 lbs. to the c. foot.

Trimen, in his Flora, says that it is found in the desert and dry regions of the Island, especially by the coast. Gardner, who evidently first collected it, makes mention in his report for 1845-6, of the large trees he met with at Elephant Pass in the Northern Province. The generic name commemorates J. Salavador, a Spanish botanist. The Tamil names for the tree are Uvay and Viyay.

There are some, however, who still incline towards the belief that it is the black mustard plant (*Sinapis nigra*) that is referred to in Scripture, pointing to the fact that this herb is found in the holy land growing as high as a horse and his rider. The following extract supports this view:

Professor Hackett tells us that crossing the plain of Akka, in Palestine, he saw before him a little grove of trees. On coming near they proved to be a grove of mustard plants. Some of the trees were full nine feet high, with a trunk two or three feet in circumference, throwing out branches on every side. He wandered whether they were strong enough for the birds to "lodge in the branches thereof." Just then a bird stopped in its flight, alighted on one of the limbs, which hardly moved beneath the weight, and began to warble forth a strain of sweet music. His "doubts were charmed away," the "least of the seeds" had actually grown into a substantial tree."

AGRICULTURAL EDUCATION.

1. Agricultural education, both theoretical and practical, should be entirely in the hands of the Department of Public Instruction. An Agricultural Department should have its own work, in assisting the agriculturist with necessary advise; the scientific Botanical department will undertake investigations and experiments and work on purely scientific lines. Where the three branches are separated more work and much better work will naturally result. In India and elsewhere, the Agricultural Department undertake general work in assisting the cultivator, the Botanical department carries on investigations, and the Educational Department undertake instruction.

2. Much benefit would arise by the establishment of a central Agricultural School on a vernacular basis as suggested by Mr. Elliott in his paper. This school should be a thoroughly equipped one, and instructions should be given there on all branches of science &c. allied to agriculture.

3. The course of studies in the school should comprise three branches:—

(*a.*) General education.
(*b.*) Sciences, bearing on agriculture.
(*c.*) Practical training.

4. As suggested by Mr. Elliott all the training, lodging and board should be provided free. Boys admitted to the school should be drawn from among the following:—

(*a.*) For training as certificated teachers for vernacular schools, the present training schools to be done away with.
(*b.*) For training such students as are nominated by Government Agents.
(*c.*) And a limited number who seek admission on their own account.

5. All students for admission should be between the ages of 15 and 18, should have passed the VII. Standard Government Examination, or should pass an Entrance test.

6. To start with, there should be abou admissions for training as teachers under the same conditions under which training students are now admitted.

Fifteen students should be nominated by Government Agents. Their selection should be entirely left in the hands of the revenue officers without imposing any conditions whatever, except those of age and preliminary educational qualification.

There are many young men in the agricultural villages who aspire to become the headman of the village, and who are wholly engaged in agricultural pursuits. Very often they are the sons of the older headmen, and they succeed to the place on the retirement of their fathers. These young men will without hesitation offer themselves as to be trained at the school, were the revenue officers to nominate them for headmanship conditionally.

Five students should be admitted annually after a competitive examination. These, when trained, will be available for service under landed proprietors, or as overseers of experimental gardens which Government Agents (as an Agricultural Department) will establish.

7. The course of studies at the Agricultural School should extend over at least two and a half years. Each year should be divided into two terms, as the present departmentali holidays will not suit an agricultural class, which should be expected to be in training at sowing and harvesting seasons. Of the five terms thus available, more than one term or six months should be devoted to practical work.

8. The curriculum of general education should be of the same standard as that of the training schools.

The teaching of science should always consist of an equal number of practical lessons and lectures on each subject: the following subjects among others should be taken up:—

(*a.*)	Agricultural Science	36	lessons	each term.
(*b.*)	Botany	36	,,	whole course.
(*c.*)	Chemistry	36	,,	,, ,,
(*d.*)	Physiology	36	,,	,, ,,
(*e.*)	Sanitation	36	,,	,, ,,
(*f.*)	Veterinary	36	,,	,, ,,
(*g.*)	1st aid (medical)	25	,,	,, ,,
(*h.*)	Agricultural law	25	,,	,, ,,
(*i.*)	Drawing	36	,,	each term.
(*j.*)	Mensuration	36	,,	whole course.

Practical Instruction.

(*a.*) Field.
(*b.*) Travelling.
(*c.*) Workshop.

There should be land worked in connection with the school of about fifty acres, say somewhere in the Kalutara district. This land should be used not so much as an experimental or a model farm, but primarily as a "workshop" to familiarise the students with the various operations of cultivation, harvesting, &c., drawing, levelling, irrigation, ploughing, roadmaking, lining, holing, and numerous other practical details of agricultural work which should be practised

here, and a number of students regularly told off to the farm for a month's work at a time.

After a practical acquaintance with the processes of cultivation has been established, a similar knowledge of crops should be gained on estates and gardens in an actual state of work, instead of through model farms. Travelling tours should be arranged for twice a year, and within the two and a half years' course a student should have travelled in all the important districts of the Island. In this travelling course he should make prolonged acquaintance with such cultivations as paddy, coconut, cacao, cardamoms, cinnamon, tobacco, tea, coffee, rubber, &c., and spend a number of days or weeks at selected estates. For instance, Mr. Elliott's Wallaway lands should keep a class for a two weeks to a month at work, and in the same way any coconut planter in the Veyangoda, Negombo, or Kurunegala district will welcome the travelling class to any coconut estate, while the same may be said of tobacco and other crops as well as garden products.

Workshop.—The students should acquire a knowledge of carpentry, blacksmith's work and building, sufficient for agricultural purposes. Their hands should be practised to the use of carpenters', smiths' and builders' tools, each of these branches being taken up at a different school term.

9. In the case of students who are being trained as teachers, a part of the practical work can be dispensed with and the time gained devoted to practical work in connection with the teaching profession.

10. It must be understood that no results should be expected, nor any attempt made to guage the extent of improvement resulting in the state of agriculture after a course of education as described above. All improvements should be gradual, and to force such will be unnatural and will never result in any practical good. I do not approve of experimental gardens in connection with agricultural education. It is for an Agricultural Department, or the revenue officer of the different districts to establish such gardens only in places where they think they are required.

11. There is one thing more the department of Public Instruction should do. They should not be satisfied with the mere establishment of a School of Agriculture, but the scope of such education should be extended and systematized.

A special grant should be given to all teachers of schools who train their boys for a practical course of agriculture in addition to the theoretical one now prescribed. A grant of Rs. 4 per head for first stage, Rs. 6 for second stage, and R8 for a third stage pass will be sufficient encouragement for teachers to attend to this matter. A syllabus should be drawn up, and the Agricultural Inspector appointed by the department should not only inspect the boys in their practical work, but should visit schools in different centres and organize this practical course as well as the establishment of school gardens. The Inspector in charge of agriculture or the agricultural assistant to the D.P.I. should, in addition, advise the department in connection with the central school of agriculture in all matters and take charge of some of the important travelling classes when he can find the time to do so.

12. The annual expenses for carrying out this scheme will not be much over R30,000. Of this R20,000 will include all expenses for the Agricultural School and R10,000, for providing the cost of an agricultural assistant to the Director, (who should at least be paid R5,000 a year,) and for payment of bonus on results to school teachers.

W. A. D. S.

Colombo, 28th June, 1900.

BY HIGHWAYS AND HEDGES.

The Chief Justice of Ceylon's Judgment in the *lagium* case affords amusing reading. For the benefit of the uninitiated I quote as follows from Dr. Watt:—"There are primarily three forms of the resin or narcotic (from Indian Hemp or *Canabis Sativa*), but under each there exists local modifications, special preparations from these and adulterations or imitations. The three forms are known as Ganja, Charas and Bhang. Ganja is the female flowering tops with the resinous exudations on these; Charas the resinous substance found on the leaves, young twigs, bark of the stem, and even the young fruits; Bhang, the mature leaves, and in some parts of India the fruits also, but not the twigs.

The definition of ganja as given in the local Ordinance is not a satisfactory one and does not go far enough. It would be better if all narcotic preparations from Cannabis Sativa were brought within the meaning of the Ordinance, since, as Dr. Watt informs us "from the stem, leaves, flowers, and even the fruits, a resinous extract of a powerful narcotic character may be prepared." So that it is not only the "diseased flowering tops" referred to by the Chief Justice that are capable of producing the objectionable drug.

The following further reference by Watt to these narcotics and the control of their use in India is also interesting:—"As already explained there are three forms of this poisonous drug: (*a*) ganja, the agglutinated female flowering tops and resinous exudation on these; (*b*) charas, a resinous substance found on the leaves, young twigs, and bark, and (*c*) bhang or siddhi, the mature leaves, and in some parts of India the fruits also, and even the very young twigs, but not the stems. Ganja and charas are smoked, and bhang is either used in the preparation of the green intoxicating beverage hashish, or in the manufacture of the sweet-meat known as majun (vulgarly majum). Bhang is much weaker than either ganja or charas, and by many is supposed to be much less injurious. It is sold in Bengal at from 4 to 8 or 12 annas a seer, whereas ganja and charas cost from R4 to R25 a seer. Bhang, being collected largely from the wild plant, is extensively used

all over India, the bulk of the consumption entirely escaping duty. This is mainly due to the fact that it would be impracticable to hold a man responsible for the existence of a wild plant growing within a certain radius of his hut, and it would be impossible to prohibit him gathering, from such a plant, and this daily quantity used by himself and family. This is precisely the state of affairs which prevails over a great part of India, and, indeed, on the lower slopes of the Himalaya and up to an altitude of 8,000 feet, the plant is often so plentiful as to be extensively used as bedding for cattle. The greatest difficulty exists, therefore, in regulating the consumption of bhang, but practically no such difficulty exists with regard to ganja and charas. The last mentioned narcotics can be produced only from the cultivated plant, and the consumption can therefore be regulated by law. The Excise Act provides that licensed persons may cultivate the plant, prepare the narcotics, and retail these to the consumer. The right to vend is sold by public auction, a person purchasing thereby the sole right, for one year, to all or so many of their shops in a district. Any person other than a licensed dealer, having in his possession more than a very small quantity at one time is liable to prosecution and fine. This system of farming the wholesale and retail shops exists all over India, Madras being an exception to the rule, since in South India no revenue whatever is credited to Government from these drugs.

Specimens of the fruit and leaves of a tree were sent to me early this month with an enquiry as to the use to which the parts of the tree could be put. The tree was kindly identified by the Curator of the Royal Botanical Gardens as *Polyalthia Coffecides*, known in Sinhalese as Omara and in Tamil as Nedunnarai. It is described by Trimen as an inhabitant of the dry low country forests, but extending up to 1,500 ft. It is found occurring near Kandy at Haragama and Anuradhapura. The flowers are borne from January to March and are apple-green in colour. The leaves which are shining and undulate are very characteristic, and resemble those of the coffee tree. The tree belongs to the Anona family and is rather ornamental in appearance, being hence found planted to some extent in gardens and on roadsides. The only use to which the tree is put appears to be for fibre got from the bark. Another species known as *P. langifolia* is useful in many ways to the people of India, according o Dr. Watt.

A correspondent from Matara writes:—"I send you a shrub used largely in this part of the country in dying rushes, of which mats are made, and called Welikaha. The leaf when boiled with sapan wood produces a bright red colour. Bombu or Bombi, as you know, is a timber tree which produces a bright orange colour. The leaf is mixed with matured jakwood to extract the dye which our Buddhist priests steep their robes in. Is it Symplocos speciosa, Roxb? Both the above trees grow wild but I venture to think the produce will be found marketable if only made known in Europe."

Welikaha is *Memecylon capitellatum.* (L.) (Melastomaceæ). It is also known among the Sinhalese as Dodankaha. Dr. Trimen speaks of the tree as one of the best marked species of memecylon, and easily recognized by the leaves alone. The wood is said to be hard and strong. As regard its use in dying, Trimen says that the leaves turn orange-yellow when dried and afford a yellow dye. I have observed the leaves being dried in the sun on mats near Amblangoda. This is one of the dyes mentioned in the enquiry regarding the dyeing of materials used for making baskets, mats and hats, and the possibility of improving native methods of dyeing, a matter which is receiving the attention of the Ceylon Delegate at the Paris Exhibition.

Referring to the dye of *M. capitellaltum* and other species, Dr. Watt has the following:— The leaves are employed in South India for dyeing a "delicate yellow lake." In conjunction with myrobolans and sapan-wood, they produce a deep red tinge much used for dyeing grass mats, and also good for cloth. Samples experimented with by Mr. Wardle give "a yellow colour to wool, eri silk, and bleached Indian tasar with a tin mordant, wool being dyed the deepest colour." Mr. Wardle writes: "They possess scarcely any tamin; on tasar silk without a mordant, they give a nice clear but light brown colour. There is a pretty yellow tinge on the eri silk." In another passage he adds: "This dye-stuff produces good light colours, but would not be of much use in the dye-house, owing to the very small amount of colouring matter it contains." The flowers are employed by native dyers as an adjunct to chay-root for bringing out the colour in preference to alum. By themselves they produce evanescent yellow. *Symplocos spicata*, referred to by my Matara correspondent is Bombu or wal bambu. I have not heard it also called "Bombi" which is the native name of *Litsea chinensis.* The fomer belongs to Styraceæ and the latter to Lauraceæ (the cinnamom family). The wood is described by Dr. Trimen as light, white and close-grained, but liable to split, and the bark is said to afford a dye. Ferguson in his "Timber Trees" speaks of Bombu as a common tree from the coast up to 7000 ft. It is said to be a very conspicuous object when covered with its snow-white flowers. I am obliged to my correspondent for the information with reference to the use of Bombu with jakwood dye in colouring the robes of the priests of Buddha.

I have been lately struck by the tendency of much divided leaves to revert to the simple type. My observations have been limited to the leaves of a plant belonging to Araceæ which is normally much divided and consisting of as many as eight distinct segments, but which I find in various stages of reversion to the simple cordate type so common among the araceæ.

I have a few cocoa trees in my garden bearing fruit. On a tree in the same garden

I lately found a clay structure such as wasps and similar insects build, on another tree in the same garden shaped and coloured like a cocoa pod. Could this be a case of mimicry.

Mr. Weerakoon, Mudaliyar of Wellaboda Pattu, Southern Province, refers to the tendency in the paddy plant to yield no regular ear of corn, the plant being then called Beragas or Borupan (Anglice: false rush). "I have" he says "seen large patches containing such abnormal growths in the Morowak Korale and Wellaboda Pattu, sometimes 50% of the plants consisting of the "false rush." I attribute the result to inferior grain being used for sowing." The writer then goes on to ask if it could not be advisable to infuse "fresh blood" into paddy by importing a good quantity of seed paddy from India. This is what we have advised time without number, and we have imported seed from India and elsewhere on our own account in a small way. It is for Government to take it upon a large scale, and the improvement of seed in this way should form one of the duties of the reorganised School of Agriculture.

The same correspondent sends a note on "Kadupahara" which he describes as a perennial plant found growing wild in most places, but thriving luxuriantly in the up-country districts, The name is said to be derived from the ground-shaped leaves. The leaves, says our correspondent, when chopped up and prepared as a dry curry, makes a palatable dish, though the Sinhalese only use it as a vermifuge for calves. Mr. Nock, of Hakgala, is stated to have identified it as the "sow thistle," cultivated in some countries for the purpose of feeding pigs. Mr. Weerakoon recommends it as a desirable addition to our list of edible leaves. Dr. Trimen in his Flora mentions that *Sorchus asper* and *S. oleracens*, the common sow thistles of England, are commonly found as weed in cultivated ground.

ARTIFICIAL CHANGES OF PHYSICAL PROPERTIES OF SOIL.

In this paper the author considers what practical means may be employed to impart to cultivated soils the greatest possible productiveness. That the proper cultivation of the soil is of prime importance is shown by the fact that other factors important in plant growth, *e.g.*, the plant food supplied by manures, can exert their full power only when the mechanical condition of the soil is favourable. Uncultivated soils generally fail to produce maximum yields. The most favourable physical conditions exist in those soils which consist of a thorough mixture of the several principal ingredients. Thus soils in which either finely-divided (clayey) or coarsely-divided (sandy) ingredients predominate are unfavourable to the production of crops without decided changes in their properties, while soils in which the ingredients are mixed in certain proportions (medium soils) are generally productive. It is well known, for instance, that a pure humus soil, mainly on account of its physical nature, is not favourable to plant growth, but may be rendered productive by admixture with a soil deficient in humus.

It is evident that in studying the various ways of cultivating soil, not only cohesion and adhesion, but also friction of the soils with the tools and the weight of a unit volume of the soil must be considered. The force with which the particles of soil cling to each other (cohere) is of prime importance in connection with cultivation of the soil, since the ease or difficulty with which tools penetrate the soil, and hence the labour required to cultivate the soil, depends primarily upon it. The controlling influence of cohesion may be inferred from the fact that it is the main factor determining the differences between soils, although the other properties of soils should also be taken into account, since the resistance to be overcome in cultivation is always due in part to them. In general, it may be said that humus offers the least resistance to cultivation, clay the greatest, while sand stands between the two extremes.

If it be asked what practical means should be used to reduce to a minimum the labour of working soils, we should recommend a suitable change in composition of the soil as the first step. Thus, for example, mixing clay with sand diminishes both cohesion and adhesion of the soil, and renders it more easy to cultivate. It is true that by this treatment both the weight and friction of clay are increased, but, as modifications of cohesion and adhesion are more far-reaching, the increase in weight and friction may be neglected.

The improvement of the tillable properties of soils may be most perfectly attained by an increase in the proportion of humus. The working of clayey soil is by this means rendered very much less laborious, because both cohesion and adhesion, and also the weight, are diminished in proportion to the amount of humus added. For sandy soils also an increase of humus is of advantage, as it reduces friction and decreases the weight. It thus appears that manuring with materials of organic origin (stable manure, vegetable matter, straw, and peat) greatly increases the ease of cultivation, and at the same time influences most favourably the chemical properties of the soil in many different ways. Nor should the fact be overlooked that increasing the humus content promotes the tendency of the soil to assume the 'crumbly' structure, and by this means still further reduces the mechanical resistance to cultivation. Soils of crumbly structure are not only naturally more fertile, but are very much more easily worked than those having a separate grain structure. Whatever manipulations, therefore, promote the formation of the crumbly structure and tend to make such structure permanent are of great value in soil cultivation, inasmuch as they both heighten the fertility of the soil and lessen the labour required for its cultivation. This is especially true of compact, heavy soils. To obtain this crumbly structure and to preserve it, several fundamental principles must be observed. These may be summed up briefly as follows: (1) The soil must be ploughed immediately after the crop has been gathered; (2) it

ust be ploughed only when it contains a medium amount of water (about 40 per cent. of that which the soil is capable of holding); (3) the furrows must be as narrow as possible, especially at the first ploughing; (4) the land destined for tillage in spring should be exposed in roughly ploughed condition to the action of frosts during the winter; and (5) the formation of aggregates in the soil should be promoted by means of proper fertilisers. For the latter purpose humus-forming manures (stable and vegetable manure) as well as calcium hydrate (freshly slaked lime) are especially valuable. Hurtful influences, on the other hand, are exerted by such fertilisers as contain carbonates of the alkalis and soluble phosphates, inasmuch as these when applied in considerable quantities cause the soil particles to pack closely together. The same is true of materials rich in chlorides and nitrates. These salts promote the formation of crumbly structure while they remain in the soil, but when they are washed out by the rain water, they leave the soil in a puddled condition. This happens more or less with all salts which are not fixed by the soil. This can be corrected only by a careful selection and application of measures calculated to increase and preserve the percentage of humus in the soil.

From the standpoint of the agriculturist, the principal property of soils in their relation to air is permeability, for on it depends the supply of oxygen required both for normal decomposition of organic material and for the respiration of the roots. The smaller and more densely packed the soil particles, the more limited the supply of oxygen and the greater the necessity for attempting to regulate the permeability. This end is best attained by mixing a fine-grained soil with sand and by inducing a crumbly structure. If too great humidity of the soil is responsible for the lack of permeability, only thorough drainage can correct the defect. If the soil has been deprived of its permeability by washing during periods of extraordinarily heavy precipitation, the best remedies are harrowing and hoeing between the rows, and heaping up the soil around the plants. The latter is a most efficient means of increasing permeability of the soil.

Excess of water, either temporary or permanent, is hurtful to plant growth to a greater or less extent. Such a condition is a result principally of heavy precipitation on soils of high water capacity. The damage is most marked in the case of basin-shaped fields on which water from neighbouring fields accumulates, or which have an impervious subsoil at such a depth that the soil is kept in a state of saturation. The means adopted to correct this state of affairs will depend upon whether there is a permanent or only temporary excess of water. If the excess of water remains permanently or for a long period, it can be removed only by under-drainage or by the construction of ditches. The physical structure of the soil, more particularly its permeability and water capacity, determines the amount of water that may be removed by this means. The efficiency of the method consequently varies widely in different localities. A blind adherence to the common rules of drainage may in some cases reduce the water supply in the soil to a degree dangerous to plant growth. This is the case (1) in all soils of small water capacity and considerable permeability (coarse-grained, sandy soils); (2) in soils offering considerable facilities for evaporation (peat and bog earth); and (3) in all soils occupied by plants requiring considerable amount of moisture in the upper soil layer (meadows, perennial forage plants.)—*Royal Agricultural Society's Journal.*

(To be continued.)

ON THE FORESTS AND WASTE LANDS OF CEYLON.*

By A. F. Broun, Esq.,
Conservator of Forests.

The area of uncultivated land in Ceylon exceeds 20,000 of the 25,365 square miles of country contained within the Colony. The proportion of good forest in these 20,000 square miles is unfortunately small, the largest portion being taken up by scrub and by grass-covered stretches of country called *patanas*, which find their greatest developement in the hills of the Province of Uva. The scrub is partly natural, especially so on the sea coast and in the arid subzone, and partly the result of a destructive method of cultivation known as *Chena*, and which consists in clearing and burning jungle and in raising crops for two or three years on the area cultivated. Now that a careful control is exercised over this cultivation, nothing but small forest is felled; but not many years ago valuable forests were ruthlessly felled, and their ashes were utilised as manure for the crops which were raised; where such a system of cultivation has been in force, it takes years for the forest to take again a useful character. Usually a thorny scrub grows up, or as is the case in the Eastern Province, a dense growth of thick grass (*Imperata arundinacea*) springs up, as in the moist districts, the group gets covered up with *Lantana*, or, worse, because they are not soil improvers, by *Hedyotis*, *Ochlandra stridulata* or *Gleichenia linearis*.

* From the fifth volume of Trimen's Flora of Ceylon.

The patanas were probably at one time covered with trees, such as will be described later on for the Park country, but fires and grazing have destroyed the majority of these, except in sheltered places such as gullies or ravines. The trees which are to be found on the patanas are, at higher elevations, *Rhododendron arboreum*, and from 4,000 feet downwards, *Careya arboreas* known in Ceylon as 'Patana Oak,' *Phyllanthu, emblica*, *Terminalia belerica*, *T. chebula*, and *Pterocarpus marsupicum.* These are, with few exceptions, the only trees which can stand the heavy grass fires; but in the gullies, where they are more sheltered, other species, which are less robust and which are same as those found in forests at the same elevation, are able to live and to produce themselves.

In the backward state of the survey of the Island it is not yet possible to state the area of the real forests, but they cannot much exceed 5,000 square miles, although the larger area is, for the present, set aside for reservation, which includes stretches of scrub and patana englobed

within the forests. The most important belt of forest stretches from the Northern Province, mostly between the centre line of the Island and the east coast down to the Hambantota district, but important blocks are also found scattered over the rest of the Island, chiefly in the Puttalam district of the North-Western Province and in the upper hills, but also in the Kurunegala district of the North-Western Province, in the Western, Southern, and Sabaragamuwa Provinces, where are still to be found, in isolated blocks, the remains of what was at one time the extensive Singha Raja Forest.

The vegetation of the forests varies especially according to rainfall and elevation, and the forests can be classified according to the following zones and subzones:—

Dry Zones. Rainfall 35 to 70 inches.	Arid zone. Rainfall 35 to 50 in. Dry zone proper. Rainfall 50 to 70 inches.
Intermediate zone.	Rainfall 70 to 80 inches.
Wet Zone. Rainfall 80 in. and more.	Lowcountry zone from sea level to 4,000 feet. Mountain zone above 4,000 feet.

The Dry Zone.—This includes about three-fifths of the island, viz., the whole of the Northern, North-Central, and Eastern Provinces, the Puttalam district and portion of the Kurunegala and Chilaw districts, the North-Western Province, the northern part of the Central Province, about two-thirds of the Province of Uva, the Hambantota district of the Southern Province, and the Kolonna Korale of the province of Sabaragamuwa. The Western Province is therefore the only one of which no portion enters in the dry zone.

The Arid Zone occupies the north-western end of the island in the Puttalam, Mannar and Jaffna districts, and the south-eastern in the Hambantota district. The characteristic trees and shrubs of this subzone are *Salvadora persica*, *Azima tetracantha*, and *Acacia eburnea* near the coast, and *Acacia planifrus* on the island of Mannar. The woody vegetation is usually shrubby and thorny, being represented by *Carissa opinosum*, *Zizyphus jujuba*, *Z. Œnoplia*, *Z. rugosa*, *Randia dumetorum*, *Flacourtia pamontchi*, &c. Further from the coast the forest vegetation is composed of the same species as of the forests of the dry zone proper, but the trees are usually smaller and the undergrowth is composed mainly of *Memecylon* and of *Stenosiphonium rulyseinaum*. The Palmyra palm (*Borassus flabelliformisi*) is found on sandy soil both in this sub-districts, especially in the Jaffna Peninsula.

The forests of the *Dry Zone proper* are the most important to the forester, not only because they are the most extensive, but also because they contain most of the valuable timber trees. The most important of these are satinwood (*Chloroxylon swietenia*) found on sandy soils, and attaining its best dimensions in the Puttalam and Batticaloa districts; Ebony (*Diospyros ebenum*), which prefers rocky, undulating ground, and which, although found occasionally in the wet, lowcountry, is almost abundant in the Northern, North-Central, and North-Western Provinces, and in the Trincomalee and Matale districts; Palu (*Mimusops hexandra*), which is found on more clayey soils from the North to the South of the Island. It attains an enormous size, and grows best, if anywhere, in the Northern Province. It is one of the iron woods of commerce. Trincomalee wood (*Berrya Ammonilla*) is found in moist but well-drained places. It extends into part of the wet zone, but the trees are usually small size. The finest trees are found in the eastern portion of the Province of Uva. Milla (*Vitex altissima*) one of the strongest of Ceylon timbers, extends also into the wet zone, where it is not uncommon; but, like the Berrya, it is a much finer tree in the dry zone, especially in the Eastern Province. The same may be said of Ranai (*Alseodaphne semecarpifolia*), although it is not so common in the wet zone as milla. The Ebenaceæ are (apart from Ebony) represented in this zone chiefly by *D. ovalifolia*, while *D. crumenata*, *D. Oocarpa*, *D. embrejopteris* and *D. montana* are also found abundant in certain localities; and *Maba buxifolia* is a very small tree which is by no means uncommon even in the arid zone. Of the Guttiferæ we have chiefly *Garcinia spicata*, *Calophyllum burmani*, and, near streams or in groves, planted before the memory of man, *Mesua ferra*. The Dipterocarps, which are so characteristic of the lowcountry wet zone are almost absent, being only represented by *Vatica obscura* in moist soils in the Eastern Province, and by *Hopea cordifolia* along streams in Southern Uva and Sabaragamuwa. Among trees which are characteristic of this zone the most common are *Polyalthia longifolia*, *P. coffæoides*, *Crateeva Roxburghii Pterospermum suberifolium*, *Sterculia fœtida*, *Azadirachta indica*, *Walsura piscidia*, *Pleurostylia Wightii*, *Sehleichera trijga*, *Nephelium longana*, *Odina Wodier*, *Cassia fistula*, *C. marginata*. *Bauhinia tomentosa*, *Acacia leucophloea*, *Acacia ferruginea*, *Gyrocarpus Jacquini*, *Eugenia jambolana*, *Barringtonia acutangula*, *Adina cordifolia*, *Canthium didegnum*, *Bassia longifolia*, *Terminalia fabra* (near streams and tanks), *Strychnos Nux vomica*, *Cordia Rothii*, *Stereospermum chelonioides*, *Euphorbia antiquoreum* *Sapium insigne*, *Hemicyclia sepiaria*, *Miechodon zeylanicus*, *Holoptelea integrifolia*, &c.

The most common shrubs are *Polyalthia korinti*, *Allophyllus cobbe*, *Oihna squarrosa*, *Cassia auriculata*, *Alangium Lamarchii*, *Webera corymbosa*, *Raudia dumetorum*, *Gmelina asiatica*, *Memecylon*, *Glycosmis pentaphylla*, and *Dimorphocalyx fabellus*. Creepers and climbers are not so well represented as in the moisture zones, the most abundant being *Hugonia mystax*, *Ventilago maderaspatana*, some species of *Vitis*, *Derris scandens*, *D. sinnata*, &c. The most beautiful orchids found in this zone are, without doubt, *Saccolabrium guttatrun*, which is found in the Eastern Province, and *Vanda Roxburghii* and *V. spathulata*, which are found chiefly not far from the sea. *Vanda parviflora* and *Saccolabrium Wightianum* are not uncommon, while a pretty little white ground orchid, *Habenaria pterocarpa*, is found in the rocky places. The ferns of this zone are not abundant, the *Adiantum candatum* penetrating farther into the dry districts than any other, while *Hemionitis arifolia* and *Gymnopteris quercifolia* are found in dark and moist places, while on rocks grow *Cheilanthes mysorensis*, *C. loxa* and the tiny *Ophioglossum lusitanicum*.

In the Intermediate zone trees of both the dry and the lowcountry moist zone are to be found, such as *Berrya ammonilla*, *Nephelium longana*,

Mesu ferrea, Artocarpus integrifolia. Xylopia parviflora, Albizzia stipulata, A. odoratissima, A. lebbek, &c; and there are a few species which although they are found elsewhere, can be said to be characteristic; these are *Filicium decipiens, Chickrassia tabularis,* and *Melia dubia. Terminalia belerica* attains an extraordinary size in this zone, in which are other gigantic trees like *Tetrameles nudiflora* and *Ailanthus malabarica.* Among the shrubs, *Vitex negundo* is probably the most characteristic. Another characteristic feature of this zone is the great abundance of creepers which cover the tallest trees and render forest operations extremely difficult. Some very handsome ferns grow in this zone, the most noticeable being *Aspidium decurrens, A. subtriphyllum, A. cicutarium,* and *Adiantum lumulatrun.*

The Park country of Uva can be included in this zone. It comprises the low lands of the eastern boundary of that province; and it has a quite characteristic flora, very similar to that of the Sub-Himalayan forests. The trees which are found here are found only on the patanas and occasionally elsewhere, the most noteworthy being *Anogeissus latifolia, Butea frondosa. Terminalia chebula, T. belerica, Zizyphus xylopyra, Pterocarpus marsupium, Miliusa indica, Sterculia colorta, Gmelina arborea* and *Diospyros melanoxylon.* The undergrowth is, as in the Sub-Himalayan forests, mostly grass (*Imperata arundinacea*). Near water-courses the flora is that of the ordinary dry zone type.

The Wet zone includes the Western Province, the Province of Sabaragamuwa excluding the Kolonna Korale, the Galle and Matara districts of the Southern Province, the Hill districts of the Central and Uva Provinces and about one-half of the Kurunegala and Chilaw districts of the north-western Province, or, in a few words, the south-western and south-central portions of the island. It is the portion which receives the full force of the South-west monsoon, and includes the higher lands affected by the North-east monsoon. The rainfall usually ranges from 80 to 200 inches. but it exceeds even this in some places, and rumour has it that in Eratne, to the South-west of Adam's Peak, it actually does not fall far short of 400 inches.

(*To be continued.*)

GENERAL ITEMS.

The *Queensland Agricultural Journal* gives a correspondent the following recipe for making a concrete "milk yard":—"The concrete should be made as follows—1 part cement, 4 parts gravel (the gravel should contain naturally enough sand for the purpose), 2 parts broken metal or stone (not over 2 inches cubic): but all gravel (that is 6 parts) will do as well as if, not better than stone. Fine sand should not be used under any conditions. The floor should be kept well wetted for several days after laying down. The concrete may be laid on the surface of the ground as it is better not to break the crust."

We are informed in the same Journal that an American chemist is said to have discovered a process by which Alexandria limestone can be converted into a substance resembling wool, the threads of which are strong enough to admit of their being woven. The staple is, however, too short for the purpose. But the product has evidently a commercial value, as we are told that it is in extensive use for packing round refrigerators, boiler cases, and pipes to preserve the heat in the latter case. It is also used for deadening the sound on floors, and large quantities are being regularly shipped to the Phillippine Islands, to be used as a non-conductor in the storehouses of the American troops.

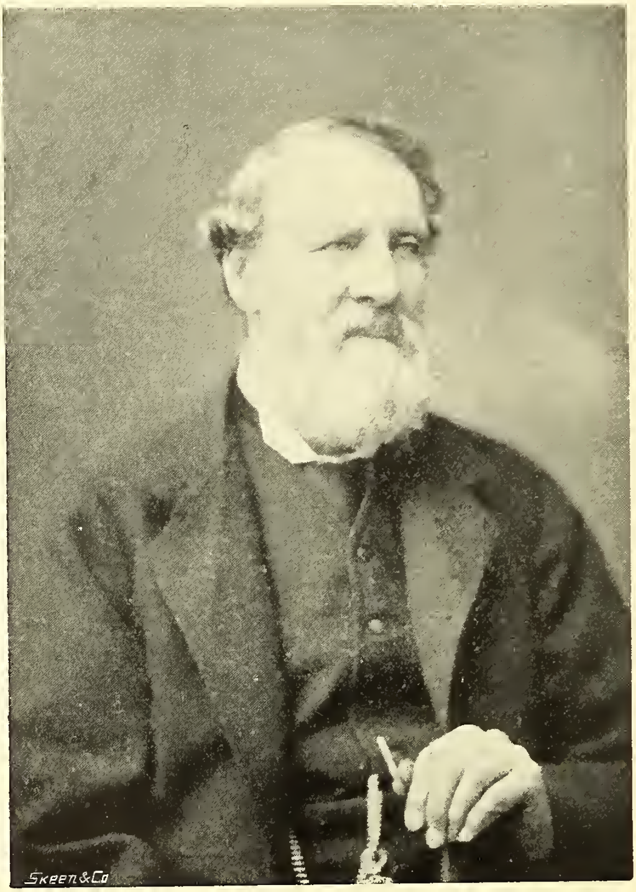
Thomas Barraclough of 20, Bucklersburg Road, London, E.C., advertises in the *Planter* (Calcutta) Fanies' Patent Rhea Fibre Extractor, stating that it produces in one operation 160 to 200 lbs. of clean fibre daily from the green stems—value £30 to £35 according to state of the market. Weight net 11 cwt., gross 14½ cwt., requires one horsepower.

We read in the *Indian Agriculturist* that Messrs. Thirkell & Co. of Fenchurch Street have written to the Curator of the Indian Section in the Imperial Institute to say that they are prepared to take all the rhea ribbons that India can produce for some years for £15 per ton, and that its offer to supply, at £40, decorticators which are capable of preparing 10 cwt. of stuff per day. Government has been asked to foster the cultivation of rhea as much as possible. In forwarding the correspondence on the subject to the Bengal Chamber of Commerce, Dr. Watt. reporter on economic products to the Government of India, shews that Messrs. Thirkell & Co. require the ribbons in the crudest form.

Some idea of the financial results achieved by the Indian Forest Department may be informed by the fact, recorded in Mr. Ribbenhop's pamphlet, "Foresty in India," that rheas in the period 1864 to 1867, the annual surplus was about fourteen lacs; it has now reached eight lacs.

In his sketch of the History of Indian Botany, Sir George King incidentally mentions that from bamboos a very large amount of forest revenue is annually derived. The sale of bamboos for the year 1896-97 amounted to no less than 110 milions of stems.

BRITISH MUSE



THOMAS DRANE, C.E.

Photo and Half-Tone Block by W. L. H. Skeen & Co., Colombo and Kandy.

The TROPICAL AGRICULTURIST MONTHLY.

Vol. XX. COLOMBO, SEPTEMBER 1st, 1900. No. 3.

"PIONEERS OF THE PLANTING ENTERPRISE IN CEYLON."

(Third Series.)

THOMAS DRANE, C.E.,

THE FIRST ENGINEER WHO SURVEYED AND DESIGNED A LINE FOR A LOCOMOTIVE RAILWAY BETWEEN COLOMBO AND KANDY.

THE subject of our notice was the son of Thomas and Cecilia Drane, and was born at Bromley, Middlesex, on the 7th of January, 1818. He was educated at private schools; and subsequently graduated at Cambridge University. After completing his University career at Caius College, he became an articled pupil to Mr. James Walker, the Admiralty Engineer, and President of the Institute of Civil Engineers. After completing his term of pupilage, he was selected to go out to the Island of Ceylon, in the year 1844, to make a professional Survey of the direction to be taken of the proposed line of railway from Colombo to Kandy. This, after many months of hard and arduous work, he completed in the course of the year 1845, having to penetrate a comparatively unknown tract of country through almost impassable jungle, exposed to great risks from exposure to a malarious climate, and other difficulties and dangers, which only his great physicial strength and excellent constitution enabled him successfully to accomplish. He won great credit for the admirable manner in which he succeeded in completing this task; and he had the satisfaction of learning long afterwards that his Survey and the information he afforded were of great service to the Engineers who followed him: to Capt. Moorsom, Mr. Doyne and Mr. (now Sir Guilford) Molesworth. After returning from Ceylon, (the Railway project having collapsed owing to the financial crisis in the Colony of 1846-7.) Mr. Drane was appointed second Engineer to the South-Eastern Railway, and during the time he held this appointment, he constructed that part of the main line, eight miles in length, which runs from Folkestone to Dover, including the important viaduct constructed at the town of Folkestone. He resigned this appointment in order to become the Resident Engineer of the railways in Cumberland, under the control of the Earl of Lonsdale, including the line from Whitehaven to Cockermouth; and subsequently carried on to Keswick and Penrith, in the construction of which he played a leading part. After some years he resigned this and afterwards accepted the Managing Directorship of the West Cumberland Iron Works, taking up his residence at Cockermouth, where he lived for many years, building for himself a very attractive and commodious house in the town.

In consequence of the failure of his wife's health, he was at length induced to throw up his appointment in the North of England, and he retired to Torquay, in Devonshire, where he lived quietly for the remainder of his life, and died on 31st October, 1890. Mr. Drane left an only child—a daughter. His wife still survives him.

The foregoing succinct sketch of Mr. Drane's life was kindly penned at our request in November last by his brother-in-law, Sir Frederick Young, K.C.M.G., the founder of the Royal Colonial Institute, and we publish it, with some slight additions and alterations; but we may further add a few details of the first attempt made to lay out a locomotive railway between Colombo and Kandy.

Although Mr. Drane came out in 1844, it was not till after his Survey and Estimate were completed that, towards the end of 1845, a Ceylon Railway Company was formed, and it may be of interest to put the following on record here from the original document:—

CEYLON RAILWAY COMPANY.

Provisionally Registered 20 October 1845.

Capital £1,000,000, in 20,000 Shares of £50 each.
London Provisional Committee.
Chairman.
Philip Anstruther Esq.
(late Colonial Secretary of Ceylon.)
Deputy Chairman.
John Stewart Esq.—(late of Bombay.)
George Ackland Esq.
(Messrs. Ackland, Boyd & Co.)
W. S. Binny Esq.
(late of the Firm of Binny & Co. Madras).
A. Crowe, Esq.
(35 Old Broad Street.)
Robert Christian Esq.
(Messrs, A. & R. Crowe & Co. Colombo).
J. G. Frith Esq.
(Messrs. Frith, Wallace & Co.)
Colonel Sir F. Hankey, G.C.M.G.
(Director of the Bank of Ceylon.)
Sir George Larpent Bart.
(Messrs. Cockerell & Co.)
Colonel Montresor—(Ceylon Rifles),
Captain Alexander Nairne
(Formerly of the East India Company's Service.)
Lawrence Philips Esq.
(Messrs. L. Philips & Son.)
William Scott Esq.
(Messrs. Scott, Bell & Co.)
W. H. Thomas Esq.
(Messrs. Boyd & Thomas).
William Tindall Esq.—(34 Cornhill)
Stephen Vertue, Esq.—Liverpool.
J. S. Wilson Esq.
(Late Wilson, Ritchie & Co. Colombo.)
S. B. Worms Esq.
(Park Crescent.)
Bankers.
Messrs. Glyn Hallifax & Co.
(Messrs. Hankeys & Co.)
Solicitors.
Messrs. Wilson & Harrison.
(1, Copthall Buildings.)
Secretary.
D. I. Noads Esq.

Temporary Offices No. 8.
Broad Street Buildings,—London:

CEYLON PROVISIONAL COMMITTEE.
Chairman.
Major George Thomas Parke,
(Deputy Commissary General.)
Deputy Chairman.
Edward Joseph Darley Esq., of
(Messrs. Ackland, Boyd & Co.
Committee:
John Armitage Esq.
(Messrs. Armitage, Scott & Co.
George Crabbe Esq
(Messrs. A. & R. Crowe & Co.)
Henry Lewis Layard Esq.
(Messrs H. L. Layard & Co.)
Gabriel Benedict Worms Esq.
(Rothschild Estate—Pussilawa.)
Honorary Secretary.
David Wilson Esq.
(Messrs. Wilson Ritchie & Co.)
Clerk.
Mr. J. A. Loos.
Engineer and Surveyor.
Thomas Drane Esq.
Assistant Engineer and Surveyor.
C. I. Webbe Esq.
Assistant Surveyors.
Mr. E. S. Falkner.
„ Hew Bagshaw.
Bankers.
The Ceylon Bank.
The Oriental Bank.
Temporary Office.
No. 24, Chatham Street, Fort, Colombo.

In the Ceylon Blue Book for 1846, the following reference was made to the Railway by the representative of the Ceylon Government:—

THE CEYLON RAILROAD.

The number of bullock carts employed on the Kandy road, although trebled within the last few years, are still found insufficient for the planters' wants; even whilst I write (May 1847) it is calculated that with all the available means of transport kept constantly at work on the main roads, it will still require a period of four months longer to bring the Coffee of 1846 from the interior to Colombo, whereas looking to the approaching unfavourable weather, the whole of it should have been long since in store here, and the greater part already shipped for Europe; many mercantile firms have still to ship two-thirds of their crops, and these two-thirds must necessarily be deteriorated by 5 to 10 per cent. in addition to the interest at 9 per cent. on the value of the produce thus detained, in addition to which as the season advances, shipping is becoming scarcer and freights rising day by day.

It was a foreshadowing of these coming embarrassments which led to the formation in 1845 of a provisional committee for the purpose of organizing a Railway Company for Ceylon.

Various lines of road have since been surveyed and a favourable one selected, along which it is stated by the Engineer of the Company, that a railway may be carried from the Coast of Colombo to the central capital at Kandy, in the heart of the Coffee districts, at a gross outlay of £800,000, including several costly bridges and an extensive viaduct. It is suggested, however, that the more expensive portion of the work at the Kandy extremity where the line begins to ascend, should be delayed, and only those portions more easily accomplished, finished in the first instance, so as to give about 65 out of 80 miles for an outlay of about £500,000, the remainder to be completed hereafter, and in the meantime the ordinary vehicles might be employed at both ends of the line.

The whole of the scrip is said to be taken up, but it is doubted if all the holders in England would at present respond to a call, though all those who have an interest in the Colony would assuredly come forward to complete the undertaking, as they are well aware that as a certain means of conveying produce from the interior to the port of shipment, as well as keeping the Central Province always regularly supplied with the staple articles of food, and thus ensuring cheap living to the labourers on the various estates, the Railway is of the first importance to the Colony.

In his speech to the Legislative Council in August 1847, Lord Torrington made the following reference :—

Not altogether unconnected with this subject is that of a projected railway communication between Colombo and the coffee districts. I have every reason to believe that such an undertaking, to the extent in the first instance of thirty-two miles, will be not long delayed. I have received the authority of the Right Hon'ble the Secretary of State to submit for your consideration an Ordinance having for its object the facilitating this desirable undertaking, and to give its projectors such privileges and powers as cannot fail to secure the ultimate accomplishment of the end in view, with advantage to the public and to the shareholders.

As soon as I have received information that the arrangements of the Company are sufficiently matured, and the requisite proportion of the subscribed capital has been paid up, I shall not fail to submit to you such an Ordinance as may be required for the purpose.

What followed next is succinctly related by Pridham whose volumes on Ceylon were published in 1849 :—

In 1845, a Railway, with a capital of one million sterling, was projected in England by the mercantile houses connected with the colony, between Colombo and Kandy in the first instance, but with the ultimate design of the connecting other districts wherever practicable. The illimitable expansion of railway enterprise had already sustained a check, when the attension of the public was called to this undertaking, and before its plans could be thoroughly matured, and a report be received from the surveyor of its practicability—a monetary pressure had set in, and the Directors found themselves unable to obtain the full call to which the shareholders had pledged themselves. A communication had already been made to the Colonial Department, which at once referred the matter for the consideration and report of the Local Government, whose reply was, as might have been expected, of a highly encouraging character.

Under these circumstances, and in consequence of its having been discovered, that the cost of construction would very considerably exceed the sum originally estimated per mile, and that the Government was indisposed to accede to any proposition *immediately* involving the revenue of the colony on the capital required for the *whole* line, the Company has been compelled to suspend its intention of proceeding with the entire line for the present, and has selected a part by way of experiment. On the line thus modified, the Government has sanctioned, by ordinance, a guarantee of five per cent. per annum, along with a free grant of the land required for the railway for a term of ninety-nine years, the Government having the right of purchase after the expiration of fifty years, and the reversion of the line, without purchase, at the end of ninety-nine years. The result of this modified plan is, that the old Company has been dissolved, the capital has been reduced to one-fourth, *viz.*, £300,000, under the new Company, and the holders of shares in the former are entitled to the same number of shares in the new company, as though it had been found possible to carry the original undertaking into effect. In addition, power has been reserved to increase the capital to the original amount when requisite, and the option of the additional stock will be given to the present subscribers.

Its claims to public notice are thus set forth by its promoters. "Ceylon is subject to no volcanic action; the soil is admirably adapted for the construction of railways, and the country through which the contemplated line will pass is not liable to be flooded during the monsoons. Labour is excessively cheap in the island; and bricks, lime, and timber may be procured with facility." "The sources of revenue are a large goods traffic; considerable passenger intercourse, and the conveyance of troops and mails, &c." Under the first head, it is stated that the number of bullock bandies, with goods, passing between Colombo and Kandy, is about 79,000 annually, and the average hire about £2 10*s* each, shewing a cost for transport between Colombo and Kandy of £197,500 per annum. The carriage of goods by these carts is tedious and uncertain, and the expense is greatly increased by reason of the extensive mortality among the cattle employed; so much so, that natives, each bearing a load of merchandise, are occasionally dispatched from Colombo to Kandy, in preference to that mode of conveyance. The cost of transport by rail will be much less, but as the traffic by this means of conveyance will greatly increase, there can be little doubt that this branch of traffic would of itself be sufficient for the remuneration of the capital invested.

The present mail coaches in Ceylon are said to shew an annual return of upwards of £7,000, but it is clear, that it is on the first source of revenue that the Company must principally depend for support in the outset.

Over the division of the line* first to be undertaken, all the traffic between Colombo and Kandy will pass; and assuming that 40,000 tons are carried

* The line selected by the surveyor, commences at the east bank of the Kalane, about three miles from Colombo, and following for the first thirty-two miles the direction of the great military road to Kandy and Kurunaigalla, which the line crosses twice, enters the valley of the Maha-oya, which it follows for twenty-three miles, to the foot of the hill country at the Kaduganava Pass. At this point, it commences a rapid ascent to the summit on which Kandy is situated, and terminates about three miles short of that city, being a length of fuorteen miles, and making the whole length of the railway sixty-nine miles. Over the first division of thirty two miles, the country is flat, the total rise not exceeding 170 feet in the whole length, and the highest land passed over between these points, not exceeding 240 feet. Flat, however, as this part of the country is, the surface is broken in many places by short hillocks, which, though capable of being avoided in some places, will render considerable earthworks occasionally necessary, and give a class of gradients of 1 in 150 to 1 in 200. Extensive and deep cuttings should be obviated wherever possible, lest they should become torrent beds in the rainy season. The second division involves heavier gradients and works than the first, as the country becomes more broken. For seventeen miles the gradient need not exceed 1 in 150 to 1 in 200, but beyond that, they might be so steep as 1 in 100 to 1 in 50 for the remaining five miles. The total rise of country on this division is 540 feet, without any intermediate summit. The third division, forming the ascent to Kandy, is an elevation of 1,100 feet to be overcome, but the gradients may, it seems, be so arranged, as not to exceed 1 in 50, the numeous mountain ravines admitting of a lengthening of the line, so as to accomplish that object. The termination of the first division, *i.e.*, the portion to be immediately constructed, is near the point of junction between the Kurunaigalla and Kandy road, and consequently where the streams of traffic on these two great military roads meet. The termination of the second is at the commencement of the hill counry, and intersects the great military road only 13 miles from Kandy. The cost per mile, including stock, for the two first divisions of the line (which is to be single), has been estimated somewhat under £9,000 and of the third division from £21,000 to £22,000 per mile. The expense of crossing the Kalane, and entering Colombo, is avoided, as also of entering Kandy, when the time shall arrive for completing the whole line.

up the line at 1s. per ton per mile, and 22,500 tons are brought down the line at 4d. per ton per mile, the result will be on the former £64,000, on the latter £12,000=£76,000, from which deducting £19,000 for working expenses, £57,000, or a dividend of 19 per cent. will be received.

In reference to expenditure, I may venture to observe that the Company might have safely taken credit for the moderate cost of fuel to which they will be subject, any quantity of wood being procurable at the several stations at the most trifling expense: this item in the United States stands the several companies in at one-third of the cost of the same item in Great Britain, and the relative expense would be yet further diminished in Ceylon where labour is so cheap.

Although the Company continued to issue Annual Reports in London, nothing was done in Ceylon until Sir Henry Ward took the matter up, and after a further report and survey by Capt. Moorsom in 1856-7, the Company once more came to the front and made an agreement with the Ceylon Government (passed in the Legislative Council, 22nd Jany, 1857); and sent out (in 1858) Mr. Doyne and a staff of Europeans to construct the line. The cutting of the first sod was celebrated by a banquet, 600 persons attending it, with Sir Henry Ward as President on 3rd August. But by July, 1859, Mr. Doyne reported that the work cou'd not be done under the system adopted by the Company for £2,214,000 in place of the £1,200,000 which was expected to be the maximum. He and his two Chief Assistants threw up their posts and went to Australia, and so it came about that Mr. (now Sir) Guilford Molesworth by a new route, which had been suggested as worthy of trial by Mr. Doyne, and with Mr. Faviell as a responsible Contractor, eventually constructed the Colombo-Kandy line 1863-1867, the total cost from first to last—including money wasted by the delay and in compensation to the Company—being £1,738,483. (The Company closed its career with a 19th Report in February 1861.) And such in brief is the history of the Railway originally surveyed and estimated for by Mr. THOS. DRANE, whose work as a pioneer engineer was always referred to with the greatest respect by his engineering successors who alone understood the great amount of arduous labour Mr. Drane must have undergone in performing so difficult a task as a Railway Survey between Colombo and Kandy so far back as 1844-5 and with only native assistance:

"Peace to the memory of a man of worth."

SEEDLESS ORANGES IN CALIFORNIA.—An American lady travelling in Bahia some thirty years since "happened" upon some fruits of this now world-renowned variety, and got some trees home. Two of these found their way to the River-side estate in California the proprietor of which is Mr. H. Tibbetts. They were then carrying some sixteen fruits—the average annual shipment from this place has now reached 1,600,000 boxes.—*Gardeners' Chronicle.*

AGRICULTURAL EDUCATION IN GREATER BRITAIN.

PAPER READ BEFORE THE FOREIGN AND COLONIAL SECTION OF THE SOCIETY OF ARTS, ON TUESDAY FEBRUARY 27, 1900.

BY R. HEDGER WALLACE.

(Continued from page 80.)

As regards the technical schools of the colony, agriculture, according to the report for 1899, was only taught at one institution, the students being examined in the subject under the English Science and Art regulations.

This colony further employs three dairy instructors, three fruit experts, and one poultry expert, and has a number of experimental stations, including two poultry farming stations; and the Department of Agriculture freely distributes leaflets and pamphlets of interest to agriculturists. This free distribution of information with the object of educating and assisting those settled on the land one might add is a feature common to all the colonies of the Australasian group. Before passing on from this group to the next, that is to the East Indian, I would note, so as to complete the Australasian group, that there is a botanic station in Fiji, and a technical school at Viti Levu where the native is taught the rudiments of agriculture, *i.e.*, how to propagate and grow food and economic plants.

Coming to the next group, the same change in the object of the agricultural education provided, has to be noted, as was remarked when passing from Canada to the West Indies. The agricultural education provided in the East Indies, is likewise intended for the benefit of the natives of the country, and no provision is made for those who represent the planting industry. The European must, therefore, learn by experience the details of his calling as a planter. The East Indian planters in some respects, I venture to think, differ from the planters of the West Indies. They can be roughly divided into two classes or groups. There are those, for instance (generally engaged in the tea or coffe industry), who have to manage a large estate, control a large number of native labourers, and be responsible for the economic plant grown from its nursery stage, till so to speak its produce is harvested, and then, still further, have to direct control and be responsible for the manufacture of this product into a commercial commodity. On the other hand, there are those who (usually engaged in the indigo or sugar industry) have under contract, the economic plant grown for them by native tenants or proprietors, and accept no responsibility till the natives harvest the produce, and place it in their hands to be manufactured into a commercial product. The former group, obviously is more in need of a good agricultural training than than the latter, and the question naturally arises why it has not been provided? Of course I assume that it will be granted that a training in temperate cultivation under temperate conditions is not suitable and that the system of pupilage which is practically that of apprenticeship, under a manager who might be good, bad, or indifferent, is not regarded as one capable of affording the best results.

Taking the Straits Settlements as the first of the East Indian group, I would note that, according to Mr. Moore, a Malay translation of an English book on the "Principles of Agriculture" is used as a reading-book in the native schools, while in the English schools, agriculture is one of the extra subjects of the Code.

In India and its dependencies a good deal of interest has been taken lately in agricultural education by the Supereme and Provincial Goverments. I have been favoured, by the courtesy of the Under Secretary of State of the Government of India, Department

of Agriculture, with a copy of a resolution issued by the Department, which shows the progress of agricultural education in India up to 1896.

I will briefly note what has been done. In the Bombay Presidency there is, at Baroda College, an agricultural branch, and lectures on agriculture are given at the Poona College of Science by the superintendent of the Bombay Government Farms. There is also an agricultural class in connection with the High Schools at Belgaum and Naidad. The University of Bombay further offers a diploma in agriculture, but not a degree. In the Madras Presidency there is the Saidapet Agricultural College, which has been established for a number of years. In the Central Provinces there is an agricultural class at the Government Farm.

An agricultural class is also established at the Government Farm, Cawnpore, North-West Provinces. Both of the classes named are utilised by the educational department for the instruction of training School students and school-masters. The period of the agricultural course is in both places two years, but the course for schoolmasters at Nagpur is only for six months. The Allahabad University has also, so far, supported the Cawnpore farm class, in the interests of a supply of agricultural teachers as to allow a special examination on science and agriculture students who go up for the "school trial" certificate. It may be added that one of the training schools for teachers in the Bombay Presidency has on its staff an agricultural teacher who has obtained a college diploma, and gives lectures to the students in training on agriculture.

The whole question of agricultural education in India has, I believe, lately been put on a new footing entirely, through the acceptance by the supreme Government of the view that a thorough and practical education in agriculture, ending in a high-class college diploma, or in an agricultural degree, develops the intelligence of students just as well as a literary course, and that it certainly fits them as well, if not better, for duties in the land revenue and cognate services. The Madras Government has given effect to this view by making the diploma in agriculture of the same value as a B.A. degree, as a qualification for higher Government service. The supreme Government of India has emphasised this view by placing on record the following conclusion, namely, that "agricultural degrees, diplomas or certificates should be placed on the same footing as corresponding literary or scientific degrees, &c., in qualifying for admission to Government appointments, and more particularly those connected with land revenue administration."

From the resolution of the supreme Government forwarded to me I learn that this Government has impressed upon the provincial Governments and the various educational deparments the policy of "making instruction in the rudiments of agriculture part and parcel of the primary system of instruction in the country, rather than teaching it as a subject apart from the general educational programme." Perhaps the intention of the Government of India as regards agricultural education will be more fully indicated if I note three other conclusions that are recorded;—

"(1) That the practice of allowing schoolmasters either before or after appointment, to pass through a course of a few months on a Government farm is one which deserves consideration.

"(2) That a Special school course leading up to the agricultural diploma, degree, or certificate is required.

"(3) That the [agricultural] diploma should eventually be compulsory in the case of certain appointments, *e.g.*, agricultural teachers at trainging schools, assistants to the director of agriculture, &c.,'

Before passing from India I may add that it does not suffer from a want of agricultural text-books, there being of late years quite a respectable number published both in English and the vernacular. The Government agricultural publications are also many and of service not only to the native cultivator but to the European planter.

In Ceylon the elements of agriculture are taught as a specific subject in the Government schools, and a primer of agriculture has been published by the Director of Public Instruction. There is also a school of agriculture at Colombo which was opened in 1884, and has ten branch institutions. From this school, to which a dairy is attached, agricultural instructors are sent into remote rural districts to illustrate improved methods. The school for a number of years has also issued a monthly magazine and this along with the *Tropical Agriculturist* furnishes the agricultural literature of the colony, a colony, I may add, which has the reputation of being itself the best training ground for the tropical planter.

Our next group is the African. Here the first thing to be noted is, that following the example of the West Indies a number of Botanic stations have been established. The earliest was started in Lagos in 1888, the next being at Aburi on the Gold Coast, the rest being located at Uganda, Gambia, Sierra Leone, and in the Niger Coast Protectorate. These African stations, along with the Fiji station already mentioned, have a different mission to fulfil from those in the West Indies. They are teaching stations, in fact, they are intended to instruct natives in the rudiments of what is for them, practically, an unknown art. In the West Indies, on the other hand, they are intended to assist the peasant population to put to profitable use and art they already know and possess. In British East Africa, besides the botanic station located in it, the European cultivation introduced by the missionaries may also be regarded as of educational value to the natives. Zanibar, again, has a Director of Agriculture, and his work on the same basis may be regarded as educational. To British Central Africa the European planter has penetrated; and at Zomba there is a Scientific Department to assist in working out the problems in pioneer cultivation that incessantly arises. Passing to Mauritius, I have to refer to Mr. Moore, who states that an attempt to start agricultural schools, and to introduce the study of agriculture in the rural primary schools of this colony, fell through for want of funds.

I come now to the two self-governing colonies in South Africa. Natal has a Department of Agriculture, and employs both dairy and irrigation experts, but no school or college of agriculture has been established. Under the Natal system of school education, however, agriculture is to some degree studied. Field work on a farm or garden, for instance, is compulsory in all the native schools, and the last report of the Superintendent of Education (1898) shows that even in native girls' schools land is cultivated and garden work done by the girls. From this report I also learn that the principles of agriculture was taught in three European schools. In the Government school at Estcourt it was taught to the boys and girls in Standards VI. and VII. At the Government school at Verulam it was taught to the boys in the same standards, and in the Government school at Ixopo it was taught to the senior pupils. The examination is not colonial, but under the regulations of the English Science and Art Department. In South Africa some of the conditions differ from the other colonies, in America and Australia, for instance, native labour is available, and the native has to be taught to labour on a farm, that is, do field work, for usually he is too backward for any other kind of agricultural teaching. Again, the European farmer stands somewhat in a different position to the farmer, for example, in Australia, as he often has at his disposal, and can utilise, the labour of the natives.

Passing on to Cape Colony, I might just note that the Agent-General for the colony in London advises me that he is unable "to say precisely to what extent agriculture may be taught in the elemen-

tary schools, because many of these are not under official control." The Blue-books of the colony indicate that to some extent it is taught, and for some years it has been an optional science subject for teachers. In the Report of the Superintendent-General of Education for 1898, for instance, it is stated that not a single candidate had been presented for examination in agriculture, which Dr. Muir adds, "in view of the large total (318 as against 250 in 1897) is decidedly disappointing."

Placed under the control of the Education Department of Cape Colony are two agricultural schools —one at Elsenburg, the other at Somerest East The latter school, the Superintendent-General of Education reports, "has been allowed to linger on without alteration." These agricultural schools, I may add, were formerly three in number, and under the Department of Agriculture, and have only lately been transferred the care of the Education Department. One of the three has, however, been given up for some time, and now it would seen that another will soon follow.

The Elsenburg School of Agriculture at Mulder's Vlei is, in a sense, a new venture, which was only opened in September, 1898; yet it represents the old Stellenbosch School of Agriculture which moved from there to this farm. The Principal, like the school, is also new, having been selected in England to start the new experiment. The school as remodelled, is intended for boys of the better class, and the entry test is the fifth standard of the ordinary school. The work done in the agricultural schools, formerly, was mainly theoretical. The school at Elsenburg is an admitted experiment to see if an institution, where practical instrution is given in farm work, gives better results than the former semi-theoretical and scientific schools. At Elsenburg, with this object in view, the students have now to devote their afternoons to practical farm work.

The Department of Agriculture at Cape Colony has a wine farm at Groot Constantia, employs experts and agricultural assistants, and issues an *Agricultural Journal*. This completes, I think, what the Cape furnishes in respect to agricultural education.

(*To be continued.*)

FRUIT CULTURE IN QUEENSLAND.

BY ALBERT H. BENSON.

THE COMPOSITION AND APPLICATION OF MANURES.

(*Continued from page 131.*)

Sulphate of Ammonia.—A good sample should contain at least 20½ per cent. of nitrogen, and be worth in round figures £10 per ton. This manure is very soluble, and consequently acts with great rapidity. It is used either as a top dressing by itself or is mixed with varying proportions of phosphoric acid and potash to form a complete fertiliser. When used alone it should be applied at the rate of 1 to 2 cwt. to the acre during a period of the plant's active growth. It has a marked effect on the growth of cereals, grasses, corn, sorghum, &c.; but is apt to produce too much straw or stalk at the expense of the grain. It is therefore most valuable for the growth of green fodder or hay, but not so valuable for grain production. It is of great value in the production of vegetables when rapid growth and quick returns are desirable, but in this case it is better to use it in conjunction with soluble phosphoric acid and potash in order to produce the best results. Used by itself, it is very apt to impoverish the land, as it stimulates such a vigorous growth that the plants are apt to exhaust the soil of other available plant foods. Its use, therefore, requires judgment, followed by judicious cropping, cultivation, and the application of farm manure or a complete fertiliser.

In the case of fruit trees that have been neglected and run down, a severe pruning, followed by a good dressing of sulphate of ammonia—say, 2 to 4 lb. to the tree, according to its size—will often produce a vigorous growth, provided that the roots are healthy, but care must be taken, once this growth has been forced, that the trees have sufficiency of plant food given them in the form of farm manure or a complete fertiliser to sustain and continue such growth.

Nitrate of Soda.—Is similar in its action to sulphate of ammonia, but at its present price, as compared with other sources of nitrogen, it is too dear to use. It contains a little over 15 per cent. of nitrogen, worth about £7 5s. per ton, and its cost is about £15 per ton.

Sulphate of Potash.—This fertiliser is seldom used alone—in fact, its use is only to be recommended when combined with nitrogenous and phosphatic fertilisers. A good sample should contain at least 50 per cent. of potash, and is worth 5s. 4d. per unit, or about £13 to 10s. per ton. It is probably the best form of potash to use, as the general opinion is that the best results are obtained from its use.

Muriate of Potash.—Similar in its action to sulphate of potash, and used in place of the latter. A good sample contains about 60 per cent. of potash, and is worth about £15 per ton, as the potash is considered to be less readily available, and consequently of slightly less value, when in the form of muriate than in the form of sulphate.

Kainit.—A mixture of muriate of potash, muriate of soda (common salt), and muriate of magnesia. Its value is due to the potash it contains, which in a good sample amounts to 13 per cent., worth £3 9s. per ton, whereas the price charged is not less than £4 per ton. Kainit is therefore a dear form of potash as compared with the sulphate or muriate, as not only does the potash cost more per unit but the proportion is so small that a much larger amount —from four to five times is required to produce the same result. This adds considerably to the freight and handling, and consequently renders this form of potash expensive to use.

There is one other form of potash now on the market known as "Australian potash," which contains 25 per cent. of potash and 4½ per cent. of insoluble phosphoric acid, which is worth about £7 per ton when estimated at its unit values. Its price is £6 per ton in Sydney, at which rate it is the cheapest from of potash on the market.

There are two other classes of commercial fertilisers —of which the first is superphosphate, and the other a complete or mixed fertiliser.

Superphosphate.—The manufacture and value of super or soluble phosphate was referred to in the previous part of this article, so I will only need to give its unit value, which is 5s. 4d. per unit for water soluble phosphoric acid, 4s. 6d. for citrate soluble phosphoric acid, and 2s. for insoluble. A good superphosphate contains about 17 per cent. of soluble phosphoric acid.

Complete or Mixed Fertilisers.—There are a number of manures of this type on the market, the composition and value of which are very variable, as they are made with a view of meeting the requirements of various soils and crops, both farm, garden, and orchard.

The bulk of these manures consist of a mixture of phosphatic, nitrogenous, and potash manures. The phosphatic portion is present either in the soluble or superphosphate condition or else in that of the insoluble or bone phosphate condition.

The nitrogen is present either in the form of sulphate of ammonia, or in that of blood, nipho, or other form of organic nitrogen—usually the former; and the potash is almost always present in the form of sulphate of potash. The so-called Colonial Sugar Company's manures are good examples of this type, and their composition can be relied upon, but there are others on the market equally as good.

In dealing with the question of complete or mixed fertilisers, I wish it to be clearly understood that the suggested composition of and quantity to be applied to any particular crop is not to be taken as absolutely binding on all classes of soils and under

all sorts of conditions of cropping and cultivation, but to refer to land of medium quality, well worked, in good condition, and preferably under a systematic rotation of crops. In the matter of manuring it is impossible to lay down any hard-and-fast rules, as, though we know that a certain crop will take so many pounds of nitrogen, phosphoric acid, and potash out of the soil, the mere fact of our adding this quantity of plant food to the soil will not be sufficient to secure such crop. The state of the land, heat, moisture, and many other factors have to be taken into consideration; but, at the same time, the knowledge of the essential plant foods required by individual crops, and the practical application of this knowledge, combined with sound common sense and judgment, will be found to be of great value. In the case of the application of commercial fertilisers, the agriculturist will learn as much, if not more, by careful observation of the habits of growth of various plants, and of the action of the various manures on same in his particular soil, and under the particular conditions of climate in which he is working, than he will from all the chemist can tell him of the analysis of his soil or of the plant foods extracted from it by various crops. The best results are obtained by a judicious combination of both the scientific knowledge of the chemist and the partical observation and knowledge of the agriculturist.

Composition of Mixed Fertilisers.—In estimating the value of commercial fertilisers I have taken the standard adopted by the New South Wales Department of Agriculture, viz:—

5s. 4d. per unit for water soluble phosphoric acid.
4s. 6d. per unit for citrate soluble phosphoric acid.
2s. per unit for insoluble phosphoric acid.
5s. 4d. per unit for potash.
10s. per unit for nitrogen in blood, nipho, offal, &c.
9s. 6d. per unit for sulphate of ammonia.

In the different mixtures recommended the individual fertilisers are assumed to be of the following composition, a high standard having been chosen:—

Sulphate of ammonia, containing 20½ per cent. of nitrogen, worth £10 per ton.

Nipho, containigg 12 per cent. of nitrogen, worth £6 per ton.

Dried blood, containiug 12½ per cent. of nitrogen, worth £6 5s. per ton.

Superphosphate, containing 17 per cent. of water soluble phosphoric acid, worth £4 5s. per ton.

Bone phosphate, containing 27½ per cent. of insoluble phosphoric acid, worth £2 15s. per ton.

Meatworks manure, containing 6½ per cent. of nitrogen and 14 per cent. of insoluble phosphoric acid, worth £4 13s. per ton.

Sulphate of potash, containing 50 per cent. of potash, worth £13 10s. per ton.

Buyers should always insist on knowing the analysis of any fertiliser that they purchase, and not only that, but they should insist on the seller giving them a guarantee that the fertiliser as sold is up to such analysis. Given this, it is an easy matter to compare the value of any particular fertiliser with those given above.

FOR CITRUS TREES.

Citrus fruits remove a considerable amount of plant food from the soil, as will be seen by referring to the table at the end. They require large quantities of nitrogen and potash, but only a comparatively small proportion of phosphoric acid. It is not advisable to give the trees too soluble a manure, or to apply it in too large quantities, but the fertilisers should contain plant food in both a soluble and slowly available form. The following proportions will be found to suit many orchards:—

	Cwt.
Meatworks manure, blood, and bones ..	10
Superphosphate	4
Sulphate of potash	4
Sulphate of ammonia	2
	20

This fertiliser will contain about 5¼ per cent. of nitrogen, 10 per cent. of potash, 10⅗ per cent. of phosphoric acid, of which 3⅗ per cent. is water soluble, and be worth £7 per ton. Manuring is seldom required in young citrus orchards in this colony, provided they are planted in suitable soil; but if the land is poor, then from 4 to 6 lb. per trees up to five years of age, applied in two lots, will be sufficient, but for trees in bearing the amount should range from 10 to 20 lb. per tree according to size, applied in two lots. In making the above manure, blood or nipho may be substituted for the sulphate of ammonia, but it will be apt to render the fruit more acid and somewhat thicken the skin. The best way to apply this manure is to broadcast it round the tree and to either chip, harrow, or cultivate it in; spread the manure round the feeding roots of the trees, not right round the stem. Apply in July or August, and again in January. Experience may prove that in the case of rich scrub soil of volcanic or some soils of granitic origin it is not necessary to use so much potash, in which case it may be reduced, and the nitrogen and phosphoric acid increased.

In the case of sandy soils it may also be advisable to increase the proportion of potash, but this can only be determined by the orchardist carefully noting the result of the manuring.—*Queensland Agricultural Journal.*

(*To be concluded*).

PLANTING IN TOBAGO.

As is well known, Cacao is just now one of the most promising and useful crops that could be grown in Tobago. It will not grow everywhere. But there can be no doubt that there are some localities in the island that suit Cacao very well. What the cultivator must do is to carefully bear in mind what the Cacao tree requires and give it the best conditions for its growth and for producing good crops. In the following pages an attempt is made to give in simple language hints in regard to choosing and planting the land, caring for the trees, gathering the crop and preparing the Cacao ready for market. It is believed that if the directions here given are fully carried out the cultivators, both large and small, will have good returns from their labour. It must, however, be remembered "Where there is little labour, there is little gain."

PLANTING.—When planting cacao the following ten points should be observed:—

1. Choose porous land, not too dry, well sheltered from the wind and, if possible, facing west.
2. Leave all bushes on the ridges for 70 feet each side.
3. Clear the land well, burning all the wood and bush, on the surface, but not in heaps.
4. Mark out the ground in parallel rows, 12 to 15 feet apart, and, at the same distance apart, place along these rows, stakes so arranged that those of one row alternate with those of the next.
5. Turn up the soil, to a depth of one foot, for three feet around each stake.
6. Plant permanent shade trees in each third hole of each third row.
7. Plant the cacao during the moist weather of June or July.
8. Plant bananas halfway between each pair of cacao trees, and tannias between the bananas.
9. Mulch around the trees, but do not disturb the roots by forking. Scratch the surface lightly with hoe or rake previous to laying on the mulching.
10 Always keep the ground clean and free from weeds.

1. Choose porous land, not too dry, well sheltered from the wind and if possible facing west.

Suitable land will generally be found on the lower and more gentle slopes of ridges, where the soil is usually loose, open, sufficiently deep and well drained. On the steeper slopes of the ridges the soil is generally

thin and poor, and accordingly useless, whilst the level lands at the bottom of larger valleys will be found very rich and capable of growing excellent cacao if properly drained. Any aspect will do, provided the land is completely sheltered from the prevailing easterly winds by belts of timber or by higher ridges. Land which is not thus protected is utterly unfitted for cacao cultivation.

2. *Leave all bushes on the ridges for 70 feet each side.*

As the ridge-tops are as a rule useless for the growth of cacao, it is better to leave the natural forest upon them, for the following reasons:—

(1.) These belts of timber will proctect the cacao on the lower ground from the wind.

(2.) They will assist to preserve the necessary humidity.

(3.) They will annually shed large quantities of leaves upon the lower lands, which are useful as manure or mulching for the caoao.

(4.) During heavy rains, they will prevent the water from running off the hill sides in streams sufficiently large to wash away the best soil from the cacao lands below.

3. *Clear the land well, burning all the wood and bush, on the surface, but not in heaps.*

Such portions of the land as are intended for cacao should be cleared of all vegetation. Some cultivators leave portions of the original forest standing for shade purposes, and meet with a good measure of success. As a general rule, however, it is better to clear the whole surface, for the following reasons:—

(1.) The trees left standing upon the ground will very rarely be in proper lines, and therefore cannot shade so perfectly as when regularly planted.

(2.) Such trees, having grown amongst a number of other high trees, will be tall and weak and therefore easily blown down.

(3.) Trees left in this way will prevent the cacao being planted symmetrically, which is of great importance to its well-being.

(4.) Many of the forest trees are totally unsuitable for shade. Only the pod-bearing or leguminous kinds should in any case be left. Others will take from the cacao the nourishment it should obtain from the soil, and starve it to death for want of food and moisture.

If the planter can afford it, it is better that the whole surface of the ground should be thoroughly well turned over and exposed to the atmosphere, in order that the soil may be sweetened. The land so cultivated can be brought into use for growth of food supplies.

Burning the timber in heaps is a bad method, because by so doing, owing to the fierceness of the fire, the wood is reduced to ashes instead of remaining in the more useful form of charcoal.

4. *Mark out the ground in parallel rows 12 to 15 feet apart, and at the same distance apart place, along these rows, stakes so arranged that those of one row alternate with those of the next.*

If the lands is rich, 15 feet is a good distance, if poor, 12 feet would be more suitable.

Make the rows perfectly straight, and parallel with the boundary lines; the plants should be put at equal distances from each other *in every direction.* Trees planted too close together will choke each other, whilst, on the other hand, if planted too far apart, they will fail to give the requisite support and shade to one another. Again, when the trees are planted in regular rows, it is easier to walk through the field and give attention to the plants without missing any.

5. *Turn up the soil, to the depth of one foot, for three feet around each stake.*

This is best done with the pick-axe some months before planting. Let the earth be thoroughly turned upside down, and afterwards mixed with good surface soil, leaf mould, or well rotted manure, if available.

6. *Plant permanent shade trees in each third hole, of each third row.*

There are several kinds of shade which may be used, but probably the most effectual and useful are the two "Immortelles" and the "Saman." The "Immortelles," is almost exclusively used in Trinidad. The great object of the permanent shade trees is to temper the heat of the sun, by keeping its rays off the cacao during part of the day. If shade trees are planted at every third hole when 12 feet apart, they should also be put at every third hole when 15 feet is the distance adopted, as the quality of the land will regulate the growth of the shade trees, as well as of the cacao.

Shade trees should never be planted too closely, as cacao must have sufficient light, or it cannot bear good crops. If a shade tree is too close to one cacao tree, it must be too far away from others, and the latter will accordingly suffer from having too little shade.

A common objection to the plan of using a cacao hole for the shade tree is, that one cacao tree out of every nine is lost. This is perfectly true, but if a cacao planter is unwilling to make this sacrifice, he will undoubtedly lose more than one-ninth of his crop, for the nine improperly shaded trees will yield less than the eight well shaded ones.

7. *Plant cacao during the moist weather of June or July.*

There are two ways of planting. You can plant cacao seeds on the spot where the tree is to permanently remain, this is called "planting at stake;" or you can plant the seeds in bamboo joints or in seed beds, in nurseries, and afterwards transplant to the permanent position. The latter operation should be very carefully performed, the greatest care being taken not to place the plants too deep in the ground, as more deaths of young plants arise from this cause than from any other. The seed when planted should be placed at a depth equal to its own thickness, below the surface.

During the moist weather which usually occurs in June and July is a good season for planting, because at this time the rains usually commence to fall regularly and generally last to the end of the year. Plants can better endure the dry season which usually extends from February to April or May, if planted at the time indicated. Planting at stake causes an increased expenditure on supervision, as a larger area of ground has to be regularly attended to than is the case when the plants are raised in nurseries. The seed sown should be selected from trees in good health and which are known to bear regular crops of first class cacao. All other seed is comparatively worthless.

8. *Plant bananas at 6 to 7½ feet from every cacao tree (see section 4) and tannias between the bananas.*

This means that half way between every two cacao trees there is to be a banana, and half way between every banana and cacao tree, there is to be a tannia.

These plants will afford the necessary shade and protection to the young cacao, and the value of the crop will repay a large portion of the cost of growing the cacao trees. Should there be no means of getting ground provisions to market, the produce may be used for feeding pigs.

As soon as the permanent shade is sufficiently grown all the small shade should be removed and the plantation cleaned throughout. In no case should further mixed cultivation be continued.—*Imperial Department of Agriculture of the West Indies.*

(To be concluded)

THE PLANT DOCTOR.—The Royal Horticultural Society seems rolling in wealth, or very anxious to spend what it has—a correspondent says he knows an opening, viz., to provide the sinews for war to some plant-disease man, and send him to see on the spot what disease really looks like. The postal box is apt to mislead. We certainly think the time has arrived when the Royal Horticultural Society, or someone, should give an adequate salary to a competent plant doctor whose whole time should be devoted to the work. We are only editors, and have no time for the necessary research and cultivation, but we are swamped with enquiries and specimens.—*Gardeners' Chronicle.*

MR. O'CONOR ON INDIAN TEA: PLANTERS AND THE CURRENCY.

The Director-General of Statistics for the Indian Government is Mr. J. E. O'Conor, C.I E., and he follows up the Customs tables for the year 1899-1900, with a fairly elaborate Report. We quote the portions referring to our staple, which are of general interest to our planting and mercantile community. It will be observed that Mr. O'Conor attributes the falling-off in the importation of (China and Ceylon) tea into India, to the disappearance of the re-export trade through Persia, and that this is due to the great efforts of Russia to place its overland trade with Eastern Asia, that is China, on a sound footing. For the moment this overland trade has undoubtedly met with a check, the full effects of which have not yet been realised. Turning to the Exports of Tea, Mr. O'Conor, as a loyal supporter of the Government and its Currency policy, has a strong deliverance against the critics, including Mr. R. H. Elliot, but more especially directed against grumblers among the tea planters themselves, It will be well for Ceylon tea-planters, who still harp on the currency, to note what is said and how effectively the case of Brazil is dragged in as an illustration of evils avoided. Be this example apposite or not, we have long been clear that the higher rupee stopped the rapid extension of tea planting, and so put a check on the (at present) one great and universally-admitted drawback to prosperity in tea, namely *overproduction*. Do not the Ceylon planters, therefore, owe this much to the Indian Currency authorities as something to balance the other side of the account? We are pleased to see how well the average for the Calcutta Tea Sales has kept up for the past five years and that the direct export of Indian tea, to Australasia, United States and Canada, is increasing. Mr. O'Conor's remarks are as follows :—

The importations of *Tea* have, as was anticipated, again fallen away. As late as 1896-97 the importations amounted to as much as 7,875,000 lb.; in the following year, concurrently with Russian measures taken in view to the fostering of direct trade between Eastern Asia and Russia, the transit trade through Persia into Turkistan was placed under serious disabilities, and the imports of tea fell to 3,515,000 lb. In 1898-99 there was a very small recovery to 3,659,000 lb., but last year there was again a decline to 3,203,000 lb., a quantity considerably less than half the trade which existed until the new arrangements came into operation. The importations of China tea are less than a third of what they were four years ago, but besides this decline in China tea must be noted a great reduction in Ceylon tea to about half the imports of the preceding year. That is not to be regretted, so far as Ceylon tea was consumed in India, but with the reduction of the imports of Ceylon tea into India there has happened an inerease in the direct imports of that tea into Russia, the arrangements referred to favouring the trade in that tea, as was observed in reviewing the trade in tea in 1898-99.

EXPORTS :—*Tea*.—The very large quantity of 175 million pounds was shipped, an increase of 17½ million pounds, being at the rate of 11 per cent, on the shipments of 1898-99. In the seven years since the elosure of the mints the exports have nc reased by as much as 39 per cent: and although prices have not been able to maintain all along what owners of tea estates would regard as a satisfactory level in the face of the constantly increasing quantities shipped from India and Ceylon to what is, after all, a limited market—yet the industry has happily not been overtaken by the ruin and desolation which were so freely prophesied to be the consequence of placing the Indian currency system on a sound basis. Nor, happily, are there any indications that the industry is not likely to be even more solidly prosperous in the future than in the past. What a vicious currency system did in Brazil for coffee the unsound eurrency system of India was doing for tea. The temporary stimulus given by depreciated paper or depreciated silver led to rapid extensions of cultivation; the increasing supply led to a fall in prices; the fall in prices led to a demand for further depreciation in the currency, in order that the speculative planter might find from the taxpayers the profit which he could no longer find from consumers in an over-supplied market. In Brazil this vicious circle is still being travelled, and the issue can only be either the ruin of the planters, who are aghast at any suggestion for currency reform, or the complete and hopeless insolvency of the country. In India this road has been closed, and the capitalist will now place his money in tea with exclusive reference to the conditions of cultivation and consumption and without an eye to a depreeiating currency. It is by no means improbable that in the result the near future may see a gradual restoration of the price-level, already initiated during the past year, to a level which will satisfy the producers and not restrict consumption.

PRICES IN CALCUTTA (annas and pie per pound.)

[We omit "Pekoe Fannings" and "Broken Souchong."—ED. *T.A.*]

	Orange (& broken Orange) Pekoe.	Broken Pekoe.	Pekoe	Pekoe Souchong.	Average.
1895-96 .	11 1¼	9	7 3 4-7	5 11	8 9
1896-97 .	9 11⅔	8 7¾	6 9 9-10	5 5½	8 8
1897-98 .	8 9⅝	7 5 5-7	6 0¾	4 10⅔	8 5
1898-99 .	8 1 2-5	7	5 8	4 7	8 1
1899-1900.	7 9 1-10	6 9¾	5 8¾	5 0⅔	8 4

The exports of Indian tea to the United Kingdom amounted to 154,161,492 lb., being nine-tenths of the whole quantity exported. Some portion of the tea shipped to London is of course re-exported to other countries, but it is satisfactory to note an increase in direct shipments from India to markets outside the United Kingdom, especially to Australia, Canada, and the United States.

CHEETAHS ON THE PROWL.

A very handsome specimen, of the tiger tribe, was shot just below the Hakgalla Gardens, by a well-known native huntsman. The animal had been seen prowling about the previous day, and had taken away a dog belonging to him said to be of value, so watch was kept in the neighbourhood of the animal's haunts, when in broad daylight the brute pounced upon a dog which happened to be passing a low tree overhanging a stream, when the huntsman fired, mortally wounding the cheetah, but not before his would-be quarry was slightly mauled. The carcase was brought to Nuwara Eliya where it found ready sale, Mr. Laidlaw, Agent of the National Bank, being the purchaser. The following were the dimensions ;—Length 7 ft., height 3 ft.—*Cor.*

IMPRESSIONS OF SOUTHERN INDIA.

[BY A CEYLON PLANTER.]

IRRIGATION

and ploughing are allied agricultural operations, and the Indian is as systematic in the one as in the other. With the exception of cotton, which, (as far as I could observe in a passing train) is not irrigated, every other product, even the young coconut plantation, (!) is regularly irrigated. Irrigation does not mean the free and easy letting out of water stored in tanks. No, it means the laborious and toilsome well-irrigation which is practised by the allied race of Tamils in the North of Ceylon. Agriculturists, who have given the subject of irrigation some thought and study, assert that well-irrigation is more beneficial than tank-irrigation, as the water of the former contain salts and other soluble manurial ingredients not to be found in the latter. However, the

PATIENT INDUSTRY OF THE TAMIL

was a cheering sight to one accustomed to the sloth and apathy of the Sinhalese generally. My condemnation of the Sinhalese is not sweeping. Nothing can excel the systematic toil and industry involved in tobacco cultivation (borrowed from the Tamil, I suppose) nor the attention he pays to his rice fields in the interval between ploughing and reaping. But at the best his agricultural industry is spasmodic, not continuous. Perhaps the fairness of his wants and the ease with which they can be met, have induced his proverbial apathy. In regard to irrigation, I noticed

TWO SYSTEMS OF RAISING WATER.

One by bullock power and other by means of the sweep or lift so familiar to the residents of old Colombo, who indulged in the luxury of baths in public bathing places. The former is a very interesting process. One side of a well is built up about three feet high. In this is fixed a beam with two curved uprights bending into the well. These support a grooved wheel in which runs the rope used in raising the water. From the top of the wall of the well a sloped embankment runs for a short distance into a scooped hollow in the ground. A large cow-hide stitched up, is used as a bucket. One end of the rope is fixed to it and the other to the yoke of a pair of oxen. These stand on the top of the slope with their back to the well and the bucket is filled. They are driven at a trot to the bottom of the slope and the bucket reaches the surface and is emptied into a trough by drawing in a piece of rope attached to the bottom of of the bucket. By pulling the reins, the bullocks are backed to the top of the slope, and the process of filling the bucket and emptying it is repeated with machine-like regularity. In the Western and other parts of Ceylon, except the North, the "lift" is worked by a single man, who dips the bucket into the well and draws it out with comparative ease, owing to the weight attached to the other end of the "lift." In India the lift is notched by having steps or indentations cut into it. On it are five or six men with long balancing poles, who move up and down it to fill the bucket and draw it up. A big cauldron takes the place of a bucket.

The freshness and the dark green of all cultivated products were a refreshing sight and in contrast with the aridity around. Water is led into the cultivated patches by means of drains. Plantain gardens, and as I said before, coconut gardens, are also watered by drains running between the rows.

PLANTAIN GARDENS

are so different to what one sees here. They are carefully tended. All the withered branches are cut and used to mulch the ground. The leaves are all dark green.

What a pity it is that no one seems interested in teaching the Indian ryot how to grow

COCONUTS.

The plants are put down six, eight or ten feet apart. From the railway one could see large trees in the villages and some only of these seemed to be bearing well. The nuts for sale at the railway stations were little larger in size than the Maldive coconut. On the lower portion of the line,

COTTON

is met with. The shrubs are two or three feet high. The great cotton district is, of course, Tinnevelly. The branch line to it diverts from the main-line at a place called Manniachi, two stations out of Tuticorin. Along the main line the centre of a cotton district is Niridunpatti, there can be seen large, stone-built cotton mills and the manager's residence on the top of an adjoining barren hill—by the way all the hills met with in the neighbourhood of the railway seemed to be barren.

The Indian ryot has not much to learn in the way of agriculture. His dry ploughing, involving as it does the thorough aëration and pulverising of the soil, the thoroughness of the operation as is seen by every bit of his land, being broken up and his systematic irrigation do not leave much to be desired. His methods are somewhat primitive and crude, but their results are satisfactory.

It will be remembered that some years ago, after the great famine, there was an attempt made at a revival of agriculture. It was argued that one of the causes of famine was defective methods of agriculture. Amateur Agriculturists condemned the Indian system as radically bad. Professor Voelcker was commissoned to study the system on the spot and to suggest improvements. He studied it and the result was that the Agent had

VERY LITTLE TO BE TAUGHT.

His conclusions were that his methods were not in agreement with those in European countries, but the conditions of both were dissimilar. His system was the result of the traditional experience of many generations and should not be lightly or hastily disturbed. Like the Prophet of old he was sent to curse, but he blessed instead. On the railway journey till Madura is reached, I did not notice any rice fields ; all was high and dry land cultivation.

THE RICE-FIELDS

are very like our own, with ridges and water. Of course, as is well-known, the Indian system of paddy cultivation is different for our sloven and wasteful system of broad-cast sowing. They sow in seed-beds and perform the laborious work of transplanting. Three-fourths of seed paddy is saved by this, a very large item in the aggregate. The benefits accruing from the mode involved in transplanting and from more room for the plants,

are the development of each individual plant into a bush and a larger yield. Weeding, too, is general.

A great deal of time was recently taken up over the deliberation of a Commission appointed to elaborate a scheme for the formation of

INDIA-RUBBER: EXTENDED CULTIVATION AND REPORTED SUBSTITUTE.

Below will be found some curious information in reference to the extended planting of rubber. Costa Rica is pronounced the best country in the world for this culture, and an estimate is furnished for an estate which is truly American in its grandeur, though it also reminds us of certain Ceylon "cinchona" estimates in the early "eighties." In short the estimate before us makes out the annual profit after seven years on 10,000 acres planted with rubber, to be 375,000 dollars, say £75,000 or £7 10s an acre. This is not too much per acre, but the risks over 10,000 acres would be considerable.—"The India-rubber World" to hand of July 1st, contains a great deal about substitutes for rubber. First, our old friend, the Rhea or Ramie plant, is to be exploited and we read:—

Patents cover the Cordner method of manufacturing artificial rubber from the Rhea fibre. The capitalization of $10,000,000 has all been underwritten for a Syndicate taking it up and no portion of it will be sold to the public for a number of months. Under the process controlled by the syndicate, a substance is produced which has the appearance, odor, and utility of crude rubber, and it is claimed that it can be manufactured at a fraction of the cost per pound of Para unwashed. The products will be manufactured in New Jersey. It costs, manufactured, as near as they can figure, 13 or 14 cents per pound, and as soon as possible they intend to discover exactly how much it is worth in all kinds of manufactured rubber goods. They do not expect it to take the place of Para rubber in elastic bands, for instance, but in many other lines where waterproof qualities, ductility, and a certain amount of resiliency are required, they believe that it will be found of great value. It is reported that Mr. Fred. Lamprough, who came over to America with Mr. W J Cordner in order to demonstrate the usefulness of the gum to the American purchasers, received a handsome fee for his services. Mr. Lamprough will be remembered as the inventor of a substitute for India rubber and Gutta percha known as 'Volenite."

But this is not all. The next substitute is "Velvril" of which we are told:—

The basis of "velvril" is a drying or semidrying oil, which is nitrated by strong nitric acid. A nitro compound is formed, containing from 4 to 5 per cent of nitrogen, and this is thoroughly purified until all traces of free nitric acid are removed. In practice the oils used are linseed oil, and castor oil, but Mr. Reid states that, owing to the unstable nature of linseed oil, castor oil is preferred. The other ingredient used is nitro cellulose of a very low degree of nitration. Articles made of "velvril" materials may be placed in boiling water without losing their shape, although with the higher temperature they become somewhat more supple. By great pressure and heat combined, however, these materials can be molded into any desired shape. Mr. Reid exhibited specimens of machine belting, made of "velvril" material, such as had been running for more than two years under trying conditions, but without showing appreciable signs of wear. The fabric which forms the basis is a cotton canvas of special make. This is saturated and coated with a solution of "velvril" material, and is then folded over to the required thickness and cemented together by means of specially constructed machinery. Such belting is stated to have very great strength, is waterproof, and unaffected by oil or climatic changes. It has been found specially suitable for hot climates. The prepared canvas from which the belting is made can be used for a variety of other purposes. Trunks and portmanteaus made of it do not, like leather become moldy in a damp climate. Ground sheets of "velvril have been made for the British soldiers in camp in South Africa. It has also been used for horse covers, and, in a different mixture, for printers' blankets.

Finally there is an alleged Mexican substitute:—

"A rubber factory is in course of construction in this city for the extensive preparation of rubber from a Mexican weed by a newly discovered process. The plant is valued at $100,000 and is owned by a stock company, the principal stockholders of which are the Messrs. Soberon."

"Twentieth Century Gum" is the name given to this last new material; but the success of it as of the other substitutes has not yet been fully tested: and planters of rubber trees in Ceylon and elsewhere may take comfort in the fact that there is nothing equal to the real article.

CRUDE RUBBER AND PLANTING INTERESTS.

AN EXPERIMENT IN COSTA RICA.

The Indiana Rubber Co. (Goshen, Ind.), mentioned in the last *India Rubber World* as having been incorporated under Nevada laws, with $1,000,000 capital, were organized early in this year. They own 10,000 acres of land on the east coast of Costa Rica, purchased after four years' investigation in Central America by Lester C Singer, of Goshen, Ind., who becomes the company's assistant manager. In a letter to The *India Rubber World* Mr. Singer writes:

"I was two years in Costa Rica, and decided that country to be the best for planting rubber, for the reason that there is no dry season on the Atlantic coast of Costa Rica as there is in Nicaragua and Honduras. I have planted over 300 acres of rubber in Costa Rica, and it is doing splendidly. My system of planting is to select rich, well drained soil where there is a heavy rainfall and no decided dry season. I plant the seed in a nursery and transplant in from six months to one year. I underbrush the land and thin out the timber enough to let in the light and air, and afterwards keep the plants clear of the undergrowth. I have associated myself with the Indiana Rubber Co., whose capital stock is $1,000,000. Three hundred thousand dollars of the stock of the company will be sold at par for working capital. We expect to commence active operations soon, for which I shall return to Central America." Mr. Singer's address for a time will be in care of the United States consul, San José, Costa Rica.

The company, in their prospectus, state that their estate has a water front of seven miles along a river, which affords means of ready communication with the different districts of the plantation and with the coast. "The land is as valuable as any in Costa Rica, where land similary situated is easily sold for $100 per acre. . . Sufficient planting has been done to prove that the land is well adapted to the growth of rubber trees, chocolate, and other tropical plants. Some excellent specimens of rubber trees, which were planted by a former owner, are going on the land." Mr. Singer is referred to as "a pioneer in the planting and an expert in the culture of rubber trees. He has received the commendation of officials and others who are interested in the development of the resources of Costa Rica. His plantations have gone through the experimental stage and have proven

most excellent investments." The officers of the company are: Dr. Irvin J Becknell, president; B B Brothers, vice president; L M Latta, secretary; Luther E Bartholomew, treasurer; A S Zook, attorney; Clark Bruce, manager; L C Singer, assistant manager; and Eva Peck Bruce and Orville L Simmons trustees.

The secretary of the company, in sending a copy of their prospectus to The *India Rubber World*, writes: "In view of your article on page 206 of your issue of May 1, we beg to call your attention to the statements we make, as we believe we have in every case been conservative. Should you find any statement that is at variance with your knowledge of the rubber industry we should be glad to have you call our attention to it." The prospectus embraces the following estimate of—

EXPENSE.

Planting and bringing to production and marketing 1 acre (100 trees) at the end of 7 years ..	$40
10,000 acres will cost	$400,000
10,000 acres will produce at ½ pound per tree, in seventh year ..	500,000 pounds.
At New York price of $1 per pound, would be	$500,000
Less cost of planting, etc., as above	400,000
Profit at end of seventh year	$100,000
The production each year after the seventh year, being 100,000 pounds at $1 per pound, will be ..	$500,000
Caring and marketing at 25 cents per pound each year ..	125,000
Annual profit	$375,000

The *India Rubber World* cannot undertake, in the present undeveloped state of the rubber planting industry, to pass upon the merits of the estimates of planting companies. It may be proper to suggest, however, that there nowhere exists, to our knowledge, data to justify any particular calculation of the cost of planting a given area in rubber and bringing the trees to the productive age. It might be more or less than $40 an acre, and accurate statements based upon experience would be welcome by the editor. Another point is that 100 trees to the acre would seem an unnecessarily small number, as this would allow them to be planted 66 feet apart each way, and closer planting is advised by most authorities. Finally; the "New York price of $1 per pound" is misleading. This is the price of fine Para rubber, but "Centrals," which grades are obtained from the *Castilloa elastica*, the rubber tree of Costa Rica, cannot be expected to bring nearly so much money. We are informed, however, that 65 cents has now been substituted for $1 in these estimates. The yield per tree is, indeed, estimated conservatively. We shall look for the results of this experiment with much interest.

RUBBER TREES IN SALVADOR.

Writing from Santa Ana, Salvador—which is near the Pacific coast and also near the eastern boundary of Guatemala—Mr. J Hill informs The *India Rubber World*: "I have *Castilloa elastica* growing on all my farms upon the Volcan here, so that I know it will grow, but it is in very small numbers, and up to now I cannot size up its age. But I know that a pound of rubber can be had from a tree, because the men get it out and use it. These trees have grown up here and there, unnoticed and uncared for, among the shade covering coffee plantations. I intend planting some 100,000 trees this year, in order to give rubber a trial. The rubber grows wild along the coast and up to our place."

RUBBER IN THE PHILIPPINES.

A correspondent of The *India Rubber World* writes from San Francisco that a friend in Manila informs him that the plant known as the *Willoughbeia firma*—the kind of rubber plant native to the Malaysian peninsula and the Sunda islands, a creeper which grows to very large dimensions—is found growing wild in marshy sections of the island of Luzon, in the Philippines.

RUBBER PLANTING IN TRINIDAD.

In the thirteenth annual report on the royal botanic gardens of Trinidad, for the year 1899, the superintendent, John H Hart, F.L.S., gives some notes of interest on the progress under cultivation of *Castilloa elastica*, *Hevea Brasiliensis*, *Kickxia Africana*, and other rubber yielding species. One Para rubber tree has a girth, three feet above ground, of 58 inches, and is 40 feet high. Experiments to date do not promise a large yield of *latex*. One-fifth of an acre has been planted in *Kickxia* (Lagos rubber), some of the specimens being now 8 feet high, and apparently thriving in the Trinidad climate "*Castilloa* promises the best of any of the rubbers, so far, for local cultivation. A tree planted in 1885 is over 40 feet in height, and 51 inches in girth at 3 feet from the ground. It yields abundant *latex*."

THE RUBBER OUTLOOK IN EAST AFRICA

Mr. Louis Sgal, of Liverpool, who is interested in more than one company engaged in the exploitation of Indiarubber in Africa, said recently to a representative of The *India Rubber World*:—"As regards the development of Africa as a rubber-producing continent *par excellence*—I mean as a field for the investment of capital in handling rubber—a satisfactory settlement of the trouble in South Africa would no doubt beneficially affect the whole of the rubber districts in the east of Africa. If England should gain possession of the Transvaal and Orange Free State, an enormous impetus would no doubt be given to capital to Africa in railway enterprises, and it may be, in such a case, that very speedy progress would be made with the Cape to Cairo railway, which at present is not far from Portuguese East Africa. As it is, the country around the Central African lakes is improving, and the native population is getting over the disastrous effects of the failure of last year's crops. It is a strange thing that in central Africa the rubber trade should be in so few hands comparatively. Two or three of the trading companies have a few steamers plying on the rivers and up to the lakes, and although possessing only a very limited capital, they have trade over an area where there should be sufficient room for twenty more companies."

The English companies operating in Africa above referred to have no connection with the Belgian companies engaged in the Congo country, but are located further east. Good profits are reported to have been made in bartering goods of English manufacture with the natives for rubber collected by them. Mr. Sgal is of the opinion that American capital might be invested profitably in a similar way.

THE MANGABEIRA AND MANICOBA RUBBERS.

In the Brazilian state of Sao Paulo in 1899 a law was passed to encourage the cultivation of mangabeira rubber (*Hancornia speciosa*), and premiums offered for the acclimatization of other good rubber species, and for better processes of extracting the *latex*. The mangabeira tree grows native in the states of Pernambuco, Bahia, Goyaz, Espirito Santo, Sao Paulo, Minaes Geraes, and Rio de Janeiro. There are many of the trees in the last three states. A recent report from the Belgian legation at Rio de Janeiro states that attempts to grow mangabeira trees from seeds have thus far failed, the planting having been done in lands exposed to the sun. Many native trees growing on plantations in Sao Paulo have failed to yield a profit to the owners, because of having been tapped surreptitiously by the natives. The government is now distributing seeds of the manicoba or Ceara rubber tree (*Manihot Glaziovii*), and large quantities have been planted, the quality of this rubber being superior to the mangabeira. Many manicoba trees have been planted, on coffee estates, but one planter reports scarcely one of a thousand young trees surviving the attacks of ants and other

insects. The government of the state of Bahia is also encouraging the growth of manicoba, distributing a pamphlet of instructions. A discouraging report is to the effect that "lately the entire cargo of Ceara [manicoba] rubber shipped in an English steamer was refused in London, under pretext that this gum was of too inferior a quality."

RUBBER EXPEDITION TO THE SOUTH SEAS.

In pursuit of its object—the greatest possible independence of Germany in regard to the importation of tropical products from foreign countries—the colonial industrial committee, at Berlin, have decided to send a "Gutta-percha and Caoutchouc Expedition" to the South-sea colonies," for the purpose of—

1. The study of the Gutta-percha and Caoutchouc culture and exploitation, in Dutch and British Indies (Sumatra, Borneo, Java, and Straits Settlements);

2. Planting and increasing the Gutta-percha yielding *Sapotaccees*, and the caoutchouc yielding *Ficus* trees and *Apocynacæ* vines of New Guinea and the South-sea isles;

3. The sending of large quantities of seeds and plant material to New Guinea, the South-sea colonies and Kamerun, to introduce a regular culture of Gutta-percha and Caoutchouc on a large scale;

4. Transporting larger quantities of Gutta-percha leaves and bark to Germany for experimentation, to produce Gutta-percha suited for manufacture.

Rudolf Schlechter, the botanist, has signified his willingness to carry out the expedition. Herr Schlechter should be especially qualified for this important undertaking, in consequence of his rich experience gained as leader of the Caoutchouc expedition to Inhambane and West Africa; he also carried out, successfully, the expedition to West Africa in behalf of the colonial industrial committee, introducing the culture of Caoutchouc plantations in Kamerun.

The cost has been estimated at 60,000 marks, 30,000 of which have been placed at the disposition of the committee, with the proviso that it obtain the remainder from interested parties.

The Caoutchouc and cable industries have every reason to willingly and materially assist the committee to carry out its plan of sending a "Gutta-percha and Caeutchouc expedition" to the South-sea islands. An authority in our industry once said: "The Caoutchouc goods manufacturers must manifest the same interest in the agricultural side of their industry as the sugar manufacturers accord the beet culture!" The truth contained in these words stands today without a doubt, and the sharper the condition of the Caoutchouc market becomes, the nearer a possible Caoutchouc famine approaches, and the more we notice on the other side how the industries of other countries are actively employed in the cultivation of Guttapercha and Caoutchouc plantations, the more energetic should we be to transform this object to a fact indeed. It is sowing seed into the future, but some day it is bound to bear abundant fruit, and repay generously the sacrifices made.—*Die Gummi-Zeitung* (*Dresden*).

GREEN TEA IN THE KANGRA VALLEY.

(To the Editor, *Indian Planters' Gazette.*)

Dear Sir,—It may be of interest at the present time, when attention is being called to the advisability of making green tea instead of black in some proportions, that the system of manufacture of green tea in the Kangra Valley should be made known. It is obvious that this system has its defects, but the same should be useful as a base upon which to make experiments and improvements. There are few tea districts in India where greens are still made, but as this one district produces annually nearly two million pounds of this class of tea as against about one million pounds of black tea, it may rather be classed as a green than a black tea producing district. The whole green tea crop is purchased, I believe, locally, and exported *via* Ladakh to Central Asia, or shipped to the Persian Gulf.

In order to make green tea the leaf is allowed to "run out" considerably, four or five leaves being plucked on one shoot, the consequence is that the quality of the tea would probably be too inferior to compete with China or Japan greens in European or American markets. There is no doubt that really good green tea could be made if more care were taken as to the quality of leaf used and more attention paid to cleanliness in manufacture. The *kutcha* leaf is taken immediately from the plantation, and without any withering operation is thrown into iron, horizontally placed pans which are built over brick *chulas* fed by wood fires. Each pan takes about 12 pounds of green leaf at a time and is kept from a high temperature to red heat, the leaf being stirred and turned briskly in it for one minute for dry to seven or eight for wet leaf, some skill being required to prevent it from being scorched. Two wooden forked sticks are used to toss the leaf continually in the pan, and when it is sufficiently flaccid, it is thrown out on to a table, which is placed nearly level with the pan itself, and vigorously hand-rolled while still hot. The rolled leaf is left in balls of about six inches in diameter, but these are carried off almost immediately to be broken up again and spread thinly upon bamboo mats in the sun. Here the rolled leaf remains until the juice which has exuded from it and is upon its outer surface becomes sticky, and the leaf becomes slightly darker in appearance. It is then hand-rolled a second time (these last two processes being sometimes repeated) and the rolled leaf is made up into larger balls, which are then taken to the facing pans. These pans are built in *chulas* at an angle of 30° to 45°, two generally being placed back-to-back over one *chula*. The heat of these must not be nearly so great as that of the withering pans and not sufficient to burn the hand if quickly passed over them. One of the large balls is thrown into a pan and moved about quickly for some time until it has become heated, when it is broken up and stirred from side to side with a piece of wood until the tea has become dry and has obtained a grayish gloss. Each leaf of tea produced in this way has the appearance of a little twisted ball.

The only sorting done by the growers is to take out the dust by means of a No. 18 bamboo or wire sieve, and to hand sort the flat or Bohea leaf. The remaining bulk obtains a local price of from As. 12 to Re1-1 per *butti* (4lb.), equal to As. 3 to As. 4-3 per lb., the dust and Bohea fetching about As. 4 to 5 per *butti*, equal to As. 1 to As. 1-3 per lb.

Many of the green teas manufactured in the Kangra Valley are coloured with soapstone by which they acquire a fine silky grey appearance. Teas coloured in this way seem to be in rather greater demand than the uncoloured ones. The coating of soapstone is, I believe, supposed to preserve the teas to some extent. So-called soapstone which appears to be the same as the clay slate found in the Eastern Himalayas, can be purchased in the local bazaars. It is applied to the dried tea, about 10 lb. of the latter being put into a warmed pan with four ounces of the stone and the whole stirred backwards and forwards until the required colour has been obtained,

As in the manufacture of black tea variations of the above process are found everywhere, and I do not presume to say that the one mentioned here is better than any other. In the first withering in the pans the leaf is steamed in the moisture given off from itself, and in the case of wet leaf the steam arises in clouds from the pans so that any application for a patent for the use of steam in the withering of green leaf cannot seemingly stand. The aroma given off by the steamed leaf is quite different from any obtained in the manufacture of black tea and is an extremely pleasant one.—Yours, &c.,

Holta, 24th July. G. C. DUDGEON.

CAMPHOR-TREES IN CALIFORNIA.

According to the *New York Commercial* the camphor-tree has been grown in California for many years as a shade and ornamental tree, but no effort has been made to produce camphor commercially. At the State University some years ago a small sample of camphor was made from the twigs and foliage, and was exhibited at the fairs. The trees are widely distributed over the State of California, both along the coast and in the interior, and everywhere are much admired for their thrifty growth and natural beauty. These trees are probably nearly forty years of age, sixty feet in in height, and three feet in diameter at the base.

COFFEE AND CACAO IN THE CAMEROONS.

It appears that coffee growing has practically had to be abandoned in the German colony of the Cameroons owing to the ravages of a beetle which attacked the roots of the trees, but that cacao cultivation has succeeded admirably, and most satisfactory progress has been made by the industry. At the present moment all the southern and western slopes of the mountains are studded with plantations, on which about 4,000 labourers are employed, as against 2,000 last year—3,000 of these are natives of the colony. About 150 labourers were imported from Togoland by State aid, and a hope is expressed that labourers from that colony will by degrees take the place of the Liberian labor which has had to be imported hitherto. The labour question remains an important one, more especially in view of the late troubles in the Rio del Rey district, since the increased requirements of the plantations will demand at least 6,000 labourers for the present season. The cacao plantations produced a crop of the value of about £15,600 in 1898-99, and it is expected that this will be largely increased, although the amount is already over £9,000 more than the value of the crop brought to the market in 1895 96.—*Home and Colonial Mail.*

THE PRICKLY PEAR AS FODDER.

Poverty, one has been told, makes strange bedfellows, but that the famine should drive cattle to the prickly pear for food is a new development. We read in an Indian paper that the following instructions regarding the use of prickly pear as food for cattle have been published by the Political Agent at Kathiawar for general information under the orders of the Bombay Government:—"The instructions how to prepare the leaves are as follows:—The instruments consists of a knife, a pair of tongs, and a pincer. The tongs are intended to hold the leaf and the knife to cut it, and the pincers to pluck out the thorns. after this is done, the leaf should be washed in water, to remove any stray thorns that may be sticking to the gummy matter in the leaves, and then have the leaves cut into pieces of one inch square, and sprinkle a handful of horse-gram or chenna-gram flour mixed with a little salt over the pieces, when the cattle usually will take to it without any difficulty. But in the case of such cattle which do not take to it willingly, a few pieces may put into their mouth, and the two lips be held together, till they chew the pieces and acquire a taste for them. By this means even new cattle can be accustomed to this fodder within two or three days. An ordinary woman cooly for a payment of two annas can bring prepared leaves of about 100 lbs. which can feed three or four starving cattle to keep them alive till prosperous times occur."

BRAZIL COFFEE NOTES.

The planters in various São Paulo districts are still publishing unfavourable reports of the new crop, and are advising the holding of coffee for higher prices.

A S. Paulo telegram of the 27th ultimo says, the commercial firm of Leite Ribeiro is about to be transformed into an association composed of planters for the purpose of extending the coffee propaganda in Europe.

Naturally the rise in exchange means lower currency prices for coffee, which will be unfavourable to the planter as the costs of production will not be reduced for some time to come. We may therefore expect protests against forcing up exchange before we are many weeks older.

The negotiations between the minister of foreign affairs and the ministers of France and Italy in regard to the import duty on coffee in those countries terminated on the 27th ult. The two countries concede a reduction of twenty francs and twenty liras per one hundred kilogrammes in the duties now levied in their custom houses on Brazilian coffee while Brazil engages not to impose maximum rates on their products imported into this country. The accord can be terminated only by six months notice. Though less than what she claimed, the accord is a victory for Brazil, for she secures a reduction of about thirteen per cent on the French tariff rate without the cost of a single concession.—From the *Rio News*, July 3rd.

COCONUT CULTIVATION IN S. AFRICA.

Mr. Hulley, magistrate, Umlalazi, in his district, report to the *Natal Agricultural Journal*, says:—It is surprising that no attempt has been made to cultivate the coconut palm on the Coast lands. The reason probably is that the tree is said to take very many years to come to maturity. It would be interesting to know the age of the one on the Tongaat estate, the only one I believe in the country which I think I was told, bore fruit this year for the first time. The Dutch, when Ceylon was in their possession, compelled the villagers to plant tracts of country with the palm from Colombo southwards, and since then the Sinhalese, alive to its value, have kept opening up fresh coconut land, until now there are about 600,000 acres under cultivation. It is said that only one-third of the crop, which in good years is worth £1,000,000, is exported in the shape of coir fibre, oil, nuts, &c., the rest is used as food, and for other purposes by the people.—*Natal Mercury*, July 23.

PLANTING NOTES.

PEPPER IN INDIA.—The Coorg Correspondent of the *Madras Mail* writes:—"The planting of pepper is being attended to on a larger scale than I was aware of when writing on the last occasion. Some local ryots have gone in for it largely, I hear one man having put out 50,000 cuttings this season."

PLANTING IN TOBAGO.—The Imperial Department of Agriculture for the West Indies ha lampe published some hints and suggestions for plantisu Cacao in Tobago. According to the preface, by Dr. Morris, these notes were prepared many years ago by Mr. Edward R Smart, and we'e published in a Tobago journal that no longer exists. Mr. Smart, however, being still in the island, lately offered these notes for reproduction, and they have been revised by Mr. J Hart, and issued in their present form. Other notes on other plants included in this little pamphlet were prepared by Sir Robert Llewelyn, formerly administrator of Tobago at present Administrator of the Gambia, West Africa.—*Gardeners' Chronicle*,

A HINT: WHY NOT JAFFNA MANGOES TOO?—An effort is being made (says the *Daily Mail* of July 14,) to bring the Bombay mangoes to England, and, indeed, for a few hours this week a small show of this fruit made an unwonted sight in a Bond street fruiterer's window. "But they were all snapped up as soon as the Anglo-Indians got to know of it," said Mr. George Adam, who had exhibited them. He showed our representative a letter he had received from Kathiawar, India, proposing to export Bombay mangoes to London as a regular article of commerce.

A BRAZILIAN COMMITTEE OF AGRICULTURE.—In Campinas (Brazil) a municipal committee of agriculture is about to be formed, consisting of three planters, whose duties will be: To report to the Government of the State everything of interest regarding agriculture in the municipality; to collect information for the assistance of the district inspector of agriculture, and his guidance in estimating the probable crop; to summon, and preside at meetings of the planters of the locality, with the same object; and to indent on the Government for seeds and "slips" for transplanting, where such are required.—*Planting Opinion*, July 28.

AGRICULTURE IN WESTERN AUSTRALIA.—We have received some copies of the monthly journal of the Department of Agriculture for Western Australia from March to July of the present year, The contents are interesting, though chiefly dealing with live-stock and farming. The regulations for analyses of soils strikes us as rather peculiar:—

The Department of Agriculture is now prepared to make analyses of soils, and furnish a full report on same for the sum of £3 13s 6d for each analysis, one half of which will be paid by the Department of Agriculture. All samples to be delivered free at the offices of the Department. West Australian Chambers, St. George's Terrace, Perth accompanied by the above-named fee.

We suppose this means that the farmer must deposit £3 13s 6d with his samples of soils; but that he will get back not only the required analyses, but also £1 16s 9d half the fee, *pour encourager les autres*!

PARA RUBBER: GOOD PRICES—This product seems likely to be a very good paying one for proprietors, who are able to grow it on their estates, as by the last mail an advice was received of the sale of some rubber grown and prepared on Culloden estate in the district of Kalutara at 3s 7½d per lb. Well done!

AGRICULTURAL BULLETIN OF THE MALAY PENINSULA.—The May *Bulletin of the Gardens and Forest Departments, Straits Settlements*, contains some valuable papers upon "Native Rubbers of the Malay Peninsula," "Insect Pests," "Bee-hawk Moth Caterpillars," "Para Rubber," "Kickxia africana," and "Injurious Fungi." There is also a plate illustrating certain insects.—*Gardeners' Chronicle.*

AGRICULTURAL SHOW IN WEST AFRICA.—The exhibition recently held at Daker, West Africa, is probably the first of its kind in tropical Africa. The exhibits were chiefly native articles and products. The show was held in the public park, and to encourage the natives no entrance fee was charged. The Government of the Colony are trying to introduce the cultivation of Brazilian rubber, and they supply seeds without a charge.—*Globe*, July 20.

SUPERIORITY OF ORANGES.—A well informed writer on oranges pays the following tribute to Florida oranges: "If the Californians could only furnish us with an orange that had less skin and more juice—well, then consumers of the country would have nothing more to say. How highly these virtues in the orange are appreciated is shown in the magnificent prices paid for Florida oranges—figures about double paid for the California product."—*Planters' Monthly.*

INDIAN TURPENTINE.—The production of turpentine in India is likely before long, to become an important industry. The Punjab Government have recently sanctioned the establishment of a factory for the distillation of the crude resin, the experiments conducted in the Dehra-Doon Laboratory and in Kangra having convinced the Forest Department that production on a very considerable scale is possible. In the Kangra Valley forests alone, last season, some twelve hundred maunds of resin were collected.—*Pioneer*, Aug. 4.

JAPANESE TEA AT THE EXHIBITION.—Writing of the Japanese pavilion at the Paris Exhibition, the Paris correspondent of *Truth* says:—"The only tea drunk and sold at the pavilion is from Formosa. It tastes like strong pekoe. I cannot say I like it, but the Japs. do. They drink very weak and lukewarm. There is a kind of Formosa tea that costs three francs a cup, and is only drunk in Japan on occasions of high ceremony. The tea-house at the Exhibition is subsidised by the Imperial Government and run by two gentlemanly little Japs."

BRAZILIAN COFFEE FACTORY IN LONDON.—The new factory which has recently been opened by Motta's Brazilian Coffee Company (Limited), at 178, Goswell-road, E.C., is in all respects eminently suitable for the preparation of Motta pure coffee under the best conditions (writes a representative). Machinery and other appliances of the most modern type have been installed. There is room for the coffee trade to develop, and Motta's Brazilian Coffee Company (Limited)—whose head offices are at 116, Bishopsgate-street Without E.C.—evidently intend to do all in their power to foster the demand.—*Grocers' Journal*, July 14.

Malacca Tea : What Next ?—We gather that tea is now being cultivated and made in Malacca and an expert in Singapore declares it to be "most excellent tea in flavour and quality"—capable of holding its own against Indian tea, at a dearer price.

Bamboos.—In Madras as usual a number of experiments were made with the bamboo; in Kistna six hundrends bamboo plants were put out in the Weld reserve and they are doing well. In South Malabar several kinds of bamboos artificially introduced on the banks of the rivers in Pokote and Mulathmanna are doing well. Arundinaira Brandisii (the giant bamboo), planted in Ayravallikava in 18797 have now some of them a girth of twenty-two inches.—*Indian Agriculturist*, Aug. 1.

Shade Trees for Plantations.—Mr Charles Gibbon gives his brother planters the result of his prolonged experience in a very sensible way in his letter elsewhere, which is well-worth careful consideration. It used to be said that no shade could be required above 4,000 feet, for there was nearly always a canopy of cloud available. But even in Dimbula, the benefits of grevilleas among tea —if not for shade, at any rate as breakwinds and for their leaves as manure—have been appreciated.

Tea Machinery.—Messrs. Thacker, Spink & Co., Calcutta, will shortly receive an entirely original work of the first importance to planters and to all concerned in the tea industry. "Tea Machinery and Tea Factories" by A. J. Wallis-Taylor, a work concerned with the machinery and mechanical appliances required upon a tea plantation, and with the buildings and material arrangements which have to be provided for dealing with the leaf as it is taken from the plant until it is ready for transport. There are over 200 illustrations, for the most part specially drawn for the book.—*Planting Opinion*, August 4.

The Highest Point at which flowering plants have been found, acccording to a recent paper to the London Linnean Society, was in Tibet at 19,200 feet. Nine speeies recorded to 19,000 feet or higher. The plants were mostly of the order compositæ, and deep-rooting perennial herbs having a rosette of leaves close to the ground with the flowers closely nestled in the centre, are characteristic of these attitudes. In the Bolivian Andes Sir Martin Conway found two species of flowering plants at 18,700 feet and thirty-nine above 14,000 feet, the latter belonging to thirty-four general and twenty-one natural orders.—*Indian Agriculturist*, Aug. 1.

The Sea Fisheries of Malabar and South Canara with seven plates (chiefly photographs of fishing villages and boats) by Edgar Thurston, of the Madras Government Museum, is a useful *brochure* of some 166 pages with statistical appendix, in which are given abundant particulars of a great variety of fish caught, contents of stomach, hauls, sale price, &c. In one table we find the exports of salt fish from Mangalore to Colombo for seven years; and in 1898-9 a maximum export was attained in 2,635,990 lb. valued at R287,817. It is certainly very strange that Ceylon fishermen cannot retain this industry and salt enough fish for local demand. But we suppose nothing now remains of the experiment set agoing by the late Mr. Ravenscroft, Auditor-General.

Chinese Tea in Russia.—As far back a June a meeting of Russian tea dealers was held at St. Petersburg, we learn from the Allahabad journal, to consider the position of the tea trade and the probable result of the disturbances in China. It was resolved that the price of tea should be gradually increased

The "Chin Bara Tea."—We are indebted to the correspondent who brings Mr. Harcourt Skrine's enterprise in respect of "Tea for Chemists" under our notice—see elsewhere. Surely his "cold process" is more or less identical with that patented by Mr Armitage, although the latter has taken no credit for producing an article of special value to chemists who retail tea.

Mocha Tea Company.—We heartily congratulate the shareholders upon the flourishing condition of this Company and trust that the working may long continue to be such as to warrant an annual dividend of 15 per cent. The whole history of this Company (notwithstanding the purchase of fresh estates !) is a wonderful illustration of what "tea" can do under favourable circumstances and good management; but then the capitalisation per acre of tea was low to begin with.

New Markets for Tea and Coffee.—Perhaps the most interesting subject and certainly one of the most impotant, discussed at the Annual Meeting of the United Planters Association of Southern India was that entitled "New Markets":—

The Hon. Mr. Acworth's remarks about tea point to an object lesson for planters of coffee as well as tea. Some critics may urge that the enhanced demand for Ceylon and Indian teas, coming together with the expenditure of huge sums on the exploiting of old and new markets, is but a coincidence. Even if so, says the *Madras Mail*, it is a curious coincidence that Ceylon, which has spent the more freely, has made the more rapid progress. We cannot overlook the possibility that a great deal of trade that was formerly done through London now takes place among the statistics of direct trade with America, Russia and other conntries. But the gross total has expanded; and it is remarkable that the expansion of this direct foreign trade has been so mnch greater with Colombo than with Calcutta. In both markets there are buyers representing English, American and Russian firms. There are as good opportunities for buying in Calcutta as in Colombo. We cannot, therefore, be surprised if the inference be drawn that the more rapid progress of the one, as compared with the other, is mainly due to the more liberal way in which "the wheels have been greased" in the case of Ceylon. At any rate, the suggestions that are made, based upon this inference, would appear to be worth a trial. Let India try advertising and canvassing on a scale proportionate to that of Ceylon. Let her expenditure in this direction be increased for a year or two. The results would soon show whether there was a strong probability that the growth of demand turned upon the degree of "push" applied by planters, or if we must seek some other explanation of the fact that Ceylon's superior success has been coincident with Ceylon's more liberal expenditure in efforts to make her teas known and appreciated throughout the world. There is, we fear, little chance of India adopting a quasi-voluntary cess such as this which Ceylon planters have had made compulsory upon themselves. There remains, however, another course open, the course of voluntary subscriptions to such a Fund as that of the American and Foreign Market Fund of the Indian Tea Association. This appears to be the course suggested during the proceedings of the U. P. A. S. I., and the future must largely depend upon the extent to which, and the manner in which South Indian planters follow this course,

THE INDIAN TEA ASSOCIATION (LONDON).

The report of the general committee for the year 1899-1900, presented at the meeting held on Thursday, is a record of the work performed by the Association and its able secretary, Mr. E Tye, in the interests of the Indian tea industry.

Under the heading

INDIAN TEA CROP OF 1899,

the report says, "It is interesting to note the growth of the direct shipments to outside markets in view of the increased production both in India and Ceylon, and the continued efforts which must be made to absorb as large a proportion of the crop as possible by pushing consumption in foreign countries." Under "Ocean freights," the report states that owing to the dissatisfaction felt for some time past with regard to the high rates of freight charged on tea by the Steam Conference liners, repeated representations have been addressed to the Conference asking for a reduction of one half in the present rate, but with no result. A circular has, therefore, been distributed inviting shippers to terminate the existing agreement with the Conference. The committee records that it has been successful in its efforts to reduce the warehouse charges. Under this heading an account is given of the work performed by the Association, in conjunction with the Ceylon Association in London, in securing the 10 per cent reduction that was ultimately obtained, and which represents a considerable gain to the industry. It has, however, one drawback, viz., that in the case of the building and taring charges the full reduction previously conceded has not been continued. A very interesting feature of the report is the description of the enterprising efforts being made to push Indian teas on the Continent through the medium of the Paris Exhibition. Tea samples are being displayed, and a tea room has been established under the management of Mr. E F Langdale, who was in charge of similar work at the Health Exhibition at Earl's Court; and who, it is satisfactory to note, reports that the business is steadily improving. Samples are also being distributed, and a stall has been fitted up at which teas are sold in packets.

Reference is made to the fact that on the recommendation of Dr. Voelcker, Mr. H H Mann, B.Sc., F.I.C., was appointed as

SCIENTIFIC OFFICER TO THE ASSOCIATION,

and has submitted an interesting report on a short visit he paid to Ceylon on his way out. The Labour Bill, to which special objection has been taken by all interested in tea in Assam, who consider that no good or sufficient reason has been shown for the proposed increase of wages, was considered by a special sub-committee, and their report sent to Calcutta, and embodied in the representations laid before the Indian Government. The Bill was referred to a special committee of the council, but the consideration of same was afterwards postponed to next season. The next item of interest is an account of the one pound draft dispute, which describes the compromise ultimately effected as "entirely satisfactory to no one except the Treasury." We may here mention that the report states that the question of the revision of the Public Sale Conditions has been under discussion between representatives of sellers and buyers, but that difficulty is experienced in deciding on alterations which will satisfy both parties. Strong opposition was offered by the London Chamber of Commerce to the bills to be brought before Parliament by the dock companies regarding the imposition of extra dock charges, &c, and they requested the Association to appoint a member of their committee to represent their interests. Mr. F A Roberts, on being requested, had consented to represent the Association. The Bill was thrown out on being brought before Parliament, and a Royal Commission is being appointed to consider the whole dock question. The advisability of a Dock Trust is still engaging the attention of the London Chamber of Commerce. With regard to the increased duty on tea, the report points out that although no doubt the Chancellor of the Exchequer intended that this special tax should be paid by consumers of tea in the United Kingdom, it is felt that it will fall chiefly upon producers, who were already sufficiently hampered by the increase in the exchange. It also comments upon the injustice of tea paying 6d per lb. duty, while coffee and cocoa, which directly compete with tea, only pay 1½d and 1d per lb respectively, although the average price of all three, excluding duty, is about 8d per lb. The committee contemplate making a representation to the Chancellor of the Exchequer with a view to the more equitable adjustment of taxation on these articles, the early removal of the war tax on tea, and a further reduction of the duty, which imposes a heavy burden on the industry.

It is satisfactory to note that

THE REGULATION OF SALES

which was in operation throughout last season worked smoothly, and that the committee intend to take the matter up again this season. As the report points out, Ceylon teas are imported more or less all the year round, and therefore practically regulate themselves, whereas Indian teas are nearly all imported within eight or nine months, and even in regard to these certain months are heavy, others light, while the consumption varies very little all the year round. As most importers know by now, the committee have decided to offer a bonus on green tea shipped direct from India in order to encourage planters to meet the large demand existing for it in America. As a further effort to exploit foreign markets, a circular was issued in April last inviting tea growers to support a levy for the current year on a similar scale to that raised in former years, and it is hoped that an equally good response will be made as for last year. It is proposed to apply the new levy not only to the American but to Continental markets, concerning which special inquiries are being made. Useful work has been done during the past year with regard to the joint advertising of Indian and Ceylon tea in the United States, and the committee express their obligation to Mr. Mackenzie, the Ceylon Commissioner, who has superintended the business generally. The committee comment upon the officiousness of the Post Office in ruling against the delivery of samples closed against inspection. As everybody knows, it is absolutely essential that the samples should be sent in hermetically sealed boxes, as they have hitherto been done, and which is not objected to in India, in order that they should reach England in a fresh condition. The Postmaster-General has been appealed to in vain, and a deputation was refused, but the committee will again address the above mentioned official as it is a matter of great importance to the industry. Finally the committee report that upwards of £2,080 has been generously subscribed in response to the appeal of the Viceroy and Governor-General of India on behalf of the inhabitants of the famine striken districts of India, and also that £400 was subscribed in conjunction with Ceylon for the relief of the sufferers by the fire in Ottawa. Some interesting, statistics concerning the quantities and value of the tea imported for home consumption in various Continental countries, kindly supplied by the Intelligence Branch of the Commercial Department of the Board of Trade, are attached to the report.

The annual general meeting of the Association was held yesterday. A full report of the proceedings will be given in next week's issue.—*Home and Colonial Mail*, July 27.

BAMBOO GUM: A MODERN MIRACLE.

Probably no modern discovery in natural history has been more seemingly miraculous (says "Science Siftings") than the finding of an edible gum exuding from the bamboos of Central India at a time when the people are suffering from their greatest famine. This substance is pleasantly sweet, occurs in white or brown rods about an inch long, and is found by Mr. David Hooper, of the Indian Museum at Calcutta, to consist mainly of a sugar related to, if not indentical with, cane sugar.—*Globe*, July 26.

MICA AND ITS USES.

Bengal is the chief seat of mica mining in the world. Calcutta exports more mica than all the other ports of the world put together. Its brokers have handled and sold more mica than the brokers of any other city. Its scientific men have personal acquaintance with the mines and mining men. Its merchants own the mines, and from constant dealing with the material know the best markets, and the mercantile value of any sample that could be submitted to them. Yet we find the Reporter on Economic Products ignore the valuable opinion available near at home in order to obtain a report which is erroneous, misleading, and likely to do harm. Professor Windham R Dunstan says: "The mica experts report that the samples are quite worthless, their chief defect being that they are striated or cross-grained and much cracked. *This kind of mica is only adapted for electrical purposes.*" [The italics are mine.] Cracked, striated, and cross-grained mica is wholly unsuited for electrical purposes. Any electrical engineer would have told Professor Dunstan this and I cannot conceive where he could have got this wholly incorrect information. On the strength of this report, coming from the source it does, miners, new to the business, may send home cracked cross-grained, striated mica, for electrical purposes, and find they have been "sold" since such mica is utterly worthless for dynamos. For electrical purposes the mica must be in perfectly even plates, free from buckling or corrugation. It must not be perforated or cracked in any way. In another part of this report Professor Dunstan says: "They (the plates of mica) should be roughly trimmed square or oblong, no piece to have more than five sides." This is incorrect Bengal mica is seldom, or never, cut square or oblong. It is roughly sickle-dressed to any shape the plato will give, round, zigzag, or polygonal. Again: "Care should also be exercised not to pack in the same case plates of mica varying more than one inch, in either length or breadth." Mica shipped from Calcutta varies far more than this. "Specials" are packed in the same case, and there may be anything from 36 square inches to 100 square inches. Number 1 are plates from 24 square inches to 36 square inches, and all of these go in the same case. "There is practically no sale for plates for less than *2 inches in width.*" A reference to any electrical mica dealer's price-list will show that high prices are asked for 'steeps' 1½ inch wide and 6 inches long.—*Indian Agriculturist.*

PRODUCE AND PLANTING.

TRY CHILI.—According to the latest report of the British Consul-General for Chili there should be a market for the increased supply of Indian and Ceylon teas in that Republic. The consumption of tea, the Consul-General says, appears to be on the increase if one may judge from the great number of brands advertised on all sides. Most of the tea sold is of poor quality, notwithstanding that the public are charged exorbitant prices. The import duty is one dollar per kilo, or about 8d per lb. Ceylon teas of good to fine quality, he adds, are unobtainable, and there should be a good and increasing market for them if once introduced. During 1898, which was a year in which all imports were much restricted, 639 tons of tea were imported, and although the figures for 1899 are not yet wholly procurable, they show that the imports of tea have largely increased. The value of the increase amounts to £20,000. In 1898 the British Empire sent to Chili 464 tons of tea, China coming next with 120 tons.

RUBBISH ABOUT TEA.—A correspondent calls our attention to an article on tea recently published in a paper, presumably circulating in the household, in which statements are made about tea, culled from various sources, which are really funny. We do not know whether they are intended to read as fact or fiction, but there is certainly nothing humorous in the style of the writer. After dealing most seriously with tea and the tea trade generally, a warning is given against excessive tea-drinking, and then the old story about the increase of idiocy and lunacy due to tea-drinking, especially in Ireland, is trotted out. But the gem of the collection is in the simple statement that "not long ago the papers contained an account of a woman who had died, so it was supposed from the effects of excessive tea-drinking after turning a dark green colour." Whether the poor woman turned green with envy, or tea, before or after death, or whether she drank black tea or green by the cup or by the pailful, or how long since this awful thing happened, who the coroner was, and which newspapers reported it, we offer as conundrums to those interested. The idea that tea will, if indulged in too freely, change our colour at some stage of our earthly pilgrimage is distinctly embarrassing, and if such stories were freely circulated and believed they might have some effect on the consumption.—*Home and Colonial Mail*, Aug. 3.

BRITISH NORTH BORNEO.

RAILWAY PROGRESS AND DEVELOPMENT:

200,000 ACRES OF LAND AVAILABLE FOR TOBACCO.

The 35th half-yearly meeting was held yesterday at the Cannon-street Hotel. Mr. Richard B. Martin, M.P., presided. He stated:—The tobacco industry was flourishing in four districts—Kudat, Sandakan, Lahad-Datu, and Tawao. These districts produced estate tobacco—that was tobacco grown under European supervision for export to the markets of Europe; but from Province Keppel, there was a considerable trade in native tobacco. The actual length of railway under construction was about 110 miles, and the whole of the rails were on the spot. Starting from two points on the west coast—namely Weston and Jesselton—the line ran for about 20 miles in a north-easterly direction and 58 miles in a south-westerly direction, meeting at Beaufort, on the Padas River. From Beaufort it ran almost due south-east, skirting the Padas River and the Penotal Gorge till it reached Tenom, in the interior. Within two years it was hoped that the railway would have opened up the company's territory to a point from which the interior trade could be developed and the people controlled. The sections now under construction would form the key to the vast interior of North Borneo. The line would traverse and open up some of the richest country in the territory, and with the facilities which the railway would afford a great development in the general trade of the country might be expected. By laying portable rails up the many valleys between Beaufort and Tenom, numerous artificial feeders to the main line could be formed, and timber cutters would be enabled to handle large trees and transport them both expeditiously and cheaply, without breaking bulk, to the fine harbour of Gaya, where it could be shipped from the jetty which was being built there. To the east, north and south of Tenom, the interior terminus of the railway, there was a very extensive country, where all tropical and many sub-tropical products could be grown. The whole trade of the hitherto inaccessible interior would be exclusively carried by the railway. Apart altogether from the indirect benefits which the line would confer upon the Government and the country generally, there was a fair prospect in the near future of the railway becoming in itself a profitable undertaking. The sales of land not only along the route but at the different termini would undoubtedly be considerable. In his 'Forest of the Far East,' published nearly 50 years ago, Sir Spencer St. John drew attention to

Gaya Bay, which he described as a noble harbour; and it would be difficult to conceive any place in Borneo better adapted to an important trade centre. It was practically on the high way of steamers passing between Europe and all the intervening ports, and China, as well as the Philippines and Japan. It was felt that the trade which would be developed by the 110 miles of railway terminating at Jesselton could not fail to attract the passing steamers to a port which was not only easy of access, but safe for all classes of vessels. Reverting to the subject of exports, he stated that more than one-half was under the head of tobacco. The first crop of tobacco exported in 1887 was valued at only £471, whereas the crop exported in the past year was valued at £186,454. The initial difficulties of management, climate and labour had been overcome, and the cost of the production of tobacco in Borneo compared most favourably with that of Sumatra. It was estimated that the railway would open up something like 200,000 acres of land suitable for the growth of tobacco. The telegraph system was still being extended, about 350 miles were working, and another 100 miles were in course of construction. The traffic so far had not been great, but the telegraph was invaluable to the Government, and more than paid for itself as a utilitarian and economic work.—London *Times*, Aug. 1.

SUGAR CULTIVATION IN THE STRAITS.

With reference to sugar cultivation in Perak, this form of cultivation is confined to the three coast districts of Krian, Matang and Lower Perak, which I will deal with *seriatam*:

Krian.—The total area of land alienated for the cultivation of sugar in this district amounts to 35,359 acres. Many applications for land for sugar cultivation were received during the year, but, owing to the proclamation of irrigation areas, in connection with the irrigation scheme for fostering the cultivation of rice, little, if any, more sugar land remains available in this district. The amount of sugar (brown and white) exported during the year was 276,689 pikuls, valued at $1,282,237. There are 26 sugar estates in Krian, of which the largest is Gula, belonging to an European Company, and comprising an area of 9,512 acres, while there is a Chinese-owned estate of 4,500 acres, and there are four other estates, also owned by Chinese, comprising an approximate area of 2,000 acres each: the total area under actual cultivation is estimated at 15,779 acres. Ten of the estates have mills worked by steam-power, and the machinery at Gula is of the best and latest description: the remaining mills are worked by buffaloes, but, in two cases, cattle will shortly be replaced by steam power. The labour force employed consists of 4,121 Chinese coolies partly working on wages and partly on a system of sub-leases, and 3,597 Indians, of whom about half are indentured immigrants, and the remainder free labourers.

Matang.—There are 12 sugar estates in the Matang District, of which the largest comprises an area of 1,854 acres. The total area of land alienated for sugar cultivation in this district amounts to 6,500 acres, and it is unlikely that this area will be largely increased, as most of the available sugar land has been included in an irrigation area, in connection with the cultivation of rice. The cultivation of sugar in the Matang district only began in 1897, and consequently little of the produce has yet been exported: the total quantity last year amounted to 2,056 pikuls. A complete factory capable of dealing with 24,000 tons of sugar-cane is being erected on an estate owned by Sir J W Ramsden, and it is probable that most of the cane produced in Matang will be sent to this factory.

Lower Perak.—The cultivation of sugar-cane in Lower Perak is still in its infancy, but it is probable that, within the next few years, the area of land under this form of cultivation will be larger than that of any district in Perak, as there are vast tracts of available State land still unalienated, approximately estimated by the District Magistrate at 180,000 acres, lying between the Perak and Bernam rivers, all of which is more or less suitable for sugar cultivation. An European Company, of which Sir J. W. Ramsden is the principal shareholder, and whose local representative is Mr. John Turner, General Manager of the Penang Sugar Estates Company, has recently acquired 11,000 acres of land from the Government, and has commenced operations on a large scale, the staff consisting of three Europeans, under whom about 600 labourers, Tamils and Javanese, are now employed. Very complete machinary has been ordered, and will shortly be sent out from England, and the factory erected on this estate will probably serve as a centre to which most of the smaller planters, both European and Chinese, will send their raw produce.—*Official Report*

PROPOSED BOUNTY ON GREEN TEA.

THE INDIAN TEA ASSOCIATION.

The following circular has been issued to members by the Indian Tea Association, Royal Exchange Building, dated Calcutta, 7th August 1900:—

Dear Sir,—I am directed by the General Committe of the Indian Tea Association to address you respecting the following resolution which has been unanimously adopted by the Committee of the Association in London, viz.:—

"That 1½ anna per lb. up to a maximum of 200,000 lbs. to be manufactured this season, be allowed out of the funds of the levy (American and Foreign Market Fund) on shipments of green tea for the American market and shipped there direct from India, such funds to be distributed as a bounty at the discretion of the Calcutta Committee."

The General Committee have been asked by the London Committee to make all necessary arrangements for carrying this resolution into effect. They have considered the nature of these arrangements, and have come to the following conclusions:—(*a*) That as a first step all Tea Estates in the membership of the Association, desirous of making green tea in consideration of the bounty, be asked to furnish the Committee with four ounce samples of the teas they propose to manufacture; at the same time stating the quantity they intend to make this season. (*b*) Such samples, when received by the Committee, will be submitted to one or more experts in green tea for opinion as to their suitability for the American market. (In giving their opinion the experts will have regard to standard samples of the green teas now used in America. These samples are shortly to be received from London.) (*c*) On receiving the report of the experts on all the samples submitted to them the Committee will proceed to allot the bounty on account of those teas the samples of which are declared suitable; and will make known the allotment to those interested. (*d*) When the teas manufactured by those Companies or Estates whose samples have been accepted, have arrived in Calcutta, the Committee will require to be informed of the fact; and it will be necessary for samples of the teas to be drawn in Calcutta for submission to the experts for comparison with the original samples. (*e*) On the Committee receiving a satisfactory report from the experts upon these further samples, and also proof that the teas have been shipped to

America, the bounty will be paid. (*f*) There is no objection to the teas being sold on the Calcutta market if the producer so desires; but payment of the bounty to him can only be made on proof that the tea has been shipped to America. (*g*) It must be clearly understood that all teas upon which the bounty will be paid will be for the American market only. (*h*) The Association will not undertake, or be in any way responsible for, the shipment of the teas.

In the foregoing paragraph the Committee have, they think, embodied all the arrangements it is necessary to make at present to carry out the resolution. They would, however, remark, regarding the quality of the tea required, that anything in the nature of "dust or fannings" is, it is understood, entirely unsuited to the American market. This should be borne in mind by all Garden Managers who purpose to manufacture green teas.

The Committee propose to put the resolution into practice immediately. They therefore now invite those members of the Association who are desirous of manufacturing green teas, to favour them, if possible, by the 31st inst,, with samples of the teas they propose to make, and information as to the quantity. On receiving these the further action above indicated will be taken.—Yours faithfully, W. PARSONS, Secretary.
—*The Planter*, Aug. 11th.

PEARLS FROM FISH SCALES.

FRANCE.—I have had an interview with Mr. Leuret, the manufacturer of artificial pearls from fish scales. He will go to the United States and erect works there as soon as he hears of a locality where the right kind of scales can be had in large quantities. I suggest that a suitable place might be found on the St. Lawrence River, among the Thousand Islands. Some years ago, the State or national authorities cast quantities of spawn into Lake Ontario, among which was the spawn of some salt-water fish. The latter die before maturity, as soon as the water becomes warm. Every summer, many thousands of them are cast upon the shores of the river and islands. They are called by two names—menhadden and alewives. If these were tried and found suitable, works could be built and put in operation there in a short time. The scales should be small and have a silvery sheen. The brighter they are, the higher price they will command. The scales should be removed while the fish are alive, if possible. They should be packed with slime, very little salt being used (about five grams per pound of scales). All organic matter that may cause decay should be removed and the scales left suspended in a mosquito netting until the surplus slime oozes off; then packed in a zinc can of 10 or 12 pounds capacity. Tin oxidises where zinc will not. Scales will rust tin, but not zinc. The opening in the top of the can should not be larger than half a dollar. If larger, the scales will suffer from the heat of the soldering iron. Twenty-five thousand pounds of these scales can be used per year. It is anticipated that twice that quantity may be used in a few years. The price paid will be 80 cents to $1·25 per pound, according to quality and the amount of shiny matter on the scales. The present supply is from a fish called the bleak or blay. Mr. Leuret thinks that a child twelve years old can easily remove four or five pounds of scales per day.—*United States Consul at Lyons.*

CALIFORNIA ORANGE AND LEMON CROPS.

The President of the Southern California Fruit Exchange, gives figures to the *Los Angeles Herald*, from which the following interesting review of the citrus fruit is prepared:—

	Cars.
Oranges and lemons shipped to date (end of May) since October 1st ...	13,000
Oranges yet on the trees	2,000
Lemons yet on the trees	2,000
Total Season's production ...	17,000
	Boxes.
17,000 cars of 362 boxes each ...	6,154,000
Highest previous record (1898-9) ...	5,000,000
Production last season	3,500,000

Average price obtained this year about a duplicate of that of two years ago and very satisfactory. Such is the citrus fruit industry as it stands today.

PLANTING NOTES,

INDIAN TEA COMPANIES' RESULTS.—The *Financial Times* of August 3rd has been reviewing the Indian Tea Companies and we quote as follows:—

Turning to the results attained by individual companies, we find that out of forty-three whose reports have been issued, twelve have declared dividends ranging from 10 to 15 per cent, thirteen dividends ranging from 5 to 8¾ per cent, and ten dividends ranging from 2½ to 4½ per cent, while eight have failed to make a distribution. This cannot be called a bad showing, especially when it is considered that several of the companies not making a return on Ordinary capital, are in the earlier stages of development, and may be expected later on to pay fair interest. The exhibit is rendered still more satisfactery when the large sums carried forward and placed to reserve by many companies are taken into consideration. A bird's-eye view of the main results attained by the leading concerns is given in the following table, for the statistics contained in which we are indebted to Mr. George Seton, of the Indian Tea Share Exchange:—

Company.	Ratio of expenses to receipts		Dividend.		Reserve and balance forward.			
					1898		1899	
	1898	1899	1898	1899	Am't.	p.c. on capital.	Am't.	p.c. on capital.
	p.c.	p.c.	p.c.	p.c.	£	p. c.	£	p. c.
Assam ...	88	89	12½	10	53,907	28·8	53,524	28·6
,, Frontier ..	82	77	4	8	461	0·2	2,837	1·0
Brahmapootra ...	74	77	15	15	28,490	24·9	25,694	22·4
Chargola ..	91	78	nil	7	4,618	3·0	4,404	2·9
Chubwa ..	92	86	6	7	10,272	9·7	10,367	9·8
Darjeeling...	78	79	5	4	4,151	3·0	4,423	3·3
Dooars ..	75	78	12½	10	51,057	22·7	50,561	22·5
Doom Dooma ..	73	70	12½	13	47,772	27·0	54,496	27·0
Empire of India ..	84	85	4¼	4¼	14,646	3·4	14,560	3·5
Jhanzi ...	92	89	5	5	15,301	17·0	15,502	16·3
Jokai ...	81	82	10	8	60,639	17 3	60,789	17·4
Jorehaut ...	84	85	11	10	35,812	35·8	35,550	35·5
Lebong ...	80	77	10	8¾	7,298	11·1	7 236	11·1
Nedeem ..	77	71	2½	4	11,941	2·9	19,040	4·7

The ratio of expenses to receipts varies, of course, with the price obtained for tea, but it will be seen that in several cases the percentage has been very considerably reduced, while the increases recorded are only slight. Comparing the dividends declared by the above fourteen companies with those for 1898, we find that four companies have increased their distributions, three have maintained them at the previous level, and six have reduced them.

ROYAL BOTANIC GARDEN, PERADENIYA.—Our Supplementary illustration shows another view in the famous Ceylon garden, which in many points rivals the garden at Buitenzorg in Java. The present director, Mr. Willis, is anxious to offer as great facilities for scientific research, and the study of economic plants as are afforded in the celebrated Javanese garden. The photograph was kindly forwarded by Mr. H. F. Macmillan, the curator. A descriptive account of the garden is given in our columns June 23rd, of the present year.—*Gardeners' Chronicle*, Aug. 4.

BRAZIL AND COFFEE.—Says Messrs. I A Rucker & Bencraft in their report of (August 2nd):—"In various papers we have read articles on the financial situation in the Brazils, and amongst them, one, a column long, in the *Times*. Three impressions remain:—I.—The enormous size of the Brazilian National Debt, viz. 1,969,077,000 milreis. 2.—The unanimous opinion amongst experts that the rise in Exchange is based on genuine improvement in revenue. 3.—Cost of production, say, of 3/5ths of the World's Coffee crop, is being rapidly and materially increased. The natural deductions from the above. our friends can draw for themselves."

GROW YOUR OWN ORANGES.—A writer in the *Gardener* advises ladies who admire foliage and have an interest in growing their own plants that they cannot do better than rear an Orange plant from a pip. Such plants are comparatively easy to rear, and although the blossom will not be so fine as that of a plant grown in heat, yet the foliage is good, and can be easily kept clean. A fine, large Orange should be chosen, having good seeds Sow five or six pips in a 6-inch pot, with good drainage, filling the pot with leaf-mould and good sandy loam. Set the pot in a warm place with a piece of glass over it. The seedlings will soon appear, and when they have made a new leaf they may be potted singly into 3-inch pots. Water sufficient to keep the soil moist is enough. A wet and sodden soil will kill the plants. If a frame or case can be used, so much the better, the chief aim being to keep the plant clean and growing. In winter the Orange must be kept free from frost and rather dry at the root. Strong shoots should be pinched back to make the plant bushy. In about four years a handsome plant fit to adorn any room will result.

PEACH.—Nothing is now more universally accepted than that the peach is an improved variety of the almond. The almond has a thin shell around the stone which splits open and exposes the stone when mature. This outer skin has simply become flesh in the peach, so that is all that gives it its specific character. It seems now clear from investigation in the history of ancient Babylon, that in their gardens—now nearly four thousand years ago—the peach was cultivated as it is now. It must have been many years before this that the peach was improved upon the almond, and this fact goes to show the great antiquity of the fruit. Possibly, gardening in some respects, at least so far as it relates to many of our cultivated fruits, was as far advanced six, or perhaps eight or ten thousand years back as it is to-day. Phœnicians, as is proved by the records, had in their gardens almonds, apricots, bananas, citrons, grapes, olives, peaches, and pomegranates; and even sugarcane was in extensive cultivation. Certainly this shows how very far advanced these nations were in garden culture these many years ago.—*Journal of the Jamaica Agricultural Society.*

MOCHA TEA COMPANY, LIMITED.

The ordinary general meeting of shareholders of the Mocha Tea Company, Ltd., was held at noon today at the registered office in Prince Street, Fort. The Hon. Mr. J N Campbell presided and the others present were Messrs. F W Bois, H G Bois, and C E Haslop. Mr. F W Bois read the notice calling the meeting, and the minutes of the meeting held on the 22nd August, 1899, were read and confirmed.

ANNUAL REPORT.

The following report of the Directors was then submitted:—

Your directors have the pleasure to submit their report and accounts for the season ending 30th June 1900.

The total quantity of Tea made on the Company's Estates was 444,030 lb which cost 28 13-100 cents per pound delivered in Colombo, including 3 65-100 cts per pound for manuring, the net average price realized being 44 89-100 cents per pound, compared with 46 87-100 cents last season.

The price of the Mocha Tea was well maintained and improved, whilst that for Glentilt, Lanka and Craighill receded owing to a largely increased yield.

The nett profit for the year (after providing R2,000 bonus to Managers, and R812·26 cost of Extension) is R81,443·82, which is equal to fully 20 per cent on the capital of the company.

From this a sum of R10,000 has been written off to Depreciation Fund and an interim dividend of 5 per cent has been paid, and it is proposed to deal with the balance amounting to R51,243·82 as follows:—

To Reserve Fund	..	R10,000
To pay a final Dividend of 10 per cent (making 15 per cent for season)	...	R40,400
To carry forward	...	R843·82

The Company's properties now consist of:—

1,046	Acres	Tea in bearing
33	do	Tea 3 years old
52	do	Grassland
92	do	Forest and fuel trees
43	do	Buildings, Rivers, Roads, etc.
1,266	Acres.	

The estimated crops for season 1900-1901 amount to 438,000 lb to cost R121,156·50 in Colombo, from which must be deducted the receipts from Glentilt Bazaars.

Mr. Giles F. Walker retires in accordance with the Articles of Association, but being eligible offers himself for re-election.

The meeting will have to elect an Auditor for season 1900-1901.

The CHAIRMAN, in moving the adoption of the report, stated that the Directors suggested a final dividend of 10 per cent, in addition to the interim dividend of five per cent, making a total of 15 per cent for the season. The Directors had further proposed to write off R10,000 to Depreciation and R10,000 to be placed to the Reserve Fund. He said he wished to call attention to certain figures which had been prepared showing the state of the company during the period of its existence—eight years. It was formed in 1892 and up to now it had paid dividends amounting to 124 per cent. That was 24 per cent over the capital. During the period of eight years, R64,000 had been placed to the reserve fund, including what was proposed to be placed to that fund now. During the same period R67,888·46 had been written off for depreciation. Including these amounts, the profits had amounted to 156½ per cent. The average annual dividend declared and paid to shareholders was 15½ per cent. Almost twelve per cent of the earnings had been written off for

depreciation, and 20 per cent had been placed to the reserve fund. The last season compared very favorably with the previous season's. The cost of the tea of

MOCHA ESTATE

was 28·55 cts. per lb, with manure, excluding manure 24·27 cts, as against 24·35 and 27·38 cts per lb respectively for the previous year. The average sale per lb was 51·31 cts. as against 47·38 cts. the previous year. The profit per pound was 22·66 cts. as against 20 cts. the previous year. The yield had increased from 345·69 lb per acre to 374 lb. On Glentilt estate also the cost of tea had been reduced from 31 cts. per lb to 27·28 per lb, the expenditure for manuring was also reduced. Average sale price was 40·29 per lb. as against 49·95 per lb. the previous year, and the profit had been increased from 14 cents to 15·89 cents per lb. The yield had been increased from 346 lb. per acre to 496 per acre. On Lanka and Craighill estates the cost of tea had also been reduced from 28 cents per lb. to 24 cents per lb. and the average price had been increased from 48 cents per lb. to 51 cents. The total cost on the estates had been reduced from 33·67 cents to 28·91. The average sale price of Glentilt estate tea had reduced the profits, but the yield had increased from 319 to 424 lb. per acre, which made good the profits. The Company was now in possession of 1,046 acres in full bearing and 33 acres in partial bearing. The capital value of the estates, taking off the depreciation written off, &c. stood at R373 per acre, equal to about £25 sterling pe acre of tea. As a large depreciation had been written off the capital account, as well as off the cost of the machinery, &c., he thought the time would come soon when there might be no necessity to write off any further depreciation. The Chairman visited the estates lately and found them in exceedingly good condition promising good results for the future. Mr. Dunbar, who visited the estates had favorably reported them. He hoped by continued good cultivation the success already achieved might be still increased. He moved the adoption of the report.

On a question from Mr. HASLOP, regarding the debt of R10,000 for the purchase of Lanka and Craighill estates,

Mr. F W BOIS replied that in the last year's accounts, the debt was R30,000 and it was reduced to R10,000 which appeared in this year's account, but this balance had also been paid now.

Mr. HASLOP seconded the adoption of the report and the motion was carried.

DIVIDEND.

On the motion of Mr. HASLOP, seconded by Mr. H G BOIS, as attorney of Mr. Henry Bois, a final dividend of 10 per cent was declared payable forthwith.

DIRECTOR.

On the motion of Mr. HASLOP, seconded by the CHAIRMAN, the Hon. Mr. Giles F Walker, was re-elected as a Director.

AUDITOR.

On the motion of Mr. H G BOIS, seconded by Mr. HASLOP, Mr. J Guthrie was elected auditor on the usual fee of R75.

The meeting then concluded with a vote of thanks to the Chair.

HAPUGAHALANDA TEA COMPANY, LTD.

THE REPORT.

ACREAGE.

	A	R	P
Tea in full bearing ..	235	0	0
New clearings	150	0	0
Jungle &c.	369	1	3
Total Estate ..	751	1	3

Your Directors beg to submit their annual report and accounts for the twelve months ending 30th June 1900, which they trust may be considered satisfactory.

The quantity of Tea manufactured for the season (including estate and bought leaf, but exclusive of that manufactured for other estates) was 136,900 lb.

Estimating the unsold tea at a safe valuation, the net amount realised for this product has been R44,865·07, equal to an average of 32·77 cents per lb.

An interim dividend of five per cent absorbing R8,500 was paid on 31st March last, and after setting aside R3,293·58 for depreciation on buildings and machinery, the amount available for distribution (including R2,734·41 brought forward from last account) is R10,361·14. This sum the Directors recommend being dealt with as follows, viz:—

In payment of a final dividend of five per cent	R8,500 00
Leaving to be carried to next account a balance of	" 1,861 14
	R10,361 14

In terms of the articles of Association Mr. Wm, Milne retires from the Board of Directors, but being eligible offers himself for re-election. The appointment of an Auditor for the current season will rest with the meeting. By order of the Directors,

LEWIS BROWN & Co., Agents and Secretaries.

WANARAJAH TEA COMPANY.

THE REPORT

of the directors was submitted as follows :—

DIRECTORS :—Messrs. Alex. Cantlay (Chairman), H Creasy, J W Vanderstraaten and J C Dunbar.

ACREAGE.

	Acres.	Acres.
Tea in bearing ..	1028	
1896..	12	
1898..	20	
		1060 in tea
Timber trees		20
Forest		27
Grass not available ..		27
Total ...		1134 acres.

The Directors have the pleasure of presenting to the shareholders the report, balance sheet, and profit and loss account for the year ending 30th June, 1900.

The crop harvested amounted to 447,235 lb., against an estimate of 370,000 lb. The crop for 1899 was 336,692 lb. and the increase in crop is due to the very satisfactory results of manuring and to the favorable weather that has been experienced during the past season. 310,953 lb. have been sold in London at an average of 52·92 cents nett, and it is hoped that the balance of the crop will fetch equally good rates.

MANURE.—The area completed during season amounts to 311 acres, at a cost of R16,118·63, including application. All expenditure during the past season has been debited to crop account.

The amount at the credit of the profit and loss account is R102,906·24, including a balance brought forward of R22,621·34.

After payment of an Interim Dividend of five per cent, there remains a sum of R83,061·24 available, which the Directors recommend be applied as follows :—

To a Final Dividend of 12 per cent, making a total of 17 per cent for the year	R15,360·00
To be carried forward.. ..	37,701·24
	R83,061·24

The estimated crop for the season 1900-1901 is 420,000 lb. of made tea, at an expenditure of R131,700, including all expenditure on young clearings not in bearing.

The Visiting Agent's reports can be seen by shareholders at the Company's office.

Messrs. H Creasy and J W Vanderstraaten retire from the board by rotation, but are eligible for re-election.

The shareholders are invited to elect an Auditor for the ensuing year.—By order of the Board,

Baker & Hall, Agents and Secretaries.

PENRHOS ESTATES COMPNY.

THE REPORT

was as follows :—

Directors.—Messrs. W Kingsbury and E M Shattock.

The Directors have pleasure in laying before the Shareholders their Reports and Accounts for the year ended 30th June 1900.

The amount of Tea secured was 242,841 lb.—196,554 lb. on Estate account, as against an estimate of 165,000 lb, shewing an increase over last season of 38,448 lb and 46,287 lb manufactured from bought leaf, an increase over last Season of 3,373 lb. The Comparative table for the past four seasons will be found of interest :—

	Crop in lb.	Cost laid down in Colombo in cents.	Or without Manure.	Net Average Price.
1896- 97	155,625	27·52	26 31	36·42
1897- 98	145,250	26·23	25·65	39 12
1898- 99	158,106	25·41	24·05	41·03
1899-1900	196,554	23·74	22·32	37·46

These figures refer to the Estate Tea only, and the Superintendent, Mr. J E Martin, deserves every credit for the way he has carried on the working of the Estates, which are in excellent order. Prices were considerably below those of the previous two seasons, but this was due to a low market and to no fault in manufacture, and it will be noticed that the cost of production has again been very materially reduced.

The total Crop secured cost, including Manure cts. 24·58 per lb laid down in Colombo, as against cts. 26·43 the previous Season and realised a nett average price of cts, 36·96, as against cts, 40·27 in 1898/99.

Included in the proceeds of Tea is a sum of R436·26. being balance proceeds of Tea unsold at 30th June, 1899, and estimated for.

It will be noticed that a large sum has been spent during the year under review on Buildings and Machinery. This was absolutely necessary, as the Factory was really only capable of turning out some 15,000 lb. of Tea per mensem, whereas, in the busy months, 25/30,000 have to be manufactured.

An addition of 50' × 25' has been made to the factory, making it now 150' long by sections 25' to 75' broad, whilst a Turbine, a new Roller, Desiccator and Sifter have been erected and are working satisfactorily. Previous to the erection of the Turbine, considerable difficulty was experienced in getting sufficient water power during the dry months, but no further trouble is anticipated in future.

After payment of the Interest on Debentures, namely R3,030·00, the amount earned for the year (including R237·52 brought forward from last account) comes to R25,285·99 which is equal to nearly 17 per cent. on the Capital of the Company, as against 15½ per cent. last Season. Of this sum R4,500·00 was absorbed by the payment of an Interim Dividend of 3 per cent. to the 31st of December last, and the Directors recommend that the balance, namely R20,785·99, be apportioned as follows :—

By the payment of a final dividend of 7 per cent, making 10 per cent for the Year	R10,500·00
By the payment of a Bonus to the Superintendent	„ 1,000·00
By placing to Reserve Fund ..	„ 9,000·00
By carrying forward to the next account	„ 285·00

The Acreage of the Company's Estate is as follows :—

Old Tea	508 Acres
Tea over 4 years ...	25 „
Tea not in bearing...	24 „
Forest..	51 „
Total Acreage ...	608 Acres.

In terms of the Articles of Association, Mr. E M Shattock retires from the Board of Directors but, being eligible offers himself for re-election.

It will also be necessary to appoint an Auditor for Season 1900/1901.

THE TEA CESS AND GREEN TEA.

As an old Ceylon planter, and one of the first to start tea manufacture, it was cheering to read your vigorous article headed a "Tea Cess for India." Since I have become an Indian planter for the last two years I have consistently agitated in our local Planters' Association for a "tea cess" for Southern India, and though meeting with generous support here, the proposal when laid before the U.P.A.S.I., is invariably shelved as not being feasible, and all sorts of "bugbears," such as difficulty of collecting the cess, and enormous expense that would be involved in so doing, are conjured up by the powers that run that august assembly. With the cess, there would, of course, be appointed a Committee similar to the Thirty Committee in Ceylon to administer the fund, and I take it that one Committee would represent Southern India and be centralised at 'Madras' in touch with an official or two of the Madras Government, and one at Calcutta on the same lines. That the tax would be difficult to collect, I deny; it would be very easy to notify the authorities at each shipping port that, with every Bill of Lading for tea a "cess" receipt must be attached. If planters chose to sell over the border, say Persia, Siam, or other adjoining countries, let them do so by all means free of "cess," as that helps to relieve the strain on the London market. With the "cess" fund started, it would be, of course, most advisable to secure a well-paid energetic Secretary who would not be above pushing our interests in every way. I mention this as it is the rule among Indian papers, as far as I have seen it, to sneer at the "push" and "energy" with which Ceylon men advertise their teas. The consequence is that we get left behind in the swim. Take for instance, the Paris Exhibition. As far as "Southern India" is concerned we might just as well have never exhibited, as have done so in the poor way that we did. No information was available to this district as to private exhibits until too late to ship them, and no effort made to show up the intrinsic merits of our teas; which exist to a far larger extent than the British public are aware of. Indeed, I know it as a fact, that most, if not all, the teas made in this district for instance, have the same flavour and character as high grown Ceylons, yet we get as a

rule poor prices for want of pushing our goods by means of advertisement. Take the average British public, what do they know of Indian tea? After all these years hardly anything. They know there is a strong tea which comes from a place called "Assam," and perhaps a few people know that a fine flavoured tea comes from "Darjeeling," but other districts are practically unknown to the public, and their produce therefore is only bought by the wholesale blender for his blend. With a tea cess fund carefully administered much might be taught (not only the British public, but foreign nations) about the largest tea industry in the world.

I, for one, object to the foreign market fund and shall not continue to subscribe to it. It is a happy-go-lucky system which falls hard on individuals. For instance, take an estate of 500 acres, giving, say, on to 350 lb. per acre: it can hardly make ends meet, while an estate of 250 acres giving say 600 lb. an acre, and making good profits, would, under the present system of an acreage taxation, pay less where it can afford to pay more. That the "cess" will be hard on all planters at first in these days of poor prices, goes without saying, but with an energetic Committee and a working Secretary, helped by Government, without more "red tape" than is necessary, I feel sure in a year or two we should find our reward in the shape of increased consumption and better prices.

Before closing this letter I will add a line in reply to A.C.'s letter to yourselves on "green tea." I do not think the method he suggests a good one, as he would start by making an inferior priced green tea, viz, an "Oolong," which is, as far as I am aware, the only kind of green tea yet made in India in any quantity. What I would suggest as a commencement, where two or three can be got to work together, is for one factory, on which there must be a steam engine, to get a steaming machine from Ceylon (the largest size only costs R650, the smaller R450, including all the information necessary for the manufacture of choice "Moyune," or pure Japan green teas) and for that factory to undertake the manufacture of a percentage of two or three neighbours' leaf, as well as a percentage of its own, bulking the teas together and shipping under one mark. For a factory equipped with *two* or *three* rollers and *two* firing machines this could easily be done without in any way interfering in the manufacture of its black tea.

It is known by actual experiment and sales that teas made on this method *do suit the American market*, and this process has been adopted lately by 8 to 12 large concerns in Ceylon, the Ceylon Tea Plantations Company showing the way. Therefore, if A. C. and his friends make their teas on this principle, they ensure themselves being put in the same class as the bulk of the Ceylon green teas, which have hitherto in a small way proved suitable to the market they are intended for.

Green teas may be divided into two classes—Oolongs or semi-green teas, which are partially fermented, and true green teas, which are wholly unfermented. These latter are the most popular class of teas in America, as shown by the fact that out of a total export of some 51,000,000 lb. of China and Japan teas to the United States, some 14,000,000 lb. are Oolongs and of the unfermented class, while over 30,000,000 lb. are of the unfermented class, which are the true green teas of commerce.

Oolongs consists of tea leaves withered either artificially or naturally by hot air, pans, or on hot plates sufficiently to enable them to be rolled; the result of this process is that the effect called by some fermentation and by others oxidisation is *partially* produced, and this effect prevents the infused leaves from being uniform in colour and causes them to vary from an olive green to a light brown.

True green teas are made of leaf which has never been fermented or oxidised, and when infused should show a *uniform* yellowish green colour, which could never be obtained had fermentation or oxidization taken place.

If, Sir, you think it advisable to cut out this discourse on green tea as savouring too much of an advertisement, do so. My only object in mentioning the above facts is to prevent men from coming to grief by sending teas not quite suitable for the American market.—H. DRUMMOND DEANE, *Stagbrook Estate, Peermaad, Tranvancore.* —"*Indian Gardening and Planting,*" August 16.

PLANTING NOTES.

FLORIDA PINEAPPLE CROP.—E. P. Porcher, general agent of the Indian River and Lake Worth Pineapple Growers' Association, has gathered exhaustive statistics relative to the Florida pineapple crop, and from them he estimates it at 135,000 crates for the mainland. Last year's crop was about 16,000 crates which netted an average of $2.35 per crate. Another report says that the size of the fruit being extra large this year, 150,000 crates will be the minimum of the Florida pineapple crop.—*Journal of the Jamaica Agricultural Society.*

"MANURING WITH BRAINS"—is the title of pamphlet sent us by Messrs. Freudenberg & Co. (Sole agents in Ceylon for the Syndicate of Potash Works and German-Austrian Thomas Phosphate Syndicate) which takes for its motto this saying of the Marquis of Salisbury:—

"If farmers would only manure their land with brains, as the painter mixes his paints, there would be much less heard about agricultural depression."

Very useful information is given, more especially adapted, of course, to farmers in Europe; and it is shown how "potash" is not only the dominant manure for leguminous crops, for potatoes and for grain crops; but is also valuable for the prevention of Clover-Sickness, Tulip-Root and other Crop Pests.

BOMBAY MANGOES FOR LONDON.—An effort is being made to bring the Bombay mango to England, and, indeed, for a few hours a small show of this fruit recently made an unwonted sight in a Bond Street fruiterer's window. "But they were all snapped up as soon as the Anglo-Indian got to know of it," said Mr. George Adam, who had exhibited them. He showed a *Daily Mail* representative a letter he had received from Kathiawar, India, proposing to export Bombay mangoes to London as a regular article of commerce. Messrs. Adam and Company hope to import them in quantities. It was a *Daily Mail* representative who described it as of "a green colour," and then wrote: "Smell it, and visions of Eucalyptus and influenza, benzine, and motor-cars, with a distant suggestion of a half-decayed pear float across your mind. This compound fruit is the mango." Looks as if mangoes were going to be popular in London, now that a beginning has been made.—*Indian Gardening and Planting,* Aug. 16.

Correspondence.

To the Editor.

GREEN TEAS AND MR. DRUMMOND DEANE.

Stagbrook, Peermaad,
Travancore, July 28.

DEAR SIR,—In *re* your remarks *re* "Pale liquor being a desideratum for green tea" I can assure you that I am not at all "mixed" on the subject as your planting friend suggests. But there is "Pale liquor" and "Pale liquor." What I was always told to strive for was a *pale straw color*, and if you refer to Mr. Street's report and valuations published in *Tropical Agriculturist*, 21st January, 1890. you will see that I about hit the mark. I may add that the valuations in that report turned out about 2d below the prices fetched. The only interest in publishing these old valuations will be when some of the newly-made greens on my system are reported alongside of them.

But with that report and all subsequent reports I was always asked to get a *little more color into the liquor if possible* as they were a *trifle too pale* in *appearance*, though the flavour was excellent and infusion all that it should be.

This I failed to do with the "Kintyre" leaf, but with a few small experiments with "Ruanwella" leaf made by hand, I got the darker liquor, and at the same time a favourable report from America on the sample, which report unfortunately I have not preserved—as just at that time I gave up the manufacture. "Oolongs" always draw a much darker liquor more of an amber color owing to a *certain amount* of fermentation taking place when the leaf is rendered pliable for rolling by "hot air;" and though the outturn is more or less green, yet some signs of fermentation will be apparent.

I have quoted from your letter under reply, to Mr. Street, and asked him to reply to it through your paper if he will be so kind. I do not profess to be a green tea expert, but a manufacturer, who has made teas that at that time apparently satisfied the trade requirements.

If Mr. W. MacKenzie *is correct* in saying that the liquors *cannot* be *too pale* to suit the American taste, then it will be pretty certain that high grown Ceylon teas are sure to "boom";—for *pale* they will assuredly be.

I fancy only about a dozen men are at present going in for this new departure. But I feel pretty confident that if care is taken in the sorting and in get-up of the packages to suit American ideas, remunerative prices will be the result.

And it must be remembered there being no draft allowance in America, the planter has the price of a pound of tea in hand which will go a long way towards extra cost of packing the finest teas in neatly marked small hessian or mat covered packages.—I am, yours truly,

HORACE DRUMMOND DEANE.

GREEN TEAS:—THEIR COLOUR AND QUALITY: THE NEED OF EXPERT ADVICE.

Colombo, August 3.

DEAR SIR,—Mr. Deane has asked me to hand you the enclosed letter* and to reply through your columns.

The "well-known planter" referred to has made the mistake of taking Mr. W Mackenzie's remark that Green Tea liquors "cannot be too pale" too literally. Of course the liquor color may be too pale, just in the same way as it may be too dark. Mr. Deane in a recent letter to the *Observer* rightly says there is a paleness and a paleness or literally that there are degrees of paleness, *due to manufacture*, one of which would be perfection and the other degrees of faultiness and uselessness from a Green Tea point of view.

It is not necessary to refer to color from degree of elevation as this is simply a question of quality. The quality of Green Tea varies with elevation as with Black. I am not going to lay myself open to be misunderstood by entering into a description of what Green Tea should or should not be. The proper and safe medium for such description is between the individual planter and the expert *in connection with his own estate teas.* I cannot too strongly emphasize, and I would also wish you to add to the emphasis, that an enormous amount of harm may, and I fear some will, be done to the future reputation of Ceylon Greens *made without expert advice.* Although the revival of Green Tea making in Ceylon is only a few weeks old, I have had several samples sent to me which clearly indicate the *absolute necessity* of expert criticism and advice. I need hardly say that all the faults which have come under my notice can be corrected by changes in manufacture. I strongly advise Planters not to begin manufacturing bulk until their experimental manufacture is entirely approved of by an expert. They would do well to remember that the future success or otherwise of Ceylon Greens depends upon the individual excellence of their manufacture *particularly at first.*

Apologizing for having taken up so much of your valuable space, which I should not have occupied at all had not Mr. Deane asked me to reply through you,—Yours faithfully,

F. F. STREET.

* This is very much the preceding letter. —ED. *T.A.*

RAINFALL AT TELLICHERRY, WEST COAST OF INDIA—ROADS, &c.

Tellicherry, Aug. 13.

DEAR MR. EDITOR,—In accordance with your editorial foot-note to a recent communication of mine, I have pleasure in handing you a memo of the Tellicherry rainfall from 1st January, 1899, to date, which I trust may be of interest. It is pouring as I write, and every thing is more or less damp and nasty. However, we are getting fairly good news now from the famine-affected areas; so must not grumble. The road at the top of the Tambercherry

Ghât, between Calicut and South Wynaad, has been badly breached and washed away in parts, and, it is reported, may take some four or five months to repair for wheeled traffic again. This is serious for the estates in South Wynaad, the other Ghât roads being very circuitous routes to the Coast. I am sorry I am not yet in a position to send you my Annual Statistics of Exports of Coffee and Pepper from Southern India. There are still two Ports from which I have to receive information; but I should receive these any day now.—Truly yours,

RALPH TATHAM.

RAINFALL AT TELLICHERRY, W. COAST OF INDIA,—FROM 1889 TO 1900.

Months.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
January	—	—	—	—	—	—	—	·70	—	—	—	—
February	—	—	2·43	—	·5	—	.07	—	2·50	—	—	—
March	—	·67	·85	0·4	·10	4·45	—	—	—	—	—	—
April	3·75	3·02	4·17	6·02	·87	4·69	3·15	3·22	3·90	3·29	11·70	3·07
May	2·06	5·54	1·86	24·95	8·82	4·58	3·69	4·95	5·71	6·79	6·83	1·09
June	52·20	30·38	29·12	15·79	35·39	40·14	45·12	45·27	45·45	35·65	36·95	45·27
July	19·37	32·69	33·51	69·85	19·91	29·58	37·09	28·82	46·40	34·55	15·68	31·32
August	21·10	13·10	12·35	24·47	13·86	24·08	15·29	30·94	38·84	7·16	4·64	19·36 *
September	17·39	3·39	3·58	6·25	7·12	7·09	3·54	3·31	9·68	8·38	3·94	—
October	8·49	2·61	6·27	13·76	7·56	4·58	8·11	3·60	8·86	6·59	7·27	—
November	·67	1·85	3·54	3·60	2·09	1·10	2·05	3·55	1·01	6.07	·30	—
December	4·36	·30	—	·10	—	—	—	2·17	—	·35	—	—
Total	129·39	93·55	97·68	164·83	95·77	120·29	118·11	126·53	162·35	108·83	87·31	100·02

N.B.—Average for 11 Years 118·60 inches.

*Up to 13th Aug.

Tellicherry, Malabar,
13th August, 1900.

RALPH TATHAM,
Agent, ARBUTHNOT & CO.

USEFUL AUSTRALIAN BOOKS.

Public Library, Museums, and National Gallery of Victoria, Melbourne, Aug. 8th, 1900.

SIR,—I have the honour to inform you that I have, by direction of the Trustees, this day forwarded by post for your acceptance a copy of each of the undermentioned works:—1. McAlpine—Fungus Diseases of Citrus Trees in Australia. 2. Roos—Wine-making in hot climates.—I have the honour to be, Sir, your obedient servant,

THE LIBRARIAN.

["Wine-making in hot climates" is a translation from the French and has been published by the Victorian Government for the benefit of Viticulturists whose industry is of importance in most of the Australian Colonies. The second book, is also published officially and the coloured plates are splendidly executed. This little guide may be of use to us locally in connection with the culture of orange and lime trees. We return thanks for both publications.—ED. *T.A.*]

CHIN BARA TEA AND MR. HARCOURT SKRINE.

August 16.

DEAR SIR,—I enclose an extract from the *Chemist and Druggist* which I think will interest your readers.—Yours faithfully,

CHEMIST.

TEA FOR CHEMISTS.

(Extract from the Chemist and Druggist, July 28th, 1900.)

It stands to reason that if chemists and druggists are to do business in tea, they must have an article to offer different from what their neighbour the grocer sells. We have pleasure in calling attention to an entirely new tea which is being introduced to the public through chemists. It is called the Chin Bara tea, and the process for its production has been devised by Mr. E Harcourt Skrine. Chemists may not be aware that the method of manufacturing tea adopted in Ceylon and India is intended to yield dividends to shareholders rather than the finest teas and the plucked leaf is allowed to go through a fermentation process before it is dried. Mr. Skrine finds that this is entirely unnecessary for the development of the flavour of the tea. The finest Chinese teas of old were made slowly and carefully. Mr. Skrine finds that fermentation is detrimental, in so far as it produces certain organic acids which disturb the digestion. He has therefore devised a process, and machinery for carrying it out, whereby the plucked leaves are gradually dried and rolled without undergoing fermentation; this he recalls the "cold process" to distinguish it from the other. Moreover, he takes very great care in the harvesting of the tea, and from the plucking to the final presentation of the tea, every stage of the process is supervised and expedited by a staff of skilled managers. The teas are not blended, but in the three qualities offered by the Chin Bara Chino-Ceylon Pure Tea Depôt, 5 Victoria Avenue, Bishopsgate Street, E. C., we have only the difference in the grade of leaf to recognise. The tea neither produces indigestion nor favours nervousness when taken in large quantity, so that it is just the thing for chemists to sell. It is put up in packets ready for selling, and is offered on P. A. T. A. principles for retail by chemists, whom we would recommend to apply to the Company for a copy of a pamphlet entitled "A History of Tea."

BRITISH NORTH BORNEO.

Kandy, Aug. 18.

DEAR SIR,—I send you copy of report presented at the meeting of the shareholders on 31st July by the Court of Directors of British North Borneo Co. The noticeable items are that the receipts for 1899 exceeded the expenditure by £17,372 8s 9d, and that a dividend of two per cent. to shareholders for the year was recommended :—

In 1893 the revenue was only $289,220.
In 1899 do. do. $542,919.

Very nearly double. The comparative results in the more important items of receipts are :—

	1899. $	1898. $
Farms ..	201,967	180,255
Customs ..	199,254	184,069
Land Revenue .	26,410	24,081

Comparative statement of principal exports for—

	1899. $	1898. $
Bird Nests ..	47,465	47,160
Camphor ..	39,084	37,047
Copra ..	19,161	12,840
Coffee ..	30,185	28,620
Cutch ..	146,690	267,536
Gutta ..	122,588	125,280
Hemp ..	61,803	24,590
India Rubber ..	69,777	79,600
Tobacco ..	1,862,455	1,316,660
Sundries ..	299,689	147,416
Timber ..	189,027	214,346
&c.	&c.	&c.
Total ..	$3,439,560	$2,839,844

The imports are stationary :—

	$2,455,968	$2,419,087

—Yours truly, W. D. GIBBON.

SIR JOHN LAWES AND MANURING.

Aug. 22.

SIR,—Depend upon it, there is again some big blunder over the interpretation of Sir John Lawes' views by Mr. Talbot—or rather by the Ceylon "Times" and its correspondent. The wish is father to the thought in some quarters, in trying to get manuring checked. But those will score who keep on their way, guided by

EXPERIENCE AND SCIENCE.

THE LATEST AND BIGGEST BOOK ON "TEA."

"Tea Machinery and Tea Factories: A Descriptive Treatise on the Mechanical Appliances required in the cultivation of the Tea Plant and the Preparation of Tea for the Market. By A. J. Wallis-Tayler, C.E., Assoc. Memb. Inst. C.E. (London: Crosby Lockwood & Son; Calcutta: Thacker Spink & Co.)."

We have just received from Messrs: Thacker Spink & Co., of Calcutta, a copy of this well printed, profusely illustrated and generally handsome volume of 468 pages octavo. There are 218 diagrams and illustrations, mainly of machinery or mechanical appliances; for, although the cultivation and preparation of tea are specially dealt with, there can be no doubt this is an Engineer's book, and one based chiefly on Indian experience and modes of working. We cannot see that Mr. T. C. Owen's, or any Ceylon, tea manual or essay is referred to and we suppose Mr. Wallis-Tayler has never visited Ceylon to note the widely different and differing conditions of our tea country. Nevertheless, the volume is full of interest to all tea planters and in the section on "transport," illustrations are given of the wire rope or aërial tramway erected by Messrs. Walker Sons & Co., Limited, on the Goorookelle estate of the Galaha Co. Justice is done to the tea machinery of "Jackson" and some other patentees; but the author says nothing of certain other machines which are well-known and much appreciated in Ceylon. The book is divided into seventeen chapters, the first of which treats of the mechanical cultivation and tillage of the soil; the second of various methods of plucking or gathering the leaf; whilst the ten next succeeding chapters are devoted to descriptions of the factory and of the various machines and apparatus employed therein. The next two chapters deal with the means of transport on the plantation; one chapter is taken up with the miscellaneous machinery and apparatus used in and about tea factories; another with machines for the final handling of the tea—such as mixing, blending, or bulking machines, and packeting or parcelling machines; and in the concluding chapter of the work we have a number of tables and memoranda likely to be found useful by those engaged in the tea industry. The principal aim of the book cannot be better indicated than by quoting what Mr. Wallis-Tayler says at the conclusion of his preface;—"It should be remembered that whilst the possession of a good plant of machinery, and of a well-designed factory, will enable good tea to be made from an inferior quality of leaf, on the other hand, a good jat, suitability of soil and climate, and the most efficient possible cultivation, will be all thrown away if such means be not at hand to facilitate the preparation or manufacture of the tea from the green leaf." There is much truth in this; and altogether the volume is one that should be in the hands of all who can afford the cost which the Calcutta publishers have now fixed at the special cash price of R20 net; the previous rate being R22½.

PLANTING IN PERAK.

SUGAR.

The planting community suffers from the competition of mine-owners in the labour market, but until recently, this competition has not been severely felt, as the labour employed on plantations, excepting those owned by Chinese sugar growers, has been almost exclusively Indian, while that employed in the mines has been Chinese; recently, however, the supply of Chinese labourers has been so disproportionate to the demand, mainly owing to the quarantine restrictions imposed in connection with bubonic plague, that both Chinese planters and mine-owners have supplemented it by the employment of Indians. Judging from the demand for sugar land, and the success which has attended the majority of planters in Perak, there is every reason to predict a considerable extension of this form of cultivation in the immediate future; and the local conditions of the Federated Malay States, which are easily accessible both from India and China, and in which the labour rates are still comparatively low, should render it possible for them

to compete on advantageous terms with the great sugar-producing districts in America, the West Indies and Mauritius, which are all situated at a much greater distance from any source of cheap labour supply and which all have a local "gold" standard. It is difficult to deal with this subject without some allusion to the vexed question of currency, but it is probable, if not certain, that the most earnest advocates of bi-metallism, or of an exclusively gold standard, would admit that the depreciation in the exchange value of silver has hitherto had the effect of reducing the rates of wages and local commodities in those countries having a silver standard, as compared with those in which the standard is based on gold.

COFFEE.

Among European planters only those connected with the sugar industry have been successful, as the price of Liberian coffee, the chief agricultural product hitherto cultivated by Europeans, has been low throughout the year, although it improved towards the end, the price ranging from $16 per pikul (133 pounds) in July to $20·50 per pikul in December.

GUTTA AND RUBBER.

The attention of planters has been drawn to the great demand for gutta and rubber, and a portion of nearly all estates owned by Europeans is now being planted with trees producing rubber. The variety usually cultivated is Para *(Hevea brasiliensis)*, but considerable numbers of Rambong trees *(Ficus elastica)* are also being planted and, having regard to the insect and other pests which almost invariably attack exotic plants with special virulence, it is not unlikely that Rambong, a hardly indigenous tree, will eventually be preferred to Para, a tree imported from Brazil. Special attention was called by the Secretary of State, when forwarding copies of correspondence with the Director of the Royal Gardens at Kew, to the importance of preserving and cultivating the trees yielding Gutta Percha in the Malay Peninsula. It would appear that there are only two trees which yield the true Gutta Percha, and these are locally known as *Taban* and *Sundek;* scientifically *Dichopsis gutta* and *Payena leerii.* They are both slow-growing trees which do not come to maturity for at least 30 years, and consequently it is scarcely to be expected that they will be cultivated to any large extent by private individuals; but Gutta Percha is so valuable, in connection with submarine cables, that no effort should be spared by Government, both to preserve the young trees still remaining in our jungles, and to provide for planting others in suitable localities. Rubber, as distinguished from Gutta, is produced in all tropical countries, and there is therefore no probability of any deficiency in the supply, but true Gutta Percha is said to be confined to the Malay Peninsula and Archipelago.

COCONUTS.

A controversy was raised, or rather renewed, during the year as to the possibility of successfully cultivating sugar and coconuts in the same neighbourhood. The planter of coconuts, especially the native planters, contend that the beetles which infest their trees are mainly bred in the heaps of cane refuse connected with sugar mills. This contention, although denied by the sugar planters, probably contains a considerable substratum of truth; but, on the other hand, the Malay owners of coconut plantations pay insufficient attention to the care and cultivation of their trees, and neglect many obvious precautions against the attack of beetles. On the whole it may be said that the result of the controversy has been to shew that sugar and coconut plantations, when both are properly cared for, can be successfully cultivated in the same neighbourhood; but that, when owned by Asiatics, it is advisable that these two methods of cultivation should be kept apart. A more difficult question has been to decide between the relative claims of *padi* and sugar planters, especially in the Krian District. The same description of land is the most suitable for both these forms of cultivation; but, unfortunately, the amount of water required for the cultivation of

RICE

is entirely disproportionate to that required of sugar. It has accordingly been necessary, in order to protect Malay *padi* planters, and to ensure the permanency of sufficient land for the cultivation of rice, the one absolutely essential article of food in the far East, to proclaim irrigation areas within which the Government reserves the entire control and distribution of the supply fo water. The Agricultural Department of Western Australia has recently made enquiry as to the possibility of obtaining a regular supply of

BANANAS

from Malaya, to supplement the supplies from Ceylon and Fiji, and this may afford a new and profitable market for the "catch crops" cultivated by European as well as Native planters, while awaiting a return from their more permanent agricultural products.—*Official Report.*

STIMULATING THE GERMINATION OF TEAK SEED.

Experiments to accelerate the germination of teak seed have been undertaken in various divisions of the Bombay Presidency, and with excellent results. The teak seeds are placed in a shallow pit $1\frac{1}{2}$ feet deep, which is afterwards filled with water to soak them. Subsequently the seeds are kept moist by being watered every four days. Seeds so treated show signs of germination in another five days. A second experiment was made in which the seeds were at first soaked in warm water for 24 hours, and the Divisional Forest Officer, Surat, Mr. Hodgson, writes as follows regarding the results obtained:—"I consider it would be a waste of time to grow seedlings in such a way that they take three months to appear above ground, for the seed invariably germinated in 12 to 24 hours in this Division by soaking in luke warm water, and plants show above ground in a few days."—*Indian Forester.*

TRADE IN TERMINALIA BELLERICA NUTS.

Mr. G M Ryan, Deputy Conservator of Forests, Northern Circle, Bombay, has lately issued a memorandum on the subject of Terminalia bellerica nuts in which he draws attention to a vast source of hitherto untapped wealth in the Northern Forests of Bombay; for it is difficult to believe that the matter has not already received considerable attention elsewhere. Mr. Ryan writes as follows:—"A report on the nuts of Terminalia bellerica, a tree common in all the Thana Divisions, was submitted by the Divisional Forest Officer, South Thana, in which he showed that in 1889 the value of these nuts in the English market was reported to be £7 to £8 per ton, a price even higher than that of some myrabolams. Messrs. Killick Nixon and & Co., Bombay, have agreed to undertake the shipment of a consignment of these nuts from India, to ascertain their present value in England. If they (the nuts) approaching anything like the price quoted for them in 1884, every likelihood presents itself of a new source of revenue springing up, for in addition to this Presidency, the Central Provinces also, it is found, contain Terminalia bellerica in large quantities. The annual export of the nuts under favourable conditions would, it is estimated, amount to about 1,000 tons from the Bombay Presidency alone."

As Mr. Ryan correctly implies, the Terminalia bellerica tree is common in the plains and lower hills throughout India and Burmah, and also in the Oudh sal forests; and the fruit has long been known as one of the myrabolams of com-

merce, and is exported as such. Myrabolams were recently quoted in the London market at about £4 per ton, and we shall be glad to hear of the financial results of the undertaking.—*Indian Forester.*

NATIONAL TEA UNION, LIMITED.

NOT SO PROSPEROUS.

The Directors in submitting their report and balance-sheet for the year ended June 30th, 1900, state that the net profits derived from the Company's transactions for the year, after making provision for bad debts, writing off all advertising charges and losses stated in following paragraphs, amounts to £1,514 10s. 5d., inclusive of £364 10s. 10d. dividends on investments. About three years ago the Company opened a Bonus Tea Department at Manchester for the convenience of members in Lancashire and adjoining counties. This department having proved unprofitable was closed a few months ago, having resulted in a loss during the year of £502 6s. 3d. The trading of the Continental Branch opened at Amsterdam in February, 1899, shows a loss on the year of £370 19s. 5d. This need not be a cause of discouragement, seeing that the foreign business is an entirely new departure. Owing to the reduction of the ordinary dividend for 1899, partially the result of the re-instatement of the reserve fund, many of the trading members were much dissatisfied and temporarily withdrew or reduced their purchases from the Company, which resulted in a considerable decrease in the business for the first half of the financial year. The directors are, however, pleased to report that the trade for the second half of the year, ending June 30th, shows a respectable increase on the corresponding period of 1899, but not sufficient to compensate for the set-back of the previous half year. The demand during the year has run mainly on low and cheap teas, much of which has been sold at prices which do not yield any profit, or even contribute their fair quota towards working expenses. The proportion of medium and fine teas now sold is much smaller than hitherto. The effect of the addition to the tea duty appears to have nearly disappeared in consequence of the demand for teas to retail at similar prices to those which obtained previous to its increase, thus the reduction in the average wholesale price of tea (excluding the duty), has had the effect of decreasing the already narrow margins on which the Company supplies its goods to members and customers. During the day preceding and the day on which the Budget was declared, an enormous rush took place to buy and clear tea at the then current duty rate, which transactions embraced blended and packed goods. Th Company's available duty-paid stocks were disposed of to all members and customers at the 4d rate, with the proviso that half of their orders should be taken at the new (6d) rate. This arrangement met with general approval. An interim dividend for six months on the preference shares was paid on January 1st, 1900, absorbing £500. The directors remit herewith the remaining six months' preference dividend absorbing a further £500 and leaving a balance of £514 10s 5d, subject to the payment of directors' remuneration and managing directors proportion of profits, amounting to £311 16s., but which they have agreed to reduce to £250, leaving the sum of £264 10s. 5d. to carry forward to next account. The directors regret their inability to recommend or pay any dividend on ordinary shares this year, but trust that members generally will recognise the Wisdom of giving their Company the fullest possible measure of support during the present year. Members will call to mind the very congested nature of the traffic and consequent growing disadvantages of the Mark Lane (Manchester) premises, which were disposed of in February. The sale resulted in a profit of £2,119 1s. 3s., after making provision for considerable alterations to the Cannon-street premises, fitting up, removal, etc. The directors recommend that the amount be dealt with thus—Add to general reserve fund, £1,500; add to reserve for depreciations £500; leaving in suspense, £119 1s. 1d; total, £2,119 1s. 3d. Members will note that the financial years closes free of trading liabilities, against £3,151 14s. 5d. twelve months ago.—*Grocers' Journal*, Aug. 4.

PARA RUBBER IN THE STRAITS: A PROMISING OUTLOOK.

To the Editor of the *India-Rubber* and *Gutta-Percha Journal.*

Dear Sir,—I have been asked by the Committee of the United Planters' Association F. M. S. to let it be widely known that a strong feeling exists amongst planters that the time is fast approaching when we should send a representative to Para, and from thence to the different seats of the rubber industry, in order that when this country is ready to put its own rubber upon the market, we may be in full possession of all the most up-to-date methods of tapping, of obtaining the maximum output with the minimum of damage to the tree, and of curing our produce in such a manner that it will fetch as high a price as any in the markets of the world. It is already been demonstrated that we can grow Para rubber, that we can get a heavy yield, and that the quality of our produce is equal in value to the best Brazilian. These are now proved facts, and there is no doubt that if we avoid all initial mistakes when cultivating and producing on a large scale, are thoroughly coached in our business when we first make our bow to the public, and so gain straight off a reputation for quality, a very prosperous agricultural future lies before the Malay Peninsula.

I believe I am right in stating that the rubber zone is approximately confined to 15 deg. north and 5 deg. south of the Equator, and a glance at a map of the world will very soon show how exceptionally well situated we are in every respect by comparison with other rubber-producing countries. Easy transport, a labour supply that can be developed until it is sufficent for our fullest requirements, a healthy climate where the white man and the coolie alike can thrive, all these advantages are ours; and I maintain that it rests with us whether we make a success of the great industry which we have inaugurated here or whether by carelessness and ignorance in our initial methods we find ourselves saddled with a reputation which it may take us years to live down.

The Resident-General with characteristic sympathy, has promised the planters the assistance of an expert from Kew, and a substantial sum has been provided for that purpose on the Federal estimates; no one doubts that the result of this officer's researches will be of enormous benefit to Malayan agriculture generally, but, with respect to rubber, we believe that much additional good may be done by sending over to Para one of our own men, a thoroughly practical and energetic planter, and, making his experience the basis of our own methods, by steadily endeavouring to improve from that point. In Selangor during the year 1898, no less than 389,500 Para rubber trees were planted and in 1899 the S. P. A. annual report shows a return of 1,600,000. Previous to 1898 a fair number were planted too. Taking 1,000,000 then as likely to arrive at maturity and with a yield of 1½ lb. per tree which we may put at 2s, or say $1 to allow for a possible fall of 50 per cent in value, we have in this State alone sufficient Para planted to give us an annual return of $1,500,000. Double this for the rest of the Malay Peninsula, and it is abundantly clear that we have already laid the foundations of what may with luck and care become an enormous trade.

It will no doubt be objected that what answers in Brazil may not by any means apply here, but surely it is folly to assume this? We know next

to nothing about our subject at present, and very soon most planters will be wanting to begin tapping on a small scale. Let us find out then as soon as possible all that there is to be learnt and apply that knowledge to suit local conditions.

It has been estimated that to send a good man to Brazil with "carte blanche" to travel as he thinks best and to extend his inquiries, if he got the opportunity, to other rubbers besides Para, will cost in all probability not less than $10,000. In these hard times this is a large sum to raise, and my object in writing is to invite public opinion upon the question. If those interested will communicate their views to the press much good may result, and when the time comes for us to take definite action, the skeleton of the scheme will already have been framed.—I am, dear sir, yours faithfully E. V. CAREY, Chairman, United Planters' Association.

SPORT IN SEISTAN, EASTERN PERSIA

REPORT BY CAPTAIN CHENEVIX-TRENCH.

The British Officer in India, Civil or Military, will go far afield for sport, and if he be particularly fond of using his smoothbore he may hereafter be tempted to try Seistan in spite of the difficulties of getting there. Taking Captain Chenevix-Trench, British Consul in that part of Eastern Persia, as our authority, we may give some description of the country and of the game birds to be found therein. Seistan, then, is a fertile plain about fifty miles square, watered by canals from the Helmand. That river forms the eastern boundary of the province and marks the local division between Persia and Afghanistan. The waters of the Helmand, instead of finding their way to the sea, spread themselves out over miles of plain and form a huge lagoon, seven or eight feet deep, called in the vernacular "Naisar." In the summer when the river is in flood, due to the melting of the snows in the far-away Koh-i-Baba, this shallow lake extends its borders for miles; but in the winter the water recedes, leaving a wide margin of grass and reeds. Then wild duck, teal and water-fowl generally come in enormous numbers from Central Asia, and the shooting would be unrivalled—if sportsmen were there. There are no boats in Seistan, but an excellent substitute is found in the native *tutin*. This is made by binding together dry reeds into a solid mass, having the shape of a pointed raft with rather a high prow. The *tutin* is pointed along and makes a very comfortable form of duck-punt. Besides the "Naisar," there are many other smaller lagoons, and all give good cover. But Seistan has other game than water-fowl. In the Report of the 1871 Boundary Commission, the following entry occurs in the diary under date February, 26th: "The land swarms with game and partridges, sand-grouse, quail, teal, duck, geese and pigeon were to be seen in every direction." Captain Trench states that the sportsman who adventures into Seistan will find villages everywhere with supplies in abundance: milk, eggs, and chickens are cheap, barley about one rupee per maund, *ata* 18 seers for a rupee. The people of the country are most friendly and are anxious to sell. Camels can be hired for transport and ponies can be bought at an average of R60 to R70 each. The Seistanis all talk Persian, very few knowing Hindustani, while Baluchis on the border speak Baluchi in addition to Persian. There is an Indian shop at Nasratabad, the chief town, and it bears the name of "Mahomed Ali Brothers," familiar enough in Quetta. This enterprising firm supplies stores and will shortly furnish soda-water also, a welcome drink in a dry land during the summer months. The enthusiastic sportsman may inquire how he is to get to Seistan: he will have to march from Quetta to Nushki and then across the desert, which Captain Webb-Ware has opened out as a caravan route. He will find rest-houses conveniently placed, and if he wishes to see a new country, which may some day rise into importance owing to its strategic position west of Afghanistan, he will take his guns and an unlimited supply of cartridges and hurry off to Quetta next winter.—*Pioneer*, August 17.

TRADE IN DRIED LEAVES AND FLOWERS.

Mr. E Rudowsky, Commission Agent, 14, Weinligstrasse, Dresden, Germany, asks us to draw the attention of our readers to the great possibilities there exist of opening up, between India and Europe, a remunerative trade in dried leaves and flowers such as are extensively used in Europe for decorative purposes. Mr. E Rudowsky, in his letter, states:—"Our selection at the present time is very limited, and the steady growing demand in Europe compels us to seek for fresh fields to make up deficiencies, and as India has plenty to offer in that direction, there is a good way of opening new and profitable makets for such produce, and thus helping the colony. To give you an idea of the possibilities of the trade, I will only mention that the so-called "Cape-flower," a small dried flower, is imported from South Africa in hundred-weights and tons, and I do not see why similar results should not be achieved gradually from India as well. Articles of this kind should be gathered with about three to four inches stem, as the case may be, so as to fasten to wreaths, bouquets, etc., well dried and packed in ten pound boxes (the limit the postal authorities carry), and sent by post. As they are light in weight a ten pound box would hold several thousand. Any dried leaves, flowers, etc., which are attractive enough to lend themselves for decorative purposes, would certainly be well appreciated here. Mr. E Rudowsky informs us that he will be glad to answer any further questions; to receive samples; and to give quotations. His address is given above. —*Indian Forester*.

RUBBER PLANTING EXPERIENCES IN NICARAGUA.

(To the Editor of the *India Rubber World*.)

In the March number of your journal appears a very erroneous article, made up, it seems, of surmises and hearsay, written by Charles D. Scott, of San Juan Del Norte, Nicaragua, in regard to rubber culture in Nicaragua. For fear that his statements may be believed by readers of your journal, I take the liberty of writing to you to contradict Mr. Scott's rash article. I am sorry he did not make a thorough search for information.

There are a number of good rubber plantations in this district. One planter is Mr. G. G. Cossitt, who gives his experience in rubber culture for the past three years, which is no hearsay or surmise, but reality. Mr. Cossitt says: "After years of exploration of Nicaragua, I decided to locate near here for rubber planting, on account of the rich land, healthy location, and proximity to market. In June, 1897, I planted my nursery of rubber seed, and in January, 1898, I began cutting the timber on the Tennessee plantation. Everything was cut clean and burnt off in April, and the rows for rubber laid off. On the 19th of May, 1898, as the rainy season began, I commenced transplanting from the nursery, and finished in July. Since then I have kept the

plantation cleaned and well cared for. At this date I have many trees from five to six inches in diameter and from 12 to 16 feet high, and two-thirds of my trees are large enough to take care of themselves with little or no more attention. These facts can be corroborated by many, or what is better by coming to the plantation and seeing for one's self."

Mr. Scott speaks of the probable short life of the trees after bleeding begins, but from my observation, there is no tree that has greater tenacity for life and can stand such rough usage. There are trees on my place that were there when I began work that are 16 to 18 inches in diameter and must have been bled for ten or twelve years and they are yet growing well. It is true that the trunks show a rough scarred appearance, but that is due to the ruthless bleeding done by the natives with the only tool used by them, "the machette." Formerly they always cut the trees down. I have been told by old men living here that rubber trees formerly grew in this vicinity that were from 4 to 6 feet in diameter.

In June, 1898, I visited a man living some miles from here to get rubber seed, and saw a tree he had planted that was eight years old and 15 inches in diameter. He had bled it for the first time during the Christmas of 1897 and got from it 5½ pounds of rubber. By a systematic way of bleeding the rubber tree, I am sure the life of a tree can be prolonged indefinitely and it will continue to increase in size and yield. From the rough manner in which the natives bleed the rubber trees of Nicaragua (the wild forest trees) they will soon be exterminated.

For my actual experience on "The Daytonia" plantation, we have trees 1½ inch in diameter and from three to four feet high, planted from seed last June. They were planted out in the open sun without any shade whatever; neither have they been shaded at any time since transplanting last September. In order to give the rubber trees all the sun possible, we have the trails running east and west, so as to catch the sun all day.

A great deal has been said, *pro* and *con*, in regard to planting rubber in the sun, but the trees grow more rapidly when planted in the sun and it is quite evident that they are more healthy and produce more rubber. Take trees planted in the shade, as a great many natives have done, and you will find them a failure. This, we have learned, by close investigation for some years back, and also from actual experience. Rubber is of very slow growth when planted in the shade, and when found in the forest you will notice that the tree has shot straight up in search for the sun.

Rubber trees planted in the sun will attain a size in diameter in two years of from 5 to 6 inches and a height of from 15 to 20 feet, while trees planted in the shade in the forest 5 inches in diameter will reach probably a height of from 40 to 50 feet and will take, as near as we can ascertain, from information gathered from all the authentic works we can secure, from twenty-five to thirty years.

The method the natives follow in tapping the rubber tree is very injurious, as they, in their ignorance and carelessness, cut clear through the bark and into the wood of the tree. This is entirely unnecessary and uncalled for, as the milky substance, or rubber, is held or contained in millions of small globular cells 1-10000 inch in diameter, and in bleeding it is entirely wrong to cut through the bark and into the wood, as no rubber milk is gotten between the bark and the wood of the tree. It is held in the minute cells in the bark and if a tree is properly tapped, by making an incision simply in the bark, it will do no injury to the tree. We would say that rubber trees are not easily killed. We find trees on "The Daytonia" plantation, volunteer trees, that have been cut nearly to pieces by the the rubber hunters and still they leave and flourish, showing that rubber is a very hardly plant and not easily killed as Mr. Scott would imply. It is a fact that there is very little known of rubber culture in Nicaragua, except on the eastern coast and near Pearl City.

As the editor of The *India Rubber World* says: "Because rubber grows in one locality, in a state, it is not an assurance that it will grow everywhere." We know there are large areas in northeastern Nicaragua that are totally unsuited for it, and even in this vicinity rubber does not do well everywhere, but altogether it is the finest locality in Nicaragua for rubber culture. In the dry zone in the interior and on the west coast of Nicaragua, it does not grow well. Rich land, good drainage, and plenty of moisture are the requisites for successful rubber culture.

George L. Bittinger.

Pearl City, Nicaragua (Department of Zalaya), April 9th, 1900.

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Having just returned from a two months trip in Nicaragua and Costa Rica, where I visited and inspected plantations of rubber, chocolate, coconuts, pineapples, bananas, vanilla, oranges, sugar cane, and the like, and investigated localities, soil, and cost of planting, talked with men who are working and investing heavily in them—I feel that I am in possession of correct information on this important "Rubber question" in Nicaragua. In addition to the foregoing article of George L. Bittinger, which I endorse, I will only say that I am convinced that Mr. Scott knows absolutely nothing about the "cultivation" of rubber. His little article itself is full of contradictions, one paragraph with another, and would not be worthy of attention or consideration were it not for the fact that many innocent people read your valuable journal—people who do not know, and yet who are anxious to know the facts about the culture of rubber and which is now a very profitable and staple commodity and is a product of Nicaragua.

Now I saw on the plantation of Dr. Roman, at Jinotepe, Nicaragua, not a great way from Grey, town, where Mr. Scott lives, rubber trees nine and ten years old, that had been tapped since seven years old and are as strong and healthy as though never touched; these trees are over two feet in diameter, gave an average of 5½ pounds of rubber the first tapping, which has increased nearly a pound per year since. These trees were planted at first as shade for coffee trees. I also saw a number of old rubber trees, shown me by some native rubber cutters, from which they had cut rubber every year for the last fifteen to twenty years. The trees are still healthy and big, although considerably cut up, as these native cutters are indifferent and take no care of the trees, not even sealing their uneven cuts with mud to prevent exposure to the air, sun, rain, or insects, and yet the trees thrive and yield 10 to 15 pounds at each tapping. I saw three tapped. Rubber plantations have about 200 trees per acre; figure the profits.

The rubber tree, like all other trees, requires the proper soil, care, and conditions for its growth and profitable cultivation. That it can be made as profitable in Nicaragua as anywhere in the world, there is not the shadow of doubt, of which I believe I can fully satisfy anybody by absolute proof. At present the most suitable soil and location in Nicaragua for rubber cultivation, seems to be in the region of Pearl Lagoon, where are located a number of plantations.—*India Rubber World*, June 1st.

F. D. Bittinger, m.d.

Dayton, Ohio, May 12th, 1900.

A TEA CESS FOR INDIA.

The Editor of "Indian Gardening and Planting" deserves credit for his strenuous exertions to make the necessity for a Cess on tea in India, as in Ceylon, clear to his readers and constituents. He has had the courage to draw the attention of Indian planters to the invidious position which they occupy, and he has started an agitation for the good of the industry, while he has advocated the cess as a matter of justice rather than expediency. We hope other Calcutta editors and the press generally will follow this good example.

TEA IN THE MELBOURNE CUSTOMS.

THE P.A. SHOULD ENQUIRE AND SUGGEST REFORMS.

A former Colombo resident writing to us from a South Colony, under date July 31st, says :—"When in Melbourne at the clearing house, passing through some luggage, I was astonished at seeing the manner in which the Customs officials dealt with the tea just arrived there. There are really no facilities for dealing with tea, and I think that the Planters' Association should call attention to the matter. Each box or chest of tea was opened and the contents poured into a canvas sheet, lying on the grimy floor where all kinds of merchandise was thrown It was then taken and rolled up and placed in large scales and after taking careful note of the weight and the weight of the box or chest, it was carelessly poured back into the chest, and, of course, the chest not holding all the tea without packing, one of the attendants stepped into the chest (boots and what might adhere to them !) to give it the required pressure. A small quantity of tea, of course, is lost from every chest, but it is the practice of packing which is most obnoxious. Why should not Messrs. Davidson & Co. get the Victorian Government to invest in one of their patent packers—indeed all the Australasian Governments It would greatly facilitate their work at the Customs. One worked by hand would be the most convenient."

EXPORT DUTIES IN COLUMBIA.

The Government of Columbia has promulgated an important decree, dated April 24th by which all exporters of Produce are compelled to pay to the Government certain duties. Exporters of coffee are to pay $10 gold for every 125 kilos. Rubber and other gums, etc., are subject to an expropriation (forced loan) of thirty per cent of their value in gold.—*Chemist and Druggist.*

AMSTERDAM BARK MARKETS.—Shipments of cinchona bark from Java for the month of July are reported at 629,000 Amsterdam pounds, against 940,000 pounds in the corresponding period of last year. The total for the seven months to the end of August is 4,612,000. Amsterdam pounds, against 6,025,000 pounds in the corresponding period last year, and 6,102,000 in 1898.—*British and Colonial Druggist*, Aug. 3,

PLANTING NOTES.

SAMOA ESTATES, LD. (66,685).—Regd. July 19, with capital £50,000, in £1 shares, to adopt an agreement with N. J. Weaver and to carry on the business of cocoa, tea, coffee, sugar, fruit, tobacco, indigo and other produce planters, growers, and merchants, shippers, carriers, miners, smelters, explorers, engineers, etc.—*The Investors' Guardian*, Aug. 4.

THE TENDENCY OF RUBBER LANDS IN BRAZIL to come under private ownership and control is illustrated by the granting to a Brazilian citizen—Manoel Floriano Correa de Bulto—of a valuable concession near Manáos. The United States consul at Para reports : "The property consists of several thousand acres of rubber and cocoa land, including immense belts situated on the banks of the rio Negro, rio Japura, and rio Branco." A copy of the terms of agreement in Portuguese, has been filed in the Bureau of foreign commerce in Washington. The grant has been criticized by the *Journal do Commercio* of Manáos, as an alienation of sovereign rights.—*India Rubber World.*

FULLER'S EARTH IN THE UNITED STATES,—According to the *Chicago Chronicle*, there was recently discovered near the Ockiockonnee River. 14 miles west of the city of Tallahassee, Florida, what is believed by experts to be the most wonderfully pure vein of fuller's earth ever discovered in the world, This vein is said to yield, at the expenditure of very little labour, immense quantities of this peculiar earth, which stands the 100 test—that is to say, that it is absolutely pure, there is no waste. Nearly all the mines of this kind of earth contain, besides the valuable commodity, rock, flint, gravel, sand, &c., but this deposit is entirely free of such substances.—*British and Colonial Druggist*, Aug. 3.

THE BREAD FRUIT TREE (*Artocarpus Incisa*), the *Ficus Prolixa*, and the *Ficus Indica*, which give a sap containing the elements of indiarubber, grow abundantly in Tahiti and its dependencies. In 1850. rubber tree known under the names of *Hevea Brasiliensis*, *Hevea Guyanensis*, *Siphonia Elastica*, or *Jatropha Elastica*, was introduced into Tahiti, and the results obtained are reported to have been excellent. Nothing since, however, has since been done in the matter, although it is admitted that the production of rubber would add materially to the resources and revenues of this country. The trees most suitable to the climate of Tahiti are alleged to be *Hevea Brasiliensis* and the *Castilloa Elastica*, whose seeds are said to germinate naturally in the ground where they fall, and whose sap coagulates best in the open air.—*B. and C. Druggist.*

ELECTRICITY IN AGRICULTURE.—An association of farmers in Bavaria, according to a writer in *Feildens Magazine*, are building large electrical works to supply power for agricultural uses. The current is generated near the village of Schaftersheim, a distance of seven miles from the district of consumption, and is supplied partly by steam and partly by water power. From there it is to be sent at a pressure of 5,000 volts to the surrounding villages, where it will be employed for driving threshing machines, chaff cutters, bruising machines, &c. The motors used are very simple and compact, so that they can easily be handled by farm hands. If this experiment should prove successful, it is almost certain to be imitated in other portions of Germany, as the power used, according to the estimates, is far more economical than horse power or steam power in separate plants ; and there might be a very profitable market for such installations also in our own country.

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Castilloa Elastica Cervantes.—Orders being booked for the coming crop of seeds available in June and July, selected seed from very old trees. R. N. Lyne, Esq., Director of Agriculture, Zanzibar, writes under date 24th August, 1899 :—"Please send me 200 seeds of Castilloa Elastica for further trial; the seeds of Castilloa you sent me last August germinated very well." Price and particulars in our Circular No. 32; special quotations for large orders according to quantity; immediate booking necessary to avoid disappointment.

Hevea Brasiliensis (Para Rubber).—Orders being booked for the coming crop available in August and September. 1900. This is the only crop of seeds in the year. All orders should reach us before the end of July to avoid disappointment, as we have to make arrangements in time; guaranteed to arrive in good order at destination. We have already booked a large number of orders. A leading Sumatra Planter, who ordered 50,000 Hevea Brasiliensis seeds last year writes under date 27th February, 1900 :—"I received your favor of the 12th instant, out of which I learn that you booked me for 100,000 Hevea Brasiliensis seeds for August and September on the same conditions as before, but at the price of—— per thousand." Plants can be forwarded all the year round in Wardian cases. Price and particulars as per our Circular No. 30. A Borneo planter writes dating, Sandakan, 17th August, 1899 :—"The last lot of Para seeds turned out very well." Our shipments of Para plants last year has exceeded over 300,000 to different countries. Special terms for large orders on application.

Kickxia Africana (Lagos Rubber).—One of the staple articles of commerce in Lagos grow very vigorously, realizing over 3s. per lb. in the Liverpool market. Seeds and plants, price on application.

Hancornia Speciosa (Mangibeira Rubber).—Besides the value of rubber, it bears delicious fruits, which is a great favourite with the Brazilians, cultivated for both purposes. Seeds and plants, price on application.

Coffee Arabica Liberian Hybrid, Maragogopie Hybrid, C. Stanophylla and other varieties. Price of seeds on application.

Ficus Elastica (Assam and Java Rubber).—Seeds supplied with instructions; price according to quantity. This tree grows equally well in high and low land, in forest and grass land, its cultivation being extended largely by the Indian Government. For price of seeds with particulars as per our Circular No. 33.

Manihot Glaziovii (Ceara or Manicoba Rubber).—Fresh seeds available all the year round; price as per our Circular No. 31.

Urceola Esculenta (Burma Rubber) and **Landolphia Kirkii** (Mozambique Rubber).—Seeds and plants. both are creepers.

Cinchona Seeds.—Different varieties.

Sterculia Acuminata.—(Kolanut). Superior quality, seeds and plants; price on application, packed to stand the transit well for several months, a hardy tree, cultivation easy.

Erythrina Lithosperma.—Thornless variety, new crop of seeds ready in December, May and June. Price according to quantity on application.

Seeds and Plants of Cinnamon, Nutmeg, Clove, Sandlewood, Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign Countries for 1899-1900 are now being forwarded to applicants in different parts of the world. Also Descriptive Price Lists of Seeds and Plants of Fruit Trees, Bulbs, Tubers and Yams, and Orchids.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms, &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons and Dracinas, now being prepared and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London :—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Telegraphic Address :
William, Veyangoda, Ceylon.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

RUBBER IN BAHIA.

H.M. Consul at Bahia, in his report for 1899, writes as follows:—

"The export of india-rubber continues to augment yearly, the value of this article exported in 1898 being £34,557, against £19,223 in 1897. A few remarks with reference to this product may be of interest. As it is well known the best rubber comes from Para, on the Amazon, the so-called seringueira. Owing, however, to the unhealthiness of the districts in which it grows, where, as a rule, rubber gatherers perish in a very short time from fever, I venture to express the opinion that it would be advisable for planters of rubber trees to turn their attention to the culture of the mangabeira and manicoba varieties, exported from Bahia. Mangabeira grows almost in any soil in that State, and flourishes in quantities in sandy districts, where absolutely nothing else can be produced. In certain zones of the interior, fertile in good rich red soil the tree yields more than four times the quantity of milk than when growing on sandy lands. This tree, besides the rubber milk, yields a most delicious fruit called Mangaba. Were it not for the difficulty in planting this variety, which requires from eight to ten years before yielding, would be the rubber tree of the future. Considering, however, all the circumstances in favour and against the foregoing varieties, the manicoba tree shows many advantages over the others to make it a commercial success. It is easily planted, either from seeds or saplings, grows in six or eight months in any kind of soil to a height of six feet, and will begin yielding a considerable quantity of milk in about three years, far more in proportion than any other rubber tree in existence. I am personally acquainted with the planter, who, on his extensive property, has, during a short time past, planted over 100,000 manicoba rubber trees, and informs me that he intends increasing his plantations to 1,000,000 trees, with the full conviction that this industry, in a few years, will show extraordinary results."—*India-Rubber Journal*, August 6.

THE PRESENT STATUS OF RUBBER PLANTING.

(From "The India Rubber World," March 1st)

The utility of India-rubber is of course established. In every industry and art to which it has been applied successfully the demand is increasing, while new uses for the material are being developed all the while. These conditions obtain not only in the countries where rubber goods long have been in use, but they are becoming true of all the rest of the world. No advance in the cost of rubber checks its use. To take the United States alone, the imports of rubber have increased of late as follows:—

Year.		Pounds.	Import Value.	Average Price
1897	..	42,159,129	$21,670,019	51·4 cents.
1898	..	44,236,070	25,937,108	58·6 ..
1899	..	54,408,495	34,219,019	62·9 ..

This increase of consumption exists in spite of the success attained in reclaiming rubber from worn out goods, which material is now used to the extent of many millions of pounds yearly. Chemistry has not yet availed to produce a practical substitute for rubber. So-called substitutes are in wide use, but the best of these is of value only for combination with true rubber. The supplies of natural rubber are, practically speaking, inexhaustible, but they are for the most part confined to remote countries, sparsely settled with uncivilized people, under climatic and other conditions which make them uninhabitable for white men. Doubtless the output of rubber from the Amazon or the Congo might be doubled in a year if American or European laborers could enter the forests to collect it, but this is utterly impossible.

Such conditions naturally have directed attention to the possibility of bringing rubber under cultivation, as has been done with many other products which once were found only in a wild state. Practical rubber culture in any country is yet to be developed, though the total result of experiments in many parts of the world points to success. Wherever rubber trees flourish naturally it seems reasonable to suppose that trees grown from planting the seeds will yield rubber as well as those which grow from chance. Besides, under cultivation more trees could be placed on an acre than exist usually in a square mile of forest area, so that, in the end, it may prove more economical to produce rubber on plantations than to gather it in wild lands free to all comers.

In the United States interest in rubber planting has been directed largely to southern Mexico, on account of proximity, to stable political conditions and general conditions of development there, to the salubrity of the climate, and to the fact that the isthmus of Tehuantepec is the natural habitat of a tree *(Castilloa elastica)* which yields a rubber of good quality. To-day experiments are in progress on a large scale in planting rubber in this district, with encouraging prospects on the whole, but it does not yet seem advisable for persons at a distance to invest an important part of their resources in a business the ultimate conditions of which cannot be said to be thoroughly known, without due consideration and a reasonably comprehensive study of the situation at close range. The inducements which have been held out in certain quarters to attract capital for rubber planting enterprises make the following suggestions pertinent.

A given species of rubber tree cannot thrive beyond certain limits of latitude. Thus the *Castilloa elastica* cannot withstand frost. Its growth must be confined within certain limits of altitude above the sea. It will not succeed without a certain amount of annual rainfall, certain conditions of temperature, a given degree of humility. Besides, the character of soil will affect the result. The mere fact, therefore, that the *Castilloa elastica* is found in the forests of a given State does not prove that it may be planted successfully in every locality in that State.

A fact which has largely discouraged the planting of rubber is the time required for the growth of the trees. While seven years is usually mentioned as the earliest age at which the *Castilloa elastica* may be tapped, there is rubber in the plants from their very beginning. Doubtless the longer tapping is delayed the greater will be the yearly yield, and the longer the life of the free. At the same time conditions may exist under which rubber may be gathered at an earlier age, and the high prices might make it profitable to bleed the trees freely, even at the risk of shortening their life. It is possible that in time *Castilloa elastica* may be cultivated as an annual or biennial crop, the plants being pulled up by the roots and all the *latex* extracted by mechanical and chemical means.

All these and some other considerations point to the desirability of careful investigation of any field before investing in lands for the culture of rubber—or any other plant the success of which depends upon so many conditions. It is well not only to look into the matter personally, but to secure the advice of experts in tropical planting. While the cultivation of rubber may in the end prove a safer investment than gold mining, it is quite as important that the proper location be chosen for a plantation as for a mine.

Some estimates of the possible profits from rubber in Mexico are based upon the idea of planting the Para rubber tree *(Hevea Brasiliensis)* there. The Para tree positively cannot thrive there. The price of Para rubber is also used in the estimates, but no rubber which Mexico is capable of producing brings within 25 per cent. as much as fine Para rubber. Nor should the New York or Liverpool prices of rubber be used in estimates, without reckoning cost of transit from the plantation to New York or European markets, including also insurance and brokerage. Many

estimates are based upon an impossible yearly product. The price of land is another important item, since profitable planting may be out of the question with too great an initial outlay. Prices of land generally speaking are much higher in our new possessions in the West Indies, than in Spanish-American countries, and certainly it is far too early to speculate on the opportunities in the Philippines, besides which the *Castilloa* is not indigenous there and we must naturally look to Government experimentation to determine its adaptability to those islands. The labor supply and the cost thereof should be considered, in comparing one country with another.

No doubt it may be found practicable to plant rubber in some countries where it is not now found native, but this should be attempted cautiously. Even within such limits of latitude, altitude, climate, etc., as are found to favor the *Castilloa elastica* in Mexico it might not be possible to grow this species in another country, owing to some subtle difference in the soil, which would prevent the trees from yielding rubber, even should they grow freely. It is interesting to note that the United States government is planning a series of experiments in the West Indies and the Philippine group to demonstate to the world whether rubber can be produced in these islands.

San Juan del Norte, Nicaragua, Dec. 21, 1899.

To the Editor of the *India Rubber World*:—Your letter was duly received. I failed to reply on receipt of same, as I wished to get all the information possible regarding rubber planting. From what I have heard from several friends who have tried this business, and spent a great deal of time and money, I would not advise any one to start into the planting of rubber, at least in Nicaragua, as I am convinced that rubber is "no good." A friend of mine started three years ago and planted 12,000 rubber trees in the woods, underbrushing and thinning out the woods, the same as the natives do. They are now about as thick as a lead pencil and from two to three feet high, and he writes that it will take; at the rate of growth, a hundred years to produce anything.

If the ground is thoroughly cleaned the trees grow rapidly and will begin to produce in seven or eight years, but will it last? The rubber cannot be tapped with a bit, as the wood of the rubber tree is soft and spongy like the balsa tree; it immediately swells and fills the hole, and scarcely a drop of milk exudes. The tree must be tapped by entirely removing a piece of the bark with a sharp instrument, so as to obviate the filling of the wound by the wood swelling, and, furthermore, a small cut will only drain the milk from a very small distance on either side of it, so that to get any rubber from a rubber tree it will have to be badly mutilated, and the milk is the very life blood of the tree. Will the tree stand constant bleeding, healing, and wounding, long enough to pay the interest on the money invested for the seven or eight years one has to wait, to say nothing of the principal? I am sure not. I have been looking into this carefully, and find that after a tree has been cut three or four times, no matter how carefully, it shows signs of decay. The rainwater gets into the wound and finds its way under the bark, fermentation sets in, wood ants and beetles get in their work, and then good-by rubber tree. To plant rubber properly costs just as much in the first instance as to plant cacao, which produces a crop in the natural manner as fruit, which can be gathered without any damage to the tree; it is only a question of fertility of soil, and a little care to make the cacao tree a constant producer for an indefinite time, or comparatively so. You will probably hear from me again on this subject.—CHARLES D. SCOTT.

Apropos of the slow growth of rubber plants, Thomas Christy, of London, contributes to *The Tropical Agriculturist* some notes on planting *Castilloa elastica* in Mexico. Plants from seeds sown in the sun measured at one year 5⅝ inches in diameter, and 4 feet 2 inches high. Plants from seed sown in the forest at the same time measured only 12 to 14 inches high. Certainly the experience of the planters mentioned by Mr. Scott, does not agree with that of several correspondents of *The India Rubber World*.

A VETERAN PLANTER.

Mr. J. M. Vermont, of Province Wellesley, Penang, in writing to us about his "T.A.," refers to a paragraph in which Datu Meldrum mentioned his great age as a pioneer. Mr. Vermont writes:—"The paragraph that appeared in the *Ceylon Observer* a month or two ago with reference to myself as to my age is an error. I am entering my 74th year; but although much troubled with rheumatic gout, probably brought on by exposure in developing the three estates, I am still able to knock about, but of course not as active as in my youth."

ZANZIBAR CLOVES.

An American consular report on the trade of Zanzibar during 1899 says that the crop of cloves last year was the largest ever produced, being 8,061,259 lb. in excess of that of 1898. Notwithstanding this large crop, the Consul says that the clove plantation, particularly in Zanzibar Island, are not being cultivated in a way to keep them up to the past standard, for since the prohibition of the importation of slaves the supply of labour has diminished with increasing rapidity each year, and since the decree of 1897, granting freedom to the slaves, the labour supply has been quite inadequate to meet the demands. How this statement is reconciled with the fact that a much larger crop was gathered last year in spite of the labour-scarcity we are at a loss to understand.—*Chemist and Druggist.*

THE STATE OF AMAZONAS, BRAZIL, AND RUBBER.

CONSULAR REPORT FOR 1900.

Last year the British Consular agency in Brazil was strengthened by the appointment of a Vice-Consul at Manaos in the Amazonas. The first result of this arrangement is the presentation of a really capital report by the new Vice-Consul, Mr. Charles Lindsay Temple. This paper, which has been printed by the Foreign-office among its Consular Reports for 1900, is very interesting and instructive reading from a geographical point of view, with much graphic and descriptive merits also. It indicates the physical geography of this river-kingdom, which is the upper, or more properly speaking, the middle basin of the Amazon—the almost entire submergence of the area, when the mighty floods are out and the waters cover not so much the earth as the forest—the rapid subsidence of the all-pervading inundation, owing to the natural drainage and to the sun's rays.

One special feature is the preparation of caoutchouc or india-rubber, which is the main product of this forest-clad country. This article has always been largely used in Britain for waterproof clothing. But of late years the use for it has multiplied owing to the demand for the wheel-tyres of bicycles. Evidently the Vice-Consul has expert knowledge of all that relates to this valuable article, and this experience is embodied in the report with scientific accuracy and practical lucidity. Such an exposition must be important to those who are interested in this branch of trade.

Apart from this staple, there is a careful analysis of every item of export and import. Inasmuch as this vast territory of 600,000 square miles has its scanty population of 600,000 souls, largely engaged in producing certain things which the nations need across the seas, it follows that the people must largely depend on those nations for their food, their clothing, and the needs of their civilisation, though it must be admitted that this civilisation is for the most part not

very high. Thus it arises that their trade is both comprehensive and diversified. The report enters into every item of export and import, with some adequate remark upon each.

Some special facts or considerations may, however, here be noted. The dominant factor in the Amazonas trade is the indiarubber. Indeed, of the production of the world, 57,500 tons, about half, or 25,000 tons, comes from the Amazon district; of the other half, the greater portion, or 24,000 tons, comes from the East and West Africa.

The crying want will not be capital or communication—that by water being peculiarly abundant—but labour, which is, as yet, too scarce. RICHARD TEMPLE.

—*Journal of the Society of Arts*, Aug. 10th.

MAGALIESBERG TOBACCO INDUSTRY.

MR. F H HARTLEY INTERVIEWED.

ADVENTURES AND EXPERIENCES.

An interesting interview appears in the current number of the Natal *Agricultural Journal*, in the course of which Mr. F H Hartley, of Magaliesberg whose brand is so well-known to lovers of Boer tobacco, offers some remarks anent the early days of South African colonisation, and the present position of the tobacco industry in this country. *Inter alia*, he said:—"Magalie is the name of the chief who held the district when the Boers took the country. I bought my land there Vaalbauk—in 1869; opened a store and soon afterwards started a mill, getting my power from the Magalie River. Since then I have spent at least £20,000 on improvements of one sort and the other. When my first mill became too small for the work I built another, and a short time ago I built the third, the best and most modern in the Transvaal at any rate. The machinery is driven by a turbine, and I can turn out really first-class flour. The Magaliesberg wheat is splendid. Everything except mealies is irrigated. The cultivation is limited to the water available on the farms. The south side of the range is much better than the north which is too hot. There they get weevil and moth into the grain much more than we do, and the rust is worse. So far as my observation goes, rust is bad according to the warmth of the nights. The Australian wheat was not up to ours in quality. The times for planting are oats in April, wheat in May, and as soon as oats are off the tobacco goes in.

Magaliesberg has had its reputation for tobacco for a long time. My father in his hunting days used to send presents of it to his Cape friends. The Voortrekkers soon discovered the suitability of the locality, and they took much intelligent care in the preparation. Nearly all the farmers in the district now cultivate it. On many of the farms Boer men, women and children work at the cultivation. Yes, the Boers, like other races, work if they can't help it. In debt? Yes nearly all. The continual subdivision of the land on the death of the parents is producing a class of Boer quite different to the original type. To convey an impression of the soil and climate to a Natal man it might be described as somewhat like the Tugela district near Colenso. The light red soil is best. Exhausted? Yes; manure is necessary everywhere. For tobacco cattle manure only is used—horse and sheep would spoil the tobacco. I cultivate about 40 acres, and there are very few, if any, who do more. In most instances the quantity is very small.

I started cutting and selling in bags in 1874 on a small scale. There was a lot of prejudice to overcome in introducing cut 'boer.' After the retrocession of the country, the Cape clapped on a duty of 2s per lb, so that limited no practically to the Transvaal, the then Free State and Natal. For a long time only Europeans who had been accustomed to cut tobacco would buy it. The Free State took hardly any; there they had never seen or heard of tobacco other than roll. They are an ultra conservative lot. You will remember what a struggle there was among farmers before the sulphur matches gave away to the safety kinds. In the Natal papers I advertised largely, and the brand became so popular among the British generally that I had to increase my plant and give up advertising. But it was annoying to be limited—I could not get the tobacco for the demand. I had to keep up the quality and competition regulated the price.' The goldfields brought a big rush for cut tobacco. At first I bought from the farmers in the roll at 6d per lb, but there was such endless trouble about the moisture—nearly every farmer trying to impose upon me more water than his neighbours—that I resolved to end the constant wrangling by buying only in the leaf, and now I buy at from 3d to 9d per lb. It is necessary from business motives to buy the bad as well as the good. The good is sold in my bags under my name; the bad is cut up and sold on the Johannesberg market in bulk—with no guarantee—for what it will fetch. When ripe the plant is cut down and hung in sheds or under trees. There is not enough labour for a better way. By-the-bye, I might mention that during the British occupation the troops gained a liking for "boer" and for several years I got orders from all parts of the world, including Hongkong.

In dry seasons insects of course, are troublesome especially cut-worms. In a good season we look to get ¼ lb. per plant, and an acre should carry about 5,000 plants—that's 1,250 lb. to the acre. And rattoon or second crops produce about half as much. For, merly when the land was richer and more manured there was often a third crop. On the northern—the hotter side of the range—they still go in for third crops. The second crop was preferred by many Boers for smoking, and the first, the strongest for chewing. All genuine Boers are chewers as well as smokers. The habit, however, is growing out of fashion especially—among those who come into touch with civilisation. It might be worth mentioning that I am interested in a tobacco-growing experiment in Gazaland. I believe the country is splendid there for tobacco, coffee and other things. Tobacco will grow all the year round. There is no fever there: on the high land there the frost began this year in the middle of May.

"As to the proposals in England to settle time-expired soldiers in the Orange River Colony and the Transvaal, it is a difficult question to answer off-hand. The desirability in some respects is obvious, but to succeed in farming in any part of South Africa—putting aside racial and similar considerations—requires above all, local experience—which fact new-comers will rarely believe—and, secondly considerable capital. Farming except on the large scale of the old Boers must be mixed and to avoid disaster much and varied local knowledge is necessary. Again it must be remembered that as a farming country the Transvaal is extremely patchy, as patchy as Natal."—*Natal Mercury*.

RUBBER PLANTING COMPANIES.

ENTERPRISE IN AMERICA.

The Mexican Coffee and Rubber Growers' Association (Philadelphia), incorporated in Delaware to acquire the property and concessions of the Grijalva Land and Coffee Co., Limited. The Grijalva properties include 100,000 acres in the districts of Mesealapa and Pichucalco, in the state of Chiapas, Mexico; about 60 miles southwest of San Juan Bautista, capital of the state of Tabasco; and front for twelve miles on the Grijalva river, navigable by the company's steamboats to Frontera, on the gulf coast.

The Palma Real Co., with a paid up capital of $1,500,000, have been incorporated under the laws of West Virginia, to acquire 68,000 acres in the

state of Vera Cruz, Mexico, to be devoted to the planting of India-rubber and other tropical products.

The Nicaragua Rubber and Agricultural Co., incorporated in Delaware, September 26, with $250,000 capital, own 8,105 acres of land in Nicaragua, purchased with a view to planting India-rubber and bananas or other fruits, on the Rio Coco, 80 miles inland from Cape Gracias. They offer to sell shares of stock, each to carry a certain amount of land planted with rubber and fruits, to be paid for in instalments.

The Isthmus Plantation Association of Mexico has been organized at Milwaukee, Wis., for the development of the lands known as the Hacienda del Corte, on the isthmus of Tehuantepec. The estate comprises 10,000 acres, and it is reported that 200,000 coffee trees and 40,000 India-rubber (*Castilloa elastica*) trees have been planted.

The Chiapas Rubber Plantation and investment Co., described as an American corporation, is mentioned in a letter from the city of Mexico as owning 12,335 acres of fine rubber lands in the Rio Michal valley, in the state of Chiapas, and having planted more than 3,000 acres in rubber.

The Government of Peru announces that concessions for rubber lands cannot be transferred without the *concessionaires* having obtained consent of the national authorities.—*India-Rubber World.*

GOLD REEFS IN BURMA.

Of the reefs with payable gold referred to in today's Government Resolution on the Geological Survey Department as discovered in Burma, the first is the Choukpazat Reef, in the Wuntho District, which has several associated veins besides a second reef half a mile to the north, and two veins of 900 yards to the north-east. Mr. Stonier finds it contains some free gold which can be extracted by simple machinery. Part of it is already being worked, the vein stone giving in all 14 dwts. of gold to the ton. The second is the reef discovered by Mr. Stonier about 14 miles north of Baumauk. It consists of quartz 9 ins. thick and where tested contains 9 dwts. of gold per ton of soil, also about 2 per cent of copper.—*Madras Mail*, Aug. 27.

COFFEE IN QUEENSLAND.

Though this, like rice, is grown upon the coast side of the main range from Cooktown to the Tweed Heads, the tendency is towards cultivation in the tropics, where plantations are now being cultivated upon a commercial scale. It has only been within the last three years that the interest shown in this product has demanded the attention of the Registrar-General from a statistical point of view, but from that time the increase in area has each year shown a fair advance. Taking the last two years for an example, it will be found that in 1897 there were 180¼ acres of productive coffee trees and 130¾ of non-productive, and in 1898, 199 acres and 233 acres respectively. The figures show an evident advance in the area planted, and the information to hand points to the statistics of the present year being yet more favourable. The imports for 1898 were 170,886 lb., and upon that basis there is room for the use of 602 acres before we overtake our consumption, which, upon the present population of 498,523, is at the rate of 456 lb. of coffee per head each year. The market in Europe, however, is good, and though we may not yet have learned how to offer our goods in the most attractive manner, the opinion expressed by the trade in London upon Queensland coffee is very favourable, and by the time we are in a position to place a fair quantity for export that method of preparing our coffee will have been attained, and we shall be able to compete with those countries wherein coffee-growing has been prosecuted for centuries. The appointment of Mr. Newport as instructor in coffee culture has given an impetus to this branch of tropical agriculture, and as he has also an intimate knowledge of what may be termed allied products, such as spices, the benefits to the farmers of the North will be greater than was anticipated. The death of Mr. E Cowley, and the exigencies of the Diseases in Plants Act at Cairns has precluded Mr. Newport, up to the present, from giving that attention to instruction he would have wished, for the reason that he was retained in Cairns to supervise the nursery, and to attend to the inspection of fruit. Arrangements have, however, now been made to release him from that detention, and his services will henceforth be at the command of the coffee-grower. A report from him upon this subject is attached herewith.

PEPPER CULTIVATION IN MALABAR.

Pepper *(Piper nigrum)* is grown in Java, Sumatra, Ceylon and other Asiatic countries, but that which comes from the Malabar coast is acknowledged to be the best. The only taluqs in Malabar in which pepper cultivation is largely carried on are Kottyam and Kurumbranad. The conditions most favourable to pepper cultivation are said to be copious rains, abundant dew in the night, and a gravelly red soil. These are found in other parts of Malabar, so it is not understood why the cultivation is chiefly confined to these two taluqs. Two varieties of pepper are produced in Malabar—the black and the white. The fruit is gathered green when intended for black pepper, but must become quite ripe for white pepper. White pepper differs from the black only in being stripped of its covering. After stripping them, the black berries are steeped in salt water, and when they have been exposed to the sun for several days the chaff is rubbed off with the hands. The process of cultivation is very simple. The vine is generally propagated by cuttings. It is usually planted at the base of trees, the most commonly used being *Murikku* (Erythrina Indica); other trees, such as the jack, cashewnut and mango-tree may also be used, but they are not in favour with the Malabar cultivators.

The first thing required for forming a pepper garden is to clear all jungle and root out all stumps of trees on the ground. This must be done by the middle of May. The *Murikku* standards, on which the vine is trained, should then be planted and about half a dozen cuttings of vine—each about 2½ feet in length—should be planted at the foot of each stem. The soil should then be turned up by digging, and the cuttings tied with a fibre on to the *Murikku* crop. The tying is necessary to facilitate the growth of the vine, which sends out small roots at every joint, which strike into the *Murikku* stem and enable the vine to climb up the prop. In three or four years the vine attains a height of six feet.

The vines begin to bear in the third or fourth year, and in four years more are in full perfection and continues so for 20 years when they die. They blossom about the month of June, and begin to bear fruit in the following two months. The gathering season is January to March. The plant requires constant rains during the blossoming season. The expenses of cultivation incidental to farming and maintaining pepper plantations are variously stated. But it may be stated approximately that a plantation of one acre will not cost more than R300 together with an annual expenditure of R10 for its upkeep. The outturns of the pepper harvest are also variously stated. The yield ranges from one to

three bharams per acre (one bharam being quivalent to 660lb.) It is stated that a single vine produces from one edangali to four edangalis of dried pepper. There is no doubt that pepper cultivation is highly remunerative, and it is a pity that it is not carried on more extensively than it is at present.—*Indian Agriculturist*, August 1.

HUNTERS THE TEAMEN, LIMITED.

MORE PROSPERITY.

The third ordinary general meeting of the shareholders in Hunters the Teamen, Limited, was held on Thursday, at the Mitre Hotel, Manchester. Mr. George Ollerenshaw, chairman and managing director, presided.

The directors reported that there was a profit on trading of £34,183 14s 1d., and after payment of all expenses a net profit of £24,964 5s. 5d., which showed an increase on the preceding year of £5,555 2s. 3d. This amount added to £2,508 2s. 1d. brought forward made a total available profit of £27,472 7s. 6d. The preference dividend for the year had been paid, and an interim dividend on the ordinary A shares at the rate of 10 per cent, per annum, and on the ordinary B shares at the rate of 7½ per cent. per annum, and £3,000 added to the reserve fund. The sum of £13,334 17s. 6d. remained available for distribution. The directors had made the payment of a dividend at the rate of 10 per cent, per annum on the A ordinary shares and interest and dividend at the rate of 10 per cent. per annum on the new issue as per agreement, and now recommended a dividend at the rate of 12½ per cent. per annum on the B ordinary shares (making 10 per cent. for the financial year on the A and B ordinary shares). It would be remembered that in March last a further issue of capital was made, viz:—20,000 A ordinary shares at 10s. premium. This premium had been added to the reserve fund. In addition to the above £3,000 and £10,000, it was further recommended that the sum of £5,000 be added to the Reserve Fund, making the same into £22,500, and the sum of £4,487 7s. 2d. be carried forward.

The Chairman moved the adoption of the report and balance sheet. He said he was again in the happy position of being able to report progress and increased profits, the result of a largely-increased turnover. The new shares had been readily taken up by existing shareholders, and application had been made to the Manchester Stock Exchange for quotation of the new shares. Gentlemen connected with the provision trades well knew that the markets during the past few months had gone dead against the retailer, and under such adverse conditions the net profit was highly gratifing. The reserve fund of £22,500 must be very agreeable news to owners of B shares, for in the ordinary course of things their shares must a year hence rank equal to A shares.

Mr. S. J. Bradwell seconded. Each year, he said, they seemed to meet under brighter auspices. Their success was not so much in an increase in the percentage of profits as in a large turnover at about the same expense.—*Grocers' Journal*, Aug. 4.

A SUGGESTION FOR MAKING GREEN TEA.

I am going to try and make green tea, but so far I have no sailing orders. I am afraid that my tea will be different from that made by others. I imagine that there must be two or three men available who know how to make green tea who could be secured as instructors. These men could be deputed to visit the different districts and instruct the managers within a given circle, and others from a wider circle could come in and attend the demonstrations. The instructor should actually make a whole break, and all concerned should make tea on the same lines and submit samples. Whatever appliances are required should be obtained beforehand, and everything prepared to make a large quantity of tea of *one quality and character*.

It would have been better to allow a bonus of 1 anna per pound, and half fee to the instructor, *i.e.*, R6,250 for 200,000 lb., or better still, R12,500 for instructors and ½ per pound bonus. The most important points in the new venture are quantity and uniformity. We have fixed the quantity at 200,000 lb. but have taken no steps to get equality of character, so that the 200,000 lb. will be split up into several sorts of tea. I do not believe that the political troubles in China will have any effect on our chances of gaining the American market; we need not hurry ourselves unduly. It will be better to get more system into our attempt even if it incurs a delay. We have not cut out China green teas in America because we have not tried to do so. If we *do* try we can do it, because our leaf is better and our labour cheaper, and because we are more honest. The plan I propose is to find instructors who have already succeeded in making suitable green tea for America.

These men will draw up a list of appliances and have them prepared by a fixed date. Iron pans, steaming cylinders, soapstone, gypsum, Prussian blue, cloth for pressing bags, tea chests of certain dimensions—in fact, anything they fancy. Each instructor would get promises of a fixed quantity of green tea to be made within a fixed circle. He would go to one central factory and *make* one invoice himself; and he would watch the manufacture of the others, and be ready to go and put matters straight if any great difference appeared in anyone's tea. The instructor's work would be done in two or three weeks, and the result would be a break of tea which could easily be matched in the future.

The individual managers would be released of all responsibility, and it really is not fair to ask any man to risk his reputation on an utterly unknown product. Those who succeed will do so *by chance*, and those who fail will be continued as fools if each one is left to mere verbal instruction. It would be wise if the proprietors to give up part of the bonus to secure expeti and experienced instructors. I feel inclined to try 2,000lb., and get R187-8-0 bonus, but I would certainly rather spend this in going to see the tea made by an expert than risk failure.

So much about instructors, but another point which is at present in dispute is the necessity of steaming apparatus. I was recently in Calcutta and had a talk with one who knows how to make green tea, and he says that steaming is done by the action of heat on the leaf. The leaf supplies its own moisture, which heat, (however applied), turns into steam.

Surely it is a mistake to apply "steam" obtained from water outside the leaf! By applying steam, a temperature of only 212 deg. can be given to the leaf, but I have read that leaf can be steamed on red hot pans; it is more than probable that temperatures over 212 deg. are required for making good green tea or Oolongs. Our Siroccos can give heat up to 350 deg., and that would make the leaf steam in about half a minute. I have never read that the Chinese or any Indian green teas in former times required a steaming apparatus.

I see an advertisement on page XIII of 9th August of your paper, stating that the cost of the *necessary* machine for steaming is R600. Would Mr. H D Deane tell us for how long *any* apparatus had been considered *necessary*. This means that the bounty of 1½ annas on 6,400 lb would have to be advanced by the intending experimenter, and most of us would like to know whether steaming by the aid of an apparatus is really *necessary*. May I suggest that steam applied to leaf will make it more moist, so that besides the cost of fuel to make the steam, more fuel will be required to dry off the added moisture. Dry heat extracts moisture from the leaf in the form of steam, and the drying is thus already commenced. A.C.—*Indian Gardening and Planting*, August 23.

A FARMER'S EVERY-DAY LIFE IN SCOTLAND.

No XI.

(By "Cosmopolite.")

AGRICULTURAL SHOWS.

The month of July is dedicated to the Agricultural Shows of Scotland, and, from the Borders to John o' Groat's, the roaring of cattle, neighing of horses and squealing of pigs awaken the many welkins of the land of the mountain and the flood. All papers, agricultural and otherwise, are crammed full of exciting prize lists of show animals, and even Chinese massacres and Boerish victories occupy but a secondary place in the news of the day. But six columns of cattle show, day by day, is a little trying, and with this "white man's burden," the agricultural newspapers have been solidly and unreadably funereal for some time past. But in the boundless monotony of farming life, we could ill spare our cattle shows, and although the judging may not be all that we could desire, perhaps it is better for us "to bear the ills we have, than fly to others that we know not of." This year the judges have been more severely dealt with than usual, some of the exhibitors even going the length of refusing the tickets awarded to them, because the judging displeased them so much, one special grievance being the fact that a first-prize ticket was actually given to a horse bred by the judge himself, and said to be about the worst in the ring. Doubtless, there is much reason in the old farmer's remark, when, having been asked why he did not exhibit any of his fine stock at the shows, he replied :

"FIRST BREED YOUR JUDGES."

A good deal depends on luck in a show ring, but the best bit of luck that can come one's way is to have the judges as personal friends, or one of them the breeder of the animal you exhibit. I once got the Champion Cup for the best Clydesdale in the show-yard, and this prize I carried off with a filly that had bad splints on the forelegs and was a shiverer ; but I only let her go to the Show just to please my grieve, as I myself would never have dreamt of sending her as a likely winner. But my luck must have been in good working order that day, although the result only made me, thereafter, lose what little confidence I had in show-yard judging. I do not know if the unsatisfactory judging has been the means of driving visitors away, but the fact remains that Agricultural Shows are not so well attended, now-a-days, as formerly, and the only way to bring forward a bumper attendance is by introducing into the programme a military tournament or a Punch-and-Judy show. Last year the great attraction at one of these Shows, down south, was a prize given to the "ugliest dog in the show-yard." This novelty was so effective that the sum collected at the gate was "a record." I drew the attention of our local Agricultural Show Committee to this, and said that I thought I could put my hand on six or eight dogs, in this district, that for ugliness, would take a deal of beating and make an exciting competition. I even advised them to go one better than this, and include the ugliest owner, so as to make a pair. Ugly people do not often have a chance to win prizes, and this would be a grand opening for them, and I think it highly probable that such a competition will be included in the programme of our next season's cattle show.

THE HOLIDAY EXCURSION SEASON

has been in full swing during the past month, and the picnic hat is gaily blooming tra-la-, so that farmers have been pestered by trippers trespassing over their parks, leaving their gates open, and making themselves an abominable nuisance in general. Trains, in consequence of the travelling crowds, have been systematically behind time, and cattle trucked for certain markets are apt to arrive after the sale is over. The trippers never think of these things,—what do they care for a hereafter, absolutely nothing?—so long as they can get their own enjoyment, let the farmers look after themselves ; and this we have had to do, sometimes with very bad grace I must admit, praying all the time that the end of the picnic season might soon come, when the revellers will stay quietly at home, and swear off the fermented juices of the vine, the barley, the potato and the gooseberry.

Our cattle also are greatly disturbed by the omnibuses and char-a-bancs driving past, the rioters shouting lustily at the top of their voices, generally accompanied by an artist on an accordion, who, between the songs, drives dull care away by solemn and uncertain airs with variations. On one occasion I found my cattle, with tails erect, galloping for dear life, and then there burst on my view, driving along the road, a huge picnic party headed by a brake containing the town band, which had been commandeered for the occasion, the drum, which met with such a terrible accident on Ladysmith night, having been effectually repaired. As the party drove past me, they were letting off a song of joy of their own composition, and I plugged my ears with my fingers and hastened away to see that none of my cattle had been terrified to death by these outrageous junketers.

THE CROPS.

Had a stranger visited our district this time last year, and then come again now, he would scarcely be inclined to believe that it was the same place. Last year we were suffering from severe drought, the grass was burned up, the hay crop was almost *nil*, corn was short in the straw, and turnips were a complete failure. This year, owing to a warm and drippy season, everything is looking its very best, and, taking my own farm as a sample of the district, I never saw such a quantity of grass, I never cut a heavier crop of hay, my turnips are simply perfect, and my oats have the appearance of proving a profitable crop. I am not one of those whose cry is always a lament ; when there is anything to be grateful for, I am glad to show my gratitude ; and this year our crops leave nothing to be desired, except that

PRICES

may rule high when the time comes for us to sell. Beef and mutton continue at a satisfactory price, and, in this respect, the

war has helped us, and there is a prospect of prices keeping up for some time yet. The rich pasturage has caused store cattle to rise considerably in value, indeed it is difficult to get them at anything like a price that would leave a profit, but, as one must have his grass eaten down, I have been compelled, although I have no great liking for

IRISH CATTLE,

to purchase a mob of these, merely to eat down my grass, that is running wild. These cattle were bought in Limerick market on a Friday, and, the following Friday, I bought them at my nearest auction mart, so they have not been knocked about, from pillar to post, in the way that so many of these Irish cattle are treated for weeks before they are bought, and then, as a consequence, they take months to recover from the bad treatment they have endured. I trust that my mob may prove the advantage of getting this class of cattle as quickly as possible from their native wilds on to our good pastures, and that they may thrive exceedingly, and leave a handsome profit.

PLANTING NOTES.

Method of Making Wood Fire-proof.—The latest method of making wood fire-proof is that of a Mr. Joseph L Ferrell. The timber is not steamed in a vacuum, but the fireproofing solution is forced into it by great hydraulic pressure, amounting to 1,500 lb. on the square inch for some hard woods. The solution is a secret, but is neither volatile, corrosive, nor hygroscopic, and the timber, after treatment, is kiln dried so as to leave only fine crystals in the pores. A house of this wood is uninflammable. Boxes made of it and placed in a fire of pitch-pine kept documents in them, it is stated, unscorched for 23 minutes, although the outside of the box was charred.—*Globe*, Aug. 10th.

Rubber Extraction.—We have been favoured with another letter on this subject from our esteemed confrère, Mr. A. Godefroy-Lebœuf, of Paris. He reports that the extraction of rubber from bark by a patent process has proved a success, and that a regular manufacture in this way will shortly be commenced. We trust our correspondent will keep us fully informed as to the success of this new factory, and if any of our rubber planters are enterprising enough to send us a kilo (2⅕ lb.) of any bark he would like to have experimented with, we shall see that it is sent forward and the result duly reported.

Indian Tea Association.—We are indebted to Mr. James Peter, Secretary to the Sylhet Branch of Indian tea planters, for a copy of the detailed Report of the general Committee of the Indian Tea Association for the year ended 28th February 1900,—Including list of gardens belonging to the Association corrected to the 30th June 1900, with proceedings of the Nineteenth Annual General Meeting held on the 22nd May 1900.—There is much valuable information in this volume to which we shall refer from time to time.

The Profits of the Russian-American India-Rubber Co., at St. Petersburg, for the last business year are reported at 2,941,906 rubles, against 3,945,222 roubles, in the year 1898–99. The dividend will be only 35 per cent., against the customary yearly dividend of 50 per cent.—*The India Rubber World*, Aug. 1.

Jamaica is Purely Agricultural.—Walking in the country and making enquiry, one soon discovers that seventy-five per cent of the people are unable to answer with any certainty the following simple questions:—"How long does it take from the time of planting for a banana, or pine apple to commence fruiting, and how long after the fruit appears does it take to ripen?" "How long does the coffee or orange take to ripen after the blossom appears?" Of those who read ninety per cent could not answer. Yet these are things that we cannot avoid seeing before us, year after year. Our young men will not take kindly to agriculture: they all want to be Clerks and Gentlemen, I hear repeatedly day by day, something sorrowfully, and frequently sneeringly. Now this is partly true, in as much as a boy who has been "educated" at an elementary school is very apt to look down on the small cultivator as beneath him, and how can he be blamed? Can he not write and read, what is the good of his education if he is to go and hoe grass? His teacher in all probability is above planting a rose in a pot, and he has unfortunately for himself and his country, never seen a white man with a spade in his hands. "Buccra" don't dig, therefore it cannot be a good thing.—*Journal of the Jamaica Agricultural Society*.

Yerba Mate Tea.—Some of our Consuls in South America refer in their last reports to the virtues ascribed to the tea made from yerba maté, a herb which takes the place to some extent of tea or coffee, and which is derived from the leaves of the *Ilex Paraguariensis*, a tree of from 12ft. to 20ft. in height. Our Consul in Paraguay says this tea is consumed by a large proportion of the populations of Brazil, the Argentine, Uruguay, Chile, and Paraguay. The leaves are gathered every two or three years and dried over a slow fire; they are then pounded in mortars in the ground, and finally packed in fresh skins and dried in the sun. The tea is made by pouring boiling water on the leaves, which serve for several infusions. The taste is bitter, but not unpleasant, and the effects are asserted to be invigorating. It is said that it would be valuable as a restorative to troops on the march and on active service, and the French Goverment have ordered a shipment of maté for the colonial troops, and some samples have also been sent to Germany for experimental purposes. An attempt is also being made to introduce it into the United States as a suitable beverage for the working classes. When analysed the tea is shown to contain caffeine and cafetannic acid in important proportions. The Consul-General at Rio also refers to the subject as one of commercial interest. It is claimed, he says, on behalf of the tea that it possesses superior stomachic properties to tea and coffee, in that, while it is refreshing and invigorating and favourable alike to mental and physical exertion, it does not disturb the nervous system. But even Brazilians are not agreed as to its merits, some alleging that by its aid the most arduous work can be done, such as forced marches of troops on short rations; others asserting that in war coffee has proved much more sustaining. However this may be, it is largely consumed in South American countries when the prices of low grade China teas are too high to admit of their shipment to South America, and it is therefore possible that it has some good qualities to recommend it.—London *Times*, Aug. 9.

THE FEDERATED MALAY STATES: PROGRESS IN EXPORTS AND PLANTING:—COFFEE, SUGAR, GUTTA, RUBBER, &c.

The Resident-General, Sir Frank Athelstane Swettenham, K.C.M.G., has good reason to be proud of the continued progress and marked prosperity of the group of Malay States entrusted to his care. He has profited by observing the course of administration in India and Ceylon and taken care to avoid, as far as possible, acknowledged blunders, and to adopt any feasible improvements on the older systems of administration. The result is to make the "Federated Malay States" an object lesson to colonial administrators in the tropics, of the most interesting and useful character; and we now look forward to Sir Frank Swettenham's Administration Report from year to year, as sure to bring before us a record of good and progressive work and to contain much matter of special interest to all intelligent observers. The latest Report now before us is no exception to the rule. The revenue for 1898 (9,364,467 dollars) was the highest up to that year; but the return for 1899 is no less than 13,486,410 dollars—an increase of nearly 50 per cent! The total value of imports into the Federated States during 1899 was $33,765,073 against $27,116,446 in the previous year. The exports were valued at $54,895,139 against $35,241,003 in 1898. The *increased* value of trade was therefore $26,302,763. The tin exported was valued at $46,139,399, and beyond this, the local products exported were, Malay coffee, $530,232; sugar, $1,283,165 (nearly all from Perak); and gĕtah, $289,009, of which more than half was from Pahang. Of the four Federated States (Perak, Selangor, Negri Sembilan and Pahang) the first contributes nearly half the revenue, Selangor coming a good second; while the other two do not make together 1½ million of dollars. The surplus of revenue over expenditure last year was very nearly 2 million dollars! But the Resident-General is all for progress and writes:—

I have suggested the raising of a further loan of £500,000 and the construction, at a cost of about one million sterling, of a section of about 175 miles of railway from Seremban in Negri Sembilan (the terminus of the sanctioned extensions) to Johore Bharu, whence a short crossing by ferry-steamer and the Singapore Railway would take passengers from Penang right down the Malay Peninsula to Singapore. The growing prosperity of these States, our financial position, the present price of tin and the approaching completion of the Railway construction now in hand, make the moment peculiarly favourable for an undertaking which has so much to recommend it, and would confer such manifest advantages on the Malay State of Johore and the Colony of the Straits Settlements.

Here is what the Railways have done in 1899:

The Malay open lines of Railway gave a revenue of $1,722,474 in 1899 against $1,394,720 received in the previous year. Comparatively few miles of new line were opened for traffic, but work was advanced all along the extensions. The results would have been better had it been possible to get even a fair force of labour on to the work. With tin at its present price, and immigration almost at a standstill, it is impossible to get labour for public works or planting at anything like a reasonable price.

It is very strange how development is checked by want of labour, and how difficult it seems to get the want supplied even from famine-stricken India. India and Chinese labourers are both so scarce or so much in demand that wages have doubled in a few years and even treble the old rates have to be paid. The Resident-General and his Government are, however, taking energetic measures to overcome this obstacle.—Here is an interesting paragraph on a vexed question:—

As is natural in a new country—that is, new to the rest of the world and modern methods of government—the year has been fruitful in legislation. There is no need to enumerate the Enactments passed, but we are on the eve of laying before the various State Councils some very important measures which have been under consideration for years. I allude to the Civil and Criminal Procedure Codes and the Courts Enactment. All these will probably be law before this report reaches the Secretary of State, and when brought into force, the present jury system will be abolished in favour of trial by a judge and assessors. If trial by jury is a suitable tribunal for such a mixed community as is found in these States, we are not yet ready for it, because we cannot supply the intelligent English-speaking and English-understanding jury on which its success must depend.

The working of the amended system in the States will be watched very critically we may be sure. As regards "planting," here is Sir F. Swettenham's deliverance—labour again being the trouble:—

Many Europeans have wisely planted rubber, coconuts and other products likely to do well should coffee fall to a price which would not admit of profitable cultivation. In the Negri Sembilan some of the planters have carried out the project for establishing the Coffee Curing Store to which I alluded last year. In other ways the Government is trying to second the exertions of a class whose efforts deserve encouragement. The export duty on coffee was suspended while the price fell below $19 a pikul, and steps are now being taken to establish an experimental plantation under the supervision of a thoroughly qualified Superintendent whose advice and experiments will, it is hoped, prove of great service to planters. The great difficulty is labour, and while the Government has, for the last two years been trying, not without some little success to foster immigration from India, a special appeal will be made to the Indian Government in the hope of obtaining its co-operation in our efforts to transfer some of the surplus population of that country to the Malay States.

Finally, we must close this very cursory and imperfect review of an able Report, by referring to a paragraph which at this period of "wars and rumours of wars" is of exceptional importance:—

The Regiment of Malay States Guides continues in a state of high efficiency. A large number of satisfactory recruits offered themselves for service and there was no difficulty in keeping up our full strength with men of the standard hitherto insisted upon. The Regiment maintained its reputation for good shooting and great attention was given to this part of the training. Three hundred men were offered to Her

Majesty's Government for service in South Africa but they were not required. They are ready for service there or elsewhere and when called upon will give a good account of themselves.

A regiment of Malays could not fail to be of great use, in China or even in India, should the necessity arise for its transfer; for, no people have a higher reputation than the Malays for courage and persistency as soldiers when well led.

GUTTA-PERCHA.

It is one of the strangest facts in the evolutional history of man that the discovery of the insulating qualities of gutta-percha should have been so nearly coincident with the demand for such a material, when ocean telegraphy became a pressing need. India-rubber, a similar gum in many ways, forms no reliable substitute, especially because it has been found to deteriorate in sea-water, while gutta-percha not only improves under the enormous pressure of the deep-sea waters, but appears to be absolutely imperishable: a material, indeed, of essential consideration when the cost of an ocean-cable may possibly exceed a million of money. India-rubber, too, presents many technical difficulties in its application; pure it is useless, and vulcanised the sulphur comes in as an uncertain agent. Hence, it is very doubtful, if gutta-percha had not "turned up," that ocean telegraphy would even now been practically useful. Here at once we appreciate what a debt we owe to the poking and prying investigator who saw this gum, tried it, and utilised it in other ways, and thus paved the road to the discovery of its insulating capabilities, of which he certainly never dreamt, being an untutored and unknown native Malay.

In 1843 one Jose d'Almeida, a Portuguese engineer, first sent over specimens of native-manufactured whips, knives, hats, &c., to the Royal Asiatic Society. A little later Dr. Montgomerie, a surgeon in the service of the East India Company, noted the peculiar faculty it has of softening in hot-water, and subsequent hardening in the shape then given; the idea of surgical splints was thus suggested to him. But it was not, according to some authorities, until 1848 when Prof. Faraday took the substance in hand that its higher destiny began to dawn upon the world, though it is claimed on behalf of Dr. Werner Siemens that he had suggested it as an insulating medium in 1846 to the Prussian Government. In any case it eventually proved to be precisely what was wanted, and curiously enough, though it is now approaching half a century since it began to be used, and the comparative scarcity and difficulty of supply has stimulated research in all directions for a substitute, it still remains master of the situation, since it only requires to be cleansed and purified to be available for the purpose in view. The gum is yielded by several trees of kindred species, but chiefly from Isonandra Gutta, now mainly met with in Borneo, though first recognised in Singapore. Like all native products found to be marketable in savage countries, the utmost improvidence prevailed in its collection, the trees being ruthlessly cut down and drained of their sap; and as it takes twenty-five years for a tree to attain a size capable of yielding an appreciable supply it is easy to see that even primeval forests, dotted only as they are with trees of the right description, are sure soon to be entirely depleted. In 1881 alone, the export justified the belief that no fewer than 5,000,000 trees were felled in Borneo, and as these are hewn down in the midst of younger ones without any consideration for the latter, it has been estimated that five times as many were destroyed.

Although few people can grasp the idea of the enormous number of trees which go to form widespread forests, the expert will gather from these figures that the waste is frightful, and would mean in time practical annihilation if it were permitted to continue. Fortunately, as in the case of the Cinchona trees which yield quinine, so soon as the value of these native products is established, and a constant demand begins to threaten extermination, the botani lends his aid, first, by determining exactly the specie best fitted to yield the supply; secondly, by inducing its cultivation in other parts of the world which his study leads him to think are congenial. The practical collector, too, replaces the savage, and finds that a partial draught from time to time upon the tree's resources can well be borne, so that the "goose with the goden eggs" is kept alive, and becomes a perennial source of profit. The Dutch have introduced the gutta-percha plants at Buitenzorg, and the French into Cochin China; and thus, with a judicious check upon the extirpating native methods in the original forests of Borneo, Sumatra, and elsewhere, it is to be hoped that an adequate supply will be maintained and that we shall not find our transoceanic nervous system paralysed some day for the want of its proper integuments.—*Chas. T. Druery, F.L.S. V.M.H.* —*Gardeners' Chronicle.*

RAISING ORANGE-TREES FROM PIPS.

Mr. W. H. Hand, of Mount Pleasant, Penrith, asks for information as to the best method of raising orange-trees from pips. His idea is to establish a little nursery in connection with his citrus orchard from which to supply young trees to replace those that die off from *mal di goma* or any other cause.

The Fruit Expert, Mr. W. J. Allen, says:—The pips for growing orange stocks should be taken from seedling oranges, as they make the best and most vigorous trees. The pips may be allowed to remain in the oranges until the warm weather in spring, when they are taken out and planted in a bed prepared as follows:—If the land is not a nice sandy loam, cart in several loads of sand and mix it with the soil, to which add, if procurable, one bag of well-rotted sheep manure to every bed 4 feet wide by 8 feet long. Great care should be taken to get the manure, soil, and sand thoroughly mixed.

Plant the pips about 3 inches apart to a depth of three-quarters of an inch, after which mulch the top of the beds with well-rotted, dry, fine manure scattered over the top to a depth of a quarter of an inch. This should be watered with a fine rose-pot every other day unless the weather be very dry and hot, when it should receive a good sprinkling every day. The beds should be protected from the sun by using frames raised from 12 to 18 inches above the bed, and covered with hessian or light brush fastened to them, so that the beds are sheltered from the driest rays of the sun, which would possibly burn off the young plants as they show above ground. As the seedlings grow, the covers can gradually be discarded, until at length the plants are robust enough to require no further shelter. The latter part of September is a good time to plant the pips. —*Agricultural Gazette* of New South Wales.

PREPARING VIRGIN LAND FOR FRUIT-TREES.

A Correspondent at Lindfield, who is about to plant out a few trees for domestic use, asks:—

1. How deep has the virgin ground to be broken up?

2. How long before you plant should it be prepared?

3. What manure (if any) should be given to each tree?

The Fruit Expert. Mr. W. J. Allen, reports:—(1) Wherever it is possible, it is always best to break the ground to a depth of at least 15 inches —that is, loosening the subsoil, but not bringing it to the top. (2) It is always well to prepare the ground a few months before the planting season, so that it may have an opportunity of sweetening. This however, is not absolutely necessary, but is always advisable. When this

cannot be done, the desired result may be achieved by applying lime at the rate of 1 ton per acre. This dressing is essential for nearly all the land about Lindfield. The lime loosens and sweetens the soil, and the trees will thrive from the start. (3) If horse or sheep manure is obtainable, it would be well to give each tree about four shovelfuls of sheep, or double that quantity of horse, manure. This should be worked into the ground about a foot away from the young tree after it has been planted, but should not on any account be allowed to come into direct contact with the roots, otherwise it might kill the tree. The best plan, unless there are facilities for thoroughly watering the tree from time to time, would be to put any manure on the surface. The rain will wash the good of manure into the ground for the benefit of the tree, and the remainder will serve as a mulch. It will probably be necessary to have the area devoted to fruit-trees drained. If the sub-soil is sticky, and does not readily crumble when exposed to the air for a few days, draining will be essential.—*Agricultural Gazette* of New South Wales.

INDIA-RUBBER IN BOLIVIA.

(*By Manuel Vicente Ballivian.*)

The producing regions may be classified naturally according to the points from which the rubber is exported.

First Region.—Because of its importance, the region of acre occupies the first place, and in order to obtain the figures of total production shown in the general table for the republic (No. 1), we have been obliged to recur to private, but trustworthy, sources of information, such as Mr. Charles Satchell, ex-commissioner of national boundaries in the fixation of the boundary between our frontier and Brazil, in company with the chief of the Bolivian commission, Gen. Jose Manuel Pando. The quantity of 2,000 metric tons [4,409,200 pounds] annually is in complete accord with previous data communicated to us by the second of the gentlemen just named. A few days ago we read with much pleasure the report presented to the secretary general of the government, by our ex-minister in Brazil and ex-national delegate in Acre and Purus, Mr. Jose Paravicini, a document in which much information is given with reference to this important region. It is shown here that the population of this zone is practically 10,000; the number of *barracas** 100; and that the rate of taxation fixed on the export of India-rubber is 20 per cent. *ad valorem*, on an average price of 10,000 reis, or 5 bolivianos, on each kilogram. This being true, the revenue would amount to 2,000,000 bolivianos.† Owing to the rebellion in Acre, we are obliged to give, in the above-mentioned table, the tax prescribed by law, namely, 16 centavos and 12 centavos respectively, for fine gum and *sernamby* [coarse].

Acre is the official port for the exports of this region, which include a part of the rubber gathered on the upper Tahuamanu, and it is situated 4½ miles from the boundary line marked by the Bolivian-Brazilian commission. This line, however, has been disputed by engineer Cunha Gomez, but even if the present boundary should not prove exact, the one proposed by him is drawn at only 1,600 meters distant, so that this port remains in territory unquestionably Bolivian.

Second Region.—This is comprised in the zone watered by the rivers Madidi, Alto Beni, Bajo Beni, Orton, Manuripi, Tahuaman, and other lesser streams—all being rich in *seringales*. This region includes the territory known as the national delegations of Madre de Dios, Acre, and Purus, excepting that part which finds a natural and more convenient outlet in the Acre river. The export port of the second zone is Villa Bella, at which is situated a national custom house. This town is situated on the high land at the confluence of the Beni and Mamore rivers. The production indicated in the general table has been furnished to us from the official documents of the custom house mentioned.

Third Region.—This zone comprises the forests which produce rubber in the department of La Paz, or, the cantons of Challana, Songo, Mapiri, Huanay, Goroico, and a part of the province of Campolican. The outlets for this region are Puerto Perez on Lake Titicaca, and Punto and Mollendo in Peru.

Fourth Region.—The fourth region is situated in the north and east of the department of Santa Cruz de la Sierra, formed by the province of Velasco, bordering on the Brazilian state of Matto Grosso. It is in this region that the rubber is gathered along the Paragua and Verde rivers, at the most remote points, and where labor is hardest to obtain, and this is the reason for the difference in duties imposed, they being 12 and 6 centavos, respectively for fine gum and *sernamby*.*

The province of Cochabamba possesses the rubber tree in the Yuracares region; and, judging from the important discoveries recently made there, followed by petitions for concessions of *estradas*, it is probable that this region will become no less in importance as a rubber region than La Paz, for the conditions of soil and climate are identical. With public peace assured, and legislation which consults the best conditions for fostering this industry, we do not doubt that Bolivia will become one of the principal regions for the production of this important article of commerce.

La Paz, November, 1899.

The rubber movement from Bolivia will be facilitated by another steamer which has been placed on Lake Titicaca, which serves as a channel of transportation between Bolivia and Peru. The new steamer "Coya," of 550 tons, was built at Dumbarton, Scotland, and transported to Mollendo, on the Pacific coast, whence it exported the grade of rubber known as "Mollendo." It was carried from the coast in twenty-two cars up the railway, along the steep slopes of the Andes, the lake side. Then it was put together, and the boilers and engines installed. The distance traversed by the steamer is 100 miles, the journey occupying about ten hours.

EXPORTS OF RUBBER FROM BOLIVIA IN 1898.

Customs.	Fine.	Sernamby.	Caucho.	Total.
Acre ...kilos	2,000,000	..	...	2,000,000
Villa Bella ..	757,444	105,818	1,989	865,246
Puerto Perez...	256,542	...	...	256,542
Puerto Suarez	27,556	1,611	...	29,167
Total ...	3,041,542	107,424	1,989	3,150,955
	$	$	$	$
Total value	13,223,[illegible]96·00	326,944·12	6,053,·00	13,556,593·12

[The values are given in Bolivian silver currency.]

(*Continued on next page.*)

* Barraca is a kind of shanty erected for the shelter of the laborers.—Translator.

† The *Boliviano*, divided into 100 *centavos*, on April 1st, 1900, was worth 43·6 cents. United States currency.—The Editor.

* The Bureau of American Republics, under recent date, reported that the Bolivian export duties on India-rubber had been modified by a presidential decree. Henceforth an *ad valorem* duty of 8 per cent. will be charged on all rubber exported, except that from the Acre district, on which 15 per cent. will be charged. The former taxes of 10 and 16 centavos per kilogram, according to quality represented in 1896 an *ad valorem* duty of 7 per cent. on fine rubber and 6·57 per cent. on *sernamby*, or coarse.—The Editor.

EXPORTS FROM PUERTO PEREZ (VIA MOLLENDO) SINCE 1893.

1893 ..	13,051 kilos	1896 ...	133,865 kilos
1894 ...	37,994 do	1897 ...	180,689 do
1895 ..	63,518 do	1898 ..	256,544 do

January-June, 1899 ... 113,504 kilos.

—*India Rubber World*, August 1st.

CACAO CULTIVATION FOR INDIA.

To the Right Honourable the Secretary of State for India, Whitehall, dated Grass Mount, Forest Hill, S.E., 4th May, 1900.

"My Lord, I have the honour to submit for your Lordship's consideration the following remarks relative to the practicability of cultivating Cacao (Theobroma Cacao) in India under conditions peculiarly favourable for adoption in that country. Thus I venture to submit this proposal in view of the desire of the Government of India to develop the agricultural industries of that country, Your Lordship having recently stated in the House of Commons (*vide* the *Times*, April 4th) that the Government would do everything they could to try to vary and diversify the occupations of the Indian people."

From a report of mine on the Agricultural Products of Tolima, Colombia, issued as a Parliamentary paper by the Foreign Office, (1895) No. 370, I extract the following relative to this cultivation:—"In the South of Tolima, it is interesting to note, this cultivation is pursued on a considerable scale with great success, under the influence of irrigation. The region in question is characterised by prolonged droughts, and the application of irrigation has thus proved most advantageous. Cacao thus produced has become quite an important industry. Planters in British Colonies will be glad to learn that the plant is amenable to systematic irrigation, a condition that assures the extensive cultivation of the plant in comparatively dry regions, for excessively humid conditions of climate have been deemed indispensably requisite for the plant." Some plantations in Tolima are not irrigated, but those that are irrigated, far surpass in productiveness than the others.

The cacao planters of Tolima, who grow for and transport to Bogota and surrounding country thousands of mule loads of this article annually, have been forced by circumstances to adopt irrigation in consequence of the greatly reduced rainfall experienced during many years owing to the wholesale destruction of the forest in the district for the wide extension of pastoral husbandry. In this connection I again quote from my aforesaid Report:—"The thousands of square miles of natural pasturage on the plains and lower hills of Tolima assume during the rainy season the mossy beautiful verdure. But in the alternate season of drought the general aspect is that of a desert."

Besides being well acquainted with this culture in Tolima I have traversed hundreds of square miles of forest in another province of Colombia far distant from Tolima, throughout which I found cacao growing wild. In Colombia, under cultivation cacao flourishes from the hottest plains up to 4,000 feet above the level of the sea, hence its adaptability to a considerable range of latitude—*i.e.*, the great zone within the 25th parallels of latitude—this in the New World. Doubtless in the Old World the range would be somewhat more limited.

Plantations of cacao, in countries wherein it is largely cultivated in the ordinary way, are established under the shade of lofty trees which are planted in order to afford the requisite shade to screen the plantations from the scorching rays of the sun.

Cacao cultivation under the alternative method herein propounded, that is the irrigation method, is most beneficially influenced by this necessary condition of shade, inasmuch as a considerable amount of moisture by evaporation from the humid earth is diffused amidst the trees consequent upon the double umbrageous canopy of foliage over the land. Large plantations are thus benefitted more than small ones. Thick belts of forest trees surrounding the plantations contribute to the desired condition of humidity, as well as protecting the cacao plants from the injurious effects of strong prevailing winds.

A communication read to the Agricultural and Horticultural Society of India in 1883 states: "There is another product to which attention might be directed with advantage, namely cacao. All attempts to raise the *Theobroma Cacao* in Bengal appear to have failed: the tree attains a certain age and then dies. But there are other parts of India where the climate might be found suitable to its production."

It may not be amiss to add in this connexion, by way of indicating the facility with which cacao plants are introduced to other countries, that I introduced in 1673, under instructions from the Governor of Jamaica, Sir John Peter Grant, all the best Trinidad varieties, having visited that island for the purpose to Jamaica, where they have flourished, and where their cultivation is now carried on on a large scale. I also introduced to Colombia some of these varieties both from Trinidad and Jamaica, and this too very successfully. Furthermore, during recent years, cacao has become an important product of Ceylon.—I have, etc., (Sigd.) Robert Thomson.

A NEW METHOD OF EXTRACTING RUBBER.

(SPECIALLY TRANSLATED FOR "INDIAN GARDENING.")

In the issue of the *Revue des Cultures Coloniales*, dated 5th February, to hand by last mail, the editor writes:—"A new way of extracting caoutchouc destined to transform the methods of gathering, of cultivation and preparation, has been frequently talked of in the press of late. We have asked M. Godefroy-Lebeuf, the well known colonial horticulturist, who is associated with that discovery, to be kind enough to explain its origin and consequences. The following is the letter which he has addressed to us upon the subject:—

To Monsieur Milhe-Poutingon, Editor of the *Revue des Cultures Coloniales*.—You have asked me for information on the extraction of caoutchouc from bark. You have an absolute right to do so, for it is, thanks to you, that I have been able to obtain, through the intervention of M. Le Cesne, the first elements of our researches. I say "our" for as soon as I was in possession of samples, I communicated them to all who interested themselves in the question. At first I anticipated that the solution of the problem would be effected by the employment of chemical processes, and naturally I engaged my searchers in following that view. We were far from suspecting that the method of extraction was very much more simple than we had foreseen. By means of the distribution of samples a scrap of bark fell, by the help of M. Wehry, into the hands of M. M. A. and V.. of the Museum. While these gentlemen were triturating the mass they found that the pounding eliminated easily a great proportion of impurities; they pushed their researches deeper, obtained a little mass of gum mixed with bark, ascertained that the gum gathered itself together, and that the particles of caoutchouc agglomerated they continued the mechanical action and obtained at last caoutchouc sensibly more fit for use than the average of the gums which we receive from Africa.

"These gentlemen wished to associate us in their discovery, and it is thus that the Arnaud Godefroy-Lebeuf, Verneuil and Whery patents were taken out.

"Our process is remarkable in the sense that it permits the extraction of cautchouc from the smallest scraps of wood, twigs and bark which contain it.

"In spite of the rough instruments, which I use, whenever you wish it I engage to extract from plants of less than six months, nay of less than three months from sowing, an appreciable quantity of caoutchouc and appreciable to such a point that I ask myself if the annual culture of caoutchouc plants will not be industrially possible. The bark must have been dried as a necessary preliminary ; with green or fresh material I could not affirm anything.

"Note that our processes are based upon the *Landolphias* and *Hancornias*, I believe without having experimented, that they may be applied to the *Ficus*, *Willoughbeia*, *Urceola*, *Parameria*, *Mascarenhasia Cryptostegia*, and to all plants which contain fibres of caoutchouc in the dry state.

"And now, here is what we base our process upon. The caoutchouc coagulates in the tissues of the plants in proportion as they dry, in such a way that a parcel of bark and roots is nothing but a parcel of very impure caoutchouc. It is a question of eliminating the impurities.

"Take a scrap of bark of Thol, *Landolphia Hendeloti*, dry it. When dry, take a mortar and pound the bark for a minute. This done pass the whole through a fine sieve. You remove 10 per cent. of dust, rub in your hands the broken scrap, there will come out more dust. Repeat the operation five or six times and you will obtain a "malga" composed of fibres of caoutchouc mixed with particles of bark.

"When you have pounded it enough you place the 'malga' in hot water, boiling in the strictest sense, but only during a few minutes and you pass the whole through a sieve, which will allow the particles of bark to pass with the water so saturated with tannin that this product alone, perhaps, will pay the expenses of extraction.

"You again pound the little mass which remains in the sieve; the splashes resulting from the action of the pestle fix themselves on the sides of the mortar and may be removed by washing ; after some operation you obtain a mass of caoutchouc still impure, but of which the impurities do not reach 10 per cent. of the weight of the gum. With a little patience one finishes by getting rid of all. In order to refine the gum we pass it between cylinders abundantly moistened and we obtain perfect caoutchouc. This is a laboratory experiment which I will make under the eyes of your readers if they ask it of me; the treatment by the ton per day necessitates apparatus which we shall see produced shortly.

"The *Landolphia Hendelotii* give easily 6, 7, 10, 15 per cent. of their weight dry (bark); I take but 7 per cent. as an average. In this way 10,000 kilos of bark would give 700 kilos of caoutchouc. I estimate the price of bark at 100 francs per ton on the spot, the expenses of extraction at 70 francs per 70 kilos ; we obtain then 70 kilos for 170 francs. Our process is applicable everywhere, it requires but primitive appliances for small operations and if one does not wish to push the cleansing to the end.

"As for the mode of operating with creepers which grew again when cut, here is the experiment which I invite planters to make.

"Let them divide their concession into 10 equal lots, cut and treat by our process all the creepers which grow in lot No. 1 from the first year, and renew the operation in the following years in the other lots. They will thus have ten cuttings, which will give them such results that they will not hesitate to take care of their creepers and increase them.

"I engage to obtain in a single treatment of the richest creeper ten times more gum than could be obtained by tappings. Note that we do not only treat creepers which are fit for tapping, but the feeblest, since the plants of a few months give already an appreciable part of gum.

"When *Landolphia* is dealt with, the manipulation is hard enough, the fibrous bark not breaking without protest ; but with *Hancornia speciosa*, it is easy. That bark does not contain more than 5 or 6 per cent. of caoutchouc ; that at least, is what I have obtained by primitive process ; but the bark is very friable reducing to powder almost instantly under the pestle. The gum disengages with very small effort.

"I cannot find a better comparison as regards the process than with the extraction of gold from quartz. Gold exists in all parts in the quartz as caoutchouc exists in the dry plant where it is coagulated. Break the quartz, break the bark, eliminate and separate the gold and the caoutchouc ; there, in two words, is all the operation."—*Indian Gardening.*

PRODUCE AND PLANTING.

The Tea Trade of Russia.—Through the Foreign Office, the Board of Trade have received a copy of a despatch from the British Commercial Agent at St. Petersburg, in reference to tea. It states that the consumption of Ceylon teas is increasing in Russia. Much tea comes to Odessa, though mostly in transit to Moscow, where it pays duty. Some 7 500,000 funts (1 funt equals $14\frac{1}{2}$ oz) of tea were cleared at Odessa last year, much more than in 1898, thus showing that Odessa is gradually becoming a big tea market at the expense of Moscow, which hitherto monopolised all the tea trade of Russia. Moscow, as the great tea distributing centre of Russia, is much concerned by present events in China. According to local papers, big tea firms are buying up all supplies possible. Large quantities of black tea are en route, partly by the Volunteer Fleet steamers, "Kherson" and "Yaroslav" the former from Colombo, the latter from Singapore. Private telegrams say the stocking of reserves at Hangkow is impossible, as also the Kiakhta route while two companies decline insuring. Large stocks have been brought up, but without facilities as yet for shipment. The St Petersburg dealers, it is said, have met together to consider the advisability of raising prices for retail sale, and rumours say they are inviting the co-operation of Moscow firms. Hankow and Foochow, especially the former, are the chief markets for Russia's purchase of tea Of 1,511,000 poods of Bohea imported into Russia in 1898 over 1,000,000 came via Odessa. The remainder, as also almost all brick and cake tea, for the preparation of which Russian firms have constructed special establishments at Hankow, Kiau-Chang, and Foochow, came overland via Irkutsk. 1,106,000 poods of brick tea and 34,200 of cake tea were imported by this route in 1898. The present disturbances affect the most important point of the tea transport routes to Russia. According to the *Commercial and Industrial Gazette* of St. Petersburg the amount of tea exported from China to Russia in 1899 was in piculs (1 picul equals 133 lb) as follows:

	Black.	Green.	Brick, &c.	Total
Via Odessa ..	189,751	5.698	—	195,449
Via Kiakha ..	197,143	—	340,628	537,771
To Russian Manchuria ..	29,357	29,030	78,266	133,653

The Effect of Cheap Tea.—Tea growers have considered that their lot, when compared with the distributor, is not exactly a happy one, and they have looked with envy upon the profits of the large tea dealing firms. But these latter have their ups and downs. At a recent meeting of the National Tea Union, which has not had a successful year, and consequently could not pay a dividend on its ordinary shares, Mr. A. J. Slaney, the managing director, in the course of his speech on the directors' report, said : "The last three years, including the one just closed to June 30th, have been trying years for the tea trade in particular. With the exception of a few concerns, whose efforts have been mainly directed towards the exploitation of their proprietary lines without the slightest thought or care for the interests of the retailer, I do not think many wholesale firms in our trade have done really well. That which affects us so much is the extraordinary craze for cheapness, and English ladies seem nearly all tarred with the same brush, delighting to boast what beautiful tea they buy at 1s 2d, 1s 4d, and 1s 6d per lb retail. Well, with a sixpenny duty to come off, carriage, manipulation, packing, &c., the margin is very small indeed when a really good article is supplied,

The worst feature has been the increasing tendency of prices downwards, with just this plain fact that we have at times more work for a less turnover, with of course diminished margins becoming beautifully less, until in many cases they almost entirely disappear. The public are certainly getting the best of it, for neither the grocers' nor the wholesalers' profits on tea are what they were some years ago. Naturally we expect to do a shade better out of medium and fine goods, but with dwindling proportions of this kind the position becomes more difficult from a profit-making point of view. To show how fine our trade is cut I may state that a single eighth of a penny more per lb all round would go a long way towards paying a handsome dividend on our shares. As an example take the teas we are selling today at 1s, 1s 1d, and 1s 2d, duty and carriage paid. It often happens that there is barely a half-penny per pound between the cost at the docks, to which duty has to be added, and the price at which the stuff is sold duty and carriage paid to all parts. When you remember that rent, rates, wages, &c., have to be paid, and when a large and increasing proportion of the output is in stuff on which a gross margin of about ½d per lb. only is obtainable, with a decreasing proportion of such grades as might yield us a gross profit, say, of ¾d to 1d per lb, you may realise why our margin for division today is so much smaller than hitherto,"

VENEZUELAN COCOA.—The British Consul at Caracas states that as the prices of cocoa are at present very good it has caused agriculturists to continue extending their plantations, and it is thought that in a short time cocoa will take an equal place with coffee in importance as an article of export. A proof of this is that, notwithstanding the many drawbacks to agriculture, the amount of cocoa exported in 1899 showed an increase. —*Home & Colonial Mail*, August 17th.

THE TEA PLANTERS OF ASSAM AND THEIR AGRICULTURAL CHEMISTS:

THE GREAT QUESTION:—HOW TO MAKE TEA PAY!

THE *Indian Planters' Gazette*, of August 18th, tells us that,—

Mr. H Mann, B.SC., F.I.C., Agricultural Chemist, who has been appointed Scientific Officer for the tea districts, has made a short preliminary trip to Assam, Cachar, and Sylhet, in order to get some idea of the districts and of his line of work. He is now touring through Darjeeling, the Terai, and the Dooars. As the result of his visit to the tea districts in the Assam Valley, Mr. Mann has suggested to the Calcutta Committee that he should devote attention in the near future to an extended investigation of typical soils from each of the Assam districts, to a study of "Blister Blight," of "Thread Blight," and possibly also of "Red Rust," and to an attempt to discover methods for placing the so-called "fermentation" of a tea under better control.

The study of blights and of soils is of importance and of scientific interest, but what planters and all interested in non-paying gardens want to know is,—How can tea be made to pay? Why cannot tea of good quality be made the season through? It is an established fact that at certain periods teas of excellent quality are manufactured, which, do what we will, we cannot turn out at any other times during the season. Why is this? There must be some reason for this phenomenon. What we want to know is how to make good quality teas, the season through from start to finish. A knowledge of the life history, etc., of blights will not help us. A study of the chemical process of oxidation, or so-called fermentation, would lead to more valuable information in the direction indicated. If Mr. Mann will discover the reasons for our not uniformly obtaining the, so much to be desired and coveted, bright, new copper colour to our rolled leaf, he will indeed have performed a signal service to planters. We want to know to what this colour is due, and how we can always obtain it throughout the season. Tea with infused leaf of this colour is bound to be *good*. Why cannot we always obtain it? There must be reasons,—what are they?

REMOTENESS OF THE RUBBER COUNTRY.

Writing of a trip up the Amazon, by steamer, to Manaos, Frank Leslie Rockwood, in the Lewiston (Me.) *Journal*, mentions meeting another steamer which "had been away from Para for one year, up one of these unexplored rivers, and had not been heard from. There were rumors that the Indians had got her, but here she was, loaded with rubber, and full of wild, half naked passengers, just returning from a successful trip. They could tell experiences that would seem improbable in the present day, but this great Amazon river and its branches will not be explored for fifty years yet, as some fighting has to be done to see it all." It is not strange, in view of the assertions made by this correspondent, that the English shareholders in Amazon shipping lines do not get larger dividends. He mentions a profitable local trade along the river, all the profits of which are pocketed by the officers of the steamers, "who get rich out of it." It is such conditions as are here suggested that have the most important bearing upon making rubber an expensive commodity.—The *India Rubber World*, August 1st.

PLANTING NOTES.

A CAMPHOR TIP.—The *Evening News* is advising its readers who are putting away their clothes to buy what camphor they need at once, as events in the Far East are likely to lead to much higher prices. The information, however, is a trifle late, and is only another instance of where the *irresponsible adviser* shows his incorrect knowledge.

PROTECTING YOUNG TREES.—To protect young trees from ants and borers it is recommended to wrap the tumps with tarred paper. Dig away the earth so that the tarred paper may be put well below the surface. Fold the paper about the trunk and tie tightly round the middle and bottom. This prevents the entrance of insects to lay eggs under the bark. When the paper is in place put back the earth above it, and tie the top of the paper closely to the tree.—*Journal of the Jamaica Agricultural Society.*

THE VALUE OF NUTS.—It is said that the Nut trees of the world alone could, if necessity arose, provide food all the year round for a total population three times greater than the present. It has been pointed out to the Washington Department of Agriculture that Brazil Nuts around Para grow in such profusion that thousands of tons of them are wasted every year; with Coconuts it is the same in many centres.—*Journal of Horticulture*, August 16th.

COFFEE CROP SITUATION.—The Brazilians have furnished four crops from July 1, 1896, to June 30,1900, averaging 9,200,000 bags, against the four previous crops, averaging 5,000,000 bags. Production for four years has so largely overtaken consumption and the visible and invisible supplies are so heavy everywhere that in order to obtain and secure higher values there must be something in the way of a crop failure, and it is by no means a question of eight or nine or to 10 million bags.—So say Messrs. W H CROSSMAN & BRO, of New York.

COST OF PLANTING RUBBER.

(To the Editor of the *India Rubber World*:) In your issue of July 1, under the heading of "An Experiment in Costa Rica," you state that "nowhere exist to our knowledge, data to justify any particular calculation of the cost of planting and bringing to a productive age rubber trees. It might be more or less than $40 per acre." I will give you figures from actual experience. Planting trees fifteen feet apart each way or 196 to the acre, the cost of planting would be per acre:

	$
Underbrushing land	2
Thinning out timber	4
Transplanting	2
Costs of plants from nursery	1
Total	9

To bring the trees to a productive age, viz. eight years old, all that will be required is to keep out the undergrowth. To this, I think, all who understand anything of the nature of the growth of rubber will agree. This cleaning will not be as much work as the first underbrushing, as the growth will not be as heavy at first. But, allowing it to cost the same as the first underbrushing, or $2 per acre, there will be one cleaning the first year, six months after planting; and after that two cleanings a year for four years, then one cleaning per year for two years, a total of seven years, bringing the trees to their eighth year, when there will be a product of one to three pounds of rubber per tree, from which expenses can be paid.

The total cost cost of planting and bringing trees to production is, per acre:

	$
Planting	2
First year, one cleaning	2
Second year, two cleanings	4
Third year, two cleanings	4
Fourth year, two cleanings	4
Fifth year, two cleanings	4
Sixth year, one cleaning	2
Seventh year, one cleaning	2
Total for planting and bringing to production	31

My reason for cleaning but once the sixth and seventh years is, that the trees are so large that the light undergrowth will have no effect, if the cleaning is done once a year. Believing that this will be of value to you with reference to the cost of producing rubber, I remain, yours very truly,

ASSISTANT MANAGER, The Indiana Rubber Co.

Goshen, Ind., 21st July, 1900.

A BISHOP ON DIGGING.—After distributing the prizes to the successful scholars of the Hampton Grammar School on Wednesday, the Bishop of London said he always thought it would be a good thing that every boy should have some definite manual work. He was not sure that digging would not be a good thing—digging hard for one hour. Our first parents had to perform that very primitive pursuit. It was one that had to be done in the primary tussle with Nature, in which, after all, we were engaged, and which civilisation had produced. Everyone ought to know what hard manual labour meant, and he should be glad to see its application take a place side by side with the more highly developed curriculum of which we were so proud.—*Journal of Horticulture*, August 16th.

ST. HELIER'S TEA COMPANY, LIMITED.

The eighth annual ordinary general meeting of the shareholders of the St. Helier's Tea Company, Limited, was held today in the office of Messrs. Bois Bros. & Company, agents and secretaries, when the following report by the directors was submitted:—

ACREAGE.

250 acres in bearing.		
29 do	planted in 1896.	
34 do	do	1898.
313 acres.		
114 do	Jungle, &c.	
Total 427 acres.		

The Directors have now the pleasure to submit their Eighth Annual Report to the 30th June last, which they trust will be considered fairly satisfactory by the Shareholders.

The crop, which was estimated at 95,000 lb. of made tea to the 30th June, has turned out 108,110 lb., but has realised an average price of 35·29 cents per lb. only, as against 38·69 last year.

The cost of the tea in Colombo, exclusive of the sum of R2,667·53 expended on Capital Account, works out at 24·65 cents per lb., as against 25·56 cents per lb. last season.

The balance at credit of Profit and Loss Account, after writing off the sum of R1,572·64 for depreciation of buildings and machinery, but including the sum of R705·42 brought forward from last year, amounts to R2,784·10: and out of this sum the Directors recommend that a final dividend of 5½ per cent be declared, absorbing R2,750 00, leaving the sum of R34·10 to be carried forward to next year.

Mr. W Sandys Thomas retires from the board by rotation, but being eligible offers himself for re-election.

The Shareholders will have to elect an Auditor for season 1900-01.

There were present: Messrs. W Sandys Thomas (Chairman), Stanley Bois, W Cross Buchanan, (by his attorney, W Sandys Thomas) Percy Bois, H C Buchanan, Miss S J Buchanan and Miss M A Buchanan, (by their attorney (Mr. Stanley Bois).

The report was adopted, and a final dividend of 5½ per cent declared, making eight per cent for the year.

Mr. Sandys Thomas was re-elected Director.

Mr. O T MacDermott was re-elected Auditor.

SOUTH AMERICA when it comes to be systematically opened up by the great capitalists of the world, as will surely happen in this century,—says *Bradstreets'*—and the union of the fluvial systems of the Amazon and the Orinoco, will absorb the attention of the world's best colonists and engineers. A great empire is destined to grow up in that continent, and from the Andes down to the Atlantic and the Caribbean Sea will be witnessed the most tremendous activity. A rich soil, great grazing plains and gold mines of immense resources will be exploited by a new breed of men, the result of an intermingling of the hardiest emigrants from old Europe and North America. South America is a continent that will not be long neglected by the empire-makers of civilisation.

TEA *versus* COCONUTS IN CEYLON.

ERRONEOUS VIEWS CORRECTED; ROOM FOR EXTENSION OF PALM PLANTING.

A correspondent inquires whether we noted an editorial paragraph in the columns of our evening contemporary, a week or two ago, setting up Tea against Coconuts. We had marked the paragraph for comment, but the pressure of other important matters caused us to lose sight of it. After all, what the local "Times" says cannot mislead those who are interested in either product, or in both (as a growing number of planters are); for there is no antagonism between the two. The idea of rivalry in a bad sense is a creature of a disordered imagination—just as was some years ago the attempt to set up Ceylon Tea against Indian Tea, when, really, as British-grown Teas they had a common destiny, namely to oust the China product from its pre-eminence which they have so largely done—though it is equally a morbid imagination which would regard our commercial success as the true origin of the Boxer movement—a *casus belli*, in fact!

Tea and Coconuts are, without doubt, the most important products of the Island; and on them mainly, if not wholly, depends its prosperity. But European and Native alike grow both products, manufacture them, and deal in them; and the success of one in no wise depends on the failure of the other. Where our contemporary of the "Times" got the confused, if not wrong, idea that "some have gone so far as to hint that the various products of the coconut palm were as large in amount as the total value of estate produce," we cannot divine. We presume he means that his "men in buckram" had asserted, or implied, that the total *value* of all palm produce exported was equal to the value of the Tea sent out of the Island; for, of course, one cannot compare the *amount*, or quantity, of one with the value of the other, any more than one is justified in speaking of Coconuts as if they were not estate produce. We have certainly not come across any one who claims equality of value for Coconut and Tea *exports*; and yet our contemporary offers a comparison between the value of the *exports* only of the respective products! We have seen it stated, and we have asserted ourselves over and over again, that one great difference between the two products is this: that, whereas, practically, all the Tea we grow—save at most 1½ per cent—is sent out of the Island and appears in the Export Tables,—only about *one half* of the produce of the Coconut palm (we doubt if so much,) is shipped beyond seas. Even then, however, we are not aware that it has been claimed that the total value of produce of the palm is equal to that of the tea produced in the Island. Apart from other considerations, the latter is valued as a manufactured article, while much of the former is sent away, and most of it is consumed locally, in a raw state. Whether the snuffing-out of Tea or the snuffing-out of Coconuts—may the Fates forfend either blight!—would be the greater calamity to the country and the people, is an academic question which we see no advantage in discussing.

Can it be that our contemporary was thinking of what Governor Ridgeway said when he opened the Legislative Session of 1898, and recalled only a very hazy idea of the comparison then instituted between the chief Island products and the object of the comparison? His Excellency, whether rightly or wrongly, deprecated the pessimistic views then held by some about the position and prospects of Tea; he asserted his own confidence in it; and then compared the condition of trade in 1897 with that of 1877, to show that the Island was far more dependent on Coffee in 1877 than it is now on Tea. When Coffee was at its highest value, was the reasoning, it stood in the Export Tables at 81 per cent of the total value of our exports, while Coconut produce was then valued at less than 4 per cent. The value of Tea exported in 1897 was but 56 per cent; while the products of the Coconut palm had risen to 15½ per cent; and in the interval the total trade had risen from 1,234 to 1,831 lakhs, of which exports represented 611 and 850 lakhs, respectively. The object of the comparison was not to magnify Coconuts at the expense of Tea, but to show that the Island is less dependent for its present and prospective prosperity on one product then, than it was in the days of Coffee—surely an undeniable fact, and a very desirable one at the same time, as it is not only in respect of "eggs" that the concentration of all one's hopes on one object is unwise. It may be mentioned that, although the exports of Tea have increased by 15 million lb. since 1897; yet, owing to the fall in price and the increase of other exports (Plumbago especially), Tea only counts in value for about 52 per cent of the total value of Exports (by the Customs) in 1899; Plumbago counting for 22 per cent; Coconut produce between 14 and 15 per cent; Cinnamon nearly 3; Cacao scarcely 2; Coffee not quite 1½ per cent (what a falling-off for the old king!); Cardamoms and Cinchona together scarcely 1 per cent, and all the rest about 4 per cent.

One other point, however: the Customs valuation of produce is by no means conclusive. It is at best a rough-and-ready estimate; but Coconut products are at a disadvantage in last year's statistics. As we pointed out in a review of the Chamber of Commerce Export Tables soon after their publication in January, there was a falling-off in 1899, as compared with the previous year, in Oil, Copra and Nuts, which represented about 59 million Coconuts or a deficiency in value of about 1¾ million rupees. This was due to the two droughts of last year, which, indeed, told on the crops of this year, as well. But there is evidence of a recovery beginning now; and as we have no present apprehension of over-production in Palm products, we have no hesitation in saying that we welcome the extension and development of the Coconut Industry far more readily than that of Tea,

THE PHYSICAL PROPERTIE OF SOIL.*

The investigation of the physical properties of the soil, its so called mechanical analysis into particles of various grades of fineness, upon which depends to a large extent the amenability of the soil to cultivation and its power of supplying water to crops, has of late years received greater attention than the chemical methods of examining the soil. Whether too much was expected from the chemist, or whether the method itself was essentially at fault, certainly the old way of determining the gross proportion of the principal elements of plant nutrition—nitrogen, potash, phosphoric acid, lime—present in the soil, has often failed to yield information of practical value to the cultivator; hence the German investigators, led by Professor Orth, of Berlin, in analytical matters, and by Professor Wollny, of Vienna, as regards soil physics, have been more and more concentrating their attention on the physical side of the question. The example of the Germans has been followed and extended by the younger school of American investigators in the various agricultural experiment stations that are so liberally scattered over the United States, with the result that the experimental work carried out in the laboratory and in the field on this subject by Hilgard, Osborne, King, Whitney, and others, probably by this time exceeds in amount the whole of the continental work. In England, but little research of the kind has been done, hence the late Sibthorpean Professor has thought it well to prepare—first, for a lecture course at Oxford, and now in book form—a summary of the more important recent investigations, chiefly American, on the physics of the soil, with the view of inducing our younger agricultural teachers to pay a little more attention to questions of cultivation, and a little less to artificial manures. Professor Warrington's book cannot fail to be of service to the serious student of agriculture; it brings together a mass of information that was scattered through scientific periodicals of various dates and countries, whereas hitherto the only place where the English reader could find any general view of the subject was in that excellent little book *The Soil*, published by Professor King, of Wisconsin, in 1895.

Soil physics, with which the book before us deals is briefly the study of the laws of tilth, of the acts of husbandry as affecting the texture and water content of the soil; and as Professor Warington maintains at the outset, this question of tillage and management of the land is of far greater practical importance than manuring. Every farmer or gardener is well aware that one mis-timed cultivation may easily ruin all chance of getting a satisfactory crop; indeed, on some soils a single ill-judged operation may throw the land into a bad state that can never be rectified during the whole rotation, until the land goes down to grass again.

The only question is, whether the soil physicist will be able to provide much more practical assistance to the cultivator than the chemist has in the past, and we think Professor Warrington rather exaggerates in its turn the value of a physical analysis of a soil; in the present state of our knowledge we doubt if more can be predicted from it than information of the most general kind, which any experienced man would gain by merely walking over and handling the land on one or two occasions.

Professor Warington in this connection draws attention to some of Hilgard's examinations of Mississippi soils, and Whitney's of Maryland soils; mechanical analyses are given of land suitable for market garden work, Tobacco, Wheat, and grass, and of these he says: "With these differences in physical constitution, the agricultural value of soils, and their suitability for the growth of different crops plainly connected. We could hardly have a better illustration of the great influence of physical structure and of the extent to which this can be revealed by the methods of mechanical analysis." The example given hardly bears out this opinion, the classification (market-garden land, Tobacco, Wheat, and grassland) is of a very general kind; neither here, nor in any other American work, is there a correlation of the soil analyses with those subtle but real differences in the working of particular soils which the cultivator learns by experience; indeed, we question if the American farmer is sufficiently practised in the finer arts of tillage and management of land to supply the analyst with the information necessary for the interpretation of the experimental results. Such classification as soil analysis gives may be of service to the pioneer opening up new districts, or introducing more specialised crops in what has been a roughly cultivated region; but in a country like ours, where there exists a body of actual experience about the behaviour of almost every individual field, the soil physicist has still to learn from, and not to teach, the cultivator.

Our own experience would tend to show that the problems of soil-texture are too complex to be solved by a consideration alone of the sizes of soil particles. We have found, for example, that soil samples from almost contiguous fields on a well-marked tract of land that possessed special cultural characteristics, yet would vary by more than cent. per cent. in their proportions of sand and clay, although there were no differences in the behaviour of the land to tally with these variations in mechanical composition.

The first chapter of Professor Warington's book is devoted to a consideration of the methods of mechanical analysis. On the whole, he appears to give the preference to the process of grading the soil particles by means of water running at various speeds, which has been brought to the greatest refinement of Hilgard; and Schlœsing's decantation method, which is practised in France and Belgium, is dismissed as crude. But, as Petermann has pointed out in his book on the Analyses of Belgian Soils,* the alkaline solution employed in Schlœsing's method ensures that the material estimated as "clay" shall correspond very fairly in its chemical nature to pure clay, i.e., hydrated silicate of alumina, and with this our experience agrees; whereas the "clay" separated by the other methods is much more largely mixed with sand particles of excessive fineness. Of course, Hilgard's method is of great refinement in grading the particles of sand. It may be questioned, however, if this refinement is not something of a snare, tempting the observer to consider his work more accurate than is possible from the nature of the material; for our observations seem to show that in a country like England, of a markedly undulating surface, that has long been under cultivation, the mechanical composition of the soil varies enormously, even from field to field on the same type of land.

Chapters II. and III. deal with the relation of the soil to water, the movements of water within the soil as affected by cultural operations like ploughing, hoeing, mulching, and rolling—this is the part of the book that will particularly appeal to the gardener, for here he will find explained the principles that underlie much of his practice in the management of the land, and a proper appreciation of these principles cannot but quicken his observation when at work, and his powers of dealing with a novel situation. The discussion is plentifully illustrated by accounts of actual experiments, mostly carried out in America, and very skilfully devised to illuminate the point at issue; while, as he reads, the thoughtful gardener or farmer will be able to supply a running comment from his own experience.

The last chapter of the book deals with the movement of salts in the soil, with the composition of drainage waters, and the loss of plant food that thereby results, and particularly with the sterility arising from the accumulation of saline residues in

* Lectures on some of the Physical Properties of Soil. By Professor R. Warington (Oxford, Clarendon Press, 1900.

* Recherches de Chimie, &c., Appliquees á l'Agriculture (Bruxelles), 1898.

or near the surface, when the percolation of rain-water through the soil is exceeded by evaporation at the surface. Under such conditions the soluble parts of the soil unused by plants. such as the sulphates of soda and magnesia and common salt, may accumulate to such an extent as to form a white incrustation on the surface that renders the land wholly or partially sterile; this occurs, for instance, in the white alkali soils of America, and again in other hot countries where irrigation is carelessly practised without under-drainage. The phenomenon on a small scale is not unknown to gardeners. Plants kept in pots for some time without a change of soil, and watered regularly with spring or well-water, gather up a hurtful excess of saline matter; and we have seen on a greenhouse Rose-border a characteristic saline efflorescence due to "white alkali" from the water used. The remedy is in all cases the same—to wash the salts out of the soil into the subsoil by increasing the amount of percolation through the soil. Professor Warington might have found an interesting illustration of the point in Sir Alfred Milner's book on Egypt, where he shows how the English irrigation engineers found many of the lands had been rendered sterile, because only the old irrigation canals bringing the Nile water to the fields were in use, while the canals at a lower level, which should have returned to the Nile the water that had percolated through the soil, had been allowed to deoay. When, however, the drainage canals were restored, and the lands well drowned to wash out the saline matter that had accumulated by evaporation, the fertility returned.

In conclusion, we have to thank Professor Warington for a very instructive book on a little-known subject, that cannot but be fruitful both of thought and of suggestion to the agrioultural teachers to whom it is commended, and also to the gardener and farmer. We cannot, however, help wishing that the book were something else—it is after all a compilation that might have been drawn up by another man. What the younger generation of agricultural investigators and teachers would have accepted from the Sibthorpian Professor with even fuller gratitude, would have been a little more criticism and suggestion of fruitful lines of research. The energy of the American researchers in accumulating results is not always tempered by wisdom, sometimes the wood cannot be seen for the trees, and instead of a wholesale commendation of their work, we should have preferred an ampler measure of the judgment and long experience of Professor Warington himself. *A. D. H.—The Gardeners' Chronicle.*

MANURES:

Being a Lecture delivered by Mr. A. P. Hanson, (Agricultural Teacher, Jamaica.)

If there be a subject the study of which the Agriculturist can neglect without doing material harm to himself, it is not the study of manures. In an island like ours whose wealth is only in the soil, and whose population is rapidly increasing, the prudent man looks forward to the time when there will be little or no maiden land to be cultivated, and the success of the Agriculturist will depend entirely upon his skill to accumulate and apply manure. Even now our small land owners are crying out. After one or two years' cultivation of a plot of ground they abandon this latter, which with careful tillage and the application of manure, would yield far more than the badly tilled, so called "strong land," and save the planter the money paid as rent. Only to say this, however, will not bring about the desired effect upon our people. They want to know how to come in possession of manure, but this is not far to seek. The scientist if asked, will tell us of special manures such as sulphate of ammonia, nitrate of soda, &c., but they are far beyond the reach of the ordinary planter, nor does he need be anxious about them, for he has always immediately around him many things that can be turned to valuable fertilizers if only properly treated. Let us look for example, at nature's method, which is always exemplary. Here is a luxurious growth of trees and shrubs. Unlike our cultivated plant, these remain on the same plot of ground for years in succession, and, instead of diminishing, acquire increased vigour and luxuriance every season. They never cry out as our cultivated plants seem to do that the soil is poor. The reason for this can be easily explained. Instead of being removed to some remote place, the leaves, flowers, fruits, &c., of the plants of natural growth fall back upon the soil, decay, and return to it the elements of which it was robbed. In this way the fertility of the soil is constantly kept up. On the contrary, when we cultivate our plants we reap not only the crops, but the leaves, stems, and sometimes even the roots of the cultivated plants, in this way the soil is year after year robbed of its fertilizing elements, and in course of time must become impoverished. The planter should remove from the field nothing but what he requires for home consumption or the market. He should plough into the soil all the leaves, stems, and roots of the plants cultivated, and of the weeds that grow. Besides these latter if permitted to remain will deprive the cultivated plants of their food. If seeds are permitted to seed in the field, this will cause increased labour. If these points are carefully attended to, such a course of procedure will give longevity to the producing power of the soil. In addition to these, we have numerous other substances that can be most effectively employed as manures. Every planter should always be making a compost heap upon and into which he should cast sweepings from the house, the kitchen, and the yard; also hair, blood and bones of the animals that might be killed, rags, the litter from the stable, the goat-pen, the stye, the rabbit-pen, the fowl-house, night soil, dead fowls, and all things that will decay. It is by diut of such carefulness that we can always be in possession of manure to a greater or less degree, manure cheaply got, but of great value. Another instance that comes within the reach of every one, and which claims special attention as a fertilizer is wood ash. Ashes may be collected in large quantities in every home. It contains potash which is required by every plant, and enjoyed by all as a luxury. Therefore, waste not the ashes. but give it to the plants. The common salt also is a valuable fertilizer. But it may be said that they cannot afford to use this as a fertilizer. The elements in it which makes it valuable as such are soda and chlorine. Well, both these are to be found in the ashes above spoken of. It will do well, however, to pour sea water into the holes dug for the purpose before planting the coconut or sugar cane. In respect to the application of manure to the soil, it must be understood that the parts of the manure used up by the plants must assume a liquid form. The plants cannot take solid bits of food as we do, and water is a great influence in dissolving the plant food. When we put sugar in a glass and pour water upon it the sugar seemingly disappears, and the only evidence of its presence are the colour and taste of the water. When we drink this coloured water we drink in the sugar too. This is similar to what goes on among plants. Water is necessary to enable them to take up and assimilate food. I scarce need state also that the plants send out their roots in search of food below the surface of the ground, and that before the water can penetrate the earth to bring about the desired result the soil must be properly tilled. Tilled as a rule to the depth of about eighteen inches, unless the soil before reaching that depth be of such a nature that it will yield no support to the plants. When this ploughing has been accomplished lay over the soil the manure collected, and bestow a kind of secondary tillage so as to ensure the manure getting mixed with the soil. When there are plants such as bananas, already in the field, the manure need not

be heaped np around the stem of the plant, as the trunk is entirely unable to absorb the manure from without. One way by means of which we oan make tbe most of the good work wrought upon the soil by mauure is by not putting in tbe same kind of plant every year. All men do not like the same kind of food—all plants do not take up the same kind of plant-food from the soil. If some do, it is done in a varied extent. Again, some are deep feeders and gather up the food from the lower layers of tbe soil called the sub soil. Others draw from tbe upper layers called the surface soil, and are called surface feeders. These facts must lead us to see that certain elements in the soil may be left untouched by certain plants. We therefore see the necessity for what is called rotation crops. For example, if yon plant yams on a certain plot of ground this year, do not plant yonr yams on that plot next year, but vary by planting corn, say, next year; then in the third year plant sweet potatoes, and in the fourth year plant peas. Return to yams the following year aud retrace yonr steps, under favourable circumstances you are certain to have very satisfactory results. Wheu you have done these things, leave your fields to nature, and she will do the rest—*Journal of of the Jamaica Agricultural Society.*

ARROW-ROOT CULTIVATION.

The cultivation of Arrow-root is, by no means such a difficult thing as may be imagined. It is grown much like the common potato and, after it has once been put into the ground, is in need of no special care: like potatoes it should be sown on soil composed of a due admixture of sand and loam. It will grow well on land where the surface soil is open, sandy and light and not moist at all, although it will thrive better on moist land, the tubers yielding, however, a less qnantity of flour, than when they have been raised on dry ground. Whetber roots or tubers, or whether shoots be used, the great tbing is to select light open soil, and to break it up thoroughly before planting the shoots or layiug down the roots or tubers, so that the new root or tuber may be allowed free and unchecked scope for the fullest development. The earth should then be made up into beds and the shoots or roots or tubers, two in each hole, should be put down at intervals of 12 to 18 inches apart, when they are covered over with leaves to prevent the earth from drying np—these leaves, when decayed, serving as manure and hindering the growth of weeds. Unless in a great failnre or raiu, the land sown does not need watering. Tbe sowing should be made in the rainy season, or not later than October or even November. In proportion to the depth to which the ground is dug up and the soil is stirred the tubers become large. No further care is then needed beyond frequent weeding and keeping tbe roots clean and sweet. Though tbe crop does not specially call for manuring, it will derive some benefit from a dressiug of rotten old dung and leaf mould. The soil is not to be disturbed after the planting till the tubers are fit to be dug up, that is some eight to ten months after. It should be borne in mind that the cultivation slightly varies, when tubers or roots are used. In this case, the roots or tubers are sown on a separate piece of ground, and when the shoots come out they are to be transplanted to the beds specially prepared, and set down at the distances indicated above. Care should be taken to water the roots or tubers till the shoots come out, and to protect them from too much exposure to the heat of the sun. As the plant grows, the roots of each should be earthed up so as to allow of their fuller and freer development. In order to secure tubers of large size and in greater quantities, the flowers should be cut off just as they appear on the plant. When about six months old, the stems and the leaves of the plants not allowed to flower, will be strong and green; while plants that have flowered become yellow aud show signs of decay. It has been found that plants which had been stripped of flowers produced, on an equal space of ground, about thrice the weigbt of large turbers as compared with the plants that had flowered, which yielded a small number of middliug sized tubers with a great number ef smaller size.

As to tbe simplest process for converting the arrowroot into the finest flour, the roots should first be stripped of the scaly leaves by washiug them in water. When sufficiently olean they shonld be reduced to powder by the use of graters or, more easily still, by pounding tbem in a mortar. Sufficient water should be poured over the powder to convert it into a liquid; and after this liquid has been thoroughly stirred up, it should be filtered through a rongh cloth, in which tbe threads are set apart, into another vessel which should be kept nnshaken till the powder settles down at the bottom. The stale water should then be poured out and the powder should be stirred up again with fresh water and passed throngh the process of filtration througb a finer clotb. The washing and filtering should be repeated till tbe water comes out perfectly free from the slightest tinge of any color. When the powder is finally settled, the water should be thrown away, and the sediment dried in the snu on clean white paper.

While drying, the powder shonld be constantly broken up to prevent it from forming into lumps and to reduce it to a state of perfect fineness.—*Planter.*

GROWING SWEET POTATOES.

A Virginian farmer, iu the *American Agriculturist*, gives the following advice on growing sweet potatoes: —To begin with, soil free from stone seems essential, and a clay loam the best. Tbe field is well ploughed and the soil turned up in high ridges, far enough apart to be worked by a one-borse cultivator. I leave the field for a couple of days or so, for the soil to become warm and well dried out.

Perhaps you buy the plants. I make a square of boards, a foot and a half to two feet deep, in a sunny place, and fill with mast (dried pine needles, tea-tree leaves or forest oak needles would serve the same purpose), slightly mixed with dry clay loam, for a depth sufficient for the seed potatoes to be placed on end. I placed them close together and over all put a covering of mast. If mast is unobtainable, a lot of finely cut straw will do, being careful that it is not put on too thickly. The sun is allowed to shine in a while, then towards night a muslin cover is put on. This is wholly or partly removed at times, but must remain on over night. The potatoes are given an occasional light sprinkling, unless native uses her watering pot on them. It will not be long before crips, tender, green leaves will peep through the mast, which must lie thin and light. When sprouts are from 5 to 8 inches long, one can readily pull them, one at time, by hand throngh tbe mast, pulling only such as are of proper length for planting from day to day.

When ready to plant, a quantity of the sprouts are snpposed to be large enough two or three days after the ridging. One person begins at the end of the row, and with a gardener's trowel quickly makes little openings 18 inches apart on top of tbe ridge. He does this in an even manner, and another follows with bucket or apron full of the slips and drops one, stem end down, in each little whole. Next the one who used the trowel comes along with a bucket of tempered water, and a small dipper, and puts a small quantity of water in each hole with the plant, while the man who dropped the slips follows closely behind, and with one quick movement of both hands firms down the soil around each slip. It has been quick work, and the rows look even and handsome The dipper of water kceps the slip fresh until it starts its rootlets. One may look over a large patch and scarcely see a lost plant. During the season, the cultivator goes through twice. Weeds are not very prolific then, and the plants got ahead rapidly. —*Agricultural Gazette.*

THE MARTYRDOM OF GARDENING.

Much has been written of the pleasures associated with the pursuit of gardening; but its penalties have been almost entirely ignored. Nothing can damp the enthusiasm of its advocates; there is no sorrow associated therewith that their remembrance can recall. It was Socrates, we think, who wrote of double blessedness: "If you marry, you will repent it; and if you do not, you will repent it;" and the same advice may be given to those about to enter earnestly upon the horticultural life. It is a great responsibility to have charge of a large and (potentially) beautiful garden, which has many visitors during the season of flowers and fruit; who, though they may not be too critical in your immediate presence, may yet be very emphatically so, when, disappointed with what they came to contemplate, they have retired from your view. They came, perhaps, with great expectations, for whose existence you were partly responsible, and which, saddening to relate, have not been fulfilled. But they do not consider that you are hardly to blame for the "washed-out" condition of your earthly paradise in a season such as this. Nature, like that memorable creation of Dickens, viz., Captain Cuttle's landlady, Mrs. McStinger, has her great washing-days, somewhat trying to her constitution; and her subjects, like the humble captain, have to suffer the consequences. After a visitation such as we have recently experienced of the annual "Lammas floods," accompanied, in all probability, by fierce south-easterly winds, you go into your garden of an early autumn morning, and you find that your Roses, in a literal as well as a metaphorical sense, have "gone to the wall." Many of your finest climbers, suddenly succumbing to the pressure of the storm, and the weight and violence of the rain, have been blown to the ground. The entire blooms of your garden, Roses, Lilies, Sweet Peas, Violas, Irises, Delphiniums, Gladioli, and Carnations, have been utterly destroyed; and nothing remains to their fond cultivator, whose gaze only yesterday was riveted by their beauty, but to remove them from the parent plants as speedily and effectively as lies within his power. Even this, as most of us know from experience, is a serious operation, or at least a very tedious and irritating one; making immense demands upon the divine faculty of patience, while at the same time it makes havoc of the fair element of hope. But Hope, as the optimistic poet has sung, "springs enternal in the human breast;" and though a thousand magnificent flowers have been swept to desolation on the wings of the shower-laden, remorseless blasts, as many buds, full of embryonic life and potential loveliness, remain. But what of that, if these are destined by Nature to endure a similarly crucial experience, as soon as they have spread their silken petals to the air, and dedicated their beauty to the sun?

To preserve a garden in all its possible integrity and symmetry, under such atmospheric conditions as we have endeavoured to describe, is a perfect impossibility; in many instances you feel almost paralysed by the sad destruction of your treasures which the elements have wrought. Nature, so long your sympathetic friend, and gentle inspirer, is now your enmey; in her amiable moments, she had looked like the innocent flowers she was preparing to destroy; but the surpent of deceit was lurking invisibly there. The great Wordsworth, indeed, has asserted of Nature (in all probability when he was experiencing on a calm evening her benignant influence during his famous visit to the regions of Tintern Abbey), that "she never did betray the heart that loved her"; and there can be no question that she usually, though not always, gives warning before she strikes. But what of all this, when she strikes so very hard? Her fairest creations of the gardens, and of the fields; the golden corn that is ruthlessly swept by her autumnal floods, and levelled to the ground; her loftiest trees, which are prematurely divested of their large and lustrous leaves; the fair fruits that are severed, unripened, from the pendulous boughs; the flowers that too early anticipate their decay; receive for the most part no mercy from Nature when she is suddenly seized with such impetuous moods.

But even Nature, with all her unconscious cruelty, can repent; though often for the horticulturist her repeutance comes too late. And then we experieuce the full significance of those Arnoldian words—

"Sad Patience, too near neighbour to Despair!"—*Gardeners' Chronicle.*

RAISING TOMATO PLANTS.

In an answer to a correspondent who desires information how to raise 100,000 tomato plants for a canning factory, the *American Agriculturist* says: "If planted in rows 5 feet apart and 3 feet in the rows, which is about the proper distance, it will require about 3,000 plants per acre. One ounce of tomato seed contains from 8,000 to 11,000 seeds, but of course it is not safe to count upon the growing of every seed, and producing a good, healthy plant. Truck farmers generally sow about ¼ lb. of seed per acre to be planted. For early fruiting it is necessary to sow the seed in hotbeds or greenhouses and transplant the young plants from time to time as they become too crowded. But as for canning purposes extreme earliness is not of prime importance, the seed may be sown in the open ground in a warm and sheltered border where the young plants may be covered with hay or some other light material in case of late frosts Some large growers have been quite successful with planting the seeds direct in the field, but this is only practicable on light and warm soil."—*Agricultural Gazette.*

Horticultural Teaching in Germany.—Herr L. Wittmack, in a paper contributed by him to the *Official Catalogue of the German Section of the Paris Exhibition*, mentions the measures taken in Germany with regard to horticultural training. The science, he says, is highly developed. The most advanced teaching emanates from three institutions: the Royal School of Horticulture at Wildpark, near Potsdam, established for seventy-five years, and shortly to be transferred to Dahlem, near Berlin, in the vicinity of the new Botanic Garden; the Royal Institute of Pomology at Proskau, near Oppeln (Silesia); and the Royal School of Pomology and Viticulture at Geisenheim-sur-le-Rhin. The kingdom of Wurtemburg has, since 1860, possessed a private institution, the Pomological Institute of Reuthingen; and Saxony, since 1892, has maintained a School of Advanced Horticulture in Dresden. At Koestritz is an establishment for general instruction. Elementary schools of gardening are sometimes in connection with, sometimes independent of, higher-grade schools; they are maintained by different confederate states, or by the governments of the provinces. Prussia includes twenty-three, Bavaria five, Saxony two, Würtemburg four, the Grand Duchy of Baden, Saxe Weimar, and the Grand Duchy of Hesse, each one. In all these establishments instruction is given in the culture and utilisation of fruits and vegetables, &c.; moreover, instructors continue this course of training in different towns. In certain cities, such as Berlin and Leipzic, are schools of gardening for young men, who do practical work in the day; in other cases, again, in Berlin for instance, there are gardeners who themselves make arrangements for obtaining courses of instruction; often apprentices and youths attend the popular courses for the adults. In some localities they teach gardening and the cultivation of fruit-trees to children in the gardens attached to their schools.—*Gardeners' Chronicle.*

TROPICAL PLANTS IN QUEENSLAND.

ANNUAL REPORT FOR THE STATE NURSERY, KAMERUNGA.

SIR,—I have the honour to submit the Annual Report for the year ending 30th June, 1899.

SUGAR-CANE.—During March I noted that some insect appeared to be attacking and damaging the cane in two out of the three fields under this product. I at once reported the matter and sent specimens to the Department, and Mr. Tyrou proclaimed them to be the cane-borer. Upon this the instructions of the Department were prompt to destroy the two fields of cane in which it had been found, and to search the other fields carefully. The two fields of cane, therefore, have been destroyed, but hitherto no borer has been observed in the third field, though a sharp watch is being kept.

CITRUS FAMILY.—Fruit fly seems to be especially bad this year, and allows no fruit of the orange or lemon trees to ripen; a few only of the rough-coated lemon have escaped. Bark-splitting is bad among the citrus trees, and the scale *Lecanium longum* is to be found on some of the orange-trees.

BANANAS.—The exports from the district remain good, though fruit fly and a species of rust are giving trouble in the vicinity of the Baron River. A supply of good Cavendish banana suckers, free from disease, will be kept for distribution. The new Guinea varieties have, I understand, been lately transplanted, together with the *Musa textilis*, to a new piece of ground. They have not borne yet this year.

COCOA.—*Theobroma cacao.*—One of the old trees bore three pods early in the year, from which seed was obtained. There being no demand for seed just then, these were raised in the bush-house, where no difficulty was experienced in germinating them. There should be a fair supply of seed this coming season, the heavy rains having been all in favour of the cocoa-trees.

The effect of an attempt at pruning these trees, some time back, has been apparently to stunt their growth. Pruning is not generally resorted to, and considerably more moisture in the soil and humus is necessary for a satisfactory growth than is to be had in the present locality of the cocoa-trees in the Nursery.

MANGOSTEEN.—Two trees in the bush house have attained a height of 5 feet and 4 feet respectively, while those in the open vary from 18 inches to 2 feet. This is a slow-growing tree, but thrives best under much the same conditions as cocoa, needing a heavy moist soil rather than a light dry one. The fruit, if it can be successfully grown, will probably prove both popular and profitable. Its flavour and delicacy are unsurpassed, and the fruit, having a thick rind or skin, will travel well in cases or even sacks for journeys of a week or so.

PEPPER.—*Piper nigrum.*—Pepper in its natural state grows on the stems of large and rough-barked trees in dense scrub land. It would probably grow readily in scrub lands in this vicinity, but it must have shade. The pepper in this Nursery being out in the open, and having only a small stick some 5 feet high to cling to, is not growing under sufficiently suitable conditions for satisfactory results to be expected. The plants seem to take to the soil and climatic conditions readily, however, and the growth seems as strong and healthy as could be expected. Planted under more favourable conditions, its culture would probably prove very successful.

CLOVES AND NUTMEGS.—The soil in this Nursery is not suitable for these spices. Better and more satisfactory results might be obtained by growing these trees on the borders of unfelled scrub, where a certain amount of shade, humus, and leaf-mould would be obtained. Such districts as the Lower Russell, Daintree, and Bloomfield would appear to more nearly approach the conditions of their natural habitat.

VANILLA.—This orchid seems to grow readily in this district. I have met with it in several places other than these gardens. The bean is particularly valuable when properly cured, though it is easy to spoil its value by improper methods of drying and sweating. I have not seen any vines in bearing yet; those in the Nursery are suffering from the attack of the green arboreal ants which eat away the stem close to the ground. The plant does not necessarily die when the stem is served, but derives its nourishment from the small short roots it puts out into the bark of the trees it grows on. It will, however, endeavour to get new roots into the ground, and will send down long succulent shoots, which would form new connections with the soil if not in their turn attacked by the ants. While putting all its energy into forming root, however, it is natural that it will not bear to the same extent as a healthy plant, and possibly will not bear at all.

Probably artificial fertilization will have to be resorted to, and unless the question has already been gone into, there will be room for some interesting entomological experiments.

The Plumeria or Pagoda tree-shade for the vanilla orchids in the nursery is insufficient, especially just now, when it is shedding its leaves. The trees are not tall enough or of large enough girth to give sufficient support, nor do they deposit sufficient leaf to form mulch that can retain the moisture. Some of the vanilla plants are already very nearly to the tops of the trees they have been set to grow upon. The bark of this shade-tree, moreover, does not give sufficient hold for the vanilla, but gives way here and there, allowing the orchid to hang in festoons, to its own detriment.

DIVI DIVI (*Cæsalpinia coriaria*).—These trees are growing well and bearing heavily. The crop is now beginning to come in. Cultivation is reduced to a minimum with this, and judging by the quantity of pods on each tree, it should prove a paying crop. Its bulk will, however, be its disadvantage, and will be a serious expense if any great amount of transport is necessary.

COFFEE (*C arabica* and *C. liberica*).—The field of coffee that had been planted here, and was, I am given to understand, some three years or more old, was rooted out by the late overseer. The few trees that have been left along the roadside are poor specimens, being neither of a good class, nor in any way cultivated, pruned, handled, or topped. The few berries on the trees are small, and quite unfit for seed. The plants in the bush-house are of a mixed variety, and are one and all too old and stunted to make good plants for distribution. I have had to refuse applicants for both plants and seed—a state of affairs that I hope may be remedied by next planting season.

As I am dealing with this subject separately in another place I will say no more on coffee culture here.

CEARA RUBBER (*Manihot Glaziovii*).—This tree has taken to the district and soil. In the nursery it has been become almost a weed. The large trees that are bearing seed scatter it about and it germinates readily, even in the middle of footpaths if left long enough. Section III., field 1, has been planted up with several hundreds of these trees about 6 feet apart. as well as a portion of field 3 of section III., and in a few years, when these trees are large enough to be tapped, they should prove a fair test of its economic value. There are any number of plants and cuttings available for distribution.

PARA RUBBER (*Hevea braziliensis*) is not doing so well as the Ceara. It appears to be considerably more delicate and to suffer during dry weather and hot winds. The plants are hardly big enough or old enough to judge of its possibilities yet.

ASSAM RUBBER (*Ficus elastica*).—This thrives well here and is a most handsome plant. It will, however, be a very long time before there is sufficient stem to tap.

FIBRE PLANTS.—*Agave rigida* grows well and is to be had here in quantity. Nearly all of the old plants are now flowering. *Musa textilis* has taken to its new quarters and is making new suckers rapidly. Ramie needs much more rain and moisture than it gets in this nursery. It is small and stunted. I have seen it grow luxuriantly in swampy ground. *Fourcroya gigantea*: the mother plants have flowered and are dying away, giving place to innumerable young seedlings.

PALMS.—These useful trees seem to grow well in this district. There are many handsome varieties in the gardens. *Phœnix rupicola* looks well and germinates from seed readily, but is difficult to transplant if allowed to grow too long in the seed-beds. *Elœis guineaensis* seed has been germinated after repeated failures. The palm is prolific and plenty of seed is available. I hope to be able to germinate in quantity and have plants for distribution soon.

TEOSINTE (*Euchlœna luxurians*).—The few plants grown here have not been very successful. Most of the seed seems to have been taken by cockatoos, which are troublesome. There being only enough seed for replanting, none has been available for distribution.

KAFIR CORN (*Sorghum*).—This useful grain, known as "white cholum" in India, does not seem to have been raised during the past year. It is useful as food for man and beast, and supplies abundant fodder. It is broken or crushed, or boiled, and used as a substitute for rice. Is fattening food for cattle and horses in this state. There are several varieties, of which this is one of the best though small. It produces a large quantity of stalk and leaf, which is popular fodder for draught cattle in the East Indies.

PAWPAW.—The continued heavy rains in March had disastrous effects on our Pawpaw trees, killing many off by rotting the roots. Some would have recovered had not the wind blown them down before new roots could be made. Several good trees were lost, including the branching variety. There are several varieties not in the Nursery, however. Three distinct varieties are known in Southern India, besides a Chinese variety, apart from the branching variety here. The Singapore Pawpaw is not especially large, but turns a golden yellow when ripe, and has a fine flavour. The Chinese is a long pointed fruit, and is a dark green colour when ripe. This would probably travel better than most. The male tree is not a necessity in a garden, though there is nothing lost by retaining one should a number come up from the seed. The *Papaya carica* may be diœcious, monœcions, and even hermaphrodite. I hope to be able to deal with this interesting fruit tree later on by itself.

JACK FRUIT (*Artocarpus intergrifolia.*)—The only tree of this useful fruit in the Nursery shows signs of a past crop, but none of a further crop this year. The tree is rather slow-growing, but the timber is hard and good. It is of a dark yellow, and is useful in making furniture. The tree is prolific. I have had over seventy fruit on one tree, averaging 35 to 40 lb. each, some fruit being 65 to 70 lb. each. The fruit has a strong but not unpleasant smell, though many object to it. Once the taste is acquired, the fruit becomes very popular. The seeds make an excellent vegetable, and are a good substitute for potatoes when boiled. When dried and ground the seeds or nuts give a wholesome meal. The nuts roasted are not unlike English chestnuts. The fruit, seeds, pulp, skin, and all except the rough outer covering are readily eaten by cattle, and pigs are specially fond of them and fatten on them.

Of the plants and seeds received during the year a few rooted cuttings of *Piper methysticum* are still in the bush-house. Before planting out I would await the result of my suggestion to open up a piece of new scrub land in which plants of this nature may be experimented with under conditions more readily approaching their natural habit.

Many of the plants subsequentl mentioned in the list as being received would appear o have succumbed, as no trace of them can be found

PARA RUBBER.—Of the 260 plants received some sixty odd have been planted out in the Nursery, and a few distributed. A good many seem to have died out.

CANDLE TREE.—The seed sent up has germinated freely, and there is any quantity of seedlings available for distribution.

DURIAN (*Durio zibethinus*).—All the seed of this tree have failed to germinate. This is possibly owing to the seed having either dried in transit, or to being kept too moist in the seed-bed. The seed is somewhat difficult to germinate, and should be planted as soon as possible from the ripe fruit I trust some more will be obtained shortly for experimental purposes.

CEARA RUBBER is germinating freely, but the African rubber (*Kickxia africana*) is not as yet showing any signs of germination.

IMPROVEMENTS.—Nothing of the nature of permanent improvement has been carried out this year. Ordinary wear and tear has had to be remedied, and small repairs were necessary to the dwelling-house and bathroom, after the departure of the late occupants. These have been effected, and the house has been repainted. The office and outbuildings, that also need painting, are now being done.

The advisability of purchasing, for the use of the labourers employed, the humpy that was erected in the adjoining paddock by one of the labourers at his own expense is under consideration.

PUMP, BOILER, AND MACHINERY.—As the late overseer remarked in his last report, it was found necessary to thoroughly overhaul this plant. The floods in March had done some damage by washing away the corrugated iron shed over the pump, and breaking off the foot-valve of the suction-pipe and washing it down stream. The boiler had not been tested or examined, apparently for five years or so. This was done, and the shed replaced by a smaller and more substantial one. The foot-valve is persumably buried under some of the new sandbank in the bed of the river. A thorough search having failed to discover it, it was replaced.

The pump itself had to have new packing supplied for the pistons, and this has been fitted up, and now works well, but the injector mechanism on the boiler is now found to be worn, and not working properly. As the pump was not working, and could not be worked, when it was examined for repairs, this injector irregularity could not be tested. It is a constant source of trouble, and if a small donkey pump could be supplied for filling the boiler, as is, I understand, in use at the Mackay State Nursery, it would save a great amount of time, trouble, and labour.

The plant, as now situated, is inconvenient and awkward. The engine-house is near the house of the man in charge, but the pump is down on the bank of the stream some 100 yards off, and the water supply some fifty or sixty yards further off again. Whenever the river is in flood the pump is submerged, and the piping and foot-valve bent, damaged, or (as in this case) broken off and lost. This is gradually spoiling the pumping engine, and is a constant expense. I would therefore suggest that at the end of this dry season the pump be removed to a site alongside the engine-house, and three spears be sunk from there. This would cost only some £35 to £40, save subsequent expense in repairs, be above flood-mark, and enable the pump to do more work.

I would suggest that a piece of scrub land adjoining the present enclosure in the nursery reserve be opened up for the purpose of experimenting with such products as Vanilla, Pepper (three varieties), Cardamoms, Nutmegs, Cloves, Cocoa, Mangosteens, &c., &c.; all of which need more or less shade and constant moisture, mulch, and humus.

The opening up of such a block, say 5 acres in extent, would not necessarily be an expensive undertaking, for all the plants and trees mentioned (each an industry in itself, if proved capable of being grown under existing climatic conditions) it is necessary to have the larger scrub trees standing. The clearing would therefore be reduced to a minimum, and amount to little more than a brushing of the scrub.

The Pepper family and Cardamoms need dense shade, and but little more clearing would be necessary for the larger spice trees, and would give them many of the conditions essential to their successful culture, and also supply them with surroundings and soils infinitely nearer to those obtaining in their natural habitat.

Each of these products I hope to deal with in the course of the year, and to record my experience of them in Departmental *Journal* from time to time.

HOWARD NEWPORT.

—*Queensland Department of Agriculture.*

PLANTING NOTES.

Peaches in Georgia, U. S. A.—The Hale Peach Orchard in Georgia has, we are informed, about 300,000 trees; one block of 60,000 Alberts is the heaviest loaded of all. The proprietor, Mr. Hale, estimates that 8,000 car-loads of Peaches will be shipped out of Georgia this year.—*Gardeners' Chronicle.*

The Mulbery in Lombardy.—By way of Milan we have news to the effect that the immature condition of the Mulberry foliage in Lombardy has greatly interfered with the success of the silk industry in that section of Italy. The frequent and serious variations in atmospheric conditions have been all against cocoon raising by the silkworm, and the decrease in production is placed at some ten per cent. So much for the inter-dependence of commerce and vegetation.—*Gardeners' Chronicle.*

Soot.—From a paragraph in our valued contemporary, the *Revue de l'Horticulture Belge* for August, we learn that a dressing of soot is fatal to the Phylloxera, and beneficial to the Vine. We have seen no Phylloxera now for some years in our vineries; but should it occur again, we shall hope to try the effect of the soot, as if efficacious, it would save much trouble and expense. The plan adopted is to dig in around each stock in winter time 1½ litre of soot (say 2 pints). Our contemporary speaks of the root-form of the insect. Whether a dusting over the foliage with soot would be equally efficacious is not tarted.—*Gardeners' Chronicle.*

Tomato Diseases—There are various diseases, all of which have been repeatedly described and figured in our columns: 1, the leaf-rust, Cladosporium fulvum, chiefly attacks the leaves, which look as if dusted with brown powder; 2, the Tomato-rot, which is identical with the Potato disease; 3, the Black-rot, attacking the fruit chiefly, but not entirely—it often forms circular patches around the style; 4, the sleeping disease, attacking the leaves which become flaccid and droop. Bordeaux Mixture, or potassium sulphide ½ oz. to a gallon of water sprayed on the plants will be of service, if carried out effectively at an early stage of growth, but spraying will have no effect on No. 4. All these diseases are greatly favoured by growing so many plants of the same species in the same house. Under such circumstances the disease is certain to spread from one plant to another, hence the necessity of up-rooting and burning all affected plants. As even now many people seem not to know of the Bordeaux Mixture, we add the proportion: copper sulphate 4 lb., lime unslaked 3 lb., water 40 gallons, Place the copper sulphate in a coarse-sacking bag, and suspend it in 6 gallons of cold water, in a wooden tub with no iron about it. Slake the lime and add it to the copper solution gradually. Stir freely with a wooden stick, and add the remainder of the water' then let it settle. It is best to use more rather than less lime, so that the foliage may not be injured by the spraying It is as well to try the effect on the leaves before using it extensively, as then the mixture can be diluted if necessary. Two or three applications at intervals are better than a strong dose at one time. Less troublesome to make, and in some cases equally effectual, is a mixture consisting of liver-of-sulphur oz., water 10 gallons.—*Ibid.*

Tea.—China furnished little over 48 per cent. of the total supply; Japan, over 41 per cent. This shows that Ceylon and India have a great field for work if they would supplant China and Japan teas by machine-made tea.—*American Grocer*, Aug. 8.

Fish Manure.—A Tellicherry correspondent writes:—"The shoals of sardine fish had failed to appear on the Malabar Coast for the last three years consecutively and consequently the coffee planters were in utter disappointment in procuring the fish manure, which is manufactured only of this species of fish. Now I am glad to mention that the shoals have just appeared on the Coast and there is every sign of a continuance of their appearance. I hope this will be a welcome news to coffee planters as they attach much importance to this manure."—*Pioneer.*

Earth nuts, Pea-nuts (Arachis hypogea).—From an American jounal we have the information that the last crop of this edible nut was reckoned at between four and four-and-a-half million bushels. This is quite a favourite article of consumption in the United States, and would be more so here were heat applied to driven off the oily contents—as is the case, we believe, in the States. Mr. Theodore Wood, a number of the Executive Council of New Guinea, says that Pea-nuts are likely to prove a great success in that part of the world, certain portions of the "Possession" being eminently adapted for their culivation. Samples sent to Brisbane would appear to be quite equal to the best of anywhere else. As far as can be judged at present, the class of land in British New Guinea upon which the Pea-nut will thrive should yield at least four tons to the acre, and in favourable seasons the planter may be expected to take two crops per annum. The cost of cultivation is very small, the labourer being easily satisfied with a very trifling remuneration.—*Gardeners' Chronicle.*

Commercial Cultivation of Plants Under Glass.—It is estimated that the retail value of cut flowers sold in the States annually is $12,500,000, the estimated apportionment of this sum being for—

Roses..	$6,000,000
Carnations	4,000,000
Violets..	750,000
Chrysanthemums	500,000
Miscellaneous flowers, including Lilies, &c.	1,250,000

Estimating the average retail value of Roses, Carnations, and Violets at $6, $4 and $1 per hundred, respectively, the total number of each sold annually based on the above values, would be, of—

Roses..	100,000,000
Carnations	100,000,000
Violets	75,000,000
	275,000,000

The retail value of the plants sold is placed at $10,000,000. Taking the plant trade as a whole, and the country in the aggregate, the average-sized pot used is estimated to be 3 inches, and the average retail price 10 cents per pots. This means that there are no less than 100,000,000 plants sold every year. To handle this bussiness in entirely requires probably an average of not less than one man for every 1,500 square feet of glass, or 15,000 men in all. Fifteen hundred square feet of glass per man may seem like a low estimate, and such is the fact when considering commercial establishments of any size. The larger the area of glass, other things being equal, the more square feet one man can handle. As a matter of fact, some of the large Rose-growing establishments do not use more than one man for each 10,000 square feet. Large Carnation establishments will run about the same as Roses; while Violets, owing to the great amount of work involved in cleaning the plants and picking the flowers, average higher. It is the many thousand small establishmets that increase the amount of labour required.—*American Gardening.*

TIGER SHOOTING IN THE MALNI FORESTS, C. P. INDIA.

At the foot of the Satpuras, not far from the mountain homes of Mahadeo, lies the Malni Forest Reserve. In the good old days, to the keen shikari, there could have been no fairer country, both for scenery, climate and "sport." In those days, the Malni Reserve lay on the borders of an interminable expanse of forest-country, open and park-like, crossed by many small streams, running swiftly in their rocky beds. Low hills, covered with a pleasing mixture of teak and large feathery bamboos, were dotted about at frequent intervals, and in the near distance range upon range of mountains rose high, one above the other. In all this vast extent of country there were but few small scattered villages; but, on the other hand, it was the home of the aboriginal gond, a race which, alas, is fast disappearing with the advance of cultivation and so called civilisation; and it has already lost, at least in those parts, all its manly, noble characteristics. In those days every man could have prided himself on being a simple, truthful, unsophisticated man of the woods, a true lover of the jungle, a real sportsman. In addition, each village had its recognised shikari, or leader of the hunt: but the leader of them all, the recognised and accepted king, was Telu. He was, perhaps, the last of the real unadulterated aboriginal gonds of the old school.

A BORN SHIKARI,

a perfect tracker, a polished jungle gentleman. He was long, lanky and venerable in appearance. Clothed in his black, wrinkled, epidermis; a piece of string round his waist; a "chakwak" (pipe) worn behind the ear! with his long flowing matted locks—nothing could ruffle his temper, or his keenness after shikar. Alas, poor man, he died, so the legend goes, many years ago, a victim to the ire of the Deo, over some little neglected shikar offering.

The gonds, however, did not hold undisturbed possession of these wilds. There were many other denizens of the jungle; and the bison, the sambhar, the cheetah, the smaller deer, the black bear, the tiger and the panther were all to be found here. My first year in India was drawing to a close when I found myself posted to the Malni Reserve. During the whole of the year, my one and only ambition had been to shoot a tiger: and in the vain endeavour to get one I had tried every expedient that mortal youth could dream of—stalking, beating, bribing, praying, cursing, sitting up by day and by night, everything had been tried in vain. I had in fact begun to think that tigers were a fraud and a dillusion, except as regards their pug-marks. But the Malni Reserve soon raised my hopes. Not only were pug-marks plentiful enough, but my gond friends, who had got over their natural shyness, and with whom I very soon got on the best of terms, assured me of easy success, and told me many a startling tale. Not only this, but the good sport I had with other beasts—my first sambhar, my two bears, my panther—soon raised my fallen hopes.

It was under these circumstances that Telu and the little band of shikaris I had collected together, came to me one day with the news that a tiger was creating much havoc among the cattle at the village of Malni, which gave its name to the Reserve; and they urged me to proceed to the place as soon as possible. Accordingly, Telu and his little court, with a herd of young buffaloes went on ahead to prepare the way, and I myself soon followed.

In those days, Malni was a small Gond village, though perhaps larger than most, situated some short distance from the river of that name; and the strip of broken ground between the village and the river was covered with scrub jungle, fairly dense in places, with a few large trees; the whole interseeted by numerous small, moist, shady streamlets and nalas. On arrival the reports I received were so excellent that I soon determined

TO GET THAT TIGER,

and I am afraid it would have required many, very many, reminders from my superior officer before I could have been got to budge. Moreover, postal arrangements were very defective. However the luck was with us, for the very first morning after my arrival Telu came rushing into camp with the news that one of the young buffaloes had been killed during the night, and its carcass dragged away into the jungle—always a most auspicious sign. Messengers were immediately sent off to bring up as many beaters as they could from the surrounding scattered small villages. Meanwhile, Telu and myself did a track round the area in which the tiger was supposed to be slumbering after its gorge. The tiger had killed in the patch of jungle between the village and the river, and so the matter was comparatively easy. The River Malni on one side the village and fields on the other, and a nice sandy path above and below; and the results of our investigations were most satisfactory. The tiger was there, so Telu assured me.

The next operation was the tying up of the machan, and more particularly chosing the right tree to have it on. Personally, I knew nothing about it, and so hard to trust to Telu; and we chose a spot with a small open space in front, and a small strip of growth on the left.

Eventually the beaters arrived. I was seated on my tree, the stops were duly arranged on the right and left of me, and the beat began. For volume of noise, mingled with queer weird local sounds the beating of the tom-tom and the ubiquitous kerosine tin, it would be impossible to beat a throng of aboriginal gonds. And so the beat came merrily along, and I was ready to jump out of my skin with very excitement. Suddenly, a grunt and a growl was heard—and then a huge beast is seen by me to be moving through the patch of scrub, away on my left, some 200 yards away. At the same time, the group of stops on my left start coughing and hammering.

Mad with excitement I loose off my rifle in the direction of the tigress. Bang goes my right barrel, bang the left: and by the time the smoke has cleared away, there is no sign left of the tigress. However, no sooner have I had time to reload my rifle, then the tigress appears in the open, start in front of me. She is apparently looking straight at me, and about 80 yards away. This is too much for me, and whizz goes the bullet from the right-hand barrel. Over rolls the tigress, kicking like a shot rabbit, and bang goes the second bullet, and the smoke clears away for me to see

THE TIGRESS BOLTING

back towards the beaters. Much excited, I had hardly time to reload when away on my right, across the open space a small

young tiger dashed past and then a second. I at once imagined that they must have stopped on the edge of the jungle, and to get a better view I proceed to scramble higher up the tree. As I am scrambling up out dashes a third young brute and stops immediately under my tree. Balancing myself as best I could, I fire, only to see the cub dash on into the jungle.

Eventually the beaters come up ; I descend from my machan, and a consultation is held. There is no doubt that the tigress is badly wounded—a pool of blood where she fell, and blood clearly shows the direction she has taken. But, alas, the three cubs have gone off unscathed.

In the excitement of the moment I at once determined to track the wounded tigress, and away we start, the plucky gonds only too keen to follow. The blood, however, soon stops, and matters are proceeding somewhat unsatisfactorily, when one of the shikaris suggests that the tigress must have made for water, and he assures us (as far as I am able to understand), that he can take us to the very spot. Accordingly, we give up tracking and proceed straight for the suggested haven of rest. As we get near the spot, men climb up trees to look ahead, while the rest wander about somewhat aimlessly. Suddenly one of the men from the top of a tree remarks, in a very casual tone of voice—

"THERE LIES THE TIGER."

Immediately we all come rushing up,—convinced that we should see the fallen monarch dead as mutton. We are all crowding round a little bush growing out of a small nalla, when suddenly a terrorizing "uph-uph" resounds at our very feet, and out springs the tigress. We did not stop to inquire, away we scattered in all directions and scrambled up the nearest trees ; whilst the tigress fortunately for us, kept to the nalla and disappeared. That was enough for me, at least for that evening. Besides, it was getting dark. And so we wended our weary way home, sick at heart that no trophy had been bagged. However we were soon holding councils of war ; and the valiant Telu's proposals that a company of buffaloes should be brought in to our assistance next day were unanimously carried, and all arrangements duly completed. Meanwhile, I spent a restless night, dreaming of tigers and cursing my bad luck.

Next day the beaters and a herd of buffaloes arrived, and away we started. All Central Indian sportsmen will have learnt the value of the jungle-reared buffalo in tracking wounded carnivora. Accustomed, as they are, to live in the densest jungle, they are quite prepared to meet the onslaughts of any tiger, and promptly forming into line, heads down, they will charge straight at any tiger they may meet. Accordingly, on this particular morning, it was decided that I should sit on a selected tree and that the beaters should drive the buffaloes through the jungle, and thus beat the wounded animal out. I had not sat up very long, and the comparatively silent beat had only been going on for a very short time, when away, in the distance, down below me, some considerable distance away, I saw a huge tiger bound across a small open space. I at once got to the ready and waited patiently, shortly to be rewarded by

THE TIGER APPEARING ;

and there he stood, a few yards from me, looking back in the direction of the beaters ; but alas his body was covered by a clump of trees, on one side his huge head projected, on the other his tail. No, it was impossible to fire, and meanwhile I shook with excitement and fear that the tiger would see me and bolt. However, after an age of suspense, the tiger stepped forward quietly and slowly, and his body being exposed I fired. Down he dropped without a move, save a wag or two of his tail. But I was not going to lose him this time, and before he could ever think of coming to life again, three more bullets were duly lodged into him.

Soon the beaters came up and there were great rejoicings ; but this was not the wounded tigress. It was a fine male, 10 feet 5 inches, and never a wound had he received before. The question of the wounded tigress, therefore, still remained to be solved. Accordingly, we proceeded to track through the jungle, the shikaris leading the way, tracking down the dry nalla beds, the buffaloes being driven through the thicker bits of jungle. After a time we came to a small underground nalla, a kind of a small winding cave, which opened out into the bigger nalla down which we had been tracking. The trackers stopped, and after some little further examination arrived at the conclusion that the wounded tigress had retired into the little cave. But there were doubts expressed, and so in the hopes of further developments arising I took up a position behind a tree at some little distance from the mouth of the cavern and fired a charge of shot into it. At once

A DEEP, LOW, GROWL

came out from the cave, and away every one fled to take refuge up the nearest trees, whilst I stood at attention. But nothing further happened and similar charges of shot only succeeded in bringing forth low grumbling growls. Consequently, other steps had to be taken. On creeping up to the mouth of the hole and cautiously peering in, it was impossible to see anything of our friend, as the small cave at once wound round to the right. It was, therefore decided to try the effects of a prog. Accordingly, I stood at attention on the banks of the nalla just over the hole, whilst two of the braver gonds, armed with a long bamboo, proceeded to push this into the hole. Suddenly, a loud roar. Away they all bolted, fully expecting that the tigress would bound out in her wrath, but no tiger appeared. Again and again were those tactics followed ; but save for a growl there was no apparent result. Braver and braver grew the proggers, and the tigress, in her anger, would gnaw the end of the bamboo, but she refused to show herself. Owing to the winding nature of the hole it was impossible to get at her, and so the bamboo was given up in despair. During these antics we had noticed that a small tiny crack in the ground led down from the bank into the hole, and peering down it, a small portion of the tigress could be seen. In fact, its tail, as it afterwards turned out. Accordingly, I had sent for kerosine, but only a single bottle was forthcoming. This we lighted and poured down the hole, with the result that the tigress' tail was badly singed ; but still she refused to show herself. And so the day passed and darkness was coming on, so that all further plans of operation had to be postponed. Moreover the shikaris assured me that the tigress must be at the point of death, otherwise she would never have endured such treatment. We contented ourselves, therefore, with blocking up the mouth of the cave loosely with branches, and then wended our way home, fully confident that next day we would merely have to dig her out. And all arrangements were made to obtain the necessary implements from a distant depôt.

Next morning, armed with spades and pickaxes, we again set out; but as soon as we reached the hole, the shikaris, after examining the place, pulled out a few hairs and exclaimed, "The tigress has got out during the night;" and sure enough there were the pug-marks going down the nalla towards the Malni River. Here was a serious predicament. A council of war was hastily summoned, and as a result the buffaloes were again sent for, whilst we waited in patience. After a few hours the buffaloes arrived, and the order for an advance was given. The shikaris and myself tracked down the nalla, the buffaloes were driven through the jungle on either bank, followed by the beaters. And so we tracked down the nalla, until we came to the river where it was found that the tigress had turned back into a dense bit of jungle a little higher up. But she had not drunk water in the river, and this was considered a good sign by the shikaris, who took it to mean that she must indeed have been very bad. On the edge of the river we again formed up into line, the buffaloes on this occasion leading, and we all followed. Suddenly, after having proceeded a short distance, the buffaloes made a mad dash forward, snorting vigorously; something yellow was seen to dash past in front of the buffaloes and jump down into a small nalla a little to our left, whilst all the beaters and shikaris disappeared up trees. Meanwhile, goaded on by my friends, who were safely ensconced on the tops of trees, I crept quietly up to the edge of the nalla and peered over. There, round the nearest bend to the nalla, I could just make out

THE TIGERS' TAIL,

and little else; however, I came to the present, and taking careful aim at the root thereof, discharged both barrels in rapid succession, and then gracefully retired at the double. After a short time, having reloaded, I again advanced cautiously at the ready, but just as I crept up to the edge of the nalla and peered over, there was the tigress a couple of yards off, staring me in the face, and she at once opened her mouth, making a hideous face; but like a flash of lightning I fired and the tigress sprang a few feet into the air, and fell on the same spot; again I fired and over she fell. But my blood was up; hastily reloading, I fired again and again, and assurance was indeed made doubly sure. It was now getting dark, so the tigress was hastily swung on to a pole, flaming torches were lighted, and our entry into camp was indeed a sight for the gods. My first tiger, and a tigress besides, and no end of tamasha! On the first day the tigress had been hit a little to the right side of her chest, and it had all festered very badly.

And now for the moral. When I began writing this account of how I shot my first tiger, I had certainly meant to draw a moral for the benefit of our young shikaris. I should have felt that I had not written in vain if I could impress upon them the folly of at once following up a wounded tiger on foot; the folly of losing one's head and firing at a dangerous animal at long ranges, especially when it is coming straight towards one; the folly of ruining a valuable skin by firing a quantity of lead into the carcass of the dead animal. But after all, does my story really bear out these excellent precepts? Had I followed them, how much never-to-be-forgotten excitement should I not have missed? And, apparently, as long as the luck is with one and the gods are favourable, all will end well. After all, youth may indeed rush in where extension-wallahs fear to tread. FELIS CHAUS.

THE CEYLON PLUMBAGO TRADE.

The following is the substance of a letter addressed by Mr. T. Stretch, of Messrs. Darley & Butler, London, to our evening contemporary:—

"The present position of the plumbago trade seems to be exciting a more than usual interest in the article, and has led to some writing which is not instructive but misleading, and which may therefore do harm in some quarters. What is the actual position?

1. For many years London was the great distributing market for plumbago as well as for most of the produce of the East. Then considerable stocks were held here, and the Continental and, to a large extent, the American trade was supplied from this source. In consequence prices were governed chiefly by the supply on this market. This has long ceased to be the case, and, owing to facilities of communication and the enterprise of Agents and Merchants on the Continent and elsewere, a more direct means of doing the business has been evolved. Instead of London, Colombo has become the distributing centre; stocks in London have for some years dwindled to a quite inappreciable quantity, and prices are ruled by the supplies available in Colombo. The transfer of the trade from London accounts for the fact that few Brokers now thoroughly know plumbago. Those who now handle it know it well, and are honourable and trustworthy men.

2. The method of transacting business has altered to meet the altered conditions. Whereas formerly a user on the Continent sent an order to his London Agent on a sample of plumbago actually in stock, under the later system he sends his order on a standard sample supplied to him by an Agent either representing a shipper direct or the shipper's Agent in London, who transmits the order to Colombo where the plumbago is bought. This is a simple enough matter on the face of it; but the satisfactory completion of the contract depends upon the shipper delivering to the buyer a quality equal to the standard on which he bought. A consumer knows what he can use best in his special manufacture, and it does not suit him to receive inferior plumbago even if he pays for it less than his contract price. This is the great difficulty and it can only be overcome (1) by the shipper being exact in buying to match the standard, and (2) by the dealer who sells to him being loyal to his engagement and delivering the quality he has sold. Supposing these conditions fulfilled, there can be no better way for mine, owners and dealers in Ceylon of carrying the business through. The chief market is at their hand, and the orders in that market are the proper gauge of the demand from all the world.

3. It has been alleged that present prices of plumbago are low, and it is sought to show that this is in consequence not of oversupply but of the method in which pumbago is brought and sold. It is not the fact, however, that prices are low. Taking ordinary lumps as the representative grade, reference to the statistics will show that the price in Colombo in the years 1891 to 1896 ranged from R125-130 per ton for common to R240-260 for good. There was hardly any variation in these six years, though in 1894 the price of common fell to R100,

In 1897 the rise in prices began, which culminated last year, when they advanced to R400 for common and to R1,125 for good. The above quotations are taken on the last day of each year. On the 30th June last, common was quoted R350, and good R700—a considerable fall, but still leaving prices high. The rise that took place was clearly traceable in its causes, and was based on nothing newer than the laws of supply and demand. During a long period of depressed trade, especially marked on the United States of America, manufacturers became habituated to the system of buying as they wanted supplies. Most of them did not buy for stock, for prices altered little. When the trade began to improve, they did not believe that prices would continue to rise—no one anywhere dreamed of such activity as has been witnessed in the last two years chiefly caused by the movement of trade in the U S. after the last Presidential election. When they awoke to the fact that prices were really rising all wanted to buy at once, and the rise became a succession of leaps and bounds. It is natural that there should be a re-action. It is the regular course. All markets stocked; high prices checking trade; buyers holding off; producers accumulating stocks and unable to sell; prices, what can be obtained and quite uncertain. This condition will in turn change, and as surplus stocks are used up, a stable market will once more exist, but what prices will rule when that time comes it would be unwise to prophesy The statement of such patent facts and elementary principles demands an apology, but it seems called for by the ignorance of all such principles shown in the writing referred to.

4. To sum up the position then, it appears :—

(*a*) That London is not now the distributing centre, but that Colombo is.

(*b*) That the system of business is now based on standards, the accurate matching of which requires judgment, knowledge and honesty,

(*c*) That prices are not low at present, and, judging by experience of the past may go lower.

And finally, that they are governed, as they always will be, by the laws of supply and demand, and the invariable rule that, after a period of inflation, there must come a time of depression. How long the latter will last will depend much on producers, who will have to adapt themselves to the demand. If they do not do so now, many will perforce have to do so later, when it becomes unprofitable to work their mines. In the meantime, the only advice that can be given them is: Don't believe in any fancy or interested schemes for overriding natural laws. Such schemes always recoil on their inventors bringing loss where gain was promised."

The strange part is that while he was about it Mr. Stretch entered into no explanation of the causes of the enormous expansion of the plumbago trade during the past few years. It is not simply that the price rose rapidly and to an unprecedented pitch, (from which it has since fallen) :—that may be accounted for in the way Mr. Stretch points out; but the far stranger experience is the simultaneous enormous increase in exports. Usually, one would expect prices to fall with an addition of 50 per cent to exports; but that was not the case during most of 1899. Here are the figures for the past four years :—

EXPORTS FROM CEYLON.

	Cwt.		Cwt.
1896 ..	340,491	1898 ..	473,075
1897 ..	357,257	1899 ..	616,385

We suppose it is true that increased activity in regard to "armaments" in Europe and America, accounts for the disposal of well-nigh 14,000 tons above the average export, during part of 1898 and in 1899? But then we infer there is no slackening of armaments even now and yet the shipments of our valuable mineral this year have greatly fallen off—only 243,190 cwt. to 3rd of Sept. against 412,178 to same date last year. After all, this may mean that heavy stocks were laid in last year; but if so, was it not a little foolish of the buyers to be in such a hurry to store up so much beyond current requirements and so raise the price so greatly?

THE PROSPECTS OF CEYLON TEA IN AMERICA, LOCAL MANUFACTURE OF "GREEN" TEA.

We learn that the attitude of the large United States' tea importers towards Ceylon "greens" is that of determined hostility. They resented the introduction of our "blacks"; but they have four times as much interest in "greens," and it is thought that Ceylon dealers must work through the tea-packet houses at first.

We have received copies of advertisements of Ceylon tea, published by two tea houses in Boston which are not subsidised by the Ceylon Commissioner. They have both been forced to push or hold "Ceylons," by the action of a subsidised Firm. One of the former, it seems, refused some time ago to sell Ceylon packets. But they have been obliged to advertise our teas, because a rival was making such vigorous efforts. This is what advertising does all the world over:—it makes an article known; householders inquire for it; grocers must have it; and importers then have to look out for it.

In this connection, we may refer to the local manufacture of "green" tea and Mr. F. F. Street's very practical letter of which we had no time to make mention yesterday. It is clear there is to be no "rush" into the making of "green" tea, as was feared by the American Commissioner and some London dealers. These gave two million lb. as the quantity which, if well made and satisfactory, might be taken off in twelve months; but we see that our evening contemporary thinks one million lb. an outside estimate for Ceylon "green" tea shipments in 1901. If so, there will certainly be no special pressure and the American importers may well restrain their hostile attitude for a few years, say till about 1903, when perhaps we may get up to four or five million lb. in shipments of "green" teas.

HOW TO MAKE GREEN TEAS: IMPROVED METHODS ADVOCATED.

To the Editor.

Sept. 3.

Dear Sir,—At the request of Mr. H D Deane, and in the interests of those making green teas, I desire to draw attention to that part of Mr. Deane's printed letter, "How to manufacture green tea," which gives a "gloss" or "glaze" to the leaf, as I consider it improves the leaf appearance of the teas treated and in no way detrimentally

affects the liquor, and will, I think, improve the keeping properties of the leaf so treated.

China green teas, which are highly glazed, are very good keeping teas, much more so than blacks.

Although I should deprecate following Chinese methods in many respects, I think Ceylon planters cannot do better than follow them in the matter of glazing the leaf, especially as Ceylon greens are inclined to be *dull dead* and unattractive in leaf appearance, without the glaze.

The following is the extract referred to:—"When you final fire for packing, I recommend that when the *Sirocco trays are spread* to put them in a '*steam cupboard*,' (particulars can be had from Messrs. Brown & Co., Limited.) and turn on steam for 30 seconds, before firing; this will give the tea a *fine gloss* or to take the *juice of some of the tea you are rolling*, and water each tray when spread with it, seeing that all the tea on the tray is moistened with it. *This latter process* is best done *in a wooden tray or box*, and the *juice mixed in with the hand sufficient to make it all damp* (every grain) but *not wet*, then spread on the trays and fire at 190 to 200, and you will have the 'glazed' tea which some American dealers prefer."

To which Mr. Deane has since added the following post-script in copy sent to me:—

"A good plan, indeed the better, is to use one roll of steamed green leaf on the day of final firing for glazing only, to do this steam the leaf and squeeze out most of the water before starting roller, *then put on the weights* and roll till there is no juice left, collecting the juice in buckets. You will get sufficient to do over 1,000 lb. of tea and the juice will be thicker and the glaze more pronounced and the twist tightened."

"Of course the leaf in the roller after this can only be fired and mixed in with the fannings."

As this glaze can be applied to different degree,s I would suggest planters to send samples to me in order to ascertain whether the *degree of glaze* applied is as it should be.

While on the subject of green tea, I might mention that I deprecate describing Ceylon green tea as Chinas are graded, viz. "Hyson," &c., far better grade as per Mr. Deane's letter or as suggested by Messrs. Larkin, viz. Ceylon black tea gradings with the prefix green, to which I would add, *avoid* the word "Broken," as brokenness, in green tea, condemns; thus we have "O.P.," "P," "P.S.," "Souchong," &c., all *leafy* grades.

Apologising for taking up so much of your valuable space.—Yours faithfully,

F. F. STREET.

GREEN TEA MANUFACTURE IN CEYLON.

Writing to a Madras paper ("Planting Opinion") Mr. Drummond Deane gives the following list of proprietors or Agents in Ceylon as using his patent process:—

Ceylon Tea Plantations ...	2
Eastern Produce and Estates ...	2
Maskeliya Tea Co. ...	1
A E Wright, Esq. ...	1
E Rosling, Esq., Chairman, Ceylon Planters' Association, Hon. J N Campbell, Ceylon Planters' M. L. C. ...	1
C P Hayley, Esq. ...	1
Messrs. Geo. Steuart & Co. ...	2

and several more are on order.

This makes ten factories so far in all. Mr. Deane adds:—

"So far no one in India has tried my method, I suppose, on the principle "that nothing good can come out of Ceylon." I hope shortly to have permission from London to go in for "green Teas" myself, but "London Agents" don't like teas going to America naturally, and there's the *rub*, when one is financed from London."

The *Indian Planters' Gazette* of August 25th, says:—"Letters from planters in the tea districts point to the fact that the green tea manufacturing mania has not caught on in Bengal and Assam. With the exception of one or two faddists, no one gives it even so much as a thought."

CEYLON TEA IN AMERICA.

The total imports, exports, and net imports of tea for the fiscal year ending June 30th, 1900, were as follows:

Imports from—	Pounds.
China	40,867,290
Japan	35,189,623
East Indies	4,455,450
United Kingdom	2,441,400
British North America ..	1,352,616
Other Asia and Oceanica ..	302,636
Other countries	231,476
Total	84,843,491
Exports	1,539,869
Net imports	83,303,622

HINTS TO HAY GROWERS.—The hay-growing experiments by Sir John Lawes at Rothamsted Park have had interesting results. On land which has had no manure for forty-five years the weight of hay secured is 12¼ cwt. per acre; the plot receiving a mineral manure has given 27 cwt. per acre; while the plot receiving a mixture of minerals and ammonium salts has yielded 38 cwt.; and the plot receiving minerals and nitrate of soda has given 49½ cwt. The heaviest manured plot produced 60½ cwt. per acre, while the same plot on a portion of the land which has received a dressing of chalk in addition to other manures gave 65¼ cwt. per acre.—*Journal of Horticulture*, August 16th.

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1895.	1896.	1897.	1898.	1899.	Av of 30yrs.	1900.
	Inch.	Inch	Inch	Inch	Inch.	Inch.	Inch.
January ..	5·00	2·92	3·81	2·32	6·98	3·22	3·72
February ..	0·81	0·35	1·68	1·98	2·78	1·93	0·63
March ..	1·84	5·64	3·66	4·21	0·88	4·78	3·71
April ..	9·34	5·93	10·97	22·81	6·66	11·31	15·12
May ..	10·09	9·31	8·30	5·80	17·73	12·09	10·63
June ..	13·99	8·37	10·14	10·94	9·23	8·37	7·83
July	0·52	2·85	5·24	6·15	1·11	4·88	6·77
August ..	0·92	6·35	9·09	0·97	0·62	3·67	7·35
September	4·09	10·99	4·58	6·90	1·48	5·01	1·78*
October ..	30·36	16·78	4·71	20·60	12 99	14·52	
November..	5·83	19.81	11·36	17·38	8·58	12·66	
December..	9·44	11·76	8·89	3·05	4·44	6·39	
Total..	92·23	101·06	82·73	103·11	73·48	88·33	57·54

* From 1st to 5th Sept. 1·78 inches, that is up to 9-30 a.m. on the 6th Sept.—ED CO.,

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS FOR JULY 1900.—We append the Monthly Return of rain from which it will be seen that the highest fall in July, was at Padupola in the Central Province. 54·72 inches and the lowest at Potuvil in the Eastern Province, 0·13 inches.

WESTERN PROVINCE.

Negombo, Mr. Bucknall (6) ... 6·01
Kalutara Mr. Gregson (36) ... 8·21
Labugama, Mr. Bond (369) ... 21·32
Henaratgoda, Mr. Silva (33) .. 13·02

CENTRAL PROVINCE.

Katugastota, Mr. Morgan (1,500) ... 12·38
New Valley, (Dikoya) Mr. Ward (3,700) .. 24 81
Helboda (Pusseliawa) Not received (3,300) .. —
Yarrow Estate. Not received (3,400) —
Peradeniya Mr. MacMillan (1,540) ... 16·42
Duckwari, Mr. Edwin (3,300) ... 18·34
Caledonia, Mr. Goork (4,273) .. 19 24
Pussellawa, Mr. Powell (3,000) .. 19 72
Hakgala, Mr. Nock (5,581) ... 9·31
S. Wanarajah Estate, Mr. Tatham (3,700) .. 27·74
Padupola, Mr. Ward .. (1,636) ... 54·72
Mylapitiya, Mr. Fletcher (1,767) ... 0·40

NORTHERN PROVINCE.

Mullaittivu, Mr. Sanmukam (12) .. 3·23
Jaffna Mr. Macdonnel (8) 3·46
Mankulam, (N. Road) Mr. Ebert (167) ... 1·20
Elephant Pass, Mr Silva (7) – 0·74
Vangalachettykulam, Mr. Oorloff (179) .. 0·40
Point Pedro Mr. Chitambalam (24) ... 1·71
Jaffna College, Mr. Cooke (9) 1 77
Kayts, Mr. Macdonnel (8) .. 2·63
Kankesanturai, Mr. .. Hitchcoch (10) .. 1·06
Pallai, Mr. Silva (24) .. 2·65
Murikandy, (North-Central Road) Mr. Silva (7) 0·60
Nedunkeni, Mr. Sanmukam (122) 6·69
Chavakachcheri, Mr. Silva (16) ... 3·55
Udupiddi, Mr. Brown (35) .. 2 09
Marichchukaddi, Mr. Thampue (14) 0·20
Murungan, Mr. Walker (52) 0·20
Vavuniya Mr. Ebert (318) 2 05

SOUTHERN PROVINCE.

Ella Vella Mr. Caldicott (262) 11·65
Kekanadura, do (150) 9·37
Denagama, do (286) 9·20
Udukiriwila Mr. Lourensz (235) .. 5·90
Kirama, Not received (260) —
Hali-ela Mr. Caldicott (200) 9·85
Tissa Mr. Silva (75) .. 1 54
Matara Mr. Caldicott (15) 5·39
Dandeniya, do (167) 7·00
Urubokka, Mr. Caldicott (890) 13·84
Tangalla Mr. Fox (94) 1·95
Mamadola, Mr. Doole (56) .. 2·82

EASTERN PROVINCE

Irrakkamam, Mr. Bower (42) ... 2·74
Devilana, Mr. Vanderstraaten (136) 1·35
Sagamata, Mr. Bower (40) ... 0·48
Ambare, do (65) 2·27
Kanthalai, Mr. Carte (150) 0·27
Allai, Mr. Carte (95) 3·90
Rukam, Mr. Vanderstraaten (120) ... 0·55
Periyakulam, Mr. Carte (20) ... 0·62
Chadaiyantalawa, Mr. Edge (57) 3·43
Kalmunai, do (12) 0·41
Rotewewa, do (30) 0·31
Lahugala, do (70) 1·50
Naulla, do (30) 0·78
Audankulam, Mr. Carte (41) ... 0·81
Manalpuddy, Mr. Vanderstraaten (21) 1·04
Maha-Oya-Tank, Not received (190) —
Potuvil, Mr. Subramaniam (10) 0·13

N.-W. PROVINCE.

Magalawewa, Mr. Gunaratna (176) .. 2·10
Maha Uswewa tank, Mr. Adams (160) ... 0·40
Tenepitiya, Mr. Churchill (8) ... 1·30
Batalagoda, Mr. Madahapola 10·04

N.-C. PROVINCE.

Kalawewa, Mr. Chillappah (268) Nil
Maradankadawala, Mr. Emerson (443) ... 0·20
Mihintale, Mr MacBride (354) .. 0·91
Horowapotana, Mr. MacBride (217) .. 1·44
Madawachchiya, Mr. MacBride (285) .. 0·90
Topare, Mr. Jayewardane (200) .. 0·97
Minneriya Mr. Eves — 0·30

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) .. 3·02
Haldummulla, Mr. Viramuttu (3,160) .. 2·59
Kumbukan, Mr. Rowland (446) ... 2·48
Koslanda, Mr. Rowland (2,258) ... 1·93
Tanamalwila, Not received (550) .. ..
Bibile, Mr. Silva (680) ·51
Taldena, Mr. Fernando (1,100) .. 1·22
Alutnuwara—Mr. Leembruggen (300) 0·88

SABARAGAMUWA.

Ambanpitiya, Mr. Dassanayaka (729) 30·37
Pelmadulla, Mr. Robertson (480) 20·13
Kolonna Korale (Hulandaoya) Mr. Dabre (203) Nil
Avisawella, Mr. Clarke (105) .. 24·17

S. G. O. METEOROLOGICAL OBSERVATIONS FOR MARCH, 1900.

The following is the return of the total fall of rain for March, from which it will be seen that the highest fall was at Meeriabedda, Haputalo 15·49 inches, and the lowest at Puttalam 0·13 inches.

Colombo (40) 3·71
Ratnapura (84) 7·30
Puttalam (27) 0·13
Anuradhapura (295) 3·49
Mannar (12) 0·67
Jaffna (9) 0·34
Trincomalee (12) 0
Batticaloa (26) 0·35
Hambantota (30) 1·40
Galle (48) 5·41
Kandy (1,654) 2·68
Nuwara Eliya (6,188) 0·26
Hakgala, Nuwara Eliya (5,581) 1·11
Badulla (2,225) 3·81
Kurunegala (381) 1·11
Maligakanda, Colombo Mr. Johnson (70) 2·33
Agricultural School —
Colombo, Mr. Rodrigo 1·17
Passara Hospital, Passara (Mr. Thomasz) 2,200 1·30
Welhelmina, Puttalam, Mr. Ratnayeke (131) 0·93
Horakele Estate, Chilaw, Mr. Beven (50) 0·41
Chilaw Kachcheri
Chilaw, Mr. Koch (10) 0·46
Franklands Estate —
Veyangoda, Mr. Beven 3·33
Orange Hill, Ragama Mr. Abdul (50) 4·15
Henaratgoda Gardens, Henaratgoda, Mr. de Silva (33) 2·93
Kotua Godella, Rambukana Mr. Windus (580) ..
Eadella or Liberia Estate Polgahawela Mr. Inches (425) 2·25
Geekianakanda, Neboda Mr. Towgood (200) 9·71
Polgahakanda, Neboda Mr. Wight (300) ..
Labugama, Hanwella, Mr. Bond (369) 4·88
Rayigam, Horana, Mr. Dawson, (300) 6·86
Kalangama, Avisawella Mr. Cooke (200) 4 10
Dunedin Estate, Avissawella, Mr. Bayley, (400) 4·16
Digalla Avisawella, Mr. Tottenham, (400) 3·24
Pambagama, Avisawella, Mr. Bridgman (600) ..
Avisawella Estate Avisawella Mr. Byrde (250) 7·03
Yatideriya, Kegalla, Mr. Fairweather — 37·0
Mahawalatenna, Balangoda Mahawalatenna R. M. 5·13
Agarsland Estate Balangoda Mr. Boyd (2,215) ..
Maduwanwala, Rakwana, Maduwanwala R.M. (750) 5·08
Anninkanda, Morawaka, Mr. Anderson, (1,400) 5·39
Panilkanda, Morawaka, Mr. Davidson. (1,900) 5·54
St. John Del Rey, Bogawantalawa Mr. Glanville (4,300) 1·91
Friedland, Bogawantalawa Mr. Rammell (5,200) ..
Camdon, Bogawantalawa, Mr. Gidden, (4,840) 2·58
Blair Athol, Dikoya, Mr. Lane (3,641) 6·85
Annfield, Dikoya, Mr. Dickson (4,300) 3·45
Maskeliya Hospital, Maskeliya Mr. Poulier (4,200) 6·14
Hope Estate, Hewaheta, Mr. Shipton (5,400) 2·77
Coldstream Estate, Watawala Mr. Spedding (3,800) 1·65
Holmwood Est., Agrapatana, Mr. Bosanquet (5,240) 3·03
Sandringham, Agrapatana Mr. Orchard (5,200) 0·86
Gingran-oya, Kotmale, Mr. Cox (3,800) ..
Labookelle, Ramboda, Mr. Stone (5,000) 1·67
Dunsinane, Pundaluoya, Mr. Metcalfe (4,600) 0 83
Sogama, Pussellawa, Mr. Eustace (3,500) 3·52
Kurundu-oya, Maturata, Mr. MacMahon (5,150) 2·79
Kabaragalla, Maturata, Mr. Maclean (4,400) 1·36
Maragalla Estate, Moopana, Mr. Bett, (2,200) 3·11
Mupana, Hospital, Mupana (Mr. Sela) (500) 1·43
Madulsima Hospital, Lunugala Dr. Vethecan (2,600) ..
Badulluwella H'pital, B'wella Dr. Oorloff, (450) 2·23
Meeriabedda, Haputale, Mr Dupuis (3,600) 15·49
Udahena Estate, Haputale, Mr. Bisset, (4,100) 14·16
Haputale Hospital Haputale Mr. V. San (4300) 5·53
Post Office, Bandarawela, Mr. Mendis (4,033) 2·00
Callander, Ohiya Mr. Green (5,125) ...
Mariawatte, Gampola Mr. Salmond (1,600) 4·22
Orwell Estate, Gampola Mr. Taylor (1,800) 3·73
New Forest, Deltota, Mr. Wardrop (3,500) 6·29
Rajawella. Estate, Telleniya Mr. Miller, (1,500) ...
Lower Stirling Valley, Badulla Mr. Rettie (3,650) 4·20
Gourakele Estate, Badulla Mr. Hope (1,200) 2·79
Monsagala Estate, Badulla Mr. Deaker (4,500) 3·64
Ledgerwatte, Badulla Mr. Rettie (4,000) 1·96
Hambegamuwa Tank, Badulla (Ranbanda Korala) 2·02
Dea Ella Estate, U'walatenna Mr. Vanderslott (800) 0·26
Sembawatte Estate, N'pitiya Mr. Jamieson (1,600) 3·56
Gammaduwa, Estate, Rattota Mr. Westland (2,400) 1·16
Kobonella Estate, Rangala, Mr. Pole (3,300) ..
St. Martins, Rangala, Mr. Ellis (3,600) 2·15
Crystal Hill, Matale, Mr. Van Starrex (1,400) 0·75
Vicarton Estate, Matale Mr. Carile (3,250) 1·27
Matale Mr. Tisseveraisinghe (1,208) 0·94
Wariapolla, Matale, Mr. Dickenson (1,200) 1·43
Dambulla, Mr. Chinnayyapelai (400) 2·02
Kotta Estate, Pallai, Mr. Todd (13) ...
Mantota Hospital, Mannar, Mr. Adams (17) 0·75
Buttala Hospital, Buttala, Mr. Perera ... 6·81
Police Station, Hatton Police Constable Miskin (1,141) 3·48
Medway Estate Nilaveli, Mr. Abraham, .. 0
Delwita, Kurunegala Mr. Price (490) 1 .9
Pathegalla, Kegalla Mr. Sancti (550) 1·00
Woodside, Uragalla Mr. MacMahon (3,000) 0·38
Gillardstown, Wattegama Mr. Hardy (2,500) 2·39
Ja ela Hospital, Ja-ela Mr. Fernando (4) 3·12
Maspana, Uda Pussellawa Mr. Jones (2,000) 1·59

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions
Agra Ouvah Estates Co., Ltd.	500	900	—	—
Ceylon Tea and Coconut Estates	500	—	..	—
Castlereagh Tea Co., Ltd.	100	90	—	—
Ceylon Hills Estates Co. Ltd.,	100	—	25	—
Ceylon Provincial Estates Co. Ltd.	500	—	500	5 0
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	7	75	—
Clyde Estates Co., Ltd.	100	40	—	—
Doomoo Tea Co., Ltd.	100	65	—	65
Drayton Estate Co., Ltd.	100	120	150	—
Ella Tea Co., of Ceylon, Ltd.	100	..	—	—
Estates Co., of Uva, Ltd.	500	200	250	200
Gangawatta	500	—	—	—
Glasgow Estate Co., Ltd.	500	955	—	9 5
Great Western Tea Co.,	500	—	610	—
Hapugahalande Tea Estate Co.	200	—	—	—
High Forests Estates Co., Ltd	500	525	—	—
Do part paid	350	—	—	—
Horekelly Estates Co., Ltd.	100	—	—	—
Kalutara Co., Ltd.	500	—	375	—
Kandyan Hills Co., Ltd.	100	—	70	—
Kanapediwatte Ltd.	100	—	—	—
Kelani Tea Garden Co., Ltd.	100	—	—	—
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	70	—
Maha Uva Estates Co., Ltd	500	—	..	385
Mocha Tea Co., of Ceylon, Ltd.	500	625	—	—
Nahavilla Estate Co., Ltd.	500	—	400	—
Neboda Tea., Co. Ltd	500	—	500	—
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estate Co., Ltd.	100	—	—	—
Palmerston Tea Co., Ltd.	500	—	500	—
Penrhos Estates Co., Ltd.	100	—	100	100 xd
Pine Hill Estate Co., Ltd.	60	—	...	45
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	—	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co. Ltd.	100	$52\frac{1}{2}$	—	50
Roeberry Tea Co., Ltd.	100	65	—	—
Ruanwella Tea Co., Ltd.	100	—	40	40
St. Heliers Tea Co., Ltd.	500	510	—	—
Talgaswela Tea Co., Ltd.	100	—	—	—
Do 7 per cent Prefs.	100	—	..	—
Tonacombe Estate Co., Ltd.	500	—	450	—
Udahage Estate Co., Ltd.	100	...	..	—
Udugama Tea & Timber Co., Ltd.	50	..	..	—
Union Estate Co., Ltd.	500	200	...	—
Upper Maskeliya Estate Co. Ltd.	500	—	450	...
Uvakellie Tea Co., of Ceylon, Ltd.	100	65	..	65
Vogan Tea Co., Ltd.	100	...	75	75
Wanarajah Tea Co., Ltd.	500	..	1000	..
Yataderiya Tea Co., Ltd.	100	...	375	..

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions
Adam's Peak Hotel Co., Ltd.	100	25	..	..
Bristol Hotel Co., Ltd.	100	..	...	125
Do 7 per cent Debts	100	107·50	...	...
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	...	...	...
Colombo Apothecaries' Co. Ltd.	100	142·50	145	145
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	..
Colombo Fort Land and Building Co., Ltd.	100	95	100	95
Colombo Hotels Company	100	..	300	300
Galle Face Hotel Co., Ltd.	100	..	150	147·50
Kandy Hotels Co., Ltd.	100	...	...	...
Kandy Stations Hotels Co.	100	..	30	...
Mount Lavinia Hotels Co., Ltd.	500	150	175	...
New Colombo Ice Co., Ltd.	100	175	..	...
Nuwara Eliya Hotels Co., Ltd.	100	...	...	..
Do 7 per cent prefs	100	..	100	..
Public Hall Co., Ltd,	10	15	...	..

LONDON COMPANIES *

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions
Alliance Tea Co., of Ceylon,	10	$8\frac{1}{2}$	$9\frac{1}{2}$—10	..
Anglo Ceylon General Estates Co.	100	..	35—45	..
Associated Estates Co., of Ceylon	10	..	3—4	...
Do. 6 per cent prefs.	10	..	$6\frac{1}{2}$—$7\frac{1}{2}$	..
Ceylon Proprietary Co.	1	...	$\frac{5}{8}$—$\frac{7}{8}$	..
Ceylon Tea Plantation Co., Ltd.	10	..	26—27	..
Dimbula Valley Co., Ltd.	5	..	$5\frac{1}{2}$—6	..
Do prefs.	5	..	..	...
Eastern Produce & Estates Co.	5	...	$5\frac{1}{2}$—$5\frac{3}{4}$	...
Ederapolla Tea Co.,	10	...	8	...
Imperial Tea Estates Co., Ltd.	10	...	..	..
Kelani Valley Tea Assen., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	7—8	..
Lanka Plantation Co., Ltd.	10	$4\frac{1}{2}$	4—5	..
Nahalma Estates Co., Ltd.	1	..	$\frac{1}{2}$—$\frac{3}{4}$	..
New Dimbula Co., Ltd.	1	...	$2\frac{1}{4}$—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	10	...	...
Ouvah Coffee Co., Ltd.	10	..	5—7	...
Ragalla Tea Estates Co., Ltd.	10	..	10	..
Scottish Ceylon Tea Co., Ltd.	10	.	13—15	...
Spring Valley Tea Co., Ltd.	10	3	4—5	..
Standard Tea Co., Ltd.	6	..	11—12	..
The Shell Transport and Trading Company, Ltd.	100	..	...	..
Yatiyantota Ceylon Tea Co., Ltd.	10	...	8—9	...
Do. pref. 6 o/o	10	...	$9\frac{3}{4}$—$10\frac{1}{4}$	..

BY ORDER OF THE COMMITTEE.

Colombo, August 31st, 1900.

*Latest London Prices.

THE LOCAL MARKET.

Colombo, Sept. 5th, 1900.

COFFEE:—	
Estate Parchment per bushel	R8·00 to 10·50
Chetty do do	Nil.
Native Coffee per cwt.	Nil.
do F. O. B per cwt.	Nil.
Liberian coffee:—per bushel	Nil.
do cleaned coffee:—per cwt	Nil.
Cocoa unpicked:—per cwt	R40·00 to 45·00
do cleaned do	R49·00 to 50·00
Cardamoms Malabar per lb	R·50 to 1·00
do Mysore do	R1·25 to 1·50
RICE:—	
Soolai per bag of 164 lb. nett	R9·62 to 9·87
1st quality:—per bushel	R3·70 to 3·75
Soolai 2 & 3rd. do do	R3·60 to 3·65
Coast Calunda	R4·12 to 4·25
Coast Kara	R3·75 to 4·00
Kazala	R3·55 to 3·58
Muttusamba Ordinary	R5·37 to 6·00
Cinnamon per lb No 1 to 4	R0·52 to 53·00*
do do 1 and 2	R00·61 to 00·62
do Chips per candy	R92·50 to 95·00
Coconuts Ordinary per thousand	R35·00 to 38·00
do Selected do	R36·00 to 39·00
Coconut Oil per cwt	R14·25 to 14·50
do do F. O. B. per ton	R285·00 to 290·00†
POONAC:—	
Gingelly per ton	R97·50 to 100·00
Coconut Chekku do	R82·50 to 85·00
do Mill (retail) do	R85·00
Cotton Seed per ton	R85·00
Copra per candy	
Kalpitiya do	R45·00 to 45·75
Marawilla do	R44·00 to 45·50
Cart Copra do	R36·00 to 42·00
Satinwood per cubic feet.	R2·00 to 2·25
do Flowered do	R5·00 to 6·00
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R75·00 to 175·00
Kitul fibre per cwt	R30·00 to 32·00
Palmyra do do	R4·00 to 14·50
Jaffna Black Cleaned per cwt	R14··0
do mixed do	R11·00 to 12·00
Indian do	R8·00 to 12·00
do Cleaned do	R10·00 to 13·50
Sapanwood per ton	R50·00 to 55·00
Kerosene oil American per cases,	R6·75 to 6·85
do bulk Russian, per tin	R3·12 to 3·15
do Russian per cases	R6·50 to 6·80
Nux Vomica per cwt	R2·00 to 3·50
Croton Seed per cwt	R23·00 to 28·00
Kapok cleaned f o b per cwt	R24·00
do uncleaned do	R5·50
Plumbago per ton, according to grade — Large lumps	R300·00 to 700·00
Ordinary size lumps	R250·00 to 600·00
Chips	R150·00 to 450·00
Dust	R75·00 to 300·00

* Unassorted, sorted and baled 58 cents.

† Casks extra.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 3rd Sept. 1900.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·40
Do. dull medium do. 1·20
Special assortment, 0 and 1 only do. 1·70
Seeds do. 1·30

CINCHONA BARK:—
Per unit of Sulphate of Quinine 11c—1½ to 3 o/o

CINNAMON :—
Ordinary assortment per lb. 58c.
Nos. 1 and 2 only per lb. 62c.
Nos. 3 and 4 only per lb. 53c.

CINNAMON CHIPS :—
Per candy of 560 lb R95·00

COCOA :—
Finest estate red; unpicked per cwt R50·00
Medium do do ,, 45·00
Bright native, unpicked and undried ,, none
Ordinary do do do ,, none

COCONUTS—(husked).
Selected per thousand R48·00
Ordinary ,, R39·00
Smalls ,, R30·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R82·50
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb. 13¾c

COCONUT OIL—
Dealers' Oil per cwt. R14·50
Coconut Oil in ordinary packages, f. o. b. per ton R322·50 Sellers at R322·50

COFFEE.—
Plantation Estate Parchment on the spot per bus. R10·50.
Plantation Estate Coffee f.o.b. (ready) per cwt.—R55·00
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb. 65c.

COPRA—
Boat Copra per candy of 560 lb. R45·50
Calpentyn Copra do do R45·75
Cart do do do R42·00
Estate do do do R45·50

CROTON SEED per cwt R22·00

EBONY—
Sound per ton at Govt. depot R175.—Next sale 3rd September.
Inferior R120.—Next sale 3rd September.

FIBRES—
Coconut Bristle No 1 per cwt R11·50
Do ,, 2 ,, none
Do mattress ,, 1 ,, 4·00
Do ,, 2 ,, 3·50
Coir Yarn, Kogalla ,, 1 to 8 18·00
Do Colombo ,, 1 to 8 16·00
Kitool all sizes 38·00
Palmyrah 16·00

PEPPER—Black per lb 28c.

PLUMBAGO—
Large lumps per ton R700
Ordinary lumps do 600
Chips do 450
Dust do 300
Do (Flying) 125

SAPANWOOD— per ton R52·50

SATINWOOD (ordinary) per cubic ft. R2·50

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	70	55	35
Orange Pekoe do	70	46	39
Pekoe do	50	38	32
Pekoe Souchong do	34	29	29
Pekoe Fannings do	34	25	28
Broken mixed—dust, &c. per lb	27	24	20

CEYLON EXPORTS AND DISTRIBUTION, 1899-1900.

COUNTRIES	Tea. 1900 lbs.	Tea. 1899 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon. Bales lbs.	Cinnamon. Chips. lbs.	Coconut Oil. 1900 cwt	Coconut Oil. 1899 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts. No.	Plumbago. 1900 cwts.	Plumbago. 1899 cwts.	Fibre.	Ebony cwts.	Sapanwood cwts.
To U K. ..	77953114	68717757	5135	..	5135	17503	246758	548672	197682	156397	88821	14298	5234810	..	8117295	78 40	120 65	36139	280	7324
,, Austria ..	11132	7358	..	..	..	..	..	1500	19600	6479	2064	22753	75470	...	..	2	14	...	..	1266
,, Belgium ...	12455	9983	70	..	70	417	...	29434	79966	1025	1006	55419	283324	54286	...	25618	23793	12565	...	..
,, France ..	174626	73707	..	...	..	78	3407	81488	33484	..	..	20094	17902	201	..	102	814	400	220	..
,, Germany ..	238762	259907	336	..	336	289	62970	322242	351974	8245	1412	40085	669796	47610	465979	34249	53262	10052	2045	2880
,, Holland ..	2000	12860	..	..	..	...	...	..	55888	..	..	..	110530	.	25050	912	5776	200	...	...
,, Italy ..	5007	8716	..	..	..	...	519	57100	63392	..	404	1500	..	..	3018	..	..	..	45	...
,, Russia ..	5513548	2426966	128	..	128	..	..	..	...	..	..	42354	..	...	1590	1004	1188	...	..	..
,, Spain ..	15130	11800	..	...	..	...	..	130000	25200	..	..	..	...	...	..	..	...	.	..	..
,, Sweden ..	51118	35986	9	..	9	..	4051	2400	..	...	206	4403	...	..	..	105	307	...	...	...
,, Turkey ..	15291	11007	..	..	..	..	1000	...	10	.	..	1	...	..	2000	...	..	..	...	...
,, India ..	568193	361001	160	4	164	...	42393	500	..	47265	42237	146		..	115650	930	356	120	..	23
,, Australia ..	10488313	10326046	2006	..	2006	20	336	4220	12976	83	373	..	363678	..	..	1637	759	2539	27	.
,, America ..	3288908	1961887	85	..	85	561	2201	219000	120400	40784	69932	..	1052965	...	..	100350	205741	6028	..	..
,, Africa ..	134476	214658	16	..	16	..	1512	100	2408	...	..	..	23410	...	1107225	..	..	1787	..	...
,, China ..	911686	867336	24	...	24	82	1800	67400	...	827	2880	20	83555	...	..	41	100	...	..	...
,, Singapore ..	62988	44792	1	..	1	675	1340	..	..	1927	22333	..	...	..	–	...	..	42	...	..
,, Mauritius ..	700	64381	..	..	..	..	...	...	..	..	..	...	...	..	...	..	...	..	..	...
,, Malta ..	254378	183402	..	...	..	..	..	..	..	...	...	...	..	..	..	..	..	..	..	...
Total export from 1st Jan. to 3rd Sept, 1900	99701825	85599530	7970	4	7974	19625	368287	1464056	960940	363032	231663	1093	7904440	102097	9837807	243190	412178	69872	2617	11493

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, August 8th, 1900.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	44s a 55s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt.		
Zanzibar & White ,,	Good to fine	£6 a £7 10s
Bombay Yellow ,,	Fair ,,	£6 10s a £7 ?s 6d
Madagascar ,,	Dark to good palish	£6 5s a £6 10s
CAMPHOR, China ,,	Fair average quality	187s 6d
Japan ,,	,, ,, ,,	192s 6d
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 6d a 2s 9d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s 7d a 4s 2d
	Seeds .	1s 10d a 2s 4d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish .	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	1s 10d a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	3¼d a 4¼d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	37s 6d a 47s 6d
CINCHONA BARK.— lb.	Ledgeriana Orig. Stem	3¾d a 6¾d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅜d a 5⅜d
	Renewed	5¾d a 7½d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb	Ordinary to fine quill	11d a 1s 8d
2nds	,, ,,	10d a 1s 7d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	2½d a 9d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar and Pemba	Good and fine bright	3⅞d a 4d
	Common dull to fair	3⅜d a 3¾d
Stems ..	Fair	1½d
COFFEE Ceylon Plantation ,,	Bold to fine bold colory	100s a 115s
	Middling to fine mid ..	85s a 95s
	Low mid. and low grown	75s a 82s 6d
	Smalls	55s a 75s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	37s a 45s
COCOA, Ceylon ,,	Bold to fine bold	90s a 105s
	Medium and fair	80s a 88s
	Native	70s a 78s
COLOMBO ROOT ,,	Middling to good	12s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£14 a £19
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£18 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	30s a 40s
CUTCH ,, ,,	Fair to fine dry	2[illegible]s a 35s
GINGER, Bengal, rough ,,	Fair	28s 6d
Calicut, Cut A ,,	Good to fine bold	75s a 85s
B & C ,,	Small and medium	35s a 72s 6d
Cochin Rough ,,	Common to fine bold	25s a 33s
	Small and D's	25s a 28s
Japan ,,	Unsplit	24s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red ...	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		67s 6d a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 85s
	Ord. stony and blocky	8s a 25s
KINO ,,	Fine bright	1s a 1s 3d
MYRRH, picked ,,	Fair to fine pale	65s a 75s
Aden sorts ,,	Middling to good	33s a 55s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 2¾d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS.
INDIARUBBER, *(Contd).* Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s 3d
Mozambique ,,	Good to fine Ball ..	2s 8d a 3s 6d
	Ordinary to fair Ball..	2s a 2s 10¾d
	Low sandy Ball ..	1s 3d a 1s 7d
	Sausage, fair to good .	2s 6d a 3s 3d
	Liver and livery Ball	2s 4d a 3s 1½d
Nyassaland ..	Fair to fine ball .	3s a 3s 2d
Madagascar ,,	Fr to fine pinky & white	3s a 3s 3d
	Fair to good black ..	2s a 2s 10¾d
	Niggers, low to fine ..	11d a 2s 8d
INDIGO, E.I. ,,	Bengal—	
	Shipping mid to gd violet	3s 7d a 4s 6d
	Consuming mid. to gd.	3s a 3s 6d
	Ordinary to mid.	2s 9d a 3s 2d
	Mid. to good Kurpah	2s 4d a 3s
	Low to ordinary	2s a 2s 3d
	Mid. to good Madras	1s 7d a 2s 6d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a [illegible]s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 4d a 1s 4½d
MYRABOLANS, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 4d a 2s 6d
Bombay & Penang ,,	110's to 65's	11¼d a 2s 3d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable	6s 9d
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	3d
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1/0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ..	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	6¼d a 6⅝d
Singapore ..	Fair	6 5-16d a 6⅜d
Acheen & W. C. Penang	Dull to fine	5¾d a 6¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	35s a 40s
	Middling to good small	22s a 25s
chips ,,	Dull to fine bright ..	10s a 20s
dust ,,	Ordinary to fine bright	4s a 11s
SAFFLOWER ,,	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth..	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	53s a 59
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair middling medium	4d a 5¼d
	Common dark and small	1¼d a 3½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's D's and B's Small ...	£4 5s a £5 7s 6d
Mergui ,,	Small to bold ..	£5 12/6 a £7 10s
Mussel ,,	Small to bold ...	18s a £2 10s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	15s a 16s
per cwt. Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 24s
TURMERIC, Bengal cwt.	Fair ...	26s nom.
Madras ,,	Finger fair to fine bold bright	25s a 27s 6d
Do. ,,	Bulbs ..	20s a 21s
Cochin ,,	Finger ..	24s
	Bulbs ...	7s 6d
VANILLOES— lb.		
Mauritius .. 1sts	Gd. crysallized 3½ a 9 in	17s 6d a 27s
Bourbon ... 2nds	Foxy & reddish 4½ a 8 ,,	15s a 22s
Seychelles 3rds	Lean and inferior ...	10s a 13s 6d
VERMILION lb.	Fine, pure, bright ...	3s 6d
WAX, Japan, squares cwt	Good white hard ...	32s 6d a 33s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for September :—

Vol. XII.] SEPTEMBER, 1900. [No. 3.

THE BRANDING OF CATTLE.

IT would seem impossible to exactly define where "firing" as a panacea for the ailments of dumb animals ends and branding as a cruel practice begins. In this island the native cattle doctor very frequently resorts to "firing"; indeed his surgery is almost entirely confined to the hot iron, to the neglect of the knife.

I would divide this subject into (1) Therapeutic branding, (2) Branding for identification, (3) Branding for artistic effect, (4) Branding for concealment of theft.

(1.) There are many ailments of the lower animals in which the use of the firing iron is advisable and even imperative. For instance, cattle have sometimes to be fied (*a*) round the eyes in cases of eye disease, (*b*) on the cheek for opening parotic ducts or for inflammation of these ducts, (*c*) round the root of the horns in cases of caries of the horn, (*d*) on the neck for dislocation, which, however, is generally incurable, (*e*) on the shoulder for lameness in that region, (*f*) round the knee joint for inflammation, spavin, rheumatism &c., (*g*) round the fetlocks for sprain, rheumatism, &c., (*h*) about the suffraginous bones for boney exostosis, (*i*) in the region of the loins for weakness or for sprain of the psoe muscles (a rare complication in cattle), (*j*) point of the hip for fracture, (*k*) on the round bone for dislocation, (*l*) on the hock for spavin, rheumatism, &c., (*m*) hind fetlock and suffraginous bones for the same causes as in the case of the foreleg. Firing is sometimes done on the chest in place of setoning, but though both these forms of treatment have their advocates, they might well be replaced by the use of liniments or mild blisters which serve the same object, viz., to act as counter-irritants. Again, for the same reason the left flank is sometimes fired by the natives in cases of hoven or impaction of the rumen, but here also the practice might advisedly be dispensed with. The same might be said with regard to firing round the genital organs in cases of evertion. Firing is sometimes done round tumours and abcesses instead of opening them or externally applying some preparation to dissipate them ; in this case, too, the practice of firing is not to be recommended. There should be no excuse for firing on the cannon bone as cattle do not suffer from splints.

It will thus be seen that the entire body is liable to be fired for various complaints ; but it must be carefully borne in mind that no firing should be done in more than one place at one time. I might here refer to the empirical treatment of horses where blistering has been done at one time from the withers to the coronets in the forelegs, and in some instances also on the loins and both the

hinds. It is not only the branding of cattle by ignorant villagers, but treatment of and operation on animals generally by empirics and ignorant people as well, that call for suppression. What should be done as regards the branding of cattle is that every owner of stock must be required to possess a certificate to the effect that his animals, if branded, have been fired on therapeutic grounds,—and the certificates must be signed by a qualified Veterinary Surgeon or recognised (but better still *licensed*) vederala.

A. CHINNIAH,
Veterinary Surgeon.

(*To be continued.*)

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JULY, 1900.

1	Sunday ..	Nil	17	Tuesday ..	·09
2	Monday ..	·08	18	Wednesday...	·40
3	Tuesday ..	Nil	19	Thursday ..	·26
4	Wednesday...	Nil	20	Friday ..	·14
5	Thursday ..	·02	21	Saturday ..	Nil
6	Friday ..	·02	22	Sunday ..	·60
7	Saturday ..	·02	23	Monday ..	1·56
8	Sunday ..	1·08	24	Tuesday ..	Nil
9	Monday ..	·50	25	Wednesday ...	Nil
10	Tuesday ..	·78	26	Thursday ..	Nil
11	Wednesday...	·07	27	Friday ..	·10
12	Thursday ..	·08	28	Saturday ..	Nil
13	Friday ..	·89	29	Sunday ..	·51
14	Saturday ..	·06	30	Monday ..	·20
15	Sunday ..	·01	31	Tuesday ...	Nil
16	Monday ..	Nil			
				Total..	7·37
				Mean..	·24

Greatest amount of rainfall in any 24 hours on the 23rd July, 1·56 inches.

Recorded by Mr. C. DRIEBERG.

PRACTICAL HINTS TO HORSE-OWNERS.

BY A. CHINNIAH, O.S.V.C.

CHAPTER II. (*Contd.*)—FOOD AND FEEDING.

Guinea Grass is much liked by horses and is to be preferred to other cultivated grasses. It is easily cultivated, but during very dry and hot weather it requires to be irrigated or watered. The cultivation of this grass is carried on more or less throughout the island, but principally in the hill district. The percentage of moisture is less than in water grass, but it is proportionately rich in woody fibre, which is a necessary auxiliary to digestion.

Mr. Guthie of the Department of Agriculture, Sydney, made the following analysis of Guinea grass when rather dry :—

Water	11·26	per cent
Ether Extract (fats, &c.)	10·65	„
Albuminoids ...	11·37	„
Carbohydrates ...	40·54	„
Woody fibre ...	26·08	„
Ash	9·50	„
	100·00	„

Nutrient value = 53½. Nutrient ratio = 1 to 4

Panicum Molle (Mauritius or water grass).—This is a common grass in Ceylon and largely used for feeding cattle and horses. The percentage of water is great and hence the nutrient ratio is lower. During the rainy season most of the lowlands under this grass become flooded, and for that reason one has to be careful in the use of the grass, as it is believed that through feeding of horses on grass cut off flooded lands the parasitic worm known as Filaria oculi finds its way into the eye through the digestive organ. This grass has got to be dried a little before it is given to horses, as it is apt to cause colic if given very wet. Hence in rainy weather particular care has to be taken in feeding with water grass.

Jungle Grass.—Many horses in Colombo are fed on what are known as "jungle grasses." These grasses being very fine are preferred by most horses to cultivated grass. Wild grass is no doubt more nutritious than cultivated grasses, but, as it has a large quantity of roots to which a good deal of earthy matter adheres and is got rid of with difficulty, the grass has to be used with care.

I might here refer to lucerne (*Medicago sativa*) though it does not fall within the grass family (*gramineæ*). Lucerne belongs to the order leguminosœ on which the herbivora depend for their nitrogenous ingredients. It is cultivated in India for feeding horses, but it is not known among horse-owners in Ceylon. Those who can afford it feed their horses on lucerne in place of hay from Australia. There is no reason why lucerne should not thrive in Ceylon, and be used, especially in the hills, for feeding horses; as Mr. Nock of the Hakgala Gardens has shewn that it grows and yields well in the Nuwara Eliya district. Experiments with lucerne at the School of Agriculture, Colombo, proved that it can be grown even in the hottter parts, but that it requires to be irrigated or watered in dry seasons.

POULTRY FEEDING.

The following notes on the subject of feeding poultry published in the *Fancier's Gazette* will repay perusal by those who are poultry fanciers:—

The kinds of grain which are richest in nitrogenous matter are known as leguminous, *i.e.*, beans, peas and lentils. These, however, are not very easy of digestion, and it would not do to attempt to feed poultry entirely on them, but limited quantities of pea meal and bean meal given in the soft food will prove very useful where an extra large quantity of nitrogenous matter is required. But, generally speaking, there is nothing like oats as a general food, both for chickens and for laying hens, as they are especially rich in nitrogenous matter, contain a fair percentage of minerals, and are lowest in the heat forming scale in comparison with barley and wheat and Indian corn. Indian corn is much more freely used in poultry keeping than it ought to be, because it is lowest in the scale of nitrogenous, and highest in that of heat forming. Let us, therefore, apply this information to the three main points.

Chicken Rearing.—Here we want to produce as large a frame as we can; the secret of success in rearing young stock being to grow a frame capable of bearing a heavy weight of meat when the

time comes for fattening. If we give too much fattening food to chickens when they are growing, the tendency is for them not to develop in frame as they otherwise would. The best foods, therefore, for chickens are oatmeal, with a little peameal and a percentage also of lean meat. This latter must be varied according to the circumstances under which they are raised. Chickens which are kept in the country, and have access to a wood or copse where they can obtain plenty of insect life, will need very little, and can be fed almost entirely on oatmeal, whereas those which are kept iu town will need to have this want supplied by the addition of lean or fibrine meat. On the whole excellent results would be obtained by feeding little chickens alternately on biscuit meal, with meat at one time and groats or coarse oatmeal the next. As they grow, of course, the food can be changed, and they can have whole oats instead of groats, and a more liberal percentage of leau meat in proportion. Lean meat contains roughly about 25 per cent of albuminoids.

Laying Poultry.—For the production of eggs poultry also need a large perceutage of nitrogenous matter, as this is required for the formation of the egg; they also need a little extra supply of mineral matter. Now oats are always fairly rich in mineral matter, whilst meat fibre and fish are rich in albuminoids; therefore, it will be found that on the average a somewhat similar diet to that recommeuded for chickens will suit the laying hen. In actual practice I have found that poultry will lay better upon oats than upon any other corn.

The Fattening Fowl.—Here we do not need to give frame-growing foods at all. What is wanted is to increase the amount of flesh and fat. This can be brought about by giving a surfeit, and by preventing exercise, which tends to the distribution of heat and prevents the accumulation of fresh bodily substance. Fatty, starchy and sugary foods are recommended for fattening purposes. Thus fat meat residues, Indian meal, potatoes, rice and cow's milk are amongst the best foods for fattening purposes. Many people of experience recommend oatmeal to be given with milk for fattening purposes, and that is excellent. Oatmeal contains if anything more fat forming matter than Indian meal, and is to be preferred to that on account of its effect upon the colour of the fat. I ought to point out that oatmeal, too, not only contains a considerably higher percentage of albuminoid and fibrine matter than Indian meal, thus being suitable for all the three purposes which have been enumerated, but it does not contain so high a percentage of starchy or heat giving matter, and thus is more easy of digestion than is Indian meal. Oats possess a much higher value as a general poultry food than they are reputed to possess by a very large percentage of the poultry-keepers of my acquaintance. If poultry-keepers would use whole oats more freely than Indian corn and wheat as an evening food for their stock they would obtain better results.

STABLE MANURE AND FRUIT TREES.

The Fruit Grower gives some wholesome advise regarding the indiscriminate use of stable manure in fruit cultivation, which growers would do well to take to heart. We reproduce below the pith of the article under reference:—

Where fruit trees are fed heavily with stable manure they can never be depended upon to produce the best fruits in abundance, and the more that is fed to them, the more insipid and watery will the fruits be. Though nitrogen is necessary, it is only necessary in proper proportion and in conjunction with other elements needed to produce the best results. The tree will not grow without nitrogen, but that is no reason why it should be fed to the trees in excess or in unequal proportions to the other elements. Still it must not be forgotten that ofteu the trees in those soils which contain the largest proportion of nitrogen give fruits which are more watery, and the skins of which are only partially coloured, when contrasted with the fruits grown on the soils containing less nitrogenous materials. So long as the wood growth of the tree is ample each year, remember that the soil contains enough nitrogen and does not need any more fed to it. Lime and potash work wonders in the orchard, and there is no doubt in our mind that were our plantations dressed with applications of lime, muriate of potash and superphosphate, they would yield far better fruits and crops than they are in the habit of doing under the present out-of-date system. We warn our readers against the free use of stable manure in fruit culture, or rather, we repeat our warning—for this journal stands out as the only one in which this idea has been persistently advocated—for we are sure that the dosing of fruit trees with nitrogenous material is a gross error, and if the land is made over-rich, with the organic substauce stable mauure contains, there can be but one result, and that is au increase of wood growth at the expense of fruit. The dung feeders are simply ruining their fruit trees every year that they nauseate the soil with this foul-smelling compound. They are starving their fruit trees really, inducing weak and diseased growth, and in due course the trees will become producers of third-grade fruits, which are a source of annoyance to dealers and of loss to the producers. Here our views are in striking contrast to those of our contemporaries. They advocate the digging of a big hole, into the bottom of which large supplies of dung must be shot, and after covering this with soil they set the roots over this bolus. They argue that in time the roots will reach the manure, and that it will furnish the tree with ample plant food for many years to come. The argument, to our mind, is not convincing. We say, use no manure when planting, and particularly no stable manure. Feed in due course with surface feeding, and thus induce the roots to spread out near the surface. That is the way to secure plentiful crops of large fruits.

CEYLON TIMBERS AS COMPARED WITH ENGISH TIMBERS.

The July number of the *Imperial Institute Journal* contains an interesting report by Professor Unwin, F.R.S., on Ceylon Timbers. We presume the report is based on tests applied to the collection that was sent to the Ceylon section of the Imperial Institute some 8 or 9 years ago. If

so, and considering the age of the specimens (which we think should be noted) the report is a most favourable one for Ceylon timbers. We quote as follows from the report :—

The precise combination of qualities required in a timber for special purposes, including facility of working, uniformity of structure and freedom from defects, appearance, durability, and other qualities, is not to be determined from mechanical tests alone. Further, the results of mechanical tests of the same timber vary with the locality in which the timber is grown, the conditions of felling and seasoning and other circumstances, to a greater extent than is commonly supposed. In some 2,000 tests of different logs of long leaf pine made for the Government of the United States, which had all been selected by the forest officers and subjected to the same treatment, it was found that the crushing strength varied from 2·04 to 4·40 tons per square inch ; the co-efficient of transverse strength from 1·90 to 7·25 tons per square inch ; and the heaviness from 28 to 65 lbs. per cubic foot. Hence very definite deductions from any set of tests on a limited number of logs must be subject to correction.

For European timbers I take the following values as representing fairly what is accepted as the averages of such results as are trustworthy :—

EUROPEAN TIMBERS.

Name of Timber.	Heaviness in pounds per c. foot w.	Crushing strength, pounds per S. inch. *fc*	Transverse strength, pounds per S. inch. *fb*	*fc* / w.	*fb* / w.
Oak	52	10,000	12,000	193	230
Elm	34	10,300	8,000	320	235
Ash	47	9,000	13,000	191	277
Red Pine	37	8,300	8,300	157	224

Broadly speaking the strength of timber increases with its heaviness. The most valuable timbers for structural purposes are those which have considerable strength without excessive weight. The pine timbers so largely used are not only easy to work, but they have good strength in proportion to their heaviness. In the above table the strengths have been divided by the weights per cub. foot and the results are given in the last two columus. Compared in this way, Elm is superior to Oak, and even red pine is not much inferior.

TABLE OF CEYLON TIMBERS.

Name of Timber.		Heaviness in pounds per cubic foot. w.	Crushing strength, pounds per square inch. *fc*	Transverse strength, pounds per square inch. *fb*	*fc* / w.	*fb* / w.
LIGHT TIMBERS.		UNDER 42 lb. per c. ft.				
Sapu	...	41·4	3,490	7,820	84	188
Vinakku	..	40·4	4,290	9,510	106	234
Lunumidella	...	20·4	3,200	5,720	157	280
Walukina	..	32·4	6,100	9,010	188	280
MEDIUM TIMBERS.		42 to 60 lb. per c. ft.				
Panakka	...	54·9	9,200	12,960	167	236
Dawata	..	47·3	5,920	10,820	125	228
Jak	..	43·4	7,550	6,840	174	157
Del	..	48·1	6,500	9,310	135	193
Suriyamara	...	57·0	9,300	14,600	163	256
Ilanthai	..	48·9	6,170	7,790	126	159
Mendora	..	59·7	5,810	13,710	98	230
Ubberiya	...	56·7	7,620	10,090	139	178
Tawenna	..	46·1	7,660	8,070	166	175
Margosa	..	47·3	6,640	11,480	140	244
Halmilla	...	49·9	7,630	15,450	153	310
Suriya	..	50·3	6,230	11,660	124	233
HEAVY TIMBERS.		Over 60 lb. c. ft.				
Gurukina	..	62·6	5,350	8,740	86	140
Satinwood	...	64·3	7,500	13,780	116	214
Milla	...	60·9	6,630	14,760	109	242
Ranai	..	63·3	5,800	10,570	92	167
Chomuntiri	..	75·5	6,530	14,490	86	192
Nedun	..	70·8	8,700	16,040	125	226

Taking the light woods, it is clear that as regards strength in proportion to weight, Lunumidella and Walukina stand best. The remarkably light wood, Lunumidella, is not absolutely as strong as red pine, but in proportion to its weight it is even a better timber. Walukina is weaker than ash, and about the same strength as red pine.

Of the medium woods, Halmilla is strongest in proportion to its weight, and Suriyamara stands next. Ubberiya, which Mr. Stone thinks well of, is somewhat weaker than oak, but it has a greater transverse strength than elm. Tawenna has nearly the same mechanical properties as Ubberiya. Suriyamara is somewhat stronger than either of these.

The heavy timbers do not give very high results. Satinwood has greater transverse strength than oak, but the strength in proportion to weight is not so good. Milla and Chomuntiri have a little greater transverse strength, but their crushing resistance is low. Nedun is the heaviest, and, for cross breaking, the strongest timber. But its constants obtained by dividing the strength by the weight are not so good as those of European timbers.

I know no tests of the shearing resistance of European timbers along the fibre which are trustworthy. But the following results of tests at Watertown Arsenal may be used for comparison with the tests of Ceylon timbers.

			Shearing Strength. Lb. per sq. in.
Ash	—	—	458 to 700
Red oak	—	—	726 to 999
Yellow pine		—	286 to 415
Spruce	—	—	253 to 374

SHEARING STRENGTH OF CEYLON TIMBERS.

Name of Timber.			Shearing Strength along fibres. Lb. per sq. in. *fs*	*fs* / w.
LIGHT TIMBERS.				
Sapu	—	—	753	18
Vinakku	—	—	486	12
Lunumidella	—	—	478	23
Walukina	—	—	337	10
MEDIUM TIMBERS.				
Panakka	—	—	745	14
Dawata	—	—	1,075	12
Jak	—	—	672	15
Del	—	—	1,236	24
Suriyamara	—	—	1,283	22

Name of Timber.			Shearing Strength along fibres. Lb. per sq. in. fs	fs. w.
Ilanthai	—	—	1,013	20
Mendora	—	—	620	10
Ubberiya	—	—	1,066	18
Tawenna	—	—	1,084	23
Margosa	—	—	1,326	28
Halmilla	—	—	830	16
Suriya	—	—	927	18
HEAVY TIMBERS.				
Gurukina	—	—	948	15
Satinwood	—	—	1,903	29
Milla	—	—	1,004	16
Ranai	—	—	925	15
Chomuntiri	—	—	1,333	18
Nedun	—	—	1,486	21

In a few cases the shearing resistance is rather low for light-wood timbers. In most instances. however, it is as high as, or higher than, that of timbers commonly used. Amongst the medium timbers there are seven which have greater shearing resistance than American oak. The figures in the last column show the relative values of the timbers as regards shearing strength.

[The following are the botanical names of the timbers referred to :—

Sapu, Michelia champaca
Vinakku, Pterospermum suberifolium
Lunumidella, Melia dubia
Walukina, Calophyllum bracteatum
Panakka, Pleurostylia Wightii
Dawata, Carallia integerrima
Jak, Artocarpus integrifolia
Del, Artocarpus noblis
Suriyamara, Albizzia orodatissima
Ilanthai, Zizyphus jujuba
Mendora, Vatica Roxburghiana
Ubberiya, Carallia calycina
Tawenna, Cryptocarya membranacea
Margosa, Azadirachta indica
Halmilla, Berrya Ammonilla
Suriya, Thespesia populnea
Gurukina, Calophyllum Burmanni
Satinwood, Chloroxylon Swietenia
Milla, Vitex altissima
Ranai, Persea semecarpifolia
Chomuntiri, Heritiera littoralis
Nedun, Pericopsis Mooniana.—ED. A.M.]

RESOLUTIONS OF THE INTERNATIONAL CONGRESS OF VETERINARY SURGEONS, 1899.

For the following Resolutions respecting the diseases of stock and their prevention (agreed to at the 7th International Congress of Veterinary Surgeons, held at Baden-Baden, July, 1899,) we are indebted to the *Cape Agricultural Gazette*:—

I.—PREVENTIVE MEASURES AGAINST THE SPREAD OF EPIZOOTICS IN CONSEQUENCE OF INTERNATIONAL CATTLE TRADE.

The Seventh International Veterinary Congress considers an effective fight against epizootics, in the interests of the individual States as well as of the public economical welfare, both useful and desirable. The means to be employed are a uniform application of scientific principles and an efficient regulation of the veterinary department, of the intelligence department respecting epizootics, and of international cattle trade.

But the Congress, considering the difference in the economical development and the conditions of traffic as well as the dissimilitude of veterinary organization in the separate countries, does not think the moment has yet come for laying down definite principles of an international agreement.

II.—THE PREVENTON OF FOOT AND MOUTH DISEASE.

It is in the interest of an effectual prevention of Foot and Mouth Disease :

(1) by all and every means to prosecute the scentific investigation of this disease ;

(2) to exclude the infected district from free traffic ;

(3) to submit the traffic in cattle for sale to a strict veterinary police control in such a way, that the cattle of cattle-traders should be placed under the inspection of the police before sale ;

(4) that buttermilk and all other remnants of milk should not be supplied habitually from the co-operative dairies until they have first been submitted to such a temperature as shall insure the extinction of infectious matter ;

(5) that the authorities should be required to order in certain cases the slaughter of animals, the proprietors receiving compensation for the resulting loss ;

(6) to regulate in the whole country, as far as possible, the initiation, the continuation and the completion of the needful veterinary police rules, whereby special weight is to be laid upon the strict carrying out of the separation and disinfection of the clothes of the attendants, etc.

III.—THE NEWEST SUGGESTIONS FOR AN EFFECTUL MEAT INSPECTION.

(1) The Congress desires to draw the attention of the Governments of the States officially represented to the necessity of the general introduction of compulsory inspection of meat.

(2) None other than certificated veterinary surgeons can be summoned as professional men to inspect meat. In places where it is still impossible to establish a regular veterinary service, lay inspectors with limited powers may be provisionally appointed. These must be trained for their profession as much as possible by veterinary surgeons in the larger slaughter houses, be examined by the State, and constantly be controlled in the exercise of their function by veterinary surgeons. Only veterinary surgeons should be appointed as professional inspectors of meat and as the directors of slaughter houses and cattle sheds.

(3) Instruction in meat inspection at the veterinary colleges must be improved and

extended. Meat inspection should be made as far as possible the object of practical examination for a veterinary diploma.

This examination too must take place for the obtaining of the diploma as a veterinary surgeon. Moreover, it is required in this case, that the candidate has worked at least 8 weeks in the meat inspection of a large public slaughter house, standing under regular veterinary supervision.

(4) As a matter of principle, all inspection of meat must be founded on sure scientific bases and experimental rules, which should be agreed upon by an international understanding.

(5) Inspection must be extended to all kinds of butcher's meat and be introduced everywhere. It must include all beasts for the butcher and every kind of meat that serves for human food and public use, whether it be destined for human food and public use, whether it be destined for public sale or private consumption.

(6) The efficiency of meat inspection is only perfect in those places where public slaughter houses exist together with compulsory slaughter. On that account, their erection in as many communes as possible is advisable.

(7) It is necessary for the inspection of fresh slaughtered meat coming from outside:

(*a*) that the flesh of cattle and horses should be brought in at least in quarters, that of swine only in halves, and that of all other animals in an undivided state: and further,

(*b*) that the most important intestines should be in natural connection with the meat.

Fresh meat introduced from foreign countries is subject to the same requirement.

Preserved meat from foreign countries can only be imported if it is kept in a trustworthy, sanitarily unsuspicious manner, and its harmlessness can be affirmed with certainty.

(8) Meat authorized for consumption after inspection must be marked in a proper manner (stamping, leading, etc.).

(9) Meat proved to be harmless but of inferior quality must be sold under declaration at certain places ("Freibänke") under the supervision of the authorities.

(10) The introduction of a universal and compulsory insurance for slaughter cattle under State control is urgently required in the interest of meat inspection and the stamping out of cattle diseases.

(11) The results of meat inspection should be collected for scientific and economical purposes in statistics arranged on a definite plan, in which international uniformity should be aimed at.

ARTIFICIAL CHANGES OF PHYSICAL PROPERTIES OF SOIL.

(Continued.)

Thus, while the methods noted are effective in removing the hurtful excess of water, they may bring about a condition of dryness which in most cases, especially where rain is scarce, and in time of drought is unfavourable to growth of maximum crops. To do away with this difficulty, which militates against the best interests of rational tillage of land, such means of regulations ought to be adopted as will either cause the water to drain off more slowly, or allow of complete stoppage of all flow temporarily. The former can be attained only imperfectly, because in the end all the water not held by the soil is removed; in the latter case, however, with proper care the moisture may be thoroughly utilized in accordance with the nature of the soil and the requirements of the crops. Drainage cannot be controlled effectively with open ditches, but it may very readily be done in case of under drains by calculating the diameter of the drain pipe on the basis of the quantity of water that percolates through hard, heavy soil. According to the experiments of the author, this amounts to 0·0008 cubic meters, or 0·8 litre per second and hectare (=0·56 pint per second per acre). With this as a basis, and starting with the smallest feasible diameter of pipe (4 cm, or 1·6 in.), the drainage system may be so constructed that part of the moisture may be kept in the soil for a long time. This, however, hardly answers the purpose, since the humidity of the soil, especially during the period of plant growth, cannot be fully controlled. Hence it is recommended that open ditches be provided with board dams and drains with flood gates, by means of which the flow of water may be interrupted either partly or entirely, as the occasion may require. This method is simple and easily applied in all ordinary forms of drainage. The higher portions of a dangerously moist field should be reserved for grains and hoed crops, while the lower parts are used for crops which possess a high power of evaporation (such as meadows). Even in this case, however, the plants will suffer, if the moisture in the soil exceeds 70 to 80 per cent. of saturation. The temporary pools which form on very fine grained soils during heavy rains must be removed either by direct withdrawal of the water (water furrows), or by such means as will bring about a diminution of the water capacity; in other words, an increase in permeability or an increase of evaporation from the soil. In the first case effort must be directed principally toward producing a crumbly structure through cultivation and manuring, as suggested above, since by this means the water-holding capacity of the soil is reduced and percolation promoted. On extremely fine-grained soils (clay soils, black-earth), which in their unmodified condition offer the greatest resistance to the passage of water and become thoroughly moist only with the greatest difficulty, this process is indispensable in order that the precipitation may be of any use at all to plants. A favourable modification of

the water capacity and penetrability of such soils may also be brought about by admixture of soils of opposite physical characteristics, as, for instance, coarser grained soil (sand). By this means stiff soils are rendered more easy to cultivate, and are more readily changed into a condition of separate grain structure.

Enlarging the surface of evaporation, as is done in ridge and hill culture, is another means of preventing harmful accumulation of water in soils. By this means, also, a portion of the rain water is removed from the reach of the plants by flowing into the furrows between the rows.

Close planting also assists to some extent in reducing the moisture in the soil by increasing the amount of water drawn from the soil by the crop.

It is a mistake to allow wet soils to lie fallow, especially in wet seasons, because the conditions in fallow soils are much less favourable to evaporation than in cultivated soil. Allowing soils to lie fallow, however, is not harmful; on the contrary, it may be useful if the soil during a previous long drought has become dry to a considerable depth.

Lack of moisture in a soil may be corrected either by direct application of water (irrigation) or by increasing the absorptive power of the soil. Irrigation is to be recommended in all cases in which the water supplied by precipitation is insufficient for the production of maximum crops. The point at which irrigation becomes necessary varies in different localities and is determined by the energy of evaporation, the water-holding power of the soil, and the distribution of precipitation. In the warmer climates we may assume, as a rule, that when precipitation is less than 24 to 28 in. irrigation is required for maximum crops, while in colder localities in which evaporation is less rapid and crops smaller, on account of the low temperature, the limit may be placed at about 16 in.

With regard to the treatment of soils which have little water capacity, great permeability, and favourable conditions for evaporation, the aim should be mainly to keep the ground water at a proper level, or, if this is not possible, to increase the water capacity of the soil.

The latter may be accomplished by admixture of fine-grained, earthy materials (clay, loam and marl), or by increasing the percentage of humus through liberal applications of manures of organic origin (stable manure, peat, &c). Another, though less effective, means is rolling the soil, provided it be followed at the beginning of dry weather, by harrowing, hoeing, &c. to reduce evaporation.

For soils of small water capacity such operations as limit evaporation as far as possible are generally recommended. Too frequent ploughing of the soil should be avoided, and ploughed land should be harrowed as soon as dry weather sets in, to reduce the surface of evaporation as much as possible. If the soil becomes too hard, as may happen as a result of violent rains or of rolling, loosening of the surface (harrowing, hoeing) is of great advantage in reducing evaporation and thus retaining moisture in the soil.

Furthermore, hill or ridge culture is to be avoided, since in this case evaporation is greater than in level culture. Close planting should not be practised for the same reason. Allowing the soil to lie fallow may result in the storage of moisture in the soil, but it is recommended only when the soil is dry to a considerable depth. Finally, mulching or covering the soil with a layer of dead vegetable matter (stable manure, straw, &c.) reduces evaporation from the soil for a time at least.

CLINICAL NOTES.

By A. CHINNIAH, G.B.V.C.

I performed successful operations on three dogs suffering from cancer of the penis. In all three cases castration was performed in addition to the ablation of the cancerous growth from the parts. The following letter from Colonel Webster testifies to the fact that my mode of operation has been attended with successful results :—

Berwick House, Cinnamon Gardens,
4th August, 1900.

I have much pleasure in stating that Veterinary Surgeon A. Chinniah was called in to attend my dog, which was suffering from cancer, on the 2nd June, 1899, and after performing an operation—removing the immediate cause of the disease on the 8th September of the same year—was able to perform a further operation resulting in the cure of the dog.

(Signed) H. G. WEBSTER, Lieut.-Col.

CULTIVATION OF THE ARECANUT IN BOMBAY DISTRICT.

(A Note by Mr. J. W. Mollison, Deputy Director of Agriculture, Poona.)

The palm is a native of Cochin-China, Malayan peninsula and Islands. It is cultivated throughout tropical India, but does not thrive at any great distance away from the sea.

Betel palms, cardamoms, and pepper are the chief crops grown in the garden lands of Kánara. In old-established gardens there may be a few jak-fruit and coconut trees, also plantains, limes, coffee bushes, and pineapples. These gardens are chiefly found in Sirsi and Sidádpur taluks and in the whole Collectorate extend to some 17,000 acres. They generally occupy the bottom lands of narrow valleys. The most favourable situations are in valleys which have the slopes on both sides fairly extensive, moderately steep, and covered with forest growth. The forest growth gives beneficial shade and shelter, and supplies the gardens with branchwood, leaves, and litter for manure and other purposes. The garden land extends usually in a narrow strip along the course of any particular valley and is subdivided according to ownership. Bottom land which is open and cleared appears to be more suitable for rice beds than for spice gardens. Some garden occupants also own rice lands, but most commonly they only cultivate garden land. An owner may own three or four acres, sometimes more, often less. All garden owners are Haviks—a shrewd and hardworking,

well-behaved class among the Brahmins. They are supposed to have come originally from Mysore. Their methods of cultivation are almost identical in all gardens, and presumably are ancient in origin. The methods adopted are successful in practice, and although they appear at first sight extraordinarily antiquated to a casual onlooker, they may, like other time-honoured Indian practices, be found on full enquiry the most suitable for the existing natural conditions of the district. The Haviks are well-to-do, as evidenced by their commodious well-built houses, which in many cases are roofed with Mangalore tiles.

The narrow strips of spice gardens follow the course of the old nálas which drained the valleys before the gardens existed. When the gardens of any particular valley were first formed, the bed of the nála was levelled and also the bottom land along its course. Since that time the slopes on either side have been gradually cut away and many of the old gardens are now bounded laterally by almost perpendicular cuttings 10′—20′ in height. These cuttings present a complete barrier against trespass by man or beast and shelter the gardens from storm and wind. The occupants' house and buildings are close to the garden, above the cuttings, usually in a cosy fairly dry situation. A garden is entered by descending a steep narrow pathway or by rude steps which lead to a plank-bridge over a ditch at the bottom, The rainfall of the district is heavy, and the positions of the gardens are such that much drainage water must pass through them. Drainage is thoroughly arranged for by main ditches cut along the course of the garden strips and by cross minor ditches which carry water to the main drainage channels. The main channels are bridged here and there as required by long slabs of stone or by three or four pieces of palm-stem placed side by side. The heavy rainfall and the flood of drainage water in the monsoon undoubtedly wash much of the garden land away, and more particularly so if the soil is not of a particular kind. The most suitable soil is called locally kagdali. This is a yellowish-red or reddish-brown earth which usually exists in deep beds as the side cuttings of the garden show. In these cuttings rock of a soft nature sometimes obtrudes a few feet below the surface, but more often the whole depth of cutting is soil-like in character, and appears in layers which vary somewhat in consistence. There are no definite lines of demarcation between layers; but near the original surface generally there is sometimes a gritty or gravelly section which is considered inferior. Further down there is a layer which presents a shaly appearance which deceives the eye. At first sight it appears hard, durable or rocky, but a piece can easily be broken off by the hand, and if squeezed or rubbed crumbles into an impalpable powder which feels moist and soapy. This soil material as seen in the cutting has a peculiar metallic lustre, but when crumbled is simply a fine argillaceous yellow earth extremely retentive of moisture, and which under pressure becomes consolidated, so that running water does not readily remove it. It is easy to understand that a soil of this class is suitable for a spice garden. It does not matter much whether the soil is naturally fertile or not, because the yield of the crops grown is mostly affected by the quantity and quality of manure directly applied. As regards the soil the chief point is that it must be of such consistence that it can withstand the denuding effect of flood water and be so retentive of moisture that little or no irrigation is required in the fair season. In many gardens irrigation is not required even in the hot weather. At this time a trickling stream fed from natural springs may be seen running along the main channels or a perennial nála passes by the main channels through the garden. The soil is thus kept continuously moist. In such garden ferns and mosses in great profusion and variety grow along the drainage channels. In other gardens not so favourably situated a little irrigation may be required in March, April, and May, and this is arranged for from a tank or tanks usually built of stone and not very capacious, which tap the waters of natural springs.

In laying out a garden, the soil is first levelled and then the drainage channels are made. The main channels are about four feet deep and four or five feet wide at the top with sides having an easy slope to the bottom. The minor cross channels are one foot wide and about 18 inches to 2 feet deep. These channels are exactly parallel. They are distant from each other 12 to 15 feet. The space between is called bharan. The bharan has a rounded surface. It is highest in the middle, thus rain water drains freely to the channels. A pathway runs along the middle of each bharan, or rather by usage the middle of each bharan becomes a pathway. On each side of the pathway, in old-established gardens, a line of alternate betel palms and cardamoms is found with pepper plants trained on the stems of the palms. The palms are 6 to 8 feet apart in the rows. It takes, however, many years of patient labour before the garden gets to this stage. When a new garden is made the bharans are thoroughly dug and weeded. Plantains are planted along the water-courses. They give some direct return for expenditure incurred, but the object in planting them is to provide shade for the betel palms. When the plantations afford sufficient shade, pits 2½ to 3 ft. square and 2½ ft. deep are made. Leaf manure and pieces of plantain are put in the bottom of the pits and then excavated soil partly filled in. The young palm trees four or five feet high and three or four years old are planted in these pits, and sufficient of the excavated earth put round and pressed on the roots to keep the plants straight.

(To be continued.)

ON THE FORESTS AND WASTE LANDS OF CEYLON.

By A. F. Broun, Esq.,

Conservator of Forests.

The lowcountry wet-zone is the country *par excellence* of the Dipterocarps. In the Chilaw and Kurunegala districts, and in the Northern portion of the Colombo district, they are represented only by *Dipterocarpus zeylanicus*,

but further South and East they increase in number and species until, in many cases, they form almost the entire forest. No doubt, several new species will have to be added, and even since the first volume of Trimen's Flora has been published fresh discoveries have been made, a case in point being the *Stemonoporus (? Vatica) Lewisi*, which was found by Mr. F. Lewis of the Forest Department at about 1,000 ft. altitude above Pelmadulla. The curious almost wingless fruit of *Shorea lissophylla* was also found near the Bentota river in the Western Province. The forests of this zone, where they have been saved, are to the eye the most magnificent of the whole island, the trees often reaching a height of 100 feet to the first branch. On this account the trees are often difficult to identify, and it is probable that many are still unnamed, especially as it is not always possible to hit on new species at the time when they are in flower or fruit. The most beautiful of these forests is probably the forest of the Hiuidun Pattu, in the Southern Province; in it the most important Dipterocarps are *Dipterocarpus hispidus*, which in the South almost replaces *D. zeylanicus, D. glandulosus, Shorea oblongifolia, Doona trapezifolia*, which extends up to about 3,000 ft. above sea level, *D. cordifolia, D. macrophylla, D. congestiflora*, which produces a valuable timber, *Hopea discolor* and *Vatica affinis.*

Vatica Roxburghiana is found near streams and in lands subject to inundation in the Western Province and in Sabaragamuwa, while *Vateria acuminata*, which also loves the neighbourhood of water, is found on more rocky ground. The Dipterocarps which are able to ascend to an elevation of 4,000 ft. are *Doona zeylanica* and *D. Gardneri*, and *Stemonoporus Gardneri*, which has been found up to nearly 5,000 feet.

Among the natural orders, which are also widely represented, are the Gutiferœ, the Ebenaceœ, and the Sapotaceœ. The first-named is represented chiefly by the ironwood *Mesua ferrea* and *M. Thwaitesii*, by *Calophyllum spectabile, C. Burmanni*, which extends into the dry country, *C. bracteatum, C. tomentosum, Garcinia cambogia, G. morella*, (the gamboge tree), *G. terpnophylla*, and *G. echinocarpa*, which latter grows up to 6,000 ft. elevation. The Ebenaceœ are particularly abundant in the forests of the Adam's Peak Range, and in the Pasdun and Hiuidun Korales.

Ebony, as has already been mentioned, is found in small quantities in this zone, but the most important tree of this family, which is unfortunately almost extinct, the Coromandel or Calamander wood of commerce, *Diospyros quaesita*, is still found here and there in the Pasdun Korale and in the Hinidun Pattu. Attempts have been made for several years to obtain the fruit in order to propagate the species artificially, but, although rewards have been offered, none has been obtained.

The other most noticeable trees of this family are described by Mr. F. Lewis, who has made a special study of them. In the wet forests, extending from the mountain known as the Haycock into the Sabaragamuwa Province, the most noticeable example of the Ebenaceæ are *Diospyros posia, D. Gardneri, D. insignis*, and *D. Thwaitesii.* The first of these is found up to 3,000 ft. altitude, while the last, though endemic, is restricted to the areas of high rainfall. *D. pruriens* is found very sparingly in the wet forests towards Adam's Peak, and in one place in the Western Province. A remarkable species, possibly a form *D. Ebenum*, locally known as 'Kallu kiria,' occurs at the foot of the Rakwana hills, and is conspicuous by its black lace-like heart-wood, but little is known of its flowers or fruit. One of the most common, but valueless, of the order is *D. insignis*, which extends up to 2,000 feet altitude in the West of Ceylon.

The Sapotaceœ are also well represented, especially in parts of the Matara district. The most important are *Chrysophyllum Roxburghii, Isonandra lanceolata, Bassia fulva, B. neriifolia*, which lines the banks of rivers, *Palaquium petiolare, P. grande*, which extends into the mountain zone, and *Mimusops Elengi* which is also found in the dry zone. Among the more noteworthy trees belonging to other natural orders, the following are characteristic of this zone:—*Dillenia retusa, Wormia triquetra, Cullenia excelsa, Elæocarpus serratus, Kokoona zeylanica, Canarium zeylanicum, C. brunneum, Lasinthera apicalis, Pometia eximia, Campnosperma zeylanicum*, which in places forms almost pure forest, *Pericopsis Mooniana* near water-courses, *Adenanthera pavonina, A. bicolor, Pygeum zeylanicum, Carallia integerrima, C. calycina*, especially in the Galle district, *Anisophyllea zeylanica, Homalium zeylanicum, Symplocos spicata*, the three Myristicas (*M. laurifolia, M. Horsfieldia* and *M. Iriya*). Various species of Cinnamomum and Litsea are also abundant; and, among the Euphorbiaceæ, *Bridelia retusa, B. Moonii, Aporosa latifolia, A. Lindleyana, Ostodes zeylanica, Chætocarpus castanocarpus*, and *Macaranga tomentosa* are the most common; while among Urticaceœ there are numerous figs, *Artocarpus integrifolia, A nobilis*, and *Trema orientalis*. Among the shrubs which characterise this zone may be mentioned *Humboldtia laurifolia, Maesa indica, Agrostis tachys longifolia, A. Hookeri, Ixora coccinea, Ardisia Moonii, &c.*

Most of the palms of Ceylon are found in the zone. The most important by far is *Caryota urens*, the toddy and sugar of which provide many jungle people with means of existence. The Talipot palm (*Corypha umbraculifera*) found in several forests, especially in the Kurunegala district, and is noteworthy for the enormous panicle of flowers which the male tree produces, and for its leaves, which are used for umbrellas, fans, mats, &c. The *Nipa fruticans* is characteristic of brackish waters, while several species of Calamus, with the help of their hooked tendrils, climb to the summits of the highest trees.

Among the characteristic climbers may be mentioned *Coscinium fenestratum, Ancistrocladus Vahlii, Entada scandens, Acacia concinna, Strychnos cinnamomifolia.*

The most beautiful orchid of this zone is the *Dendrobium macarthiæ*; and among the most interesting ferns may be mentioned *Gleichenia linearis*, which covers large extents of country, *Blechnum orientale* and *Nephrolepis exaltata* which, after the first-named, are the most

common, *Cyathæa sinuata,* which is only found in the Southern Province, *C. Walkerii,* the tree fern of the lowcountry, *Thamnopteris Nidus,* the so-called Bird's-nest fern found growing generally on trees, *Asplenium rutæfolium, Diplazium lanceum, D. Schkuhrii, Aspidium Thwaitesii, Lastræa deparioides, Niphobolus Gardneri, Pleopeltis pteropus* (var. *minor*), *Tænites blechnoides* (in the, Matara District), *Drymoglossum heterophyllum. Stenochloena palustris*; *Polybotrya appendiculata, Gymnopteris variabilis, G. contaminans, G. subcrenata, G. quercifolia, Acrostichum aureum* (generally not far from the sea in swampy places), *Schizœa digitata, Angiopteris evecta, Ophioglossum pendulum,* and *Helminthostachys zeylanica. Botrychium d ucifolium* and *Oleandra musæfolia* extend into the mountain zone,

The forests of this zone are of by no means so large in extent as those of the dry zone; they usually occur in isolated blocks, covering ridges and separated by stretches of chena or by paddy fields. The most important blocks are the forests that in former days formed part of the extensive Sinharaja forest; they are situated in the Galle district of the Southern Province, the Pasdun Korale of the Western Province, and the Kukulu Korala of the Province of Sabaragamuwa. The lower forests of the Adam's Peak range also belong to this zone.

GENERAL ITEMS.

A bulletin of the Kansas Agricultnral College advises that dairy cows should be always fed after milking, and never just before or while milking. One reason given for this advice is that there are odours from the feed that may be absorbed by the milk direct, or if there are volatile matters in the food they will taint the milk, while if the food is given after milking, these volatile matters are worked out before the next milking. A cow properly trained will give more milk when she devotes her whole attention to giving milk than when she is fed during milking time.

A correspondent to the *Cape Agricultural Journal* offers the following advice for treating fowl cholera which many will be glad to have:—Take one large tablespoonful of Little's Dip and mix it with *three gallons of soft water,* and in the mixture soak some wheat, lock up the fowls, and give them the wheat to eat and some of the same water to drink. Three or four days of this treatment will stop the epidemic. The treatment, it is said, has been always found successful.

The same journal states that one pound of bisulphide of carbon will destroy all the insect life in 100 bushels of grain in a bin, or will be effective in 1,000 cubic feet of space. It forms a dense gas, heavier than the atmosphere, and consequently it not only permeates the grain but finds its way into all the crevices in which the insects breed. To preserve grain for sowing the best plan is to keep it in an iron tank or tin lined box, if it can be made airtight, and place on the top a piece of cotton saturated with bisulphide of carbon, then close it down, taking care not to let the fumes come in contact with a light. The grain can be left like this till required for sowing and will be perfectly safe from weevils and the germinating power in no way injured.

One of the latest remedies for ants is gasoline. Pour about half a pint into the ant hill and set it on fire. The gasoline will instantly spread throughout the ant hill, and as the heat on the surface increases the gas will generate from the utmost recesses and the fire destroy the ants. Half a pint will burn from three to eight hours and kill every ant in the largest nest and all that attempt to enter it from without.

The following recipe, from a Sydney paper, is said to be a certain remedy against rats, mice and cockroaches:—Take 1 lb. of flour, 2 tablespoonfuls of oatmeal, 4 to 6 oz. of plaster of Paris; mix. dry and place in pans or plates on the floor, in cupboards, &c. Securely cover up all other food in the house and take care that children and pet animals do not have access to the mixture. A correspondent says that he tried the mixture in an old store and killed 600 rats in three nights!

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF AUGUST, 1900.

1	Wednesday ..	Nil	17	Friday ..	·01
2	Thursday ..	Nil	18	Saturday ..	Nil
3	Friday ..	Nil	19	Sunday ..	·05
4	Saturday ..	·28	20	Monday ..	·18
5	Sunday ..	·97	21	Tuesday ..	·05
6	Monday ..	·04	22	Wednesday	·10
7	Tuesday ..	·28	23	Thursday ..	·01
8	Wednesday ..	Nil	24	Friday ..	Nil
9	Thursday ..	Nil	25	Saturday ..	Nil
10	Friday ..	·01	26	Sunday ..	Nil
11	Saturday ..	·11	27	Monday ..	Nil
12	Sunday ..	Nil	28	Tuesday ..	Nil
13	Monday ..	·02	29	Wednesday	·27
14	Tuesday ..	·09	30	Thursday ..	·48
15	Wednesday ..	·06	31	Friday ..	1·07
16	Thursday ..	Nil	1	Saturday ..	3·87

Total..7·96
Mean.. ·25

Greatest amount of rainfall in any 24 hours on the 1st September, 3·87 inches.

Recorded by C. DRIEBERG.

The TROPICAL AGRICULTURIST

MONTHLY.

Vol. XX. COLOMBO, OCTOBER 1st, 1900. No. 4.

PLUCKING, PRUNING AND PREPARATION OF TEA.

THE "*CEYLON OBSERVER*" PAMPHLET OF 1897 ON THE ABOVE SUBJECT.

(By "1874.")

I HAVE gone through this pamphlet again with much interest. I am at present going in for the subject of Pruning and referred to it to try and get some authority for my views. The pamphlet consists of opinions from 84 planters and comments on the letters by the editor. It contains a great mass of information. It would enable a proprietor, visiting his estates, who had no special knowledge of tea, to put shrewd questions to his managers, and ask them to give reasons for the line of action they had adopted. I think that it was unfortunate that the questions were put so as to show the influence of the three P's of the heading, on the fall in prices.

The 6th and 7th questions on the list are for "any other causes *apart* from Overproduction." Surely the range of prices depends *entirely* on the relation between demand and supply. In 1876 my manager made some "blackened" red leaf and got 10 annas for it. The red leaf was blackened by being steeped in ink. The ink was made by boiling hard tea leaves in iron pans. Yet we got 10 annas and the stuff could only be called *tea* because it appeared to be tea. Would it be too much to ask you to re-open the ballot, as applied to each question in turn, and leaving out its relation to average prices ?

I should like to start the question of "Pruning." From your pamphlet I see that the general opinion says that "cutting down" reduces the value of the made tea, until the bushes have begun to get well covered. Some planters condemn cutting down but a large number say that it is necessary at intervals. This is the very point I wish to question. Letter No. 13 from "Hantane" says: "(3) Severe pruning, I have no experience of. I don't prune severely but often, every 12 months or so. The estate is old, the soil poor, but it is liberally manured and pruners are kept at work steadily all the year round. The result as far as I can yet judge has been wholly beneficial, no falling-off in the teas, and good plucking averages all the year round." That was three years ago; it would be interesting to know whether the same system has been carried on up to date. There is only one alternative for cutting down or cutting back and that is to cut out all old and useless wood each time the bush is pruned. The planter quoted above, does not say for how long he has refrained from cutting down, and so his support loses nearly all its value for my contention that "cutting down" *can* be entirely dispensed with if the bush is pruned properly each time it undergoes the knife. By "properly" I mean that all the good yielding branches shall be cut back as far as is judged necessary, but all old branches which have ceased to yield should be removed from the bush so that new branches may take their place. I can say that I have cut down only five acres within the last 10 years. I regret having done so, and I can go on indefinitely without cutting down, because I remove the useless wood each time the bushes are pruned. The test of the fitness of a branch to remain is that it shall have some decent new red wood on it. If it has not grown new wood about three-eighths of an inch in diameter since the last pruning, it has to be cut out or cut back. This work is done by a special gang of men who follow the ordinary pruners. The bush having been pruned is open to inspection. Each branch shows at a glance what it has done in the way of growth. If *all* the branches are bad, only one or two are removed and the rest given another chance, and they generally respond,

and soon begin to grow new wood if they are not heavily plucked too soon after pruning.

Letter No. 15 by "Custos Pamperio Horti" is very strong against hard pruning, and contrasts tea pruning with that of coffee, much to the disadvantage of the former. Did it strike him that the immediate effect of injurious pruning is to give a larger crop of tea leaf, whereas the opposite result would come about with coffee bushes. If the manager has pruned year by year "for leaf" *i.e.* lightly, the yield gradually gets less; the only remedy is to "cut down." But in coffee as soon as a branch or leading stem, (or whatever it was called) ceased to yield it was cut out, and *the rest* of the bush treated in a decent manner. Tea is not treated in this way because it will respond immediately to the knife, whereas to cut down a coffee garden means the loss of the crop for that year.

Letter No. 16 by "W. I. G." says:—"Tea is not nearly so severely pruned as it was a few years ago." Letter No 17 by "Incog" says:—"Tea occasionally requires heavy pruning but this is much overdone.' Letter No. 19 by "G. H. G." says:—"I have often been told by those who have had experience that flavour is greatly lost by cutting down old bushes to 12 to 15 inches after they have reached too great a height after successive prunings. I have never heard that such bushes ever regain their original flavour." Letter No. 27 by "S." says:—"Neither does severe pruning affect the quality, only shortens the life of the bush". I agree here because I believe that each cutting down reduces the vigour of the bush, and that this accounts for the many played out estates which have been abandoned. Letter No. 33 by "J. J." says:—"I am against severe pruning, medium is what I do, cutting down once in 6 years or so." The point of the matter is that discriminate pruning costs money year by year, and to save this expense, the bushes are cut down periodically. It cost little to cut down the bush. The relative cost would be as follows:—(1) cutting down every 6th year @ R2 per acre. 6 cuttings out of old wood @ R2 per acre=R12. Take a garden of 1,000 acres—cutting down cost R2,000, cutting out costs R12,000. Here is a palpable gain in solid coin. But what has the saving cost? First of all one or two invoices of thoroughly bad tea, say 1,000 maunds of tea @ R2 below average value. This means R10,000. Then a reduced outturn for a few years until the bush has re-grown to its full sizes which may be put down at anything up to R30,000. The deceptive part of cutting down is that a portion only of the estate is cut down each year and so no idea of the actual loss either in quality or yield can be formed. In some rare cases a manager advises, or is advised, to cut down the bulk of the estate and *then* follows one memorable year of bad quality and short yield, but still no lesson is learned from this. It is only hoped that the next cutting-down may be long deferred, or done regularly on a fixed proportion of the estate, so that the directors and shareholders shall not *notice* it. If you will not pay the estate extra R2 or R3 per acre per annum to have good pruning done, you will have to pay for it in steady loss, and eventually will lose the whole estate. Money saved on pruning is spent in digging the grave of the estate.

Letter No. 37 by "L." says—"(Severe pruning) is rarely resorted to: one case I know, when this was done, gave very beneficial results, both as regards yield, and at the same time quality was maintained." I hardly think that this refers to cutting down." "L." probably means a thorough cleaning out of the bush leaving all the thick branches. It is quite impossible that cutting the bushes down to stumps can give the same yield as if those bushes had been properly pruned and had not been reduced to such a state of overgrowth that they refused to yield. Cutting down a bush which has ceased to yield will cause it to yield *some* leaf. But judicious pruning will prevent the bush from *ever* getting into a non-yielding state. There *will* be a succession of new branches, if the old ones are removed as soon as they get too old to yield vigorously." Letter No. 45 by "M." says:—"Severe low pruning (necessitated by too close plucking and injudicious modes of pruning) have much to do with the falling off of quality." This is my own view. "Cutting down is necessitated by injudicious modes of pruning." I cannot agree that close plucking is the cause of it unless it has been done too soon after pruning. Give the bush time to grow enough leaf to carry on its proper work, and after that you can take all that appears if you have enough labour to do so. Letter No. 18 by "G." says:—"I believe that a high bush gives a better quality of tea than a bush pruned down low." The system I advocate will keep the bushes at one constant level. Letter No. 50 by "D." says—"Fields of hide bound bushes here and there are treated in this fashion. Severely pruned old coffee-land tea gets more frequent touches of this treatment as the growth generally is more mangy of this class of tea, and more subject to the growth of lichens and other pests." I do not agree with "D." that lichens are one of the pests. Moss on a tea branch means (I think) that the branch has ceased to grow, and to expand. If hard plucking deprived the branch of its leaf, there is not enough sap returned to make new growth of wood. The lichens find a surface (like a rock) which is undisturbed and promptly grow on it. Do you find moss on vigorous branches? If not it is *not* a disease but a sign that some other agency is killing that branch. It is a *sign* that the branch should be removed, because it has stopped expanding.

Letter No. 53 by "L." says—"Excessive cutting down (a pernicious system fortunately fast dying out) reduces the quality and the quantity for many months." "L." is convinced of the necessity of judicious pruning. The whole of this letter might be printed here with benefit. Letter No. 66 by "Old Dimbula":—"I have seen ten year old tea cut down to 9 inches or a foot. The reason given was to get good strong healthy growth." Well, it took three years to grow the size the trees were when pruned; the pluckings all that time have been a loss and the trees have not such good stems as they had previous to the heavy pruning. The trees should be pruned and not merely cut down, and this can't be done under R9 to R10 per acre. Here we have strong support to what I urge as the proper way to treat the bushes. I gave R2 extra per acre as the cost of the thinning out. "Old Dimbula give R9 to R10 as the cost of pruning and thinning out combined, so perhaps I should allow R40 per acre for cleaning out; but even this figure makes no practical difference in the loss from cutting down as compared with the gain of *money* saved by cutting down. I think that I have a good show of hands against "cutting down," but some say that it is necessary. I want to prove that it is *not* necessary. It can't be obviated by judicious pruning, which certainly costs more each year, and I think it *necessary* to have the cleaning out done separately. This entails more expenditure and more supervision, and I think that the *future* good of the bushes has been disregarded for these two reasons. Both Managers and Proprietors concur *because* there is less expenditure and less trouble, and because the enormous harm done by careless pruning is not apparent until the time comes when the bush *must* be cut down; and even then the harm is not noticed because the cost (*i.e.*, the loss) is spread over 5 to 10 years, by treating only portions of the gardens *each* year. If you really want to know the harm done, you must cut down the *whole* estate; the amount of loss having been ascertained, can be divided by 5 or 10, and you will then know whether judicious pruning is advisable, *i.e.*, is the *extra* cost of good pruning equal to the loss from cutting down divided by 5 or 10. The range of 5 to 10 is given for difference in climate, soil, jât of plant, &c. But even here the calculation must not stop. At the end of 5 or 10 years you must *again* cut down the whole estate. You will then find that the loss in yield is greater. And the third time of cutting down will prove

conclusively that it is a great mistake. "Only," your managers have said: "It *must* be done." I want to prove it need *not* be done. If any of the 84 planters who wrote in 1897 will take up this subject, they should not only say whether cutting down is or is not advisable, but they should state what method should be adopted to *prevent* the necessity. My system of pruning is as follows:—First year half the garden is pruned to pencil size, *i.e.*, all wood under three-eighths of an inch is cut out; new wood over that size is left about one to three inches in length; the rest of the garden is left unpruned. The second year this plot is left unpruned. The third year it is pruned lightly, merely cut across about three inches over last pruning. The fourth year it is left unpruned. The fifth year it is again pruned to pencil size. And so on, but at each pruning, when the bush is fully exposed, old wood is cut out, if found not to have made good growth during the two years from the last pruning." I have found this plan to answer for ten years, and as far as I can see it will answer for ever. After pruning I pluck for six months to a standard of two feet—nothing below that level is taken, so that the small bushes can have a chance of growing and the sides of the big bushes are allowed to extend. This growth below two-foot level supplies roots with all they require in the way of leaf to return sap for the wood. I fancy that a root cannot grow in size until it has got sap *returned from the leaves.* And if it cannot grow in size it cannot grow in length and go and fetch food from farther off or deeper down. Supposing the roots to have exhausted the soil, you will not get them to give fresh growth even if you cut the bushes down. If we come to examine the causes of the supposed necessity for cutting down, I think it will be found in the desire for getting the greatest immediate return without considering the future benefit of the estate. It takes a long time to seriously injure the tea bushes, and probably no one manager has ever watched the decadence of an estate, and ascribed it to the harm done by "cutting down." Nor as far as I know has any estate escaped from cutting down for a period of 20 years. If there *is* such an estate it could be used to back up my theory. If a discussion and expression of opinion can be re-started, it would be well to find out whether present-day planters acknowledge or deny that the tea bush *can* renew itself indefinitely from suckers thrown out direct from the roots. My theory is that suckers are not formed until the roots become too much for the upper growth. By judicious pruning and allowing sufficient leaf to the bush, it will grow roots in proportion to the growth above ground; when some of the branches get too old and hide-bound to allow the sap to pass freely, a sucker is formed to take up the surplus sap. The old branches should then be removed so that all the sap can go to nourish the suckers and supply good leaf from it.

But when a bush is cut down the roots do all they can to send out new shoots through the old channels. The roots are much too large for the new plant, and they cannot grow in size because there is not enough growth of leaf left by the pluckers to supply them *all* with sap. Some of them die out or become dormant, and come into use again when the bush has increased sufficiently in size and has enough leaf left on it to send down the sap.

Of course an excessive yield would sooner exhaust the soil, but no one would object to exhaust the soil by this channel, and he would have enough money to restore enough to the soil to maintain the yield of leaf. I think that the time has come to settle the question because the *permanence* of an estate has become one of prime importance. In former times when dividends were larger and easier to get the future was disregarded. It has probably become an accepted belief that every estate *must* deteriorate, but I deny it emphatically, and it will certainly add to the value of an estate if it can be proved that its yielding life *can* be indefinitely prolonged by judicious treatment, and that when the yield falls off from actual exhaustion of the soil it can be kept up by replacing the wanting constituents. There are many trees whose life under suitable conditions runs to thousands of years.

Tea is not old enough yet to state definitely that a bush *must* die within a stated period. It seems to have the power of reproducing itself indefinitely, and I think that this power should be used, and that the growth should not be forced by cutting down. This matter of cutting down tea is entirely one to be guided by the proprietors.

The planter may persuade the proprietor that cutting down is necessary, but he does not explain that this step will cause only immediate yield at the cost of the future efficieny of the estate. The proprietor, not knowing better, consents. He finds that the yield improves for a time, but again falls off. This recurs until the estate cannot respond; it is sold, and that is the end of it.

Machinery *must* wear out, and money is written off year by year for depreciation; equally tea bushes *must* wear out unless money is given year by year for more careful pruning, and they can be made to renew themselves year by year.

AGRICULTURAL EDUCATION IN GREATER BRITAIN.

PAPER READ BEFORE THE FOREIGN AND COLONIAL SECTION OF THE SOCIETY OF ARTS, ON TUESDAY, FEBRUARY 27, 1900.

By R. Hedger Wallace.

(*Continued from page 152.*)

As regards the rest of the African Continent, there only remains for me to mention that practical agriculture is taught in the Mission schools at the Gold Coast. Boys from the Government schools are also trained at a model farm. There is, further, on the West Coast, a scheme of agricultural instruction formulated, covering three years, by which, beginning with a year's work at a local Botanic Station, a selected pupil then proceeds for a year's work in Jamaica, and finishes his final year at Kew Gardens.

Coming nearer home, at Malta agriculture is not taught in the primary schools, but the Third Reading Book contains short lessons on Agriculture. Beyond this, agricultural education does not seem to receive any support. Cyprus also does not seem to have made any provision for affording instruction in agriculture. The aid may be given indirectly, however, for in 1896 Mr. Gennadius, who was formerly Agricultural Adviser to the Greek Government, was appointed Director of Agriculture in this colony.

In making this survey, I have now journeyed right round the world, following the common flag of Greater Britain. Our position in this country is, however, a peculiar one, in respect to agricultural education and many other things, for we are both a great Colonial Power and, at the same time, an assertive Free Trade nation. This, therefore, invalidates any useful comparison being made between ourselves and other nations, and such I do not intend to make. A witty writer has said that our population is brought up "upon grammar and ready-made goods." In Greater Britain these "ready-mades" of whatever nature are not so easily obtainable as here, for it must be borne in mind that in young countries the division of labour is not so complete as in the older ones, and, therefore, every man, in some slight degree, is a jack-of-all-trades. The two golden rules of colonial life being that a man should be prepared and willing to do anything; and, if you want a thing done, do it yourself.

I think it will be admitted that even the little information I have been able to present in this

paper regarding the work accomplished in Greater Britain, indicates that the value of agricultural education is universally recognised in the Empire. Its aim in the self-governing Colonies is to benifit the Imperial rate, and in the rest of Greater Britain to benefit the native race. The agriculturist in the self-governing Colonies, I would add, has, besides all the facilities for gaining knowledge that has already been enumerated the command of services of a large body of scientific men acting as chemists, botanists, vegetable pathologists, bacteriologists, entomologists, &c., in connection with departments of agriculture. Some of the Colonies in this respect are even better equipped than the Mother Country.

I have already stated that those who go abroad to Greater Britain with the intention of engageing in some from of soil cultivation, directly or indirectly, can be arbitrarily divided into two classes—planters and farmers.

As regards the first named, from the survey made it would seem, generally speaking, that agricultural education in Greater Britain is intended almost exclusively for the natives, the planter directs rather than for himself. The question thus arises that seeing that planters commonly cultivate tropical and subtropical plants under similar climatic conditions, is a suitable technical training and experience obtainable at home? Further, would the training of an English agricultural school be of any general service to a planter? These questions are undoubtedly open to a good deal of discussion. The second group is the farming class and again practically the same questions can be formulated. Those who go abroad with the intention of farming find their way into one or other of our self-governing colonies, and they may be arbitrarily sub-divided into two divisions, *i.e.*, those who already have some experience of farm operations and practical farm work, and those who have not. Seeing, then, that in Greater Britain to-day there exists nine agricultural colleges and schools, and that they all make instruction in practical work a distinctive feature of their curriculum, the question is, would both the divisions of settlers just differentiated equally benefit if they studied at these institutions? Two reasons, I think, might be advanced why agricultural institutions, giving practically equal time to class-work and field work, are so universal in Greater Britain. The first is that those who have been settled on the land had themselves previously no experience of farm life, and would have welcomed such an opportunity had it been obtainable in their time, and now they judge of others needs by that of their own in the past. The second reason is that the majority of the pupils who do attend these institution are addmittedly drawn from towns.

Dropping now all arbitrary defferentiation the question here again arises, can a training or education for farm life in Greater Britain be obtained at home? Colonial authorities state emphatically that it cannot. To give one illustration in support of this statement, I may say that I find in "The Government Handbook of Victoria" it is stated, with respect to agricultural education, that "there are institutions in England which profess to give an agricultural education fitting young men for colonial life, but the training obtained under such circumstances must be very defective. The knowledge of colonial conditions must be wholly theoretical, and the time spent in such institutions is likely to be almost entirely lost." Here is an authoritative statement, but, of course, it must be borne in mind, and due allowance be made for the fact that the Governmet in question, like other Colonial Governments, have colleges of their own into which they naturally desire to attract intending settlers. Undoubtedly the practice of Canadian, Australian, and South African farming is not as ours, but then the principles are the same. It matters then little whether it be studied in this country or in some other part of the Empire. The institutions of this country are very naturally better fitted for training English farmers than colonial settlers, and the students attending them are not far removed from the influence of home. In the Colonies, on the other hand, and at the colleges there, the youth would be better trained for colonial life, but of course he would have to undergo an early separation from home and friends and all these two words imply. As to which is the best course to follow, authorities differ.

The agriculture of this country is the result of centuries of experience and progress, and has become definite and specialised, but in the colonies agriculture is passing through the experimental stage only. The secret of success in such a stage of agriculture lies in what should also be the watch word of the colonial farmer adaptability. The colonial settler is called upon to apply in a variety of ways, and to adapt to a hundred purposes whatever knowledge he possesses of observed facts, and common or general principles. Here again another question arises which could well be debated, *i.e.*—would an English training give a settler that hardiness, keenness, alertness, handiness, and general long-headedness necessary for action under the inclusive term of adaptability?

I have endeavoured to avoid, as far as possible, interpolating into this paper my personal opinion or views. My aim has been to show the amount of good work that has been planned, and also accomplished, in Greater Britain, in furtherance of the interests of agricultural education. If I have even partially succeeded in doing this, I venture to think two conclusions can be safely arrived at.

First, that throughout Greater Britain, irrespective of climatic, racial, and political divisions, there is a universal movement to give all interested in the culture of land every opportunity, facility, and assistance possible to improve themselves, their art and craft, and the land and its produce.

Secondly, that the purely educational or teaching facilities in agriculture offered by other portions of the Empire, where the general agricultural conditions are somewhat akin to our own, are not only so distributed as to cover fairly the area in question, but are also equal in educational value to any of the agricultural training or teaching institutions in this or the other countries of Europe.

These two conclusions I venture to think might be regarded as the logical sequence to the survey made, and facts recorded in this paper.

FRUIT CULTURE IN QUEENSLAND.

By Albert H. Benson.

THE COMPOSITION AND APPLICATION OF MANURES.

(Continued from page 154.)

FOR BANANAS.

All banana-growers know that this fruit thrives best in rich scrub land that is rich in humus and nitrogen; hence any manure that is applied should contain these elements. Farm manure is especially adopted for this crop on account of the large quantity of organic matter it contains, and when it can be obtained in quantity it is the best manurial agent that can be applied. If followed by commercial fertilisers, its beneficial effects are considerably increased. The banana is a strong quick-growing plant; hence it is necessary that the plant food supplied to it shall be such that it is in a readily available condition. This necessitates the use of quick-acting fertilisers, but they should be combined with a proportion of slower acting ones, so that the effects may be more lasting.

Where bananas are planted in old land it is advisable to apply the fertiliser at the time of planting, mixing it thoroughly with the soil that is placed

in the hole that is dug for the plant, so that the young plant will have a sufficiency of plant food from the start, and therefore make a rapid growth. Subsequent manurings should be applied broadcast round the plants or, in the case of old plantations, over the whole of the ground, so as not to confine the roots to one particular spot, and then chipped, harrowed, or cultivated in. The best time to apply such fertiliser is in early spring before the summer growth starts, as it will then be available for use when growth takes place.

Mix as follows:—

	cwt.
Superphosphate	6
Meatworks manure	6
Nipho	6
Sulphate of potash	2
	20

This will contain—5½ per cent. of nitrogen, 5 per cent. of potash, 9½ per cent. of phosphoric acid, of which 5 per cent. is water soluble, and be worth £5 16s. per ton.

The first application to the young plants when planting should be at the rate of 4 lb. per plant, and subsequent manurings should not be less than 10 cwt. per acre.

If wished, 2 cwt. of the nipho can be replaced by 2 cwt. of sulphate of ammonia. This will increase the percentage of nitrogen by, ·8 per cent. and the cost by 9s. per ton.

FOR PINES.

For pines no manure is equal to good farm manure, or well prepared compost. If the farm manure used contains a considerable proportion of sawdust, as is often the case when it is obtained from town livery or 'bus stables, it should be allowed to become thoroughly fermented before it is applied as this will tend to remove any deleterious properties of the sawdust. Where a commercial fertiliser is required, the plant food contained therein should be in a readily available form; and this has been especially noticeable at Redland Bay Experiment Orchard, where the application of superphosphate and sulphate of ammonia—particularly the latter—has produced very rapid and marked results. Where the land is impoverished it is advisable to apply, the manure previous to setting out the plants, which will then make a good start, but in rich land this is not necessary. The best way to apply the manure in this case is to take out a trench with the plough where the line of plants is to be planted; spread the manure in this trench and thoroughly mix it with the soil by running a Planet Jr. cultivator with only two narrow teeth up and down the trench, the plants being then set and the earth drawn round them. If commercial fertilisers are applied without being thoroughly mixed with the soil in this or similar manner, they are apt to burn the young plants should dry weather follow the planting. In any case, unless well mixed there will be more likelihood of loss, and the plants are not so well able to obtain it as it is in one spot instead of being evenly distributed.

In applying commercial fertilisers to older plants, especially when same are grown into a thick mass, I strongly advise their being composted as previously described instead of being applied dire ct hi will supply both plant food and humus as well as cover for the surface roots, which is apt to be washed off by heavy rain.

The fertilisers should be made as follows:—

	cwt.
Superphosphate	9
Meatworks manure	5
Sulphate of ammonia	4
Sulphate of potash	2
	20

This will contain 5½ per cent. of nitrogen, 5 per cent of potash, 11 per cent. of phosphoric acid of which 7½ per cent. is water soluble, and is worth £6 12s. per ton.

Proportionate amounts of dried blood or nipho can be used in the place of the sulphate of ammonia the proportion of superphosphate being reduced accordingly. This will reduce the price of the manure but at the same time reduce the proportion of soluble phosphoric acid. For pines in full bearing at least half a ton to the acre should be applied if no farm manure is used; less in proportion to the quantity of farm manure applied.

FOR STONE FRUITS.

Use a similar manure to that recommended for citrus, but reduce the nitrogen and increase the phosphoric acid and potash.

FOR STRAWBERRIES.

As the strawberry is a quick growing crop in this colony, and, as a rule, the plants only occupy the ground a few months, quick-acting fertilisers are essential. Well rotted farm manure dug into the ground sometime previous to planting is an excellent preparation for the crop, but when the soil is at all poor the following fertiliser should be placed in shallow furrows and well mixed with the soil as previously described in the case of pines, the plants set out and the soil drawn round them. The composition of the fertiliser is as follows:—

	cwt.
Superphosphate	10
Sulphate of ammonia . ..	5
Sulphate of potash	5
	20

This will contain 5 per cent. of nitrogen, 12½ per cent. of potash, 8½ per cent. of phosphoric acid, all water soluble; and is worth £8 2s. 6d. per ton.

From 4 to 6 cwt. to the acre, according to the richness of the soil, is a sufficient dressing. This manure will also suit Cape gooseberries and tomatoes.

FOR VEGETABLES OTHER THAN PULSES.

In order to produce good vegetables they must be grown quickly, thus the application of quick-acting manures is required. This will be obtained by the following mixture;—

	Cwt.
Superphosphate	14
Sulphate of ammonia	5
Potash	1
	20

This will contain 5 per cent. of nitrogen, 2½ per cent. of potash, 12 per cent. of phosphoric acid—all water soluble, and is worth £6 5s. 6d. per ton.

Apply from 4 to 6 cwt. to the acre. Instead of using all superphosphate, half bone phosphate and half superphosphate can be used. This will reduce the price 7s. 6d. per ton, and will render the manure more lasting.

In applying commercial fertilisers to vegetables, it is best to mix them thoroughly with the soil before planting, but, if wished, they can be used as a top dressing, taking care to distribute them evenly, and not to allow them to cover the leaves of the plants, as if so they will be very apt to scorch or burn them.

FOR OATS, BARLEY, CORN, OR SORGHUM,

WHEN USED FOR FODDER.

A quick-acting manure is required, which should be applied at the same time that the seed is sown, and harrowed in the case of broadcast crops. If the corn or sorghum is sown in drills, the manure should be applied as recommended in the case of planting pines. It can be made as follows;—

			cwt.
Superphosphate	..	..	10
Bone phosphate	..	..	5
Sulphate of ammonia	..	..	4
Sulphate of potash	..	...	1
			—
			20

This will contain 4 per cent. of nitrogen, 2½ per cent. of potash, 15½ per cent. of phosphoric acid, of which 8½ per cent. is water soluble, and is worth £5 14s. 3d. per ton. Apply from 4 to 5 cwt. to the acre.

FOR BEANS, PEAS, COW PEAS, AND OTHER PULSES.

No nitrogen is required by these plants unless the soil is absolutely deficient in this plant food, and then it is advisable to give a little to start the plants till they are sufficiently strong to provide their own nitrogen. These plants require a considerable proportion of potash, so that in all soils that are deficient in this respect, a fertiliser rich in potash must be used. For an average soil the following will be found to answer:

			cwt.
Bone phosphate	...	..	10
Superphosphate	..	..	6
Sulphate of potash	...	..	4
			—
			20

This will contain 8 per cent of potash, 18¾ per cent of phosphoric acid, of which 5 per cent. is water soluble, and is worth £5 12s. per ton.

From 5 to 6 cwt. to the acre, mixed thoroughly with the soil before planting, should be a fair dressing in soils of average quality.

The following table, which has been obtained from a number of European and American sources, gives the total amount of ash removed from the soil by 1,000 lb. of the following fruit—farm and garden crops, as well as the composition of the ash, showing tho relative proportions of phosphoric acid, potash, and nitrogen. In the case of the nitrogen, the amounts given represent not only that contained in the ash, but also that contained in the albuminous matter of the fruit or plant.

As previously stated, the mere fact that a given crop takes so much out of any given soil cannot be considered accurate under all conditions, but is at the best only an approximation. At the same time, it is of value, as indicating the particular plant foods which are required by different crops; and when this knowledge is combined with the experience gained by the practical application of manures and commercial fertilisers, it will be found to be of great assistance to all agriculturists.

—	Total Ash.	Nitrogen.	Phosphoric Acid.	Potash.
Fruits—	lb.	lb.	lb.	lb.
Apple ...	3·9	1·3	·1	1·9
Appricot ...	5·2	2·29	·71	2·2
*Banana ..	11·5	·8	—	—
Pine ..	3·5	·2	·15	1·7
Grape ...	5	1·6	·9	2·7
Orange ..	4·3	1·9	·5	2·1
Lemon ...	5·6	1·5	·6	2·7
Olive ...	14·2	1·8	1·2	8·5
*Peach ...	3·2	—	·5	2·4
Plum ...	5·4	1·8	·2	2·4
Cherry ...	5·8	1·8	·6	2
Strawberry ..	6	1·5	1·1	3
Farm Crops—				
Wheat, Grain	17·8	18·2	8·7	5·5
Wheat, Straw	38·1	5·9	1·2	5·1
Barley, Grain	24·8	15·1	7·9	4·8
Barley, Straw	45·9	6.4	1·9	10·7
Maize, Grain..	14·8	16	5·7	3·7
Oats, Grain ...	25·7	17·6	6·8	4·8
Oats, Hay ...	61·1	11·9	6·7	25·4
Lucerne Hay..	62	23	5·3	14·6

* Complete analysis not given.

—	Total Ash.	Nitrogen.	Phosphoric Acid.	Potash.
Beans, Grain..	31	40·8	12·1	12·9
Potatoes ..	9·9	2·1	·7	2·9
Sweet Potatoes	9·5	2·3	1	5
Mangolds ..	12·2	1·9	·9	3·8
Pumpkins ..	6·3	1·1	1·6	·9
Vegetables—				
Cabbage ..	14	3·8	1·1	4·3
Cauliflower ..	8	4	1·6	3·6
Carrot ...	10·2	1·6	·9	5·1
Celery ..	17·6	2·4	2·2	7·6
Onion ...	7·4	2·7	1·3	2·5
Peas ..	31·1	35·8	8·4	10·1
Tomatoes ..	4·7	1·6	·5	2·7

—*Queensland Agricultural Journal.*

GREEN TEA MADE BY "OLD CHA."

Sir,—I am now in a position to give you the result of the attempt (and so far the only attempt) made to manufacture green tea by my method, which though nothing to boast of, is, in my opinion, fairly satisfactory, considering the somewhat difficult and unfavourable conditions under which the trial was made.

I do not feel at liberty to mention names, but here is the report for what it is worth:—

	Colombo value.
No. 1.—Well-twisted O. P. leaf, uncoloured liquor, fine quality, pungent, but too light in colour ..	50 cts.
No. 2.—Pekoe leaf, liquor fine quality but rather too thin and pale in cup	35 „
No. 3.—Souchong leaf, pungent ..	30 „
No. 4.—Flat, flaky, fanning liquor, fine quality and pungent ..	27 „

These teas were made in a desiccator, a drier I had never used before, and I was rather afraid of the effects of the powerful fan. It was also my first attempt to make green tea for several years. The tea was not final-fired, nor was any care taken to make it look nice; but for these circumstances, the valuation might have been a trifle higher.

I see you head my letter in your issue of the 13th—"The Panning Process." This is a mistake. I do not use a pan, but use a sirocco or other modern drier instead. As I find these do the work quite as well, and as they get through the work much quicker, they are cheaper than the pan, which, though good enough in former days, is far too slow and expensive to suit present-day planters and present prices.

The proposal to glaze our teas, as desscribed by Mr. Street in a recent issue, is undoubtedly a good one, and should be adopted. It is really a different way of facing the teas, *and a much better way*, and would doubtless enhance its value in any market; but I think 210° far too high a temperature for final-firing Such a temperature would, I fear, reduce the strength and pungency of the liquor.

I have certainly seen black tea lose its strength and pungency by being final-fired at a very high temperature, but I forget now what that temperature was. By the old (Chinese) method, final-firing was a very slow process, occupying from 6 to 12 hours. The dhools were often left on for the night, the fires having been carefully covered with a thick layer of ashes—to prevent the temperature rising—and, seeing the tea could be left on 12 hours without being burnt, it is clear the temperature could never have been above 150—probably less, and I believe this to be the reason why China tea keeps better than ours. Anyhow, I should say 170 to 180 is the highest at which it would be safe to final-fire teas, whether black or green, and I believe this would be found to do the glazing quite as well as 210, though it might take a few minutes longer.—Yours, &c., OLD CHA.

—Local "Times,"

THE RUBBER INDUSTRY OF THE AMAZON VALLEY.

A very important factor, from the merchant's point of view, in the rubber trade, is the loss of weight that is constantly taking place in raw rubber. This loss is extremely variable, and a consignee has to place the greatest faith in the consignor that the invoiced weight of rubber has really been shipped as more or less shortage invariably takes place. Moreover, the shrinkage in weight is so variable that no exact figures can be quoted by which it may be calculated. The cause being the evaporation of the water contained, it varies according to the quality, being greater in the case of the porous "Sernamby" than in the firmer "Fine" rubber. The longer rubber is kept and the larger the pieces the less it loses in weight. Dry "Sertao" rubber coming from distant parts, whence shipments are only made once a year, will lose only about 1 per cent. between the estates and Manaos; whereas newly-made rubber coming from close at hand will lose as much as 10 per cent. As the means of communication get more rapid, and the rubber reaches Manaos sooner after being manufactured, the tendency to lose in weight becomes larger. Between Manaos and foreign markets a loss of 4 per cent. may be taken as an approximation of the average loss of weight.

A machine, designed on the principal of a cream separator, to separate the caoutchouc from the watery part has been tried, but has not proved successful as regards the latex of the *hevea*, though good results have been stated to have been attained with the latex of the "castilloa."

Another means of separating the caoutchouc is to add chemical re-agents which cause the latex to coagulate. Of these acetic acid and corrosive sublimate have being found to give the best results. The latter owing to its antiseptic properties would appear particularly suitable. A solution of alum is used to a small extent in the State of Matto Grosso, to prepare rubber from the latex of the *hevea*.

The following analysis of the latex of the *Hevea Braziliensis* is given by Seeligman:—

	Analysis. Per cent.
Caoutchouc	32
Nitrogenous matter	2·3
Salts	9·7
Resinous matter	traces
Water	55 to 56

The rubber having been prepared, it is shipped from the estates in "balls" or "pellets" to merchants in Manaos, and by them sold to one or other of the export merchants in the same condition as received. By the export merchant it is cut up into small pieces, the "Fine" separated from the "Entrefine," and then packed in wooden cases, each case holding about 170 or 160 kilos. It is then shipped to Europe or the United States, as the case may be. Owing to the loss of weight already mentioned, each merchant is obliged to have his own store, as no warehouseman could give a receipt for a quantity of produce the weight of which is constantly varying. For the same reason rubber is rarely sold by auction.

The commercial system by means of which the working of rubber estates is effected is somewhat complicated. Goods are in the first place imported from abroad by one class of merchants named "Importadores." In Manaos and Para most of these are at present Portuguese houses. They usually buy on ninety days' credit. The goods are then sold on the Manaos market to another class of merchants named "Aviadores," who generally buy on a twelve months' credit. These "Aviadores" then ship the goods up-country to the estate owners. The "Aviador" business is chiefly in the hands of Brazilian and Portuguese firms. The estate owners then barter these goods to the men working their estates, who are not so much labourers as small tenants, the rubber trees being leased to them for the rubber which they extract, paying them any difference that may remain to their credit, over and above the value of the goods supplied to them, in cash. This rubber is then shipped by the estate owners to the "Aviadores" in payment of the goods that have been consigned to them. The "Aviadores," on receipt of the rubber, sell it without delay to avoid loss in weight, to one of the exporting firms, receiving payment at once, in cash. With this the "Aviadores" pay the "Importadores." The exporting houses cut, pack, and ship the rubber drawing against shipments, generally on London credits, at ninety days' sight, and selling their bills to bankers at Para. Shipping documents have generally to accompany the draft, and in case of shipments to the United States, a certified Consular invoice. Manaos being without telegraphic communication, and consequently without foreign banks, the exporting houses which buy rubber on this market are obliged to keep a supply of cash in hand to pay for rubber bought, which as has been already stated, has to be paid for at once in cash. Such is the so-called "Aviador" system, and so far it has been found to answer better than other methods of doing business. Suggestions have been made whereby it is proposed to eliminate some of these middlemen, and to bring the consumer into closer contact with the producer. In order to study this question it is necessary to consider the conditions under which the rubber estates are at present being explored and worked.

The *Hevea Braziliensis* is, as has already been stated, scattered through the Amazonian forests. In some places it is much more frequently met with than in others. Nothing but actual exploration and trial will enable the most experienced person to form any reliable opinion as to the value of a block of forest. The manner in which explorations are conducted is as follows:—An individual who enjoys a certain amount of credit in Manaos charters a small launch and freights her with a cargo of food, clothing, and implements necessary. He then proceeds to search in the low-class hotels and boarding-houses at Manaos and Para, or perhaps he may even go to the State of Ceara, whence the labouring classes are chiefly recruited, for a number of men with whom he intends to work his estate. These he engages, not on wages, but on the condition that he will barter his goods for the rubber they extract. Most of these labourers draw a considerable advance before they can be persuaded to go up-country. With this cargo and crew he proceeds to the district where he intends to work. Having arrived at a place which he considers promising, he despatches some of the most practised labourers, or "seringueiros," as they are here named, to explore the forest, find the rubber trees and open the paths between them. With the remainder he builds a store, known as the "Barracao," in which he stores his goods, and which becomes a rendezvous or nucleus for the colony. The men all this time are living at their own expense, the price of supplies given to them being debited to their account, to be paid for in rubber later on. The forest having been explored, the trees located and connected by paths, known as "Estradas," the men select which they are going to work. Each "Estrada" makes a loop, visiting generally some 100 or 150 trees, and returning to the starting point, generally on the bank of a river or stream navigable for canoes. Each man builds his own small hut, or "Baraca," where he lives and from which he works the two "Estradas" which he has selected. From time to time he pays visits to the central store to obtain goods, and deliver the rubber he has collected. This the owner of the store, or the "patron," as he is termed, buys from him at a price, generally fixed by the "patron" himself, and credits him with the amount as a set-off against the goods that have been supplied to him. As the "seringueiros" can, as a rule, neither read nor write, the opportunities of an unscrupulous "patron" are great. At the end of the season, that is to say, in January, most of these men return to Manaos. A fresh lot is generally taken up by the "patron" each year.

The labourer or "seringueiro" spends his day much as follows: Rising from his hammock just before day-break he takes a cup of black coffee. He then proceeds to tap the trees in one of the "Estradas," affixing at the same time the cups to catch the latex as it exudes. The necessary cups are placed at the foot of each tree at the time that the "Estrada" is being opened. By 9 a.m. he has tapped the trees and is back in his hut. He then proceeds to cook and eat a scanty meal. At about 11 a m. he again visits the trees, taking with him a vessel into which he pours the contents of the cups. By 1 p m. he is again in his hut. He then proceeds to smoke the latex he has collected during the day. The latex cannot be left standing over night, as fermentation sets in and "entrefine" rubber is the result. It is almost invariably, therefore, smoked each day as collected. By 2 p.m. or 2-30 p.m. he has generally finished his day's work, and can spend the rest of his time in idling, hunting, or fishing as he pleases. On the following day he rests the "Estrada" which he worked the day before, and works the other. An active man sometimes works four "Estradas" two each day. Such men are known to produce as much as one ton of rubber in the season. It is on such performances as these that calculations quoted in prospectuses of rubber companies distributed in the United Kingdom seem to be based. They are, however, quite erroneous when applied generally. In a good place an average man will make as much as 4 kilos. of rubber in a day, but it must be remembered that he does not work all the year round, and that he loses many days when it is raining or when he thinks it is going to rain. Any excuse is good enough to prevent a "seringueiro" from going into his "Estrada."

The season during which the "Estradas" are worked lasts from August till the beginning of January. During the remaining months of the year there is generally too much water in the forest to allow the "seringueiros" to enter the "Estradas."

When considering the question as to whether British companies have here a good opportunity for the investment of capital, the following points should be borne in mind. Rubber is brought down to Manaos at the present day from beyond Iquitos, in Peru, and from beyond Orton, on the River Beni, in Bolivia, and goods are shipped to there from Manaos. A glance at the map will show how remote are these places. It is reasonable to suppose that natives of the country, who well understand the matter, would not go and explore so far afield if workable forests existed nearer home. The fact of their doing so points to the probability that most of the forest worth obtaining in the neighbourhood of Manaos has already been taken up. Of course, this does not mean that a company could not purchase already opened up estates, in good condition, and do good business with them. But again certain difficulties to be encountered should be remembered. The greates of these is the quantity and quality of the available labour supply. A company would have to work on a large scale and have a well-ordered system. The labourers to be found in Manaos are an extremely independent, not to say unruly class, and although the comparative rarity of crime up-country speaks well for their conduct on the whole, yet they are so unused to obey any sort of discipline that it would be very hard to work with an organised estate, especially as these is practically no legal authority outside the towns, and every man's will is, up-country, a law unto himself.

For the individual enterprise of that class of men which has done so much in opening up other tropical countries, men of resource and adaptability who prefer a rough life, there is probably a good field in Amazonas. Beginning, as they naturally would, on a small scale, and extending their business, they could probably do well. When the way has been opened by these, and a class thus created who really understand the business, there will be more opportunities for companies to work with success. It must be remembered that at the present time rubber export merchants have many difficulties to contend with. There is considerable competition in their business, and there are the unending and baffling variations in exchange. A company that owned rubber forests on a large scale could avoid exchange transactions almost entirely. The necessary goods imported would be paid for in London by the results of the sales of the rubber produced. Moreover, once a rubber estate is in good working order, it should be possible to make very certain calculations as to its annual yield. Taking these points into consideration, it would appear that the natural extension of the rubber merchant's business will be in the direction of securing the actual forests and lands in order to control the supply. No doubt means will be found eventually to overcome the difficulties stated above.

Owing to the recuperative power of the tree it is improbable that the available supply of rubber from the Amazon valley will be exhausted in the near future. Also the enormous area over which the estates extend makes it unlikely that unexpected events should occur by which the industry as a whole would be damaged, although, no doubt, local checks may be expected from time to time to occur. For the same reason, and owing to the scarcity of labour, it is improbable that any very sudden increase or decrease of the annual production will occur. The tendency is at present for a slight increase of the total production each year.

The best district in Amazonas is commonly reputed to be that of the River Acre and the headwaters of the Purus.

Two British companies are at present established in the Amazon valley—namely, the Para Rubber Estates, Ltd., and Amazonas Rubber Estates, Ltd. The former have an already opened estate in the islands near Para, whilst the latter are breaking in virgin forest on the headwaters of the River Teffe. in the State of Amazonas.

Beside these, a Belgian company named "La Bresilienne" is working an estate near Para, whilst a French company, the "Camptoir Colonial Français," is working some estates on the River Javary. Several other French, German, and Belgian companies are said to be about to be organised for the same purpose.

Caucho is a vegetable product similar to rubber in many of its qualities, but inferior to it in usefulness. It is obtained by tapping trees much in the same way as rubber. The tree from which it is obtained is a variety of the "Castilloa." This tree prefers drier parts of the forest than the *hevea*.

Owing to the fact that the laticiferous system is not connected throughout the tree, it is not possible to drain all the latex by tapping only a small area of the bark, as is the case with the *hevea*. The tree has, therefore, to be cut down in order that the whole tree, including the branches and twigs, may be tapped. The roots also, which often project above the ground, are tapped. I am told that it takes as much as 15 days for the whole of the latex to exude from the tree. The latex is collected first in small cups placed to receive it, and subsequently is poured into a suitable vessel, or sometimes into a trough cut in the tree itself or into a hole made in the ground. A small quantity of soap solution is added to it to produce a more rapid coagulation. The juice of a creeper named "vitelha" is generally added for the same purpose. When the latex has coagulated, which takes some days, the mass is taken out, and caucho "slabs" are thus formed. Caucho "balls" are made by rolling up strips of the coagulated latex that has exuded from cracks in the bark. By common accounts an average caucho tree will yield from 30 lb. to 40 lb. of caucho, including the scraps.

Owing to the fact that the trees are cut down and destroyed, the collectors, or "caucheros," as they are called, are constantly moving about to discover fresh trees. Whereas at one time nearly all the caucho came from Peru, it is now more extensively worked on the Javary. During 1899 a large amount was

also received from the Purus. The actual work of exploring and tapping caucho trees is still done chiefly by Peruvians, even in Brazil, the Brazilians preferring to work the *hevea*.—*India-Rubber and Gutta-Percha Trades' Journal*.

Of late years the enormous consumption of rubber in the manufacture of bicycle tyres has created a very great demand. The supply not being able to cope with this demand the price has steadily increased, and considerable attention is now being paid to the production of rubber all over the world. So great is the demand at present that although the supply from the Amazon Valley alone has increased from 8,635 tons in 1880, to 25,370 tons in 1899, the approximate price of 2s. 6d. per pound in 1889 increased to 4s. 6d. per pound in 1899. The British Vice-Consul at Manaos states that the total world's supply to-day is about 120,000,000 to 130,000,000 lbs. valued at about £15,000,000. At the present time laticiferous plants yielding "caoutchouc" or "rubber" are being worked for commercial purposes in Brazil, Bolivia, Central America, East and West Africa, whence come the chief supplies, while Guiana, the Eastern Archipelago, Madagascar, India, and Ceylon contribute a small quantity to the general stock. More than half the total supply is exported from the Amazon district. In Brazil several kinds of laticiferous trees exist from which rubber is manufactured. In the State of Ceara, the *Manihot Glaziovii*, locally known as the Manicoba, is fairly extensively worked, and considerable attention is being paid to its cultivation. In the State of Maranho the *Hancornia speciosa* or Mangabeira is beginning to give results. These trees, however, are unimportant compared to the *Hevea Braziliensis* or Seringueira, to which the Amazon Valley owes its present prosperity. The *Hevea Braziliensis* is found scattered through the forests that clothe the banks of the Amazon River and its tributaries. It does not strike the eye among the innumerable varieties of trees to be met with in the Amazonian forests, and is often difficult to detect. A peculiar glistening of the trifoliate leaves and the whiteness of the bark serves as a guide to the practised eye. The tree grows to the height of 70 to 100 feet, and as a rule, when full grown, a girth of from 5 to 7 feet at a height of one yard from the ground. The tree flowers in January; the seeds are ripe and begin to fall in March in the case of old trees, and in May in the case of young trees The seeds are contained in a hard shell, three or four in each shell, which hang by a short stalk from the upper and outer branches. When ripe the shell explodes, often with a loud report, scattering the seeds to a considerable distance. For this reason it is difficult to procure seeds. There are for practical purposes three distinct varieties of the "seringueira" to be met with in the forest. These are locally known as the seringueiras "casca vermelha" (red bark), "barriguda" (bellied), and "casca preta" (black bark). The first of these, the "casca vermelha," grows in the higher parts of the forest which are seldom or never flooded. The latex which it yields is scanty, thick, and will not run. It is therefore of little value. The second of these the "barriguda," so named because the trunk increases very rapidly in thickness towards the base, grows in those parts which are almost constantly flooded, named "igapos." It yields plentifully a thin, watery latex, which is of little value. The third variety, the "casca preta," grows in those parts where a certain amount of drainage exists, and which form a intermediary zone between the permanently flooded parts and the high land. It is this variety which yields the latex from which the rubber of commerce is manufactured. The "latex," or as it is commonly known, the "milk" of the tree, is a milky juice contained in special tubes running amongst the other tissues of the plant. These tubes, in the case of the hevea, are connected, forming what is known as the "laticiferous system." The latex is quite different from what is called the "sap," and probably does not play any part in the nutrition of the tree. According to some authorities it forms a reserve of water to be drawn upon in cases of drought. The actual extraction of latex cannot kill the tree, and the common statement that the trees are "bled" to death is a mistake. As a matter of fact, though trees, exhausted, inasmuch as they will not yield any more latex are common—actually dead trees, killed by overtapping are rarely met with. The latex as it exudes from the bark is of a dazzling whiteness, resembling milk, which it also resembles in composition, inasmuch as it consists of an emulsion in which "caoutchouc" takes the place of the better in the ordinary milk. The fluid part of the latex consists of water with very small quantities of albuminous matter, organic acids and phosphates in solution. The extraction of the latex, or as it is usually called the "tapping" of the tree is effected by making an incision in the bark of the tree. From this incision the latex flows for about three or four hours, after that it stops flowing of its own accord. The incision should not penetrate beyond the bark, which is generally about ⅜-inch thick, into the wood of the tree, and for this reason a very small axe, which rapidly thickens wedge like from the cutting edge, is used, the shape of the instrument preventing its entering too deep. The axe is generally about ¾-inch wide. The custom is to strike with it a backhanded blow upwards, thus making an oblique cut in the bark. It is probable that a better method would be to use a chisel and mallet and make a V shaped incision. Recent experiments at Henaratgoda have shown the advantage of this shaped incision. The incision having been made, a small tin cup, of a capacity of about four ounces, is affixed just below it to receive the latex as it flows. This is effected by pressing the edge of the cup, which is sharp, into the bark, until it gets a sufficient hold to remain firm. By this method, however, a second wound is made in the bark, which is injurious. No better method has yet been suggested. In some places a winding groove is cut in the bark of the tree, and by means of a clay breastwork the milk is conducted into a vessel placed at the foot to receive it. This method is found, however, to be very exhausting to the tree, and is falling into disuse. The usual mode of tapping is to make an incision with the axe at the height of some six or seven feet from the ground; on a level with that incision and at a distance of some eight inches a second cut is made, and so on round the tree. On the next day incisions are made just below these, and so on day by day, until they reach the ground. Incisions are then made on the same plan, beginning as before from the top and working downwards between the former rows. A tree that will carry seven cups eight inches apart is considered a large one and although trees that will carry eight or nine cups are to be met with. the average do not carry more than four or five. The latex having been obtained and collected, the caoutchouc, or rubber known to commerce, may be obtained from it in various ways. The only method, however, that has met with practical success is that of evaporation, by which the watery portion of the latex is driven off, and solid caoutchouc remains. The object to be secured is that as little water as possible shall remain in the caoutchouc, the putrefaction of the caoutchouc owing to the presence of these matters being extremely detrimental to its elastic properties, and therefore to its market value. In the Amazon district the method followed is to light a fire upon the ground, and to invert over it a specially-constructed, funnel-shaped chimney. From the narrow end of this funnel, which is open, the smoke and heated gases pour out in concentrated form. The fuel used for the fire consists, as a rule, of chips from any hardwood tree that grows handy to the labourer's hut, The nuts of the "Urucury palm" (*Attalea excelsa*) are sometimes used, their smoke containing a trace of acetic acid, and creosote being

found particularly effective in curing the rubber and preventing putrefaction. It is, however, a mistake to suppose that all over or even a large proportion of the rubber coming from the Amazon district is cured in this way. It is, on the contrary, very rarely that the rubber cutter will be at the trouble to collect these nuts, he nearly always prefers to use wood chips, which give him less trouble to procure. The fire having been made, and a large stream of hot smoke pouring out of the chimney, the operator seats himself on a small stool by the side of it. The latex is contained in a basin placed at hand. In his right hand he holds a paddle-shaped piece of wood, in his left hand a small calabash. Dipping the calabash into the basin of latex he pours a small quantity over the paddle, which he then revolves in the smoke issuing from the chimney. That having dried in a layer over the paddle, he repeats the operation. In the course of time a "ball" or "biscuit" of solid rubber is thus formed. In some parts where it is the custom to manufacture very large balls or pellets, an arrangement is made by means of a pivot to rotate the ball over the chimney. The wooden core is withdrawn through a slit made in the "biscuit," or simply drawn out in the case of the pellet. The latex of a tree named "macaranduba" (*Mimusops elata*), and more often that of a tree named locally "amapa" is sometimes used to adulterate that of the *hevea*. In both cases the adulteration is extremely prejudicial to the quality of the rubber produced. Three distinct qualites of rubber are manufactured in the Amazon district, namely, "fine," "entrefine" and "sernamby" respectively. "Fine" rubber has been well smoked, and is free from putrefaction. "Entrefine" rubber has been either burnt while been smoked, or has been insufficiently smoked, and has therefore putrefied. It is due to carelessness on the part of workmen, which it should be possible to avoid. "Sernamby" is the "negro-head" of commerce, and consists of scraps mixed with dirt, or strips peeled off the bark of the tree, and mixed with impurities of all sorts.—*Journal of the Society of Arts.*

DISTANCE IN PLANTING.

We are often asked, at what distance should Nutmegs, Rubber trees, Cacao trees, Mango trees, &c. &c., be planted. Now it is absolutely impossible to lay down any hard and fast rule as to what distance trees should be planted apart, for the matter hinges on many contingencies, which if unknown will lead to erroneous conclusions. If Rubber trees are to be planted, let us first ask what is required, or what is to be aimed at or produced. It is evident that we do not want a low straggling tree, but one having a straight trunk free from branches. The best koown method of producing such trees is to plant thickly. It is very false economy to plant thinly with the view of saving cost of plants and planting, for unless trees are thickly planted there is no hope of getting them to make straight stems without a lot of pruning; and even with this well done, they will not be as good or as shapely as they will by nature's pruning. This is a well known fact among foresters and the amateur cannot err in planting too close—as it is always in his power to cut out, if his plants are at any time crowding each other, but on the converse, he cannot put in a plant to supply vacancies without it suffering from the overgrowth of those already established. It is easier to cut out therefore than to supply, and a better and more seientific practice. A recent writer in the Queensland Agricultural Journal, one of the leading periodicals of the day in its special subjects says:—

"That the trees are allowed to grow thickly together, that they may be drawn up to a suitable height before the forests are thinned, and then, by the time the rotation period has arrived they expand laterally, and form fine thick boles." They have in fact made "height growth." The term "height growth" in forestry is derived from the German, but the principle has long been known and adopted by all who are sufficiently acquainted with the leading principles of Forestry. An example may be made with low growing plants to illustrate the subject. If plants are planted closely, it will be found that they grow much taller than when planted singly on the open, because they are nature pruned, that is to say nature does not allow side branches to develop and straight clean stems result. In a Rubber plantation it is of the first necessity to have as large number of clean straight stems on as small an area as possible, and this result can be attained by close planting.

Planting must however be regulated by the quality of the soil on which the plantation is to be made, for it is clear that, what would be close planting for a rich soil would be wide planting for a poor one, and therefore the richer the soil the wider apart may the trees be successfully planted. The nutmeg does not require to have a straight stem, but rather a spreading top, which should be well exposed to light and air. Nevertheless to plant the nutmeg at too great a distance, is a mistake; for unless the ground is well covered over with foliage, too much evaporation goes on in dry seasons, and the trees suffer. It is better therefore to manage to plant your trees to cover in the ground by their branches meeting above as soon as possible within reason, allowing each tree a spread according to the richness of the soil.

With Cacao I am decidedly of opinion that closer planting, than is generally practised, would be beneficial. If a Cacao Estate is examined it will be found that the best bearing portions are those which best cover the ground, and the worst portions, are those where the trees are too thinly planted to do so.

In some cases this cannot be avoided, as the planter cannot fully prove the nature of his soil, until he plants his trees, and it is generally more convenient to plant all the trees at the same distance. Where, however, the soil is known to be poor, it will be distinctly to his advantage to plant more thickly and get the ground covered at once. Too thick planting on the other hand is as great a mistake as the converse, and on rich soils examples are easily found where the trees have not sufficient room to expand their branches in accordance with the amount of nutriment available.

This is however much more easily remedied than too thin planting, for the judicious pruner will first of all give room by cutting away gradually, for a season or two, the branches from those trees which he marks for removal, and then, in the end will remove them to make room for more vigorous brethren.

With the Mango, the same arguments may be applied. With it we require branches and the stem is of little consequence but it is highly important that the branches should have all the light and air possible to induce flowering and fruiting, and therefore the mango may be planted in isolated positions with great advantage.

It is very important in making plantations of any kind to get the trees to all "come away together" —(*i.e.*) to get them well started and not to allow blanks to occur, and the cultivator will do well to maintain regular supplies especially during the first two years.

In making plantations of Rubber where the trees are planted close together, with the view of securing straight, clean stems, it should always be the aim to surround the plantation with a belt of trees of bushy habit, to act as a wind break; for it is clear, that where a forest of clean stems exist open to the wind, evaporation would be almost as great as in the open, and that high winds would be liable to do considerable damage, which might be avoided by this simple means. It is well to remember therefore that it is better in most cases where timber or stem is required, to plant thickly; while where fruit is required from the smaller branches, these may profitably be planted in more exposed situations.—*Trinidad Bulletin.*

BASIC SLAG TO INSURE BEST, QUICK, AND PROFITABLE RETURNS.

(Extract from an Essay by Professor Dr. P. Wagner, P.C. Director of the Government Research Station, Darmstadt.)

I have said already that to a soil distinctly poor in Phosphoric acid more of this ingredient should be restored than is being removed by the crop. This application of a Phosphoric acid manure should be continued until the Phosphoric acid has become laid up as a store, for use in the soil ensuring quick and profitable returns. Only then will it suffice to return to the soil the same amount of Phosphoric acid by means of cattle manure or artificial Phosphoric acid fertilizers as is removed by the crop.

As the most suitable Phosphate to increase the fertility of the soil, I have recommended BASIC SLAG, and I would draw attention to a previous contribution of mine in which I proved the superiority of Basic slag over Superphosphate. I would point out that quick and satisfactory effects can only be looked for from the application of Basic slag rich in Phosphoric acid readily available to the plant, *i.e.*. Phosphoric acid soluble in Citric acid. Below I give results obtained by the application of Basic slag with a low percentage of Phosphoric acid soluble in Citric acid and Slag, most of the Phosphoric acid of which was soluble in Citric acid. It will be perceived that the efficacy of the Basic slag increases in proportion to the solubility in Citric acid of the Phosphoric acid in the Slag. The trials were made in three rows side by side:—

Phosphoric acid.		Amount of yield	Increase in yield over unmanured plot.
0·5 gr.	Superphosphate	541·2 gr.	397·2 gr.
0 5 ,,	Basic slag No. 1. 89% soluble in Citric acid.	503·1 ,,	359·1 ,,
0·5 ,,	Basic slag No. 2. 82% soluble.	464·7 ,,	320·7 ,,
0·5 ,,	Basic slag No. 3. 65% soluble.	416·7 ,,	272·7 ,,
0·5 ,,	Basic slag No. 4, 39% soluble.	306·9 ,,	162·9 ,,
0·5 ,,	Basic slag No. 5. 36% soluble.	281·1 ,,	137·1 ,,
1·0 ,,	Phosphate meal prep. 2% soluble	159·0 ,,	15·0 ,,
No manure		144·0 ,,	0·0 ,,

The prepared Phosphate meal hardly had an effect upon the yield worth mentioning. Basic slag No. 1, 89% of the Phosphoric acid of which were soluble in Citric, acid very nearly equalled in effect the increase in yield derived from the application of Superphosphate. But Basic slag No. 5, of which only 36% of the Phosphoric acid was soluble in Citric acid, had only one-third of the effect of Superphosphate. As the quality of Basic slag offered by the trade varies to a great extent, it is not to be wondered at that the results obtained by the application of Basic slag have often differed. *It is most satisfactory that the difference in quality and the value of the various Slags as to their manurial effects is now becoming more and more widely known.* It is also a matter of satisfaction that almost all Thomas's Phosphate Works now use Quartzose for dissolving the hot fluid of the Slag, *and that farmers are now beginning to lay stress upon a fair percentage of the Phosphoric acid in Basic slag being guaranteed as soluble in Citric acid.*

PLANTING IN TOBAGO.

(*Continued from page* 155.)

9. *Mulch around the trees, but do not disturb the roots by forking. Scratch the surface gently with a hoe or rake previous to laying on the mulching.*

To "*mulch,*" is to place upon the ground, near to the trees, vegetable matter which will gradually afford food to the roots and check the evaporation of water from the ground. Dried or wet grass, leaves &c. usually called "*trash,*" should be laid six to nine inches deep about each tree, leaving a space of six inches clear just around the stem. A few heavy stones may be placed on the mulching, if necessary, to keep it in place, but this is seldom required except in windy districts, and there, cacao should not be planted. The trash or mulch will keep the ground perfectly moist through the dry weather, and enable the cacao plant to pass successfully through the dry season. Mulching should therefore be done previous to the dry weather setting in, but if any quantity is left undecomposed when moist weather again prevails, it should be raked into wind rows and allowed to rot, and then evenly spread over the whole surface.

10. *Always keep the ground clean and free from weeds.* The ground should be kept clean and free from weeds, or they they will overgrow the young cacao plants and rob them of their nutriment. Frequent hoeings should be made, but the greatest care should be exercised not to cut too deep with the hoe, or the roots may be injured. It is best to weed by hand immediately around the stem of the trees.

PRUNING.—Let the cacao tree grow freely during its young state, and allow the young branches to spread until neighbouring trees meet; but keep them in form and well balanced, by pinching out the points of the shoots, from time to time, as found desirable. Allow the tree to form its head, but remove all weak branches with a sharp knife, and never allow any part of the tree to get too thick, or the free circulation of the air will be prevented. All branches which are decayed or diseased in any way should be at once removed. No attempt should be made to limit the trees to a certain height. The larger the tree, the more fruit it can bear. Shoots called "*robbers*" or "*thieves*" when occurring out of place, should be removed; but when they arise where a branch is required, they may be used with the greatest safety and economy, as for example to rejuvenate stunted trees, and to replace diseased or broken branches, which have had to be removed.

In pruning, use a sharp knife. No special directions can be laid down how to use it. A good pruner is "made not born," and the best written instructions are but a poor substitute for practical teaching. The general principles which should guide everyone who is cultivating cacao are:—Prune little and prune often. Never cut large branches away at one time. Cut close and clean, so that no water may lodge in the wounds. Never leave stumps or spurs to rot out. Cover all large wounds with tar or paint.

PICKING CACAO.

The first point to settle is, when the pod is ripe. It should be ripe but not over-ripe. The colour should be fully attained, whether red or yellow. If the beans shake easily about, the pod is probably over-ripe. When picking Cacao always cut the pod with a sharp knife.

Never pull or tear the pod off by hand. If you do, you injure the tree, and it will not bear from the same place next year. It is better not to break or open the pods amongst the Cacao trees, nor allow open shells to lie about. The shells should be buried as soon as possible. They will thus enrich the land and probably prevent disease from spreading in the locality.

CURING CACAO.

The following brief account is taken from "Notes on Curing Cacao for Small Settlers" prepared by Mr. W. Cradwick, and published in the Jamaica Bulletin 1896, p. 15:—

The best vessel in which a small cultivator can ferment Cacao is an ordinary flour barrel. To prepare this for the reception of cacao beans, first bore about a dozen holes, each half an inch in diameter, in the bottom of the barrel, then place about ten inches of banana trash in the bottom of the barrel. Line the sides also thickly with trash, and have a sufficient quantity on hand to cover the beans when placed in the barrel. When the barrel is ready break the whole of the pods and place the beans in the barrel, covering with the banana trash. The beans must be left to ferment for two days, then remove one-third of the beans and lay them in a heap on the floor and mix them thoroughly. Remove the balance of the beans and mix them also, but do not put the two heaps together. After placing fresh trash in the barrel, put the beans which were at the top back into the bottom of the barrel and those which were at the bottom, place at the top. Cover with trash in the same way as before and leave for two more days, when the beans should be treated in exactly the same way as before. They should then be left for two more days, when they are to be taken out and washed thoroughly. On the day the beans are finally removed from the barrel the work should be commenced very early in the morning, so as to get all the sun possible on the first day, for the beans mildew very quickly. They should be washed immediately they are taken out of the barrel as this helps to keep them plump.

The proper amount of Cacao to ferment in one barrel is the quantity of beans obtained from 1,000 ordinary sized pods. If many more than this number are put into one barrel, the fermentation is too great and the beans turn black.

If a less quantity, say below 700 pods, are to be fermented, the green trash and more of it must be used, and a weight not exceeding 28 lb. placed on the top, which helps the fermentation.

When the Cacao is being dried, it is not advisable to expose it after the first two days to the extreme heat of the mid-day sun; it is better to take it in about 9 o'clock, and then put it out again between three and four o'clock.

Disease.—If any pods are observed which have commenced to become black or rotten, either at the top or the bottom, they should at once be carefully collected and destroyed. It has been found that this rotting is caused by a highly infectious disease, and that it is liable to spread if rotten shells are left on the field, or rotten pods allowed to remain on the trees.

II. SHORT NOTES ON OTHER PLANTS.

Orange.—The cultivation of the orange is very simple, for when once the plants are fairly in growth, all that is necessary is to keep them free from weeds and well watered. The orange delights in alluvial soil, but, if well watered and manured, will thrive almost anywhere. The plants should be placed about 25 feet apart in well-prepared sites. The future positions of the plants having been marked off at the required distances, holes should be dug out about 18 inches deep and 2 feet wide. . The soil, which has been taken out of the holes, when freed from roots and stones, should be returned to them, but, if of a poor nature, should be enriched with good rotten manure. When the soil thus treated has settled down, one plant should be placed in the centre of each site and well watered. They will bear fruit in about 6 years. Whenever possible "grafted" or "budded" trees should be planted in preference to trees raised from seeds. Grafted or budded trees bear in 3 or 4 years, and they can be depended upon to produce first-class fruit.

Shaddocks and Grape Fruit.—These require the same treatment as oranges.

Mango.—The mango thrives best in rich, deep, well-drained soil, and should be given a rather dry, open situation. The plants should be carefully set, at not less than 30 feet apart, in holes prepared in the same way as recommended for the orange. The only pruning they require is the cutting out of weak and straggling growth. The size and flavour of the fruit are much improved by high cultivation. The best kinds only should be planted. Seedlings cannot be relied upon to come true from the parent, and, accordingly, it is better to pay more for a known grafted variety, such as "*Julie*," "*Peters*" or "*Divine*," than to grow a tree from seed, only to find after years of waiting that it produces fruit of a worthless character. Mangoes generally bear fruit in about 5 or 6 years. These remarks concerning seedlings apply to other fruits as well as to the mango.

Star Apple.—This tree thrives under the same conditions as the mango, and should be given the same amount of room.

Bread Fruit.—As this tree attains to a large size, the plants should be placed 40 or 50 feet apart, in rich, well-drained soil, care being taken not to injure the roots or leaves. The sites should be prepared in the same way as recommended for the other fruits. They will probably bear in 4 or 5 years.

Pine Apple.—The pine apple succeeds best if cultivated in a well-drained, rich, fibrous, loamy soil, of such a nature that it will not become compact by frequent waterings. The more light and air the pine-apple gets, the better it will thrive, and, therefore, it is advisable that the plants should be set 3 feet apart every way. The ground, after being well dug all over, should be thrown up into low ridges, three feet apart, and the suckers (3 or 4 of the bottom leaves having been previously taken off each, so as to enable them to throw out roots more freely,) should be planted very firmly on the ridges, also 3 feet apart. The suckers on the second ridge should not be planted opposite those on the first, but alternate with them, thus giving each plant much more room. When the plants are in active growth, they should be mulched with manure, stable manure being preferable, as it affords ammonia, which is favourable to their growth. If really fine results are desired, the plants should, after they begin to show their fruit, but before it begins to ripen, be watered with moderately weak, liquid manure, made from horse, sheep or pig dung; as soon, however, as ripening commences they should be kept dry. Under the above treatment, they should fruit in about 12 months.

White Yam.—White yams thrive best in a rich, loamy soil, in a warm, sunny situation, protected from high winds. They should be planted six feet apart, on hills prepared in the following manner:—The ground after being freed from weeds, should be deeply dug, and then about 3 or 4 bushes of soil should be scraped up in a heap, where a plant is required. A piece of yam, or preferably a yam head, weighing from one to two pounds, should be placed in the centre of each hill and covered by about two inches of soil. When they have made from 12 to 18 inches growth, stakes, 10 or 12 feet long, should be struck in for them to twine around, (one in the centre of each hill.) Beyond being kept free from weeds they will require no further care until ready for digging, which is usually in from 9 to 12 months' time.—*Imperial Department of Agriculture for the West Indies.*

SWEET CASSAVA.

(*Manihot utilissima*)

The following results have been recently been obtained by Professor Carmody as the result of an Examination of Sweet Cassava (Jamaica variety) grown at the Experiment Station St. Clair.

SAMPLE SWEET CASSAVA, GROWN AT ST. CLAIR.

Prussic Acid .. .. 0·17

This is fully in accord with the result obtained by Francis, published in Analyst for 1877, in which, the mean of fifteen samples was found to be H. C. N, ·0168 or 1·175 grains per lb. Dr. Taylor fixes the poisonous dose of Prussic acid at one grain, but at the same time reports the death of a healthy woman who died in twenty minutes from a dose equivalent to 9-10 of a grain of Anhydrous prussic acid. It appears therefore that the root is distinctly poisonous in its raw state, and that it is rendered harmless by cooking, for some of the roots were eaten by myself and four members of my family on the day it was dug up, without inconvenience. It would be convenient to know how much of the poison is in the skin of the root and how much among the starchy fibres; how much is dispersed by boiling or roasting, and how much is left in the substance when reduced to an eatable state. In countries where *Cassava* is the staple article of food; cases of poisoning by it are seldom heard of, but the poison found in the root by the Professor and the cases of reputed poisoning which have occurred, appear to show that a full examination of our product is necessary for the safety of consumers and we believe that work on these points is in hand under Professor Carmody's direction and will soon be forthcoming. Fowls eat the fresh roots without poisonous results following.—*Trinidad Bulletin.*

TOBACCO AS AN INSECTICIDE.

In answer to Mr. W. Lawlor of Sunnyside, Tenterfield, who asks for advice as to the most effective way of using tobacco (ordinary dried leaf) for insect pests, the Entomologist, Mr. W. W. Froggatt, says; It can be used in the two following ways:—For aphis, the roots of the affected trees are bared, and the tobacco, ground to powder, is dusted well over the roots and ground about them. A ring of tobacco dust is put round the trunk of the tree just below the surface. The earth is then thrown back, and when rain comes the nicotine is washed out of the tobacco, and gets spread over the roots, killing all black or woolly aphides with which it comes in contact.

Secondly, as a wash: 1 lb. of waste tobacco will make about for gallons of wash, and ½ lb. of soap is added to make it more adhesive. The leaf can be steeped in cold water over night, and the soap boiled up and added; but most orchardists boil up the leaf and soap together, straining the resulting liquor and applying it hot. Tobacco is a contact poison, and is the best known remedy for soft-bodied things like aphides, but it does not affect scale insects very much, when they are full grown and protected by their shelly outer covering. If tobacco wash could be sprayed on to the larvæ of scale insects it would destroy them wholesale.—*The Agricultural Gazette of New South Wales.*

TOBACCO CURING

A year or so ago I ventured to recommend to our Himalayan planters' attention the Sumatra variety of tobacco plant, on the grounds that it grew remarkably well in good soils in the hills, and had proved itself exceptionally hardy, producing during the monsoon season a very fine plant with beautifully fine texture leaves. Of this there is not the slightest doubt, provided the soil is good, the rainfall not too heavy, and the soil does not come water-logged. I find, however from correspondence and notes in various planting journals on this side, as distinguished from Madras, that the trouble is that of manufacture. This likewise I found out for myself, for although I had no difficulty in getting a fine plant, and none in hanging and ripening the leaf, yet when it came to the necessary fermenting a difficulty at once presented itself more especially as to the extent and degree of the ferment,

I am strongly of opinion there are thousands of acres of admirable tobacco lands in the hills, and that the Himalayan regions should certainly during the monsoon produce a very superior tobacco, more especially as after the rains the weather is perfectly ideal for curing operations, collecting, and so forth.

Some time ago I saw a writer put forth the assertien that Gauhauti could produce tobacco fully equal to that of Havannah. If there is anything in this assertion it is high time the planters of those parts woke up to the fact that tobacco of the quality produced in Havannah would fetch money and plenty of it to insure the business being highly profitable. This apart, however, increasing quantities of both Java and Sumatra tobacco are no doubt being bought for the covering leaf of Indian-made cigars, for, however much the makers may puff Indian cigars, their first and chief recommendation, without Sumatra and Java covering leaf, is simply cheapness.

The time was when the British public went to China for the sum total of its tea, but India has totally altered that state of things; and why it should not produce all the tobacco it requires for its own consumption and some for export to boot is a thing I do not understand. Here is a country with a perfectly marvellous range of climatic conditions and soils, and yet quantities of Java and Sumatra tobacco are imported, and American-grown tobacco is no doubt being increasingly imported into this country.

Coming to the subject of curing, I have before me the latest revised edition of the Bulletins on the tobacco industry in the United States, bearing date 1898, in which are set forth the methods practised in many parts of the United States by one of the chiefs of the United States Agricultural Department.

It may be stated at once that of the fermenting processes "very little is known about the chemical changes that occur in these processes." Again, there is a strong feeling among the more intelligent planters that more information is needed upon the changes which take place in order that these may be carefully controlled. After a careful perusal of the American publication I have no difficulty in forming the conclusion that you can no more make a good tea-maker from book reading than you can a tobacco-curer. It has to be systematically learnt from observation. Indeed it is stated that even an expert cannot lay down written instructions that will be certain to guide the operator aright. For the information, however, of planters, it may be stated that the farmers or planters of the States in a very large measure sell the tobacco uncured; turning it over to the manufacturer for curing. In this case the *modus operandi* is briefly as follows:—The crop is planted in rows of 3½ to 4 feet apart and 18 to 24 inches from plant to plant, it is topped from fifteen to eighteen leaves, and suckers taken off from time to time, that is, as I understand, in this case the side shoots and any emanating from the ground around the main plant. In cutting the plants a general average is struck, and the plants cut when the middle leaves are ripe. The plants at cutting time are laid on the ground to wilt for an hour or two, and turned if necessary to prevent scorching, and it is material the day of cutting be a fine dry one. After wilting sufficient the plants are attached to laths and slung up in the withering barn, which is quite tight but provided with ventilators for ventilation until the tobacco is thoroughly wilted. When thoroughly dried, which is at the outside in two months, it is taken down; the leaves stripped from

the stalks and piled in heaps. It is explained that it is taken down during a warm damp spell. Supposing the damp spell did not occur, I apprehend it could be produced by injecting hot vapour into the barn or shed. The heaps are then covered over with sacks or cloth to keep them in "order" which means a moist condition in which the leaves will not break. The leaves are then packed in boxes lined with strong tough paper, which is also tightly wrapped over the top before closing. In this state a great deal is sold to the curing or manufacturing establishments. Some growers, it is added, carefully sort the leaves and get 3 cents a lb. more for it. Here it will be seen is no question of fermenting for the grower, that being done by others

In the matter of fermenting there appear several methods, of which the following is the first. The sweating is done in wooden cases holding 300 lbs. of tobacco. About half an inch blank is left between the boards to allow moisture to escape. The boxes are then filled with leaves packed with thick ends outwards; they are then tightly pressed down to exclude air as much as possible and the top is screwed on the box. The boxes are piled up in the warehouse, and there left all through the winter and the following summer; being merely changed in order once or twice, *i e*, the bottom box is placed at top and all the boxes turned upside down. This, in brief, is apparently the simplest method of all. It is added that the warehouse temperature is kept pretty uniform during the winter and sometimes the tobacco is overcured, and sometimes undercured. "Nothing in point of fact is done save to maintain the temperature of the room moderately uniform."

In Florida, however, where the Cuba and Sumatra kinds are somewhat extensively grown, the process is entirely different. To begin with, the leaves are gathered as they ripen and not all at once; this for the Sumatra kind; the Cuba plant is cut as already described. When dried, as in the case of other kinds, the leaves are piled for the ferment, and this may be done on the floor or in bins. The room is then kept very moist, and the temperature also very high by artificial means, as may be gathered from the following:—"The temperature of the room is kept quite high and the vapour from the bulk which is being worked over is very pungent and almost overpowering. There is a strong odour of ammonia which makes it difficult to breathe." The bulk is watched incessantly and as the temperature rises the tobacco piles are torn down and rebuilt, each hand of tobacco being shaken out to cool it, prevent sticking and dry it somewhat. Before the sweat is completed the piles are pulled down in similar fashion eight or ten times. The exact time when they should be pulled down and rebuilt depends entirely on the rise of temperature and the condition of the tobacco, which can only be determined by the operator, but the temperature of the pile is allowed to rise gradually until it occasionally reaches 180 F., this representing the maximum, from which the pile slowly recedes until the temperature of the room is reached, and this temperature of 180 F. must be reached gradually.

For the wrapper leaf, the temperature should not go too far, but for the filler, the further it goes and the more intense the action the stronger and finer will be the tobacco, if well done. When the process is completed the leaves are very carefully sorted into grades and packed into either bales or "Carottes" (cylindrical rolls). The fillers, that is, the leaves reserved for the interior of cigars, are frequently re-sweated in order to bring out the fullest quality and also *petuned*. What may be the scientific meaning of *petuned* (the word itself) I am unable to say, or what language it is derived from, "but sophistication" will fit the case very well, as the following shows:—"The essential part of the *petuning* liquid is a thick infusion of tobacco stems of the finest quality obtainable. To this is added molasses, cider, Jamaica rum or sour wine." Other matter is also added, but is a secret of the Cuban makers which they are unwilling to divulge.

After this the bales are piled in the warehouse, and the temperature of the room kept rather cool, and there the tobacco should remain at least two years, "and the longer it is left to age the better it becomes." Other modified methods there are, but it would appear much depends on the ferment, and pulling the piles to pieces the moment there is any danger of over-fermentation: and likewise preventing a too rapid fermentation. In every case the leaves would appear to be bulked to a considerable extent either on the floor, in bins, or hogsheads; and when the tobacco has run the course of the ferment it is so far complete.

In the case, however, of the celebrated Virginia tobaccos, the modification is so considerable as to constitute another method. The leaves are taken straight away to the barns and hung up. These barns have flues running through them, and the moment the leaves are hung quite fresh, the fires are lit up and heat gradually increased without check day or night until it reaches 80 or 90 degrees and maintained at that until the leaves turn a bright yellow, which is in the course of from 18 to 36 hours, and requires very close watching for the correct colour. After this stage is reached the temperature is increased hourly five to 10 degrees until it reaches 115 to 120° at which it is held until complete cure of leaf is effected, after which the temperature is slowly run to 160·175° for the purpose of curing the stalks.

TYPES OF TOBACCO EXPORTED.

The United States export an immense lot of tobacco to many countries: among them I find the following (the observations appear to me not altogether devoid of a species of humour):

1. "The German type is a very fat heavy-bodied leaf, strong, tough, and elastic . . . a fat leaf is always demanded."

2. "The Italian type is a little lighter in colour than the German, very smooth and silky, not so fat, but of good length.

3. "The Austrian type is slightly lighter in colour than the Italian, but the two types grade into each other so that no sharp lines can be drawn."

4. "The French type of tobacco is lighter in colour . . . thinner of body, not so fat; has little elasticity, and in most ways is a poorer grade of leaf than the three types just described."

5. "The Spanish trade takes a large quantity of nondescript and low-grade leaf and luges of all types, colours, and textures, very little good leaf is called for."

Lastly come our gallant Jack Tars, thus:—"The heaviest type of tobacco goes to England for use in Navy Plug. Sailors require stimulants, and the heaviest of tobaccos carrying a high per cent. of nicotine are used in Navy Plug." NICOTIANA. —*Pioneer*, Sep. 15.

CHILE PEPPER CULTURE.

Mr. J. B. Neff, of Anaheim, California, discourses on Chile pepper culture, in the *Califonia Cultivator*, on the basis of his own experience as a successful producer of hot stuff.

How Plants are grown.—A hot bed is made by excavating about 16 inches deep; fill in to within 4 inches of the top with damp stable manure, tramping down very solidly. Spread about 4 inches of sandy loam over the manure. The seed is sown quite thickly over the loam, and then about ½ inch of loose, sandy soil placed evenly over it, and all kept damp. When the plants have two or three leaves, thin to 1½ inches apart each way. The plants must be watered while in the hotbed by sprinkling. Great care should be taken to protect from frost.

Soil and Preparation.—Rich, sandy soil is the best for the Chile pepper. It should be ploughed deeply, and be put in a state of thorough cultivation. Ridges should be made 3 feet apart, and the plants set 2½ feet apart on the ridges. All plants must be on

a water line, and to get this the ridges should be made, water run down the furrows, and the plants placed about 2 inches above the water mark. This insures every plant receiving water when irrigated. Plant as soon as danger from frost is past.

Cultivation.—Frequent cultivation is necessary until the plants get too large to allow of a cultivator and horse passing between the rows. All weeds must be pulled out. When the plants are set as before noted, all the ridge will be on one side. This must be worked down with a cultivator, and then a plough used to throw earth on either side of the furrow, so that the plants will be midway on the ridge.

Irrigation.—While the plants are small water will be needed about once in twenty days, but as they get larger it will be needed as often as once a week, though only in small quantities. The plant seem to have no deep roots, consequently the surface soil must be kept damp.

Picking.—The field should be gone over about once a week after the peppers begin to ripen, all that are fully ripe being taken off. Great care must be exercised to pick all the stem with the pepper. They should be allowed to lie in the sun one day after being picked in order to toughen the stems and prevent them breaking during the process of curing.

Stringing.—The common method is to cut strings of strong, smooth twine 8½ feet long. Draw this through a needle about 10 inches long, which is often made of a bicycle spoke. Peppers having any breaks r blemishes must be thrown away, as they would oecay before drying properly. Of course, where an dvaporator is used these can be saved. After the etrings are full and tied they are hung on nails sriven into a rough pole or other framework standing dhout 6 feet from the ground, and left until dry; ar if shelter is available they may be moved before oecoming fully dry and hung closely together under buch shelter, but where there is a free cultivation of air.

s *Evaporating.*—Many growers prefer evaporating instead of drying. The evaporators used are of various designs and sizes, but they should be large enough when the peppers are dried on strings to hold not less than 500 strings. The usual plan is to have a furnace with several turns of 8 to 10 inch pipe in the basement, the peppers being placed in the second storey over a very open floor and with good ventilation. The temperature must be kept at 110 degrees Fahr., and in this way the house can be refilled about every four days.

Yield and Price.—Both of these, of course, vary with the season, soil, and water-supply. Two hundred and fifty strings of 5 lb. each is called a paying crop, but with all conditions favourable, including a late, warm season, as high as 400 strings, or even 2,400 lb. per acre, of dried peppers may be grown. Prices range from 35 to 75 cents. per string if sun-dried, and 7½ to 12½ cents. per lb. if evaporated.—*Planting Opinion.*

A DOUBLE TRAGEDY.

Down from a twig on a Northern Spy tree
A canker-worm swung in security;
He'd eaten all season since first he was hatched,
As a ravenous glutton he couldn't be matched.
He slipped inch by inch to the grass-covered ground,
Where he thought safe concealment mightly surely be found
In which he could pupate till autumn set in;
But a hen came that way and she gathered him in.
Gathered—gathered—gathered—she gathered him in.
She gathered him in, and his final rest
Was there, in there, in her well-filled chest;
And she strolled around in search for more,
For it tasted better than aught before.
But I thought of her end, her final act,
When the farmer'd slice with a carver's tact,
And remark, as each piece made him look less thin,
"I gather her in, I gather her in,
Gather—gather—gather—I gather her in."
—*American Agriculturist.*

TEA IN THE PARIS EXHIBITION.

Tea is well represented at the Paris Exhibition, and vigorous efforts have been made by various sections of producers to bring their produce under the notice of visitors, says a correspondent of the *Grocer*. China is, as might be expected, in the background, and although there is a fair representation of the ordinary products of that country and a good Chinese pavilion, tea by itself does not receive any special or adequate representation. Close to each other in the Colonial portion of the Exhibition, near the Trocadero, Japan, India, and Ceylon all have pavilions for the supply of cups of tea to visitors at moderate charges, and there is some interest in contrasting the different ways in which the teas of each have been put before those likely to wish to make use of them.

As might be looked for with a land which has recently and most rapidly adopted the civilisation of the West, Japan is well forward in methods for attracting attention to its products. The beautiful pavilion is surrounded by a garden in the Japanese style, planted by gardeners brought over from the Imperial gardens in Tokio, in which there is a pagoda (an exact representation of one of the celebrated temples in Japan), and some striking and interesting specimens of Japanese art, architecture, and industry. There is a separate tea-house, the operations of which are conducted under the organisation of the Guild of Tea Merchants of Japan. The fabric is of light woodwork framing peculiar to Japanese houses, and the garden is surrounded by woodwork railings, the whole being dainty and characteristic. The method of serving the tea is much the same as in the pavilions of the other producing countries, but it is somewhat suggestive of the Oriental wisdom and shrewdness generally associated with the wily Mongolian. The menu presented to visitors affords a much greater range of selection, as well as variety in price, than do those of the Indian and Ceylon pavilions. The card itself is well got up, printed in French on one side and English on the other. It offers a choice of the black tea and the green tea of Japan, also of the Oolong of Formosa, and for the small sum of 5) centimes a daintily-served cup of tea, with cakes, can be obtained. For 1 fr. the same is supplied, with the addition of a small souvenir present and a packet of tea, to be taken home. The latter is Japan tea of most excellent quality, and, if one is partial to a drink of the kind, is likely to impress favourably. Of course it is absolutely different in character from the black tea of India and Ceylon; in fact, the difference between the infused liquor of an ordinary Japan tea, as contrasted with black teas such as are drunk in England, is greater than that between ordinary tea and coffee. With the sample of tea is given some literature on the subject, printed in French on Japanese paper.

On the first floor of the tea pavilion there is a saloon reserved for the service of ceremonial tea, in the style followed in Japan. An afternoon call there is a serious thing, requiring ample time, and of the latter a large part is occupied in serving tea elaborately. The tea used for this is of a particularly fine and delicate character, being apparently little more than the dust which covers the golden tips on the points of the young leaves. It was said to be worth 30 fr. or 40 fr. per lb, and was of a very small make, the size being something like the very smallest and most powdery dust, and the colour deep green. A Japanese lady in attendance makes and serves this, and visitors take their seats on a dais, cross-legged in Japanese fashion, while the lady from Japan sits in the middle with an assortment of brushes, dusters, and tea-cloths round about her, so as to produce an absolute cleanliness in all the utensils. Each part of the process is conducted with the utmost care, and when the tea is finally prepared for drinking, it is passed round in a peculiarly formal manner, with elaborate bows on both sides, and has to be drunk out of a basin in a fashion which one must see to understand.

The Indian pavilion is part of the general exhibition given in the Indian Palace. The building is a very beautiful and characterisitic one, but there was grave delay in its completion and in the opening of some sections of it. That portion set apart for the sale of cups of tea is comparatively limited, and is not particularly well situated for attracting attention, but it is very daintily fitted up. The table service as to the cups, pots, &c., used is excellent. The tea is made in the best possible manner, and the tea supplied for consumption, while still remaining pure Indian, is not obtrusively pungent in its character, and very well suited to impress favourably those who already like tea and may want to contrast the tea of one place of origin with that of another.

The Indian tea-room has the advantage of having a number of beautiful trees actually growing in it. Those in charge endeavoured to buy up the right to cut them down, which the Exhibition authorities would not sell, and it is fortunate they did not do so, as in the height of summer they give a grateful shade and add much to the pretty effect of the place. The tea is served by waitresses speaking several languages, who are very beautifully dressed in costumes which, although not strictly having any relationship to India, are Oriental in their general character, and of a design and in a style which suggests that they might have been furnished by Liberty & Co. All are dressed alike, but the costumes appear to be varied from day to day. Although the tariff was somewhat higher than in the Japan tea-room, excellent value was given in the quality of the tea and of the biscuits, &c., supplied, and this exhibit might be considered a very fair bid on the part of the Indian tea people to popularise their produce among the visitors to the Exhibition. A considerable number of those seemed to appereciate the advantages of an afternoon cup of tea, but it was not very clear whether they were French people experimenting in what to them was a novelty, or visitors from other lands who were merely following "their custom of an afternoon."

Closely adjoining—in fact, practically part of the same block of buildings as the Indian Palace—is that of Ceylon, by no means so beautiful in its design and execution or in the wealth of characteristic detail, yet serving its purpose as a shelter for the representation of the products and industries of the island. In this instance the pavilion for serving cups of tea is right outside, in a separate building, with large accommodation in the way of al fresco tables and chairs, much in the style of any ordinary French cafe. A few Cingalese men, with their characteristic tortoise-shell combs in their hair, and dressed in the usual white cotton costume of Ceylon native servants, assist in supplying the tea; but the waiting is mostly done by waitressess, who might be those of an "A. B. C." shop in London. The trade being done is at times very large, and every seat seems occupied. A small orchestra plays in one corner to attract people, and this seems to answer its purpose very successfully.

The tea supplied on the occasion of my visit to the Ceylon pavilion was neither so good in itself, so well made, nor so daintily served as the competing pavilions, and the value given for money was inferior to that in either of the other two, but that appeared to be of little consequence. Ceylon tea has been so well advertised, not only throughout the Exhibition, but throughout Paris in general, and the situation (being at a point where many footways meet and cross) being a very desirable one, there is no necessity to give more to the customers than they expect. A very large trade was being done, and apparently many of the visitors were French people, and numbers had frequently to be turned away.

Ceylon tea generally throughout the Exhibition was being exceedingly well pushed in the restaurants, the Ceylon Commissioners having made contracts with most of them to supply pure Ceylon tea, and a neighbouring restaurant (with a familiar English name) had actually gone the length of cutting under the rates charged at the tea pavilion to attract people into their place for cups of Ceylon afternoon tea.

In Paris generally tea has certainly been more in evidence during this Exhibition than ever before, several well-known English concerns having opened depots, and a large number of places having been induced specially to push certain Ceylon teas that were being exhibited.—*Indian Gardening and Planting.*

PLANTING NOTES.

Productions of the Jewish Colonies in Palestine at the Paris Exhibition.—We are informed by Mr. S. Eldod, manager and director of the Palestine Wine and Trading Company, Limited, whose business premises are at 11, Bevis Marks, City, that the Jewish colonies in Palestine have obtained at the Paris Universal Exhibition of 1900, a Gold Medal for their wines and Grape-brandy, and a Silver Medal for fruit-trees and fruits.—*Gardeners' Chronicle.*

Cooking of Vegetable-Marrows.—As the season of Vegetable-Marrows is now with us, here are two very good modes of cooking them, sent us by Dr. E. Bonavia:—"*(a).* 'Young Marrow Parmesan Fashion.—Take as many very young Marrows as you require, cut each in four, lengthwise; stew them with butter, without water, adding salt, till they are quite soft; place them on a hot dish, and powder them rather thickly with grated Permesan cheese. In the same saucepan put a large spoonful of good stock or gravy; mix in the pure of two or three large tomatos; pour this sauce on the Marrows, and serve. *(b).* Young Marrow, Milanese Fashion.—Cut the number required in halves, lengthwise; half boil them in water and salt; remove the interior of each half, chop it up, and squeeze it in a clean rag to remove the water; then fry a chopped Onion in butter, adding the squeezed pulp, thickened with a little flour, and add a tablespoonful of cream, if handy; season with pepper, salt, nutmeg, and grated Parmesan. The whole should be as thick as porridge. When cold, bind the whole with a whipped egg or two. Fill the Marrow-shells with this stuffing; sprinkle over them some grated Parmesan, and bake to a light brown. N.B.—A variation of this is the addition of minced-meat and Sultana-raisins to the stuffing."—*Ibid.*

Fruit in Ceylon.—The attempts which have been made in the past to cultivate fruit on a large scale in Ceylon have not been of so encouraging a nature that hopes may be entertained that we shall see Orange orchards and fields of Pines filling our markets with a cheap and abundant supply of two of the best fruits Europeans can eat in the East. Oranges remain scarce and dear, which might in the gardens of the village around Colombo alone be grown without trouble and in abundance to fill all the requirements of Colombo, and the constanly increasing number of steamers and ships putting into our harbour. It is possible that the attempts which have been made in the past to cultivate Oranges on a large scale resulted in a failure on account of the class of plants chosen not being best suited to this climate, and whilst it is most desirable that better strains should be introduced, the Oranges which are in small supply in Colombo are not by any means undesirable in quality, but the quantity first requires attention. The Pines usually offered for sale in Colombo are of a very poor description, yet what Ceylon can do in the shape of Pine growing is shown by the delicious fruit to be secured by paying an increased figure. We are rather sanguine that were a start made by encouraging villagers round Colombo to plant the best strain of fruit trees, the results would very amply repay the time and money expended.—"Times of Ceylon."

THE CAMBRIDGE EXPEDITION TO THE MALDIVE AND LACCADIVE ISLANDS.

The last of the three scientific expeditions which have left the University of Cambridge during the past two years for work in various British dependencies has recently returned. It may be remembered that in April, 1899, an expedition left for the purpose of investigating the formation of coral reefs in Ceylon, the Maldives and Laccadives, under the charge of Mr. Stanley Gardiner, Balfour Student of the University.

After several weeks in Ceylon, three months were spent in the island of Minikoi, the most southern of the Laccadive Islands, the lighthouse of which is usually seen by travellers to the East about a day and a half before reaching Colombo. This island has obtained a very unenviable notoriety on account of the large number of wrecks on its reefs, the last of which were the steamship "Thrunscoe," which went ashore shortly before the expedition arrived, and the yacht "Tolna," belonging to Count Festetics, at the beginning of this year. It has long been proposed to erect a signal station on the island, as it lies in the direct route from the Red Sea to Colombo, Australia, and the Far East. From this point Mr. Gardiner cannot see that there would be any difficulty in communicating by means of Marconi's apparatus with Southern India, or, better, with a station on one of the higher mountains of Ceylon.

The members of the expedition took up their residence in a native bungalow, which they had erected close to the lighthouse, and from this centre carried on work of a very varied nature. The natives were not friendly to the English, on account of the disputes which have arisen after the various wrecks on the island though they were in no way actively hostile. The population numbers about 2,500 adults, of whom less than 900 are men, the greater number of the native males being absent on voyages. Many of them are employed on board the various English steamers which sail from Calcutta. The thorough survey of the island and its reefs made by the expedition revealed the interesting fact that the island had been recently elevated to a height of about twenty-five feet. Considerable attention was also paid to the currents round the reefs, which were found to be very varied, and large collections of the land and marine fauna were obtained.

In October Mr. Gardiner, accompanied by Mr. Forster Cooper, proceeded to the Maldive Islands, where they were very kindly received by the Sultan, who is locally known as the Sultan of the 12,000 Lands. The group was found in a ferment owing to a recent change of Grand Vizier and the removal of Mr- Nusserwanjee Dadabhoy by her Majesty's ship "Marathon." Owing to these causes considerable opposition was shown throughout to the work of the expedition by different Ministers and nobles. The Sultan, however, lent a schooner of about 18 tons, and did everything in his power to assist the work, despatching a Royal proclamation to every part of his dominions.

The group, it may not be generally known, is about 500 miles long, and consists of a perfect maze of small islands and reefs. It has passed successively into the hands of the Portuguese, Dutch, French and English, the old treaty of friendship and alliance with the Dutch being renewed yearly with the Governor of Ceylon by mutual presents of local produce to the value of about £20. Owing to disputes arising out of the wreck of a German vessel, a second treaty has, however, lately been made in respect to salvage. The people are Mahomedans of mixed Cingalese, Arab, and Malay stock, and the Sultan claims to have been given his title at Damascus by a former Caliph. All trade has to be carried on at Male, the Sultan's island, except in Maldivian vessels, and a small fleet of schooners is run by various Bombay merchants in Colombo. Rice is the principal import, no grain having been in recent years grown; and coconuts and dried fish, a kind of "Bombay duck,' are given in exchange. Steamboats seldom visit the island on account of the strong currents and numerous reefs, which are constantly growing up or being washed away. Indeed, the navigation of steel ships is practically impossible except in bright sunny weather. A good instance of this was seen on the occasion of the visit of her Majesty's ship "Marathon" in 1899, when, in passing out of Male atoll, she stuck for some time on a reef, which was supposed to have at least seven or eight fathoms of water over it. A hurried survey of the group was made in 1836, but the people at that time were in a very disturbed state and few islands were visited. Since then practically no Europeans, except a few wrecked sailors, have visited any part of the group except the Male atoll, and nothing was known of the internal affairs or government of the many islands.

The expedition visited over 300 islands in every part of the group except the most northern atoll of Tiladummati, partly in the Sultan's schooner and partly in the steamship "Ileafaee," which was for some time chartered. At all the islands the members of the expedition went freely among the people, talked to them, and heard their legends and grievances. In everything their proceedings were the objects of the greatest curiosity, thousands of people who had never seen a white man before visiting their vessel. As far as possible observations were carried out, in particular on the currents of the group, and numerous soundings of the greatest interest were made. The positions of islands and reefs in the atolls were fixed, and all the latter were thoroughly dredged. Large collections, too, were made of the land and reef fauna.

On the whole, the work of the expedition, though the white members suffered severely from Maldive fever, was of a very satisfactory character. The government, mode of life, wants and relationships of the people have been investigated, and specimens of nearly all articles of native manufacture obtained. With regard to the reefs, it is hoped that these investigations will set many scientific points at rest in respect to their formation in the Indian Ocean. The collections, too, should once for all determine the possibility of there having been at one time in this region a large island, which has been repeatedly called into existence to explain the present distribution of animals and plants. It is hoped to communicate some of the results of the expedition to the meeting of the British Association at Bradford in September.—London *Times*, Aug. 18.

JIPIJAPA OR PANAMA HATS.

Ecuador is the real home of the hats wrongly designated under the name of "Panama," and according to the *Recueil Consulaire Belge* this industry afterwards extended to Peru and other countries, even to Yucaton in Mexico. Everywhere in Latin America the hat is known under the name of "Jipijapa" in honour of the city

where its manufacture was first started. It is only in Europe or outside of the producing countries that this hat receives the name of a city which does not make it. The finest hats are made in Jipijapa and at Montecristi, in the province of Manabi (Ecuador), this industry being one of the greatest resources of the country, The *toquilla* or leaf of a small plant is used for this purpose. It grows abundantly in the country the leaves coming up in the shape of a fan. The plant is the *Carludovica palmata.* There are jipijapas of all qualities, from those costing a few pence to those worth several pounds. The merit of these last, really marvels of fineness, consists as much in the scarcity of the straw as in the difficulty of the weaving, and therefore it is exceptional to find these hats on the general market. The hats of current sale cost a few shillings, the finest not exceeding from £5 to £6 in price. In buying a Panama it is necessary to ascertain two things—that the straw is whole and that it is not stiffened. It is not easy to recognise this first condition. In order to make two from one, the weavers split the straw with such perfection that unless a person is accustomed to such examinations it is almost impossible for him to distinguish the difference. Of equal fineness the hat made from whole straw is worth three or four times the one manufactured from the straw that has been split. The second condition is easily recognised for the hats are stiffened to make the straw firmer and white. Good *toquilla* is white and stiff enough not to need any gum, and only ordinary Panamas are stiffened.—*Journal of the Society of Arts*, Aug. 17.

COLOPHONY AND TURPENTINE,

The Forest Department have recently erected a distillery at Nurpur, Punjab, for the manufacture of rosin and turpentine from the crude oleo-resin which exudes from the *Pinus longifolia*, a tree which occurs plentifully in the Western Himalayas and less so in the Eastern. The trees are tapped by cutting wounds in the main trunk and suspending small earthenware cups for the reception of the exuding resin, the wounds being extended when they cease to flow. The samples produced in the factory are very good, the rpentine being quite colourless and the rosin being pale and clear. The Forest Department possesses, of course, a decided advantage in having no difficulty about trees to tap, but arrangements might be made for the tapping of forest trees on payment of a fee to the department. The business must be a lucrative one, as the department has furnished their factory with copper plant at a considerable expense.—*Indian Planters' Gazette*, Aug. 25.

THE COFFEE CROP IN COORG.

An estimate of the coffee crop in Coorg for 1900 has been received from the local Administration, and the figures are appended, with the estimates of 1899 for comparison :—

	1899.	1900.
	Tons.	Tons.
Estimated yield ($1\frac{1}{2}$ cwt. an acre for Europeans in 1899 and 2 cwt. in 1900)	2,089	2,751
Estimated yield ($\frac{1}{4}$ cwt. an acre for natives in 1899 and $\frac{1}{2}$ cwt. in 1900)	683	1,120
Total ..	2,772	3,871
	cwt.	cwt.
Estimated average yield per acre of ordinarily well cultivated coffee in full bearing ..	2	$2\frac{3}{4}$
	Tons.	Tons.
Export of coffee taken from the toll gate returns	4,134	2,366
Average annual export of coffee in the ten preceding years ...	3,228	3,326

Taking the average crop to be about 5,100 tons the estimate of 3,871 tons for the present season represents about 76 per cent of the average against 53·3 per cent in 1899.—*Indian Gardening and Planting.*

TEA :—THEA OR CHA.

WHAT CHINESE DRS. SAY.

"The Chinese physicians say that upon the mountain Tiengo grow above one hundred sorts of Simples all of very sovereign virtues. But, amongst all others, China is famous for a herb called Thea or Cha, and whereof the natives and other neighbouring people make their drink called Thea or Cha, taking its name from the herb. Of all the places in China this herb grows fastest, and in greatest abundance, in the province of Nanking, near to the city of Luchen, and indeed the same is only found in China, Siam, and in the island of Japan. The leaves thereof are very like unto those of Sumack, and that this is a sort of Sumack none need to doubt. However, it springs not wild, but by manuring; is no tree nor herb, but a bush or shrub, which they plant upon little hills three feet asunder, and grow as high as a Rosetree, the branches whereof are full of flowers and thin leaves of a dark green colour, which, though they differ not in shape, yet they are of several sizes, for upon one shrub are at least of five several degrees in bigness. The first and biggest grow upon the lowermost sprigs ; next to them follow those of the next size, and are lesser than the first, and so by degrees grow all the other sorts. But so much as these leaves decrease upward in bigness so much the more the increase in price, for a pound of dried leaves of the first bigness is worth five Dutch shillings, that of the second bigness is worth fifty shillings, but that of the third five guilders, that of the fourth fifteen, and that of the fifth and last bigness fifty. Yea, sometimes one hundred and fifty guilders a pound if well prepared. Upon the branches grow small green buds, which produce little flowers with white leaves, yellow within, and in bigness, fashion, and colour very like the flower of Sweet Briar, but different from it in smell. After that the flowers are shed, there remains a husk which contains a blackish seed, which, being sown in the ground, brings forth the third year new bushes, from whose leaves is gathered every year a rich harvest, and that in such places where it rains and snows as it does in Europe, so that it is probable enough that there might be bushes raised from that seed if it were sawn in some shady fruitful European soil. It is full of spreading roots, which run but shallow in the ground, and are good for nothing; but the leaves they gather every day, and, drying them in the shade, preserve them for their drink Thea, which they use instead of beer, not only at tables, but upon all visits and entertainments, and, which is more, whosoever has anything to dispatch in the palaces of the Grandees is presented as soon as he is seated with a cup of this liquor, which is always drunk, or rather supped off hot, according to the fashion of the ancient Romans, who esteemed more of warm than cold water. If at any time this liquor proves bitter to the taste they mingle a little sugar with it, and drink it to drive away drowsiness. But such especially find the benefit in drinking thereof who have overcharged their stomachs with eating, or discomposed their brains with too much strong drink, for it is a very great drier of gross humours and dispels vapours, occasioning sleep. It strengthens the memory, but increases gall if drunk in too great a quantity. In brief, they extol the virtues of this drink infinitely, and attribute their not having the stone or gout to this, as they term it, most noble drink, which we may believe the rather because in all our journey forward and backward we saw nobody afflicted with these distempers. There is a very great difference in the manner of preparing and using this liquor between the Chinese and those of Japan, for the Japonners beat the leaves to a powder, and mingle it with boiling water in a cup, which they afterwards drink off, but the Chinese put the leaves whole into a pot of

boiling water, which, having lain in steep for some time, they sip off hot, without swallowing down any of the leaves, but only the quintessence thereof extracted. Others prepare it with milk and a little salt mingled with the water, which is not so well approved; but, however prepared, it is not only drunk in China and other parts of India but is much used likewise in divers other countries, and the general consent of all people that they find much good by it enhances the price, and makes the same to be sold here at a very dear rate.—*Extract from an Embassy from the East-India Company of the United Provinces to the Grand Tartar Cham, Emperour of China, 1669. . . . English . . by J Ogilbt, Esq., Master of his Majestic's Revels in London."—Gardeners Chronicle.*

SHELLAC.

There seems to be no reason why the *Coccid, Tachardia lacca* should not be artifically propagated. Were plantations of the trees upon which lac is formed, among which are *Butea frondosa, Zizyphus xylopyra, Mimosa* sp., *Erythrina* sp. and *Croton laccifera*, made in suitable localities, there is every likelihood that the artificial protection of the eggs and the careful distribution of the same would lead to the increased production and facility of collection of lac. Exactly as one of the wax insects, *Ericerus pela*, which is closely allied to *T. lacca*, and has the same habits and transformations, is cultivated in China, so might this species be worked to advantage in India. More difficulty is indeed attached to the rearing of the wax insect in China than would be found in the case of the lac insect. The Chinese in the district of Sze-chuen, where the wax insect produces best, collect the eggs from what is supposed to be a more healthy district for their oviposition, *viz.*, the region of Been-Chang. The producers carry the eggs over mountainous country to the more suitable district for wax production, the distance between the places occupying about a fortnight to cover. The eggs are then tied up in small bags and suspended from the twigs of the evergreens, on to which the newly-latched larvæ swarm and subsequently produce a coating of wax in the same manner that the lac insect produces lac. Both the gum lac and the dye made by the insects are marketable products.—*Indian Planters' Gazette*, Aug. 25.

AGRICULTURE AND CHINA MATTING.

(*From an ex Ceylon resident.*)

Manila, Aug. 17.

The Civil Commissioners take over power here from General Macarthur, the Military Governor, next month, and one of them will start an Agricultural Department, but I am afraid they will be long in starting Experimental Gardens.

You will see by the paper I am sending that the Government have selected a site for a Sanitarium on the Benguet hills. It will be reached by rail from Manila to Dagupan (across Luzon) and a small hill railway is to be made from Dagupan up the hills. I am afraid it will be two years before this line is made, as everything is done very slowly. Manila is improved since the American occupation, but there is plenty of room for more improvements, especially in the roads. Bad road metal is put down and rollers are unknown.

A SANITARIUM FOR LUZON.

Luzon is to have a Sanitarium. It will be located up in the life giving mountains of Benguet at a place called Bogio, about 45 miles from Dagupan to which place it will be united by a mountain railroad, and all this will be done as soon as possible and within a year. Messrs, Wright and Worcester of the Civil Commission journeyed north to locate a suitable site for a Sanitarium. These gentlemen returned to Manila last Friday, filled full with praise for the Benguet country. In selecting Bogio for the proposed sanitarium, the commission had three very important matters in view, the first of which was, of course, a health resort. A place where, during the most oppressive months of the Luzon year, Americans and Europeans could go and rest and recuperate. For this purpose the place chosen is admirably situated. It is high in the mountains and contains an abundance of the purest, freshest water, the nights and days are cool, the scenery superb and inspiring. Besides the motives of health, the establishment of a summer resort here and the building of a railroad from Dagupan will be the means of opening up a wonderfully rich region, and will in this way prove a good political move, while from a military point of view such a step would be invaluable.—*Manila Times*, August 16th.

CHINA MATTING MANUFACTURING CO.

PROSPECTUS.

Capital, $1,000,000 (Hongkong Currency) divided into 50,000 shares of $20 each, of which $5 is payable on application and $5 on allotment. Head office Hongkong. This Company has been formed for the purpose of making by power-looms straw matting of the same description as that now produced by hand-looms in the neighbourhood of Canton (China.) The export of Matting from China to the United States has of late years become a most important trade, having risen in the last 10 years as follows:—from 179,472 rolls shipped in 1889-1890 to 370,170 rolls shipped in 1898-1899 but, as usual, the quality of the goods has fallen away with the increased demand, while prompt delivery to contract time has become increasingly difficult.

Many attempts have been made to devise looms which could be worked by steam to take the place of the crude hand looms used by the Chinese and Japanese, but success has only been attained by a loom which became the property of the Kobe Manufacturing Co., and which has since been brought to a high state of perfection by further inventions and improvements.

The promoters of this company, having experimented with a small trial plant of 50 of these power looms and introduced various further improvements suggested by their knowledge of the Matting trade and requirements of the market in the United States, are now satisfied that Matting made by such machinery must supersede that made by hand looms and have accordingly entered into an agreement with the Kobe Manufacturing Co, to acquire all the rights to the invention.

While experimenting with 50 looms, some 10,000 rolls were made and shipped and the reports on the later and better made shipments were all of a highly favourable and encouraging nature, the evenness of the fabric and the great improvement on the old hand-loom matting, especially as regards the selvage or edge, being particularly praised and commented on. One great difficulty was to get the machines to turn over the straw so as to produce a clean surface at the edges of the Matting. This difficulty was overcome some few months ago, and the looms can now, in the opinion of experts, turn out a perfect fabric. As each power loom can produce about 30 yards a day as against 6 yards produced by hand-loom, the saving in the time is obvious, while the advantage of being able to rely upon punctual delivery will be a great boon to dealers at home who at present have to put up with much delay and loss of time in getting their goods. The advantage is still more obvious to-day in view of the political unrest all over China and the great probability of the present troubles in the North spreading to the South, in which case the matting industry in the districts around Canton is likely to suffer to such an extent that it may take years to recover, matting being entirely dependent upon the labor of the peasant class when not en-

gaged in their ordinary farm work. It it proposed to erect a Factory capable of running 450 looms producing about 100,000 rolls per annum, of which it is estimated, at the prices recently obtained in the United States for the Matting sent there for sale, there would be a net profit of a least $1½ per roll, or say $150,000. In course of time further experience and economies will undoubtedly improve upon these figures. The promoters of this Company have, as before stated, experimented with 50 looms and having acquired from the Kobe manufacturing Company all the rights to the invention will transfer the same to the new company together with fifty looms and other machinery, stock in trade, good will, etc., for $350,000 (Hongkong currency), which amount will be taken by the Kobe Manufacturing Company and the promoters in shares. The capital of the company, as far as can be roughly estimated, will be laid out in the following manner:—Land, buildings and machinery, $470,000; working capital, $180,000; Kobe Manufacturing Company and promoters for rights, good-will and sundry machinery, including engine and 50 looms, $350,000 taken in shares.—Total, $1,000,000.—*Manila Times* Aug. 16.

ADDITIONS TO THE ZOO.

At the monthly meeting yesterday of the Zoological Society of London at the offices in Hanover Square, Dr. Henry Woodward, F.R.S., vice-president, in the chair, it was reported that there had been 137 additions to the society's menagerie during July. Among them special attention was directed to a fine pair of tigers (Felis Tigris) from Mysore, India, presented by H.H. the Maharani Regent of Mysore; to a sharp-nosed badger (Meles leptorhynchus), from China, representing a species which had not been in the society's collections since 1873; and to a young female brindled gnu (Connochœtes taurina), born in the society's gardens, being the first instance of this species breeding in the society's menagerie. It was also announced that the Right Hon. Cecil J Rhodes had presented to the menagerie a lioness which had arrived on the 11th inst. in the steamer Saxon, of the Union Castle Company, and that the company had kindly brought it from the Cape freight free.—*Globe*, Aug. 17.

GOLD CRAZE IN MADAGASCAR.

Paris, Aug. 17.—The discovery of gold in the Malagasy provinces of Imerina and Ambositra has generated a veritable craze in all sections of the population, irrespective of race or colour. All ties of business, family, and long residence in the capital and other centres are being uprooted, and there is a universal rush for the new El Dorado. The fever of speculation has already been productive of much misery. There is no doubt that there are gold deposits, but most of those found hitherto prove to have been almost exhausted by natives before the French Conquest. The gold region extends about 100 miles south of Antananarivo.—*Daily Express.*

CAPRIFICATION OF FIGS.

The process of caprification or cross-pollenisation of Smyrna Figs is performed chiefly by women and children; it consists in gathering the Profichi, and suspending them in the branches of the Smyrna tree, says *California Fruit Grower*. In the Meander orchards it is customary to string the hard Profichi on the ends of rushes, which are pushed horizontally through the sides of the Fig; if the Profichi are plentiful two are strung on each end of the rush, which is then thrown up into the Smyrna tree and caught among the branches. The fig wasp, on emerging from the Profichi, enters the Figs nearest to hand, not discerning any external difference between the young Smyrna Figs and the young Mammoni, which it would enter if still in the caprifig tree. But once inside the fig wasp discovers that something is wrong, for, instead of finding short-styled gall flowers in which it could lay its eggs, there are only female flowers with long styles, which are entirely unfitted to receive the eggs: insect is unable to escape, and in darting about in vain efforts to find some gall flowers, the pollen with which it was so freely dusted in emerging from the Profichi is rubbed into the receptive stigmas of the female flowers. The little wasp finally dies in the Fig without having been able to provide for the production of its kind, and on cutting open a Smyrna Fig shortly after caprification one can usually find the dead insect.

The quantity of caprifigs needed to caprificate a Fig tree varies with the size of the tree. In Smyrna some thirty Figs are required to caprificate a large full-grown, edible Fig tree.

TRADE IN BORNEO.

The report of Mr. Consul Keyser on the trade in Borneo has just been received. With regard to Brunei, it appears that there is a good opening for the collection and cultivation of rubber and gutta-percha, but the Chinese have practically killed the trade and driven the natives out of their country.

Sarawak, which is governed by Rajah Sir Charles Brooke, is, however, progressing rapidly, and the exports of rubber and gutta-percha from this district are increasing every year, as the following figures show

The reports being as follows:—

	1898	1899
Gutta-percha ...	513,200 lb.	1,362,267 lb.
India-rubber ...	515,333 lb.	664,133 lb.

These, with rattans, form the chief articles of of export.—*Indiarubber Journal*, Aug. 20.

LINSEED OIL-CAKE.

This product has long been known to gardeners in the country as a valuable manure for fruit trees, especially for vines and peaches; but its use has not been as general as its valuable properties warrant. Mixed with lime it has a wonderful effect on fruit trees. Judging from the reports on experiments carried out on the several Government experimental farms by the application of linseed cake to certain cereal crops, the conclusion to be drawn is that it is one of the best fertilising agents we have. As a cattle food and even for horses, its value is fully recognised in England and Scotland and hundreds of tons of it are imported annually from India by Scotch farmers, who are better acquainted with its valuable properties than the Indian *ryots*. As with bone-meal so with linseed oil-cake. Those out of India think more of it than the Indians, with the result that, instead of being utilised in this country for the manuring and fertilisation of crops, these valuable substances are being sent out of the country. It is a striking commentary on the peculiar conditions obtaining in India, that the people do not recognise the value of their own indigenous products, and allow foreigners to exploit them to their own advantage. Messrs. Barry and Co., Calcutta, are the Managing Agents of the Gourepore Co., Ld., and will be glad to furnish particulars as to the linseed oil-cake manufactured by the latter.—*Indian Gardening and Planting*, Aug. 30.

CEYLON TIMBERS.

Amongst tropical timbers there are some peculiar to Ceylon which occupy the first rank in importance, some even being unequalled in beauty and commercial value, *e.g.*, Calamander and Ebony. The Timber Expert for the Imperial Institute has recently made an examination of samples of Ceylon timbers and has pointed out in several cases the probability of certain kinds gaining increased favour in the timber market, more especially with cabinet makers. Some of the samples, however, at his disposal were from uncertain sources and of doubtful species; whilst with many the age of the trees from which they were obtained could not be determined. Obviously, the latter character is of vital importance in estimating the value of timbers. The age of trees grown in temperate climates can generally be distinguished by the number of rings to be seen in a transverse section of the stem, each ring indicating a definite period of growth, owing to one season of activity being followed by one of rest in the same year. In Ceylon, however, where the vegetation is generally evergreen and therefore comparatively uniform in rates of growth throughout the year, the idea of "annual rings" can no longer be relied upon as indicating the exact age of a particular tree.

The rates at which trees grow, and therefore the seasonal rings in their stems, are, to a great extent, controlled by climatic conditions; and since Ceylon, above all places, offers such a great variation in this respect, it is more than probable that if sections of trees from different parts of the island were examined, certain conclusions could be arrived at which would be capable of general application. The only way in which reliable information can be obtained on the point in question is by examining as many trees as possible, of known age. The knowledge thus gained can then be applied in solving the age of timbers about which no record of planting has been made.

In this connection we learn that Mr. Herbert Wright, the Scientific Assistant at Peradeniya Gardens, is giving special attention to the subject of annular rings and planters when felling any trees (in the hill or lowcountry—in the Puttalam and South Batticaloa districts, where coconut clearings are being made) would do well to forward to him thin sections of the same, about three inches in thickness. Mr. Wright, more particularly, wants sections of trees "of known age." Such, however, can only refer to timber trees planted on estates or around bungalows, and chiefly of imported —Australian, Indian or Japanese—trees. We have never heard of any planter trying to grow the cabinet-wood-yielding trees of the island, more especially Ebony and Calamander? If we are wrong, our good friends, Mr. W. H. Wright and Mr. Wm. Jardine, will correct us. Indeed, Calamander is nearly extinct in the Crown forests in the island. Here is what Dr. Trimen says in his "Flora":—

Diospyros quaesita:

Forests of the moist low country below 1,000 ft.; rare, Singhe Raja Forest; Hiniduma; Potapitiya, Kukul Korale; Karawita Kande; Ratnapura; Dotalankanda, Pasdun Korale. Fl. April. Endemic. This affords the finest of the variegated woods known as Calamander. The tree is much sought after, and, from being destroyed in many places, is becoming more and more scarce. Thunberg in 1777 first discovered 'Calaminder' wood to be produced by a species of *Diospyros* (see his 'Travels,' vol. iv.).

The shape and large size of the fruit afford a ready means of determining this species, and the venation of the large leaves is also characteristic.

And from the current "Agricultural Magazine" we extract a passage out of a report by Mr. A. F. Broun, Conservator of Forests:—

Ebony, as has already been mentioned, is found in small quantities in this zone, but the most important tree of this family, which is unfortunately almost extinct, the Coromandel or Calamander wood of commerce, *Diospyros quaesita*, is still found here and there in the Pasdun Korale and in the Hinidun Pattu. Attempts have been made for several years to obtain the fruit in order to propagate the species artificially, but, although rewards have been offered, none has been obtained.

Still another extract we take from the late Wm. Ferguson's pamphlet on "Ceylon timber trees":—

I recollect reading in 1819, a very interesting account by Mendis Modliar of the mode of procuring Calamander Wood, and the fact that the variegated part so much in request is an *accidental* product of the tree, some trees producing none of it, some near the lower part of the trunk, whilst in others it is found only near the middle of the trees, and generally not in luxuriant trees growing in rich soil, but in those growing in dry rocky ground. These remarks apply to several of the trees producing *variegated* or *ornamental* woods, such as the Tamarind, in which the beautiful Calamander-like wood is found only in very old trees, and generally in the heart of the lower part of the trunk, or in the roots; and the differences of soil, climate and situation have such an effect on the timber of the same species of tree, that unless these facts are taken into account respecting the specimens used as tests, the tables of strength, weight per cubic foot, specific gravity, &c., &c., are not to be depended upon. Again the times of felling, mode of seasoning, &c., should also be taken into account.

Nitrogen and Electricity.—Tesla says it will yet be feasible to procure nitrogen from the air in a form suitable for fertilising purposes by means of electricity. By transmitting electric power great distances without wires, Tesla also thinks that power will be made so cheap that it will pay to pump water for irrigating lands that cannot be otherwise utilised. Yet such a source of cheap nitrogen would be no more remarkable and not as practicable as the method by which every intelligent farmer now extracts nitrogen from the air instead of paying for it. Leguminous crops have the power to extract nitrogen from the soil's atmosphere by means of nitrifying organism or bacteria. These crops will thrive on poor land if dressed with a little potash and phosphoric acid, and then if ploughed under (in whole or in part), the nitrogen thus obtained is added to the soil's supply of plant food. The wonderful function of bacteria is just beginning to be realised in agriculture as in other industries. In this and other ways Nature will help intelligence as applied to farming, more readily and efficiently than to idly wait some transcendant discovery for the artificial extraction of atmospheric nitrogen.—*American Agriculturist.*

THE WALAWE ESTATES COMPANY.

RICE GROWING.

The *Government Gazette* contains the memorandum and articles of Association of this Company formed to take on lease and thereafter purchase or otherwise acquire the Walawe estate at Ambalantota, and prepare, manufacture, treat, and make marketable paddy, rice, tea, copperah, oil, and (or) other crops or produce.

The nominal capital of the Company is one hundred and twenty-five thousand rupees, divided into 205 preference shares of R100 each, bearing a cumulative preferential dividend at the rate of eight per cent. per annum, and also ranking in priority to the ordinary shares for return of capital upon a winding up of the Company and 425 ordinary shares of R100 each, the remaining 595 shares of R100 each to be issued hereafter in such manner as the Company may direct, with power to increase or reduce the capital. After the payment of the cumulative preferential dividend at the rate of eight per cent. per annum, and a cumulative dividend on the ordinary shares at the rate of eight per cent. per annum, the balance profits of any year which the Directors may recommend for division shall be divided and paid as to two-thirds to the preference and ordinary shareholders *pari passu*, and as to one-third to Edward Elliott so long as he shall be Manager of the Company, and upon the retirement of the said Edward Elliott from the management the balance profits shall be divided between the preference and ordinary shareholders *pari passu*. The signatories are :—H Creasy, Colombo, G H Alston, A Thomson, G W Carlyon, W Henry Figg, Whittall & Co. and *per pro.* E B Creasy, R E Shaw.

NYASSALAND COFFEE COMPANY.

THE ANNUAL REPORT OF DIRECTORS.

Directors :—Messrs. W P Metcalfe, Chairman; Geo. Kent Deaker, H Creasy and W Shakspeare.

ACREAGE.

10 acres coffee planted Dec. 1895.				
240	do	do	do	1896—Feb. 1897.
383	do	do	do	1896—Feb. 1898.
633 acres under cultivation.				
2,843 acres reserve.				

Total 3,476 acres.

The Directors beg to submit the accounts closing the year 1899, the period under review covering six months only.

Superintendence.—During the six months Mr. G N Barclay was in charge of the estate.

Progress of Works.—The ordinary routine work of the estate was partially carried out, but possibly owing to Mr. Barclay's unfortunate illness, the weeding, from latest reports received, would appear to have suffered from lack of supervision, Mr. Robins being absent on furlough.

Crop for 1900.—The issue of this report has been delayed in the hope that full information would have ere this been received, but the Directors regret that no details have yet come to hand as to the outturn. The accounts to the end of April show 42 bushels parchment coffee secured as the result of first pickings.

Financial Position.—To the 31st December, 1899, the Company was indebted to Messrs. Carson & Co. to the extent of R8,500, and they have continued to finance the Company during the present year. It has not yet been found practicable to conclude the arrangements foreshadowed in the last Director's report.

Directors.—Mr. W P Metcalfe retires by rotation but is eligible for re-election.

Auditor.—The appointment of an Auditor for the current year rests with the meeting.

DOOMOO TEA COMPANY.

THE DIRECTORS' REPORT.

Directors :—Messrs. W Kingsbury, F W Bois, W D Gibbon.

Your Directors beg to submit their Report and Accounts for the season ending 30th June 1900,

The tea received from the two estates aggregated 242,790 lb. against an estimate of 220,0 0 lb. and the price realized was 40·57 cents per pound against 42·83 cents per pound the previous season. The cost of production was however reduced by almost 4 cents a pound the resulting profit being 13·88 cents per pound against 12·22 cents.

The Doomoo Factory has been removed and re-erected at Verellapatna as a withering shed, and the whole of the Company's Tea is now manufactured on the latter Estate, this having been considered advisable owing to the rapidly increasing cost of firewood.

The amount available to deal with is R37,264·92 and your Directors recommend that R2,500 be passed to Depreciation account R5,000 to Reserve account that a Dividend of 7 per cent for the year be paid forthwith and the balance of R1,764·92 be carried to next account.

The Directors would also ask the shareholders to sanction the payment of a bonus of R500 to Mr. Mason for his efficient and economical working.

The estimate for the current season is 245,000 lb. Tea on an expenditure of R71,205—which includes a sum of R3,000 for a new bungalow which is necessary on Verellapatna.

The acreage of the two estates is as follows viz :—

Doomoo ...	210 acres	Tea 6 years old and upwards.
	3 ,,	,, 4 ,, ,,
	6 ,,	,, under 2 years.
	219	
	22 ,,	Timber.
	58 ,,	Chena and Patna.
	299 acres.	
Verellapatna	345 acres	Tea 5 years old and upwards.
	120 ,,	4 ,, ,,
	35 ,,	3 ,, ,,
	24 ,,	2 ,, ,,
	524	
	10 acres	Grass.
	154 ,,	Chena and Patna.
	688 acres.	

In accordance with the Articles of Association Mr. F W Bois retires from the Board, but being eligible offers himself for re-election.

It will also be necessary to appoint an Auditor for season 1900—1901.

Nyassaland Coffee Company.—We regret to see that this enterprising Company is to be no exception to the usual experience of pioneers. But it seems to us cultivation has been forced on a little too rapidly : 663 acres of coffee would be a really big charge even in Ceylon: how much more in a new and like B. C. Africa. We think it a pity the Directors did not confine themselves to 400 acres as a maximum, until they had got profitable returns and proved the plantation to be a success. Then the weeding probably would not have fallen into arrear, while the financial position would have been distinctly better. However, we have no doubt all has been done with the best intentions and no Directors can guard against the illness of their Superintendents

PRODUCE AND PLANTING.

RUSSIAN CUSTOMS TARIFF ON PRODUCE.—The Board of Trade have received, through the Foreign Office, a copy of a Russian Imperial Ukase, dated July 21, stating that the Russian Government have decided to increase temporarily the duties on articles comprised in certain sections of the Russian Customs tariff on their importation into Russia from European countries. The conventional tariffs existing in conformity with the treaties between Russia and other States will not be affected by the present Ukase, which was to come into force from July 23 (August 5)—*i.e.*, the date of its promulgation. In the list of articles liable to increase there is no mention of tea, but there is an increase of 50 per cent upon roasted coffee, cocoa, and spices, an increase of 30 per cent upon raw coffee, and 20 per cent upon ground cocoa.

THE TEA TRADE OF CANTON.—An interesting report on the trade of Canton for the year 1899 by Mr. Scott, the British Consul, has just been issued through the Foreign Office. In his report Mr. Scott says: "The returns of tea given in the Customs returns convey no idea of the real quantities exported. In the case of tea, the information is positively misleading, as the figures show an actual decrease, while I am informed that there was really an increase of about 1,000,000 lb. as compared with 1898, which year, however, was the worst year, as regards the quantity exported, on record. The total amount exported to London is stated to have been 5,250,000 lb. This was all junk-borne to Hongkong for transhipment. The 1,130,214 lb. which appear in the Customs returns was none of it destined for the United Kingdom, practically the whole being consumed in China itself. The improvement in the trade last year is held to be temporary only, the whole course of the trade having a downward tendency year by year, and is gradually but surely diminishing. The requirements for the 1900 season are said to be only 4,000,000 lb. The result of the trade in 1899 is said to have been profitable to the producer, and more ground has been put under cultivation, but the increased quantity thus produced will all be required for consumption on the spot and for export to other parts of China."—*Home and Colonial Mail*, Aug. 24.

PLANTING NOTES.

AMERICAN MAIZE IN THE PUNJAB.—A trial is to be made in the Punjab as well as in other parts of India of samples of American maize recently received from the Rev. R Winsor, Secretary to the American Board of Commissioners for Foreign Missions.—*Pioneer*.

A "TEA CESS" FOR INDIA.—Mr. G. L. Acworth, Chairman of the United Planters' Association of Southern India, alleges that the planters are not so much to blame as the Indian Government for the non-establishment of a "Cess" on tea (for advertising purposes) such as is so successfully collected and utilised in Ceylon. If that be the case, we think it would be well if the Viceroy were approached, and if this could be done through the Ceylon Government or His Excellency Sir West Ridgeway personally, a successful issue might be anticipated. If the Planters' Association prepared a brief statement of how the Cess has been worked in Ceylon and what has been done with the money, and requested our Government to lay it before the chief Indian authorities—or the Viceroy himself—with the hope that a similar Cess (as prayed for by the Indian planters?) might be sanctioned for India, we cannot see how a refusal could be given.

COLVILLEA RACEMOSA.—This is one of the most beautiful trees we have received from Madagascar, and like the Flamboyant (*Poinciana regia*) it belongs to the great *Leguminosoe* Order. It was introduced into this country many years ago, and is almost naturalised here. It attains to a height of some forty feet: has beautiful fern-like foliage, not unlike that of *P. Regia*. When in flower, as it is now, it is a grand object with its long racemes of glowing orange-scarlet flowers, rising from the upper axils of the leaves. From two to five racemes, about fourteen inches long, come out at each terminal axil. When properly grown and a little care taken of it, the tree grows into a handsome shape. It is easy of culture, and is propagated from seed, which it bears freely. The tree is well worth a place in any garden.—*Indian Gardening and Planting*, Sept. 6.

THE "PLUMBAGO" PUZZLE.—A correspondent to our contemporary puts the mystery surrounding the plumbago trade "in a nutshell," when he says:—

"Whatever the cause was for the rise beginning in 1897, and going on till nearly end or middle of 1899, the fact must remain that people wanted plumbago for specific purposes, and not to lay it down on the chance of it being useful some day. Whatever the stuff is used for, it must be—one would think—for the class of things whose manufacture or outturn is expanding and not contracting, and yet we see 242,000 cwt. selling at vastly inferior prices in 1900 to 400,000 cwt. in 1899 (export to 30th August for the two years)."

To say that the desire to lay in stocks, caused the great rush and increase in price, notwithstanding 50 per cent more of shipments) during 1899, is absurd on the face of it; while increased activity in armaments seems only a partial explanation.

RUBBISHY TEAS IN THE COLOMBO MARKET.—We have repeatedly urged self-respecting tea planters—the vast body of the community in fact—to take action through their Association with reference to stuff which is a disgrace to the name of "tea" put up for sale in the local market. Again and again has such "Ceylon tea" been condemned as "unfit for human food" at the Melbourne Customs; and though London is not so strict, there can be no doubt of the injury done to our good name from such shipments. We are glad to see that Mr. F. F. Street is supporting our view of the need of a paid "expert" at the local Customs to stop the export of *trash*, such as is never seen from even China or Java. Surely factory sweepings or spoilt tea, if they have to be sold at all (in place of being put in the manure heap) can be disposed of to coolies or tambies? Here is an extract from Mr. Street's latest circular:—

"Quality.—Generally the selection has not been good, catalogues containing a large proportion of tea more or less spoilt in manufacture. Many of these rubbishy teas can only bring discredit on the industry, as the worst get into native buyers' hands, who sell them, at large profits, in our Harbour, to passengers calling here. Quotations of from 10 to 20 cents must leave loss to the estate. We desire to draw the 'Thirty Committee''s attention to this subject, as it is an evil that has existed for many years. It seems rather absurd that planters should require protection against themselves, but that such protection is needed, in the interests of the industry, is manifest to everyone connected with the trade."

Malacca Rubber At Kew.—Specimens of gutta and rubbers from Malacca have been very favorably reported upon at Kew, with prices ranging as high as 2s 10d per lb (for *getah greep jantan*). The neglected child of the Colony may yet recover some of her pristine prosperity with such favorable results.—*Perak Pioneer*, Sept. 5.

A Rich Russian Rubber Company.—The profits of the Russian-American India Rubber Company, at St. Petersburg, for the last business year are reported at 2,941,906 rubles, against 3,945,222 rubles, in the year 1898 99. The dividend will be only 35 per cent., against the customary yearly dividend on 50 per cent.—*The India Rubber World*, August 1st.

The Sustaining Power of Bananas.—One of the most courageous marches ever taken, was that of Colonel Willcocks to Kumasi. We hear that during the march from Kumasi the whole party lived on Bananas. On one occasion they even waded shoulder high through a river for two hours. Does anyone want a higher test of endurance on a vegetable diet than this?—*Journal of Horticulture*, August 16th.

Tea Prospects at Home.—There have been growls over the heavy London stocks of Ceylon tea at the end of August. But it is pointed out that, notwithstanding big arrivals, they are not heavier than at the end of July, and that August's deliveries have, therefore, been very satisfactory. It is from the present date onwards that the stocks should gradually decline, and we hope to see a considerable difference at the end of September and of October.

Timber Transport.—The Cochin Durbar have secured the services of Mr. Hatfield, an engineer, to prepare a scheme for the construction of a tramway to convey timber from the Sircar forest to the backwater, and for the deepening of canals to float the logs down expeditiously. At present it takes a little over a year for the timber to reach the Sircar Depôt at Ernacolum, after considerable difficulty and expense; but when the scheme is completed there will be a saving of money and time. The scheme is estimated to cost two lakhs of rupees.—*Pioneer*.

A New Fruit.—In this thirsty season the raiser of a new fruit is a public benefactor. "The Mahdi" is not a pleasant name, but we do not doubt Messrs. Veitch's new hybrid of the raspberry and the common blackberry is not the less sweet for it. Perhaps they will send samples to the newspapers, as the Kentish gentleman did with the tobacco he had raised, which led to lively expectations of a new industry for distressed agriculturists in Southern England and Ireland. It is not the first time this hybrid has been heard of. In fact, it has been something of a sea-serpent in its generous appearances. But this time there is no mistake about it. Its origin is known and it is duly certificated. We hope it may become as popular and as plentiful as blackberries. Too little enterprise is shown in the cultivation of new fruits in England. There is the Rocky Mountains berry (*Rubus deliciosus*), for instance, which well merits attention, and would thrive in many soils. The worst of these delicate soft fruits is they must be lightly handled and quickly despatched. And then the growers assert that railway freights are exorbitant, if not prohibitive.—*Egyptian Gazette*, Aug. 23.

A New Assam Line on the metre gauge system has been proposed. It will run along the foot of the Khasi Hills to Jherria, thence westwards to Mao-iong, Jatab Tilah and Dwara Bazar. Including sidings, the length of the line will be thirty miles, and it is estimated that the cost will be R15 lakhs. It is expected that the gross earnings will amount to R1,50,000 a year, and the working expenses are estimated at 53 per cent so that the return on the capital outlay will be 4·67 per cent.—*Pioneer*.

Criticising Tea Companies.—We give elsewhere an extract from the latest *Investors' Review* in which the Editor, Mr. Wilson, is engaged in the (to him) congenial occupation of pitching into the financial methods of the promoters of certain big Tea and Plantation Companies. There is, no doubt, another side to the picture which he presents if the Directors cared to come forward with it.

The Late Sir John Lawes.—"I am afraid," writes a correspondent, "the Tea controversy proved too great a shock for the veteran Scientist of Rothamsted. It was bad enough to be misunderstood and misrepresented by his neighbour, G. A. Talbot; but that his newspaper echo here of manurial heresies, should ask whether the great student and advocate of scientific agriculture had ever seen a tea bush, must have been too much for the octogenarian. R I.P."

The Trees of Mexico—the vegetation of the *tierra caliente* has often been described and compared with that of Ceylon, says a correspondent of the *Speaker*; but upon the great Mexican plateau also the trees, where they exist, are splendid and always contrive to group themselves well. Foremost, I think, comes the ash—a glorified ash, handsomer than ours, graceful as well as massive and of the richest green; but the characteristic tree is the pepper-tree, or, as it is commonly called, the Peru, for it is not indigenous to this country but was introduced years ago by a Viceroy from Peru. It is of a most brilliant green and covered with bunches of coral-like berries. At a distance this tree rather resembles our willow, while the willows, in protest as it were, have taken unto themselves the shape of poplars. No enumeration, however, would be complete without special mention of a species of cypress which, though of no great height, attains a gigantic size. Its bulk must be measured by the ground it covers, for its branches spread out in all directions. The Ahuete-huete, the finest specimen at Tule, has a trunk 40ft in diameter. The ubiquitous prickly pear and cactus hedges give our Mexican scenery a character essentially its own—the prickly pear has always been Mexican, it was the Aztec emblem and is still stamped upon the ponderous Mexican dollar. To complete and vary my picture, Mexican landscapes are blessed by the richest diversity of beautiful skies and the cloud effects are quite unrivalled in spite of the dry climate—or rather, perhaps, because of it: such extraordinary brilliance may be due to the dryness of the air:—

"Largior hic campos aether, et numine vestit
Purpureo."

The sky seems "larger" here than anywhere else. I mean that one seems to see more cloud-pictures all round, and not only towards or away from the sun. Our atmospheric brilliance, too, seems to fit the Virgilian "purple."

PRODUCTION OF TEA IN INDIA.

OFFICIAL STATISTICS.

[The two tables appended state the facts regarding the production of tea, the first in abstract for the fifteen years 1885 to 1899, the second in detail for the two years 1898 and 1899. It should be noted, however, that the figures, for which the Government are dependent upon the planting community, are imperfect and defective, planters sometimes withholding information.]

AREA.

The area under tea in India at the end of 1899 extended over 516,732 acres, nearly two-thirds (64·1 per cent) being in the valleys of the Brahmaputra and Surma, which contain as much as 331,151 acres—namely, 198,673 in Assam (the Brahmaputra valley) and 132,478 in Cachar and Sylhet (the Surma valley). In extent of cultivation Bengal comes next, the area under tea being 132,923 acres, or 25·7 per cent of the whole, and about the same as in the Surma valley.

The production of tea is therefore, to the extent of nine-tenths of the whole area, limited to the two provinces of Assam and Bengal.

The other tenth is divided between Northern and Southern India, thus :—

Northern India.	Acres.	Southern India.	Acres.
North-Western Provinces	7,854	Madras ..	10,164
Punjab ..	10,135	Travancore and Cochin ..	23,115
Total ...	17,989	Total ..	33,279

The principal localities in each province where tea is grown are these :—

In Assam.	Acres.	In the North-Western Provinces.	Acres.
Surma Valley:			
Cachar ...	60,542	Kamaun ...	2,846
Sylhet ..	71,936	Dehra Dun ..	5,008
Brahmaputra Valley :		In the Punjab.	
Sibsagar ...	76,797		
Lakhimpur ..	63,444		
Darrang ..	41,469	Kangra ..	10,135
Nowgong ...	12,520		
Kamrup ...	3,818		
In Bengal.		In Southern India.	
Darjeeling ...	50,673		
Jalpaiguri ...	74,121	Nilgiris ..	7,321
Chittagong ...	4,663	Malabar ..	2,398
Ranchi & Hazaribagh	3,366	Travancore ..	23,103

There is a small area of 1,390 acres in Upper Burma, but in this province the leaf which is produced is not made into tea, but is pickled to be eaten by the Burmans, and the area and production may therefore be left out of account.

There are also a few small areas in Goalpara, the Khasi and Jaintia, hills, the Chittagong hill tracts, Simla and Cochin.

Tea cultivation in India has been mainly concentrated in tracts where a heavy rainfall and a humid and equable climate permit of repeated flushes and pluckings of the leaf. In the valleys of the Brahmaputra and Surma the yield averages about 448 lb. to the acre, and in Bengal about 406 lb., the yield in Jalpaiguri (the Duars) being 533 lb., and in Darjeeling about 281 lb. In Travancore the average yield is stated at 644 lb. per acre, a figure that must be taken under reserve. In the North-Western Provinces the yield per acre is 297 lb. Elsewhere the yield is much lower.

The area under tea has expanded from year to year without a pause during the fifteen years comprised in the statistics appended. In 1885 the area was about 284,000 acres; in 1899 it had increased to 516,732 acres, the increase being in the ratio of 82 per cent.

The number of acres added to the tea-growing area each year has been :—

	Acres.		Acres.
1886 ..	14,294	1893 ..	20,970
1887 ..	14,584	1894 ..	4,688
1888 ..	11,524	1895 ..	15,190
1889 ..	9,374	1896 ...	17,563
1890 ..	11,126	1897 ..	36,838
1891 ..	17,610	1898 ...	31,561
1892 ..	12,432	1899 ..	15,052

The average addition in the last five years (23,241 acres) was much larger than the average addition (13,365 acres) in the five preceding years.

The plantations vary greatly in size. In Assam, where the industry is mainly carried on by Europeans with ample capital, where fusions of estates have been in progress for some years in view to economy of management, and where most plantations have large unplanted areas attached to them, the area of a plantation averages as much as 1,266 acres. In Bengal the average area of a plantation is 727 acres; in the North-Western Provinces the average falls to 119 acres, while in the Punjab, where natives grow tea extensively in the Kangra valley, there are only about four acres to each plantation. In Madras the average is about 86 acres.

PRODUCTION.

The quantity of tea produced has increased in the past fifteen years in much greater ratio than the area under cultivation, for, while the area has increased by 82 per cent, the increase in production has been 161 per cent. In 1899 the production in Assam, where the season was favourable in most of the districts, increased by more than 18 million pounds, and in Bengal by more than 4 million pounds.

Representing the area and production in 1885 by 100 in each case, the ratio of increase in each compared with that year is stated below, the actual increase of production each year over the production of the preceding year being also stated :—

	Area.	Quantity produced.	Actual increase annually in lb.
1885 ..	100	100	..
1886 ...	105	115	10,899,835
1887 ...	110	129	9,826,270
1888 ..	114	139	7,540,462
1889 ..	117	149	7,250,331
1890 ..	121	156	4,993,531
1891 ..	127	173	11,831,496
1892 ..	132	170	—1,873,628
1893 ..	139	185	10,253,626
1894 ..	141	188	2,465,144
1895 ..	146	200	8,694,783
1896 ..	152	219	13,018,227
1897 ..	165	215	—2,643,846
1898 ..	177	228	9,296,746
1899 ..	182	261	23,445,966

PERSONS EMPLOYED.

The number of persons employed in the tea industry in 1899 is returned at 558,001 (permanently) and 96,615 (temporarily), or altogether about two-thirds of a million people (654,616 persons), which would work out to about 1·27 persons to the acre.

EXPORTS AND CONSUMPTION.

The tea produced in India is exported, mainly to the United Kingdom, to the extent of about 97 per cent of the average production. The sub-

joined figures give approximately the quantity of tea consumed in India, the figures representing the average of the last five years:—

		lb.
Indian tea	Produced ..	160,643,992
	Exported ..	155,474,416
	Left in India ..	*5,169,576*
Foreign tea	Imported ..	6,210,615
	Re-exported ..	3,487,630
	Left in India ..	*2,722,985*

Thus approximately 8 million pounds were left in India on the average of which 5·17 millions Indian and 2·72 millions foreign, the bulk of the foreign tea being Chinese, though a substantial quantity consists of Ceylon tea. More than a million pounds are purchased annually for the British Army, and a larger quantity must be consumed by the European and Eurasian civil population, and by natives who, in some of the larger towns, are adopting the tea drinking habit.

The principal markets for Indian tea are stated hereunder, with the quantity exported (in lb) to each country in the last five years:—

By Sea:—

1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.
United Kingdom.				
123,947,369	135,456,884	137,655,857	139,245,995	154,161,492
Australia.				
6,774,652	6,155,895	6,792,654	6,306,135	8,362,797
United States and Canada.				
989,065	1,607,731	1,523,236	2,457,880	4,677,797
Persia.				
3,188,099	1,993,823	1,464,394	3,456,791	1,953 900
Russia.				
486,255	457,634	689,271	500,889	467,451

Trans-frontier:

Kabul, Kashmir, and other countries on the North-Western Frontier.				
1,195,264	1,499,120	868,560	1,042,160	2,100,560
Other trans-frontier countries.				
6,048	13,664	18,144	23,968	25,312

PRICES

The prices of tea in Calcutta fluctuate greatly. Taking the price in March 1873 to be represented by 100, it appears that until 1885 the level was well above that point, varying from 110 to 148. In that year, coincidently with the great fall in exchange and in general prices, the level fell to 90, and a low level was maintained in the following years until 1895 when there was a rise again to a high level. In 1897 prices again fell and they have remained at a low level since, as the consequence of the extremely rapid increase of production in India and Ceylon.

These figures all represent the course of prices of fine Pekoe in January of each year as given by the Bengal Chamber of Commerce. The level for each year from 1873 is stated below:

1873 ..	100	1887 ..	77
1874 ..	123	1888 ..	84
1875 ..	123	1889 ..	77
1876 ..	136	1890 ..	63
1877 ..	148	1891 ..	81
1878 ..	135	1892 ..	71
1879 ..	129	1893 ..	87
1880 ..	126	1894 ..	52
1881 ..	135	1895 ..	97
1882 ..	126	1896 ...	84
1883 ..	110	1897 ...	64
1884 ..	116	1898 ..	61
1885 ..	90	1899 ..	58
1885 ..	90	1900 ...	64

In the Statistical Department the average prices of the various descriptions of tea sold at the public sales held in Calcutta during the tea season have been computed for some years past. From these accounts the figures below are taken, being the prices in annas and pies per pound of the three descriptions which form the largest proportion of the tea sold and the variations in the prices, the average price of 1888 being represented by 100:

	Broken Pekoe.			Pekoe.			Pekoe Souchong.		
	Price		Variation	Price		Variation	Price		Variation
	As.	Pie.		As.	Pie.		As.	Pie.	
1838	10	5	100	8	1	100	6	3	100
1889	9	9	95	7	5	92	5	7	89
1890	8	10¾	87	7	2	89	5	8¼	91
1891	8	7½	85	7	0½	87	5	3⅓	84
1892	11	3⅓	110	8	9	108	6	5¼	103
1893	9	2 4-5	90	7	2⅗	90	5	4 4-5	87
1894	11	8	114	9	4 4-5	116	7	2 5-7	116
1895	9	—	88	7	3 4-7	91	5	11	95
1896	8	7¾	85	6	9 9-10	85	5	5½	88
1897	7	5 5-7	73	6	0¾	75	4	10⅔	79
1898	7	—	68	5	8	70	4	7	73
1899	6	9¾	66	5	8¾	71	5	0⅔	81

J. E. O'Conor,

Aug. 14, 1900. Director-General of Statistics.

CEYLON TREES:
SECTIONS WANTED.

We are glad to learn from Mr. Herbert Wright (Scientific Assistant at Peradeniya) that he does not want Calamander or Ebony in particular, and that it does not matter whether the trees are native or otherwise. Mr. Wright wants sections of *any* tree, of *known age*, providing it has been subject, throughout its life, to a Ceylon climate. For instance, a section of stem of Cacao, Erythrina, Bombax, Grevillea, etc., would,—providing the age was known,—afford data on which to base general conclusions. The greater the variety of specimens forwarded, the better it will be. This being the case, we feel sure that not a few planters and others will endeavour to oblige Mr. Wright. Sections of Grevillea from Upper (or Lower) Dimbula, to compare with sections of the same tree grown at 2,000, 3,000 and even 4,000 feet lower down, could not fail to be of interest. Of course, Hakgalla Gardens, New Galway, Nuwara Eliya and Uva, as well as the Western districts, can give a variety of tree sections, of Grevilleas, Eucalypti, and Acacias; while any planter uprooting or cutting down an old cacao tree should not forget Mr. Wright.

West Indian Lime Juice.—Mr Algernon E Aspinall, secretary of the West India Committee, Billiter Square Buildings, writes to the *Times*:— "The attention of the West India Committee has been called to the fact that at the present time lemon juice is being largely mixed with lime juice in this country, and the compound is being sold as 'lime juice,' to the detriment of the buyer and of those British West Indian colonies, such as Montserrat and Dominica, where the lime fruit is extensively grown. The West India Committee, therefore, confidently appeals to the British public to further the interests of those colonies by insisting upon 'pure West Indian lime juice' and 'cordials' being sold in bottles marked as such or so described in the invoices. By this precaution every buyer will secure for himself the benefit of the Merchandise Marks Act (1887), which forbids any false trade description, and thus secures the buyers in obtaining the goods they have asked for."—*British and Colonial Druggist*, Aug. 24,

TEA PLANTING AND EXTENSIONS IN NORTHERN INDIA.

Some weeks back a Ceylon Visiting Agent expressed the opinion that only the visit of a practical man to the Assam and other Tea Districts in the North could give us reliable information as to the actual condition and prospects of the Tea Industry as a whole. We supplemented this opinion by expressing surprise that some of the planting journals in Calcutta or elsewhere did not take the trouble to get exact and full information. On this, our contemporary of the "Indian Planters' Gazette" thinks we have not been reading his columns, inasmuch as they have contained full reports of the working of the principal Indian Tea Companies and reviews of the Government Blue Books. But we have to tell our contemporary that, all these we have read and yet we are not satisfied. We get all the Official Reports direct and treat them only as affording approximate information, just as the reports of the "*principal*" Tea Companies can only amount to "approximate" and not complete information. Is there not room for an enterprising young journalist in Calcutta to do what we did in Ceylon when we laid the foundation of exact planting statistics, namely to visit each of the tea districts in person and compile information on the spot which could then be maintained by means of circulars at intervals. In a few months, we hope to be able to tell the world not only the exact acreage planted with tea in Ceylon; but the area planted under 6, 4 and 2 years old—the extent of fields (if any) just cleared and the prospect as to any farther extensions. It is no doubt a big order to ask all this for India with its 480,000 or more acres of tea; but then Ceylon counts up to not far short of 400,000 acres. We are aware that Messrs. Thacker, Spink & Co.'s Directory gives the cultivated acreage of each estate; but there is nothing to shew how much is young tea or newly planted and still less what extensions are in prospect. The Tea Association in its annual estimate deals with young and old tea; but there is surely room for a Calcutta journalist or a planting correspondent to run round the districts and compile a very valuable statement, meantime writing letters by the way which, we think, would give our contemporary of the *Indian Planters' Gazette* great prestige and advantage if they appeared in his columns.

IMPORTS OF MANURES INTO CEYLON.

We have been asked to obtain for planting information the figures showing the importation of Manures for 1899 (the whole year) and for the first six months each of 1899 and of 1900; and while we give the former from the Annual Report, for the latter we are indebted to the courtesy of the Principal Collector of Customs. It will be seen that the past half-year shows no increase as regards saltpetre refuse or sulphate of potash, but sulphate of ammonia shows a rise of 109 tons. In bone dust there is a comparative decrease; but it is difficult to compare other items seeing that this year so much is put under the heading of "other manures." Taking the totals of value, the comparison for the six month periods is as follows:—January June 1899:—R526,703; January-June 1900:—R701,516—showing a big rise.

1899.

Imports:	Quantity. Tons	cwt.	qr.	lb.		Value. R	c.
Manure, Bone ...	3,635	19	0	0	...	235,223	7
Patent Manure ...		—			..	—	
Rape Cake Manure	100	0	0	0	..	4,498	0
Refuse of Saltpetre	304	13	1	19	...	68,480	27
Castor Seed Poonac	6,476	15	0	0	..	378,269	51
Fish Manure ..	48	5	1	0	..	3,174	0
Manure, Chemical	3,054	16	1	3	..	305,566	94
Manure of Potash	343	0	2	0	...	41,872	27
Sulphate of Ammonia	145	9	3	24	...	30,968	15
Linseed Manure ...	45	18	0	0	...	1,339	50
Guano ...		—			...	—	
Sulphate of Potash	124	5	0	0	...	22,910	14
Sulphate of Iron ...	3	15	0	0	...	240	0
Total ..	14,282	17	1	18	...	1,092,533	85

(According to the classification in force from 1st September, 1892.)

	January to June, 1899. Tons	cwt.	qr.	lb.		Value. R	c.
Manure, Bone ..	2,648	17	0	0	...	127,549	84
Manure, Chemical	1,188	6	2	10	...	136,282	6
Sulphate of Ammonia	64	18	3	13	..	12,028	91
Sulphate of Potash	249	0	1	10			
	and 18 barrels				...	47,354	79
Refuse of Saltpetre	cwt. 2,603		0	13	...	30,111	65
Castor Seed Poonac	tons 2,905½				..	173,460	17
Fish Manure	cwt.	14	0	0	...	16	0

(According to new classification in force from January, 1900.)

First half year of 1900.

Raw Materials	Tons	cwt.	qr.	lb.		R	c.
Chemical Manure.							
Refuse of Saltpetre	376	4	1	22	...	82,034	3
Sulphate of Ammonia	173	13	0	24	..	33,039	7
Sulphate of Potash	cwt. 3,600		0	0	...	30,629	58
Muriate of Potash	tons 10	0	0	0	...	1,656	25
Basic Slag ..	696	0	0	0	...	32,892	82
Miscellaneous Manure.							
Bone ...cwt.	49,152		2	19	...	120,937	96
Fish ...cwt.	96		0	0	..	222	0
Others (not Chemical) ...cwt.	8,835		0	16	...	32,747	84
Manufactured Articles							
Other Manure.							
Bone Meal ...tons	18	15	2	0	..	3,194	12
Other ...cwt.	136,341		1	0	..	334;272	31

A NEW GUTTAPERCHA.

INTERESTING DISCOVERY AT ZANZIBAR.

An interesting discovery has recently been made in Zanzibar. According to our consul there, the fruit of a tree which grows principally at Dunga will, on being tapped with a knife, produce a white fluid which when placed in boiling water, co-agulates into a substance closely resembling gutta-percha; this in the process of cooling becomes hard, but can on its previous soft state be moulded into any required shape. The fruit somewhat resembles a peach in shape, but is of the size of a small melon. It is not improbable, he adds, that it will prove to be an inferior order of Guttapercha.—*Globe*, Aug. 31.

THE INDIAN TEA CROP 1900-1:

TO TOTAL 182 MILLION LB.

The Secretary, Indian Tea Association, under date, 8th September, has issued the following particulars with respect to the present season's crop of Indian tea, *viz.* :—

	Manufactured to 15th Aug. 1900.	Balance to be made to end of season 1900.	Total.
	lb.	lb.	lb.
Assam ...	31,194,240	35,156,456	66,350,696
Cachar ...	13,025,338	14,343,489	27,368,827
Sylhet ...	14,607,380	18,473,260	33,080,640
Darjeeling ...	4,758,269	3,084,690	7,842,959
Terai ...	1,392,028	1,150,720	2,542,748
Dooars ...	10,491,623	12,448,690	22,940,313
Chota Nagpore ...	76,960	80,000	156,960
Chittagong ...	391,041	483,345	874,386
Kangra Valley ...	1,600,000	1,300,000	2,900,000
Dehra Dun ...	886,845	732,500	1,619,345
To this total of			165,676,874
must be added:—			
1. Kumaon (Estimate)			300,000
2. Gardens from which no returns have been received, including private and native gardens (Estimate)			16,168,000
Total			182,144,874

Shipments to America, the Colonies, and other Ports are estimated at 23,000,000 lb., and local and trans-frontier consumption at 7,250,000 lb. There will, therefore, remain on this basis about 151,894,874 lb. for export to Great Britain. As the statisties from Travancore and other districts in Southern India have not been received to date they will be issued separately.

As a means of comparing with the above, we give the Indian tea exports for the past three seasons:—

	Twelve months, 1st April to 31st March.		
	1897-98.	1898-99.	1899-1900.
	lb.	lb.	lb.
To United Kingdom ...	137,655,857	139,245,995	154,161,492
To Russia ...	689,271	500,889	467,451
,, Canada ..	593,532	1,044,256	1,932,943
,, United States ...	929,704	1,413,624	2,744,854
,, China ...	565,274	883,307	1,248,857
,, Persia ...	1,464,394	3,456,791	1,953,900
,, Turkey in Asia ...	1,336,970	2,598,281	2,149,414
,, Australia	6,792,654	6,306,135	8,362,797
,, Other Countries ...	1,424,161	2,021,394	2,016,419
Total ...	151,451,817	157,470,672	175,038,127

We believe our own Planters' Association Committee will very shortly issue a revised estimate for the Ceylon crop or export for 1900; but there is no chance, we fear, of its being lower than the original estimate of 138,000,000 lb. Already we have about reached the 100 millions, and we suppose we are bound to exceed 140 by the end of the year. The practical question then is how is the aggregate of the Indian and Ceylon Tea exports—or 325,000,000 lb. at the very least, allowing for South India—to be disposed of? Much depends on Russia and America and on the course of affairs in China.

BEET SUGAR CROPS OF THE WORLD.

Writing on the 16th June, Mr. F. O. Licht reports uneven weather in Germany, warmth alternating with fosts and snows, followed by copious rains. Work of hoeing has been somewhat delayed, and is slightly behind, but the beets have sprouted well, and now look strong and healthy. It is estimated the beet area of Europe will inerease this year by 209,000 heetares.

"Our preliminary estimate of the European beet sugar production, will compared with the preceeding campaigns as follows:—

	1899-00.	1897-99.	1807-98.	1896-97.
Germany	1,790,000	1.721.718	1,852,857	1,836,536
Australia	1,120,000	1,051,290	831,667	934,007
France	970,000	830,132	821,235	752,081
Russia	900,000	776,066	738,715	728,667
Belgium	300,000	244,017	265,397	288.009
Holland	180,000	149,763	125,658	174,206
Other countries	275,000	209,115	196,245	202,990
Total	5,535,000	4,982,101	4.831,774	4,916,586

"Thus the campaign of 1899/00 is giving hopes of a surplus of about 553,000 tons against its predeeessor."—*Sugar Journal and Tropical Cultivator.* Aug. 15.

INDIAN TEA ASSOCIATION.

INTERESTING TEA ITEMS.

The following is an abstract of the proceedings of a meeting of the General Committee held on the 4th instant.

Present:—Mr. H C Begg (Chairman); and Messrs. R H A Gresson, W Holder, G Kingsley, A Trocher, and T Traill,

Letters of 27th July and 3rd and 9th August from Mr. Ernest Tye, Secretary, Indian Tea Association, London, came up for final consideration after previous circulation. The chief matters dealt with in these letters were:—

(*a*) BONDED WAREHOUSE CHARGES.—In the letter of 29th July it was stated that the London Committee had informed the Secretary of the Tea Clearing House Committee that the concessions made were not wholly satisfactory. Particular objection had been taken to the withdrawal of the reduction in the bulking and taring charge which had been made on the 23rd January.

(*b*) PARIS EXHIBITION.—In his letter of 3rd August Mr. Tye stated that the Indian tea stall was well patronised for the tea in packets; and that orders were daily received from all parts of France for quantities varying from 1 lb. to 5 kilos. The majority of these orders were from former visitors to the Exhibition who had left Paris. The Association Contractor, Mr. Langdale, considered the result of the efforts which had been made was most encouraging; and he thought that further progress would best be attained by the establishment of sale depots. He hoped to have two hundred of these in working order in different parts of Paris before the close of the Exhibition in November.

(*c*) THE PROPOSED BOUNTY ON GREEN TEAS.—This matter was referred to in the letter of 3rd August, from which it appeared that further samples of green teas suitable for America would be shortly sent out from London. These samples would be in addition to those to be received from Chicago.

The Committee had in the meantime received samples of the green teas which some of the gardens in the Association were prepared to manufacture in consideration of the bounty. It was decided to submit these samples at once to the experts, and to ask for their opinion upon them. As the standard samples had not arrived, the experts were to be instructed that while they might definitely accept any samples which they might deem suitable, none were to be definitely rejected at present. An offer made by a

member of the Committee to place before the experts certain standard samples which had been received from America, was accepted with thanks. The Committee had also previously taken steps in the direction of procuring samples of Ceylon green teas.

(d) Tea in South Africa.—In his letter, dated 9th August, Mr. Tye stated that the Committee in London were inclined at present to leave the sale of Indian tea in South Africa to the ordinary course of trade.—*Indian Gardening and Planting*, Sept. 6.

FOR AGRICULTURE AND SETTLEMENT.

AUSTRALIA V. SOUTH AFRICA.

Now that there is a prospect of a termination of the war in South Africa, and that it appears clearly to be the intention of the British Government to place the Orange Free State and the Transvaal under British rule, the Australian nomadic instinct has begun once more to assert itself. From Victoria and New South Wales there appears to be a large exodus of adventurous spirits to the new colonies (for the Orange Free State has already been formally annexed by Great Britain under the name of the Orange River Colony), where they hope to better their condition either as mechanics, farmers, miners, or labourers. As it was in the early alluvial mining days in the various colonies of Australasia, when, if a report were spread that a new rich alluvial goldfield had been discovered, immediately hundreds of men abandoned claims, where they were doing moderately well, and rushed away on horseback, on foot in drays, and even pushing wheelbarrows to the new Eldorado, not pausing to consider distance climate, supply of provisions, &c., so it seems that today the Australian worker is inflamed with a desire to seek better fortune in our new colonies.

Before the mania for emigration to South Africa takes hold on the Queensland miner, farmer and others, we should like them to pause and give heed to what is said by those who have been in that country for many years

Let us consider the Orange River Colony, the area of which is 50,000 square miles. Like the adjoining parts of the central plateau, it is, says Mr. A H Keane in the lastest work on the Boer States, essentially a steppe (plain) land, level or undulating, covered for the most part with herbage, somewhat dry and in places even bare. Hence it is mainly a vast grazing ground, affording pastnre to millions of merino and Cape sheep, goats, cattle, and horses, but so *ill-adapted for tillage* that scarcely one-hundredth part of the whole area is nnder cultivation. The rich agricultural tracts are mainly confined to the banks of the Caledon River, where the land nuder wheat is increasing, and where the vine and fruit trees also thrive.

But elsewhere, and especially towards the south-western frontier, the country presents an extremely dreary and even desolate aspect, and this character is maintained on both sides of the Orange River below the Caledon confluence. Thus, the extensive tract stretching from Kimberley for 150 miles across the river towards the De Aar railway junction *may* possibly contain vast underground treasures, but on the surface has little to show except a monotonous succession of rugged, waterless, and almost treeless plains, dotted with boulders, and here and there relieved by the so-called kopjes, weather-worn knolls or hills, seldom rising more than 600 or 700 feet above the surrounding land.

These kopjes are admirably adapted for defence, and, when manned, form a series of small citadels, and so were eminently suited to the peculiar style of warfare of the Boers. All the waters of the Orange River Colony flow into the Orange River, and are so carried to the Atlantic. But the tributaries of that river are something like many of our Queensland rivers inland. They look well on a map, but the thirsty traveller often finds them mere beds of sand.

Now a word about the Transvaal. This republic has an estimated area of 119,000 sqnare miles. A high range of mountains from 5,000 to 6,000 feet high runs along its eastern boundary, and there are numerous central and south-western "rands" or hills, which, except in the cases of isolated peaks do not rise more than a few hundred feet above the tableland. This tableland, consisting of rolling downs, represents almost the whole of the Transvaal. The Limpopo or Crocodile River forms the northern boundary, and here the land falls to about from 2,000 to 2,500 feet above sea-level. This portion of the country, the Limpopo Valley, is extremely unhealthy, fevers of the African type being very prevalent. The country bordering the river is well-wooded, and affords splendid cover for the big game which has as yet escaped the bullets of the Boer and European hunters. The dreaded tzetze fly is also much in evidence here. Amongst the wild beasts may be mentioned the lion, leopard, hippopotamus, rhinoceros, and crocodiles. Along the whole course of the Limpopo there is a stretch of country 40 miles wide, rendered uninhabitable to settlers, owing to the ravages of the tzetze fly amongst horse and other stock.

The great want of the two countries is water and rain, and the Western squatters of Queensland know too well by bitter experience what this means. It means that cultivation is impossible, and it means that watered and grass country must be available to which the starved-out flocks and herds of waterless regions can be driven to find sustenance. Without irrigation, agriculture must continue to hold a very subordinate place in the industries of both the Orange River and Transvaal colonies. Of minerals, there are vast deposits in the Transvaal; amongst them, gold ranks first. Next come copper, iron, lead, saltpetre, sulphur, coal, and diamonds. Only 5,000 or 6,000 acres of gold concessions have as yet been worked, so it would seem there is room for the prospector. Silver, copper, and lead have not been worked for the past six years.

Now touching the climate. Owing to the position of the great mountain ranges, the rains occur much as they do in our own colony. The country east of the range gets the greatest rainfall, and this becomes a more and more vanishing quantity as one travels towards the west. The soil is naturally fertile on the plateau south of the Zambesi, but is mostly parched in dry seasons. Tree growth is confined to willows, wild figs, and ironwood, which grow in the neighbourhood of "spruits" or river valleys and "kloofs" or deep gorges.

Where cultivation can be carried on, good crops of cereals are raised, and tobacco, the vine, and Enropean fruits succeed well. There are as yet only 50,000 acres of this immense territory under cultivation. Can the Queensland farmer find it profitable to enter on farming pursuits there? From what we have written about the climate, the rainfall, the sandy river-beds, wild beasts, the tzetze fly, to which must be added locusts and horse-sickness, the reply would obviously appear to be, "Certainly not."

For the sake of comparison, let us draw a picture of the first establishment of a farm in Queensland.

In the first place, the farmer has a choice of land from an area of over 600,000 square miles. He can elect to live in a tropical, semi-tropical, temperate, or cold part of this enormous territory. Nearly the whole of the coast lands are well wooded; whilst inland, in addition to vast rolling plains of exceptional richness, there are forests of magnificent timber to which the settler can help himself for the purpose of building, fencing, &c. From the coast to many miles inland he is certain of sufficient rainfall for his crops. The climate is very salubrious, fevers being rarely contracted in the bush, and they are rapidly disappearing before the axes andfires of the settlers. For 300 or 400 miles inland from coast there is a plentiful supply of water, either in rivers, creeks, or lagoons. Everywhere, crops are produced all the year round: everywhere, almost, there is either a market close at hand or a railway line to take the farmers' produce to it. These railways extend in

all directions--north, west, and south—from the various coastal cities. The settler, having selected his land, can camp on it with his family in a tent in perfect safety. There are no wild beasts for him to fear. If his fire goes out at night, no prowling lion or hungry leopard springs upon him in the dark; no band of savages takes advantage of his defenceless condition to murder and plunder him. He can safely set to work, build his house of the bush timber, fence his land with the material at his hand, and set to work with the almost certainty of taking off his first crop within six months. No elephants or monkeys are here to trample down and carry off his corn or sugar-cane, or dig up his sweet potatoes for him. Here, he has perfect peace, a life of labour, but also a life full of comfort and enjoyment. He has no hordes of natives to do his work for him, and so does not yield himself up to a life of voluptuous idleness, a result which invariably happens in countries with a vast native population, as in parts of Asia, Africa, the Indies, and South Sea Islands. Here the farmer is able to work with his family and his farm hands, and it is only in the sugar districts that a certain amount of reliable black labour is necessary, although such labour is anything but what is called cheap labour.

Then take the question of roads and markets. The Queensland farmers are in almost every district in touch with a railway line. There are many large coastal cities, many large inland cities and towns in Queensland alone, where a good market exists for all the produce they can supply. In addition to these, they have the southern markets which can take large quantities of produce. How does the case stand in South Africa? There are few railways, few roads and few markets. The distances between these market towns are enormous, unless in the older settlements in Cape Colony; and old settlers in Queensland will remember how, in the old days, the only means of carrying wool and other produce to the few towns on the coast were the lumbering bullock-dray or horse-wagon. Weeks and even months were spent in such travelling. Now, a glance at the map of the two South African colonies will show what long distances would have to be travelled by farmers settling, say, in the western portion of the Transvaal or in the central and north-eastern districts of the Orange River Colony. Still greater difficulties of transit must be encountered by settlers in Bechuanaland or in Rhodesia, where there are scarcely any market towns except Buluwayo and Salisbury in the latter, and Mafeking and Taungs in the former. Such being the outlook for transport and markets, how can the Australian farmer hope to better himself by pioneering in such a country even with land at from 1s to 4s per acre?

With minerals the same objections arise: want of water and want of railways. Why go to South Africa to prospect, when such magnificent fields as the Etheridge and many other auriferous districts of Queensland in the midst of white settlement, with good roads, timber, and good land together with a fair rainfall, lie open to the prospector, and are capable of supporting large mining populations, and affording many openings for remunerative subsidiary industries?

No, we should recommend our Queensland farmers and miners, mechanics and labourers, to remember that it is "distance that lends enchantment to the view," and to also remember that not one of our colonies offers such excellent prospects to agricultural and mining settlers as does this splendid colony of Queensland with its excellent climate its just laws, its British institutions, its freedom, for all, its illimitable agricultural lands, its forests, rivers and mines, its roads, railways, telegraphs, and its numerous cities and towns. Most of these advantages are yet in the womb of the future in the two South African colonies, and an immense amount of pioneering work will have to be done by the Australian who elects to abandon his comfortable home for the unsettled portions of the new colonies.—*Queensland Agricultural Journal*. Aug 1.

A GIANT ELEPHANT'S TUSK.

A gigantic elephant's tusk comes from the interior of German East Africa. A native was the fortunate hunter who bagged this trophy, and it is said that the fellow tusk was only a trifle smaller. The big tusk weighs 241 pounds. The two tusks were brought by way of Bagamoyo to Zanzibar, where an American acquired them at a fancy price. Some idea can be formed of the gigantic size of the elephant, when we reflect that it carried about with it an appendage of well-nigh five cwt in tusks! Sad to relate, elephants of this size are becoming rarer every day. The merciless war of extermination carried on for years against the elephant by ivory hunters has been only too successful. Where once immense herds were to be seen, you may now travel for hundreds of miles in the vain search for those forest monsters. They tend to retire further and further from the coast in quest of solitudes as yet uninvaded by man. Perhaps the recent regulations made at the Foreign Office Conference in London may help to improve matters.—*Home paper*, Aug. 24.

ARRIVAL IN CEYLON OF A KEW BOTANIST:

FOR EXPERIMENTAL GARDENS, MALAYA.

Amongst the passengers who arrived here recently by the steamer "Hakata Maru," was Mr. Stanley Arden, a recent Kew student, who has been appointed Superintendent of Government Experimental Plantations in the Malay Federated States. Mr. Arden, in accordance with official instructions, broke his journey here for the purpose of visiting the Botanic Gardens and obtaining a general knowledge of Ceylon products and the conditions under which they are cultivated.

At Peradeniya he was met by Mr. Macmillan, a brother Kewite, and while there, he made arrangements for visiting certain estates and government rubber plantations. Mr. Arden, being educated at Stockport Technical College, has had the usual training and a successful career at Kew. In 1896 he was the winner of the Hertfordshire County Council's Scholarship. Mr. Arden left Kew in April last and has been qualifying himself in special directions for his new work. As experiments in rubber cultivation are intended to take up his chief attention at first, he went to Cambridge to study, under Professor Marshall Ward, with his assistants, Messrs. Biffen and Parkin, the most approved scientific methods of treating rubber latices for coagulation, and to acquaint himself with the principles of Biffen's patent coagulating machine.

Mr. Arden is much struck with what he has seen of the vegetation of the tropics, more especially with the wealth and beauty of the Peradeniya Gardens, the extensive undulating green lawns of which he considers are particularly grand. Most of the trees and shrubs, however, are familiar to him through his acquaintance with them at Kew, but here many of them appear in an incredibly altered form. We wish Mr. Arden a successful career in his new sphere of work, and will watch with interest the results of his experiments, and hope to include the same from time to time in our *Tropical Agriculturist*.

THE CEYLON PLUMBAGO INDUSTRY.

We have read with interest the various letters which have recently appeared in the columns of the local papers regarding the position of our one commercial mineral of importance, plumbago. At first a gradual but latterly a sudden and enormous rise in values, has been followed by a no less sudden collapse; and it is no doubt the duty of all interested in the industry to consider very carefully the present state of so important an article of export from this Colony. With this object in view, let us see what figures there are to help us. A reference to the export returns gives the following plumbago as exported, in tons, to different countries:—

In.	To U.K.	America.	Continent.	Elsewhere.	Total.
1893 ..	5,059	8,192	3,469	160	16,880
1894 ..	7,518	5,104	4,257	97	16,976
1895 ..	6,113	7,489	3,074	70	16,746
1896 ..	5,767	7,813	3,295	149	17,024
1897 ..	7,983	4,440	5,333	106	17,862
1898 ..	8,025	9,385	6,164	79	23,653
1899 ..	9,296	15,027	6,378	118	30,819

The Ceylon Chamber of Commerce values are given as follows per ton:—

Date.	Highest price for large Lump.	Highest price for O. Lump.	Highest price for Chips.	Highest price for Dust.
	R.	R.	R.	R.
7th Jan. 1895 ..	300	280	170	95
15th do. 1896 ..	330	290	140	90
5th do. 1897 ...	310	260	120	90
11th do. 1898 ..	365	345	220	145
5th July 1898 ...	600	560	370	200
10th Jan. 1899 ...	700	650	500	300
4th July 1899 ..	1,000	950	650	500
9th Jan. 1900 ..	1,000	1,050	800	550
3rd Sept. 1900 ...	700	600	450	300

From these figures it will be noticed that, until early in 1898, no movement of great importance took place either as regards increase in exports or rise in prices. There can be little doubt now that the plumbago required by crucible-makers and others, had been bought so sparingly towards the close of 1897, that when a special demand set in at that time for the article, there was practically none found on the spot unsold, either in London, New York or the Continent Consequently, orders came out to Ceylon from buyers in Europe and America, who hitherto had generally got all their supplies from the older and larger importers there, and the latter apparently having nothing to spare had to decline business. This led to a much larger and much more widely distributed demand in Colombo, and with keen competition to fulfil orders on hand, prices advanced rapidly.

The advance in prices in Ceylon was stimulated not only (1) by keen competition to get plumbago to fulfil legitimate orders; but (2) the excitement which follows an unusually large demand, combined with rapid advance in prices, led to numerous purchases being made with the sole object of such being turned over locally at a profit. Then again (3) dealers who had made forward contracts with the older and more regular exporters, found the market had gone dead against their being able to fulfil such contracts without serious loss and this led to orders at higher rates being given by exporters to enable them, if possible, to fulfil their engagements in Europe and America. The local Law Courts have given us some confirmation of this state of things. The high prices, however, led to an inevitably large output, and the exports for 1899 reached 30,819 tons against 17,862 tons in 1877. With such a great increase in export, prices could not be kept up and it only required a few large buyers to suddenly hold off the market, in order to lead to the inevitable collapse.

What is of most importance now, however, is, not what has taken place in the past, but what is to be the future of plumbago; and our reason for glancing over the past is solely that this may enable us to bring some light to bear on the future. The exports for the year 1900 (1st January to 10th September) aggregate 12,573 tons, and we would ask our readers to carefully compare these figures with the corresponding periods of 1897-1899. These are:—

1897	..	12,160 tons.
1898	..	16,988 ,,
1899	..	21,944 ,,
1900	..	12,573 ,,

—showing that for the year 1900 there has been a falling-off of 9,374 tons compared with the year 1899, and a falling-off of 4,4?5 tons compared with the year 1898. In short our exports have already gone back to those of the year 1897—before the great rise in prices commenced. The demand for crucibles must, of course, continue, and crucible-makers must continue to buy plumbago, and therefore it may be safely affirmed that prices of plumbago are not going back to those ruling in 1895-97. But plumbago, even at present prices, must show good returns to most of the pit-owners. Surely, if during the year 1897, plumbago could be purchased in quantity and sold at from R280 to R365 for high-grade lumps,—high-grade lumps at R600 to R700 in the year 1900 should show a handsome profit for the pit; while all other qualities are in proportion. It is easy to get people who will say that labour has gone up, and so it has; also that "this," "that" and "the other" have gone up in price, and that it will not pay owners now to work most of their mines. It will require some very clear statistical statements to be put before us, before we can accept that view, or be convinced that pitowners of local experience will not continue tofind plumbago mining a very profitable invest- ment, if values remain at or near those now current.

Of course there are pits and *pits*, and no doubt the recent boom led to wild speculation in plumbago land and to the rapid opening up of some mines which will probably never pay. Then again it has yet to be made clear to those interested, what the cost is of opening up and keeping free from water mines in the very low country, compared with the cost of such as are to be found on the hillsides in the Kurunegala and other higher plumbago districts. On one property in Maskeliya 150 tons of

plumbago have been taken out in the present year without interfering with the tea. Mining under European supervision has been going on for a few years back, and there are now mining experts available at our doors for advice. The output of plumbago will, no doubt, continue to be ample for current requirements, and if average prices remain even near those now reported as current, the industry, in our opinion, must continue to be a flourishing one, at any rate, for experienced pit-owners.

In this connection, we take over elsewhere from our contemporary, the letter of a Philpot Lane Firm who are, apparently, anxions to establish a London mart for plumbago on a new system as detailed. Even if there were no objection, and only decided advantages in this plan, we consider the day is past for such a proposal. "All the world" interested in plumbago may now be said to have come to, or to be represented, in Colombo and the fully-established direct trade with America and the Continent of Europe cannot be interfered with. The true mart, therefore, for Plumbago, with abundance of competition, is in Colombo itself.

GREEN TEAS IN CEYLON.

Extracts from Minutes of proceedings of a meeting held at the Victoria Commemoration Buildings, Kandy, on Saturday, the 15th day of September, 1900.

Ceylon Green Teas.—Submitted correspondence from various applicants for grants.

Intimated that payments had been made as under :—

July 1900	9,168 lb	Brunswick Green Teas	R916·80
do	25,000 lb	Ceylon Green Teas per Whittall & Co.	2,500·00
Aug. 1900	3,518 lb	Nahakettia Green Teas	351·80
do	1,2020 lb	Ceylon Green Teas per Whittall & Co.	1,202·00
do	10,090 lb	Brunswick Green Teas	1,009·00
do	6,990 lb	Tillyrie Green Teas	696·00
do	10,225 lb	Ceylon Green Teas per Whittall & Co.	1,022·50
do	2,367 lb	Nahakettia Green Teas	236 70
Sept. 1900	3,645 lb	Dewalakande do	364·50
do	10,120 lb	Brunswick Green Teas	1,012·00
Add total as per previous statement	181,144		18,114·40
	274,257 lb.		R27,425·70

Leaving the balance of R2,574·30 still available at date.

Read Minutes of Proceedings of a meeting of the Sub-Committee of the "Thirty Committee" appointed to confer with the Colombo Experts, with a view to establishing a Standard for Ceylon Green Teas held at Colombo, on Monday, the 13th August, at half-past seven o'clock in the morning also Minutes of Proceedings of a meeting held at Colombo on Tuesday, the 28th August at 3 p.m. to fix upon a Standard for Ceylon Green Teas. Resolved :—"That the Report be adopted as follows.

(1) That in Green Teas each grade must be restricted to 5 per cent siftings when sifted through a sieve of No. 30 Mesh. (2) That the grades be

Young Hyson	Hyson	Hyson No. 2
(Broken Pekoe and Orange Pekoe)	(Pekoe)	(Pekoe Souchong and Souchong)

(3) That up to 10 per cent of leafy siftings as a separate grade be allowed for cess in each invoice not more than half of which shall pass through a No. 30 sieve. (4) That the sample of Hyson No. 2 submitted be approved as a Standard. Subject to (a) the tea having the absolutely true green character and containing no fermented leaf (b) cloudy or brown liquor must not be passed. (5) That the question be again brought up for consideration two months hence. (6) That before payment of the grant under the new scheme there shall be filed with the Secretary an invoice (form to be supplied on application). (7) That the sanction of the Governor in Executive Council be applied for to an appropriation of of R20,000 as desired and determined by the Committee for the purpose of payments under the grant and new scheme above mentioned.

PLANTING NOTES.

Poultry: Prevention and Treatment of Fleas, Lice, and Mites.—Infestation is always worst in dirty and neglected runs and roosts, and such are a standing danger to more cleanly neighbours. Cleanliness and freedom will always put these pests under a disadvantage, not only cleanliness of the nests, walls, and floor, but also of the ceilings and perches. To suppress these pests the houses should be cleaned down at least twice a year with a wash made of hot lime and soft soap, the ceilings, walls, and nests having a good coating ; the wash should be fairly liquid so as to run into every crack and crevice. Early spring and autumn are the times for these applications. The perches are best treated with boiling water and soft soap, or with an emulsion of kerosene. It is important that houses should be well built, with as few cracks and crevices as possible, for in such harbours these pests congregate and may escape from any wash used.—*Proceedings of the Agricultural Society.*

Elephant Hunting in Siam.—The kraal is only a couple of a hundred yards from the river, and there is a funnel-shaped enclosure extending from the North Gate to the ford. Into this the animals are slowly led—for they must now be kept very quiet. One leader and then another passes through the narrow gateway, followed by some confiding friends. The decoys stand near by way of encouragement to those in the rear, which are imperceptibly crowded forward. A few get restless, but before long they are all safely in, and the trained elephants slip out through the other gate. Then it is that the wild ones realise that they have been trapped, and, madly eager to get out, trumpet, bellow, and groan ; creating, as a local paper truly said, "a scene of such confusion that no two people saw it alike." The walls now swarm with spectators, who amuse themselves by watching the bewildered beasts, some of which seem to resent their imprisonment, while others are indifferent, and others again engage in settling private quarrels, or roaring defiance at the gallery. One inquisitive youngster, that was destined for a civilised and useful life, tried to squeeze between the piles of the refuge, and got jammed across the ribs—the thickest part of his body. His efforts to get free attracted his friends, who watched him while he struggled and bellowed. One big fellow tried to push him back, but failed ; then there was a pause, during which one could almost see them thinking ; and another, having apparently worked it out in his mind, tried from behind, and, fairly lifting him, off his legs, pushed him through, amid shouts of applause from the crowd. —*From "Elephant Hunting in Siam," in the "Cornhill Magazine" for September.*

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Castilloa Elastica Cervantes.—Orders being booked for the coming crop of seeds available in June and July, selected seed from very old trees. R. N. Lyne, Esq., Director of Agriculture, Zanzibar, writes under date 24th August, 1899 :—"Please send me 200 seeds of Castilloa Elastica for further trial; the seeds of Castilloa you sent me last August germinated very well." Price and particulars in our Circular No. 32; special quotations for large orders according to quantity; immediate booking necessary to avoid disappointment.

Hevea Brasiliensis (Para Rubber).—Orders being booked for the coming crop available in August and September, 1900. This is the only crop of seeds in the year. All orders should reach us before the end of July to avoid disappointment, as we have to make arrangements in time; guaranteed to arrive in good order at destination. We have already booked a large number of orders. A leading Sumatra Planter, who ordered 50,000 Hevea Brasiliensis seeds last year writes under date 27th February, 1900 :—"I received your favor of the 12th instant, out of which I learn that you booked me for 100,000 Hevea Brasiliensis seeds for August and September on the same conditions as before, but at the price of—— per thousand." Plants can be forwarded all the year round in Wardian cases. Price and particulars as per our Circular No. 30. A Borneo planter writes dating, Sandakan, 17th August, 1899 :—"The last lot of Para seeds turned out very well." Our shipments of Para plants last year has exceeded over 300,000 to different countries. Special terms for large orders on application.

Kickxia Africana (Lagos Rubber).—One of the staple articles of commerce in Lagos grow very vigorously, realizing over 3s. per lb. in the Liverpool market. Seeds and plants, price on application.

Hancornia Speciosa (Mangibeira Rubber).—Besides the value of rubber, it bears delicious fruits, which is a great favourite with the Brazilians, cultivated for both purposes. Seeds and plants, price on application.

Coffee Arabica Liberian Hybrid, Maragogopie Hybrid, C. Stanophylla and other varieties. Price of seeds on application.

Ficus Elastica (Assam and Java Rubber).—Seeds supplied with instructions; price according to quantity. This tree grows equally well in high and low land, in forest and grass land, its cultivation being extended largely by the Indian Goverumeut. For price of seeds with particulars as per our Circular No. 33.

Manihot Glaziovii (Ceara or Manicoba Rubber).—Fresh seeds available all the year round; price as per our Circular No. 31.

Urceola Esculenta (Burma Rubber) and **Landolphia Kirkii** (Mozambique Rubber).—Seeds and plants, both are creepers.

Cinchona Seeds.—Different varieties.

Sterculia Acuminata.—(Kolanut). Superior quality, seeds and plants; price on application, packed to stand the transit well for several months, a hardy tree, cultivation easy.

Erythrina Lithosperma.—Thornless variety, new crop of seeds ready in December, May and June. Price acccording to quautity on application.

Seeds and Plants of Cinnamon, Nutmeg, Clove, Sandlewood, Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign Countries for 1899-1900 are now being forwarded to applicants in different parts of the world. Also Descriptive Price Lists of Seeds and Plants of Fruit Trees, Bulbs. Tubers and Yams, and Orchids.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says :—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms, &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons and Dracinas, now being prepared and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London :—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Telegraphic Address :
William, Veyangoda, Ceylon.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

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PINE HILL ESTATES COMPANY.

THE REPORT.

The report of Directors was as follows:—

ACREAGE:

Tea in bearing	...	279½	acres
Young tea 1898	..	31	,,
do 1899	..	65	,,
Cardamons	...	1½	,,
Jungle and Patna	..	9	,,
Fuel and Grass	...	11	,,
Waste Land	...	1½	,,
Scrub (disputed)	...	18	
		416½	acres

The Directors have the pleasure to submit their seventh annual report.

The amount at credit of profit and loss account including R190·77 brought forward from last year's account is R10,804·67, out of which an interim dividend of 3 per cent was paid on 29th January amounting to R6,262·20

The Directors now propose to pay a final dividend of 2 per cent making 5 per cent for the year which will absorb 4,174·80

And to carry forward to next season 367·67

R10,804·67

The low prices ruling for the last six months are responsible for there not being a larger amount of profit available for distribution.

The crop of Tea realised from the estates was 131,947 lb., and from bought leaf 60,602 lb. as against estimates of 110,000 lb. and 40,000 lb. respectively. The estate tea showed an increase of 17 per cent on the previous season owing to a very favourable year. The net price realised was 38·96 cts. per lb. against 40·76 cts. last year.

The estimate of crop for the current year is 125,000 lb. from the estates and 50,000 lb. from bought leaf, or 175,000 lb. in all.

Factory.—The factory has now been completed, but the original estimate for the cost of the improvements was found insufficient, and it has been considerably exceeded.

The new clearing has unfortunately not been successful owing to unfavourable weather, and the expenditure on it has been heavy. It is hoped, however that the steps which have been taken to supply all vacancies will result in a good field of tea being secured.

According to the articles of Association Mr. Robert E Prance retires from the Board of Directors, but, being eligible, offers himself for re-election.

An Auditor for season 1900-1901 will have to be appointed.

KANDY AGRI-HORTICULTURAL AND KANDYAN ART EXHIBITION.

At the meeting of the Committee held last month, the following gentlemen were elected to form an Executive Committee:—Messrs. J H De Saram, L Creasy, J B Carruthers, T C Huxley, H F McMillan, E Beven, E Webb, Diwa Nilame, and Chief Interpreter, Kandy Kachcheri. The following sections for Exhibition were approved of and the details of awards have been left to the Executive Committee.

SECTION 1.—Flowering plants in pots, cut flowers in boxes, stands or glasses, ferns and orchids in pots, foliage plants in pots.

SECTION 2.—Fruits, vegetables, vegetable products.

SECTION 3.—Food products.

SECTION 4.—Cattle, poultry, dairy produce (butter, cheese, cream, and eggs.)

SECTION 5.—Preserved fruits, pickles, sweet meats, bread.

SECTION 6, *Art-work, &c.*—Gold and silver jewellery, brass and iron work, pottery, laequer work, models, masks, musical instruments, mats, baskets and fans, ivory and wood-carving, photographs.

SECTION 7, *Natural History.*—Collections of birds, butterflies, insects, shells, eggs, sporting trophies.

SECTION 8, *Miscellaneous.*—Fireworks. decorations.

SECTION 9. Oil machinery, machinery for the manipulation of Green Tea.

CACAO HOLDINGS UNDER SIXTY ACRES IN CEYLON.

Extracts from Minutes of proceedings of a meeting of the Cacao Committee of the Planters' Association of Ceylon held at the Victoria Commemoration Buildings, Kandy, on Friday, the 14th September, 1900, at eleven o'clock (11 a.m.) in the morning:—

CACAO HOLDINGS UNDER 60 ACRES.

Mr. Chas. Gibbon read the annexed abstract of Returns received through the courtesy of Government of Cacao Holdings under 60 acres. Resolved:—"That the thanks of the Cacao Committee be conveyed to Government, for the Returns furnished of Cacao holdings under 60 acres."

ABSTRACT OF RETURNS OF CACAO HOLDINGS UNDER 60 ACRES REFERRED TO.

	Holdings.		A. r. p.
Harispattu.			
Kalugammauasiya	382		298. 3.
Medusiyapathu	349		237. 3. 3.
Galasiyapathu 8. 1.		8. 1.	
		16. 1. 5	
		20. 3. 4	
		12. 0. 5	
		24. 0. 5	
		6. 0. 4	
		49. 0 0	
	.. 317	9. 1. 2	145. 2. 25
Pollgampaha (E. 40. 0. 0.)	.. 286		508. 1. 8
Arambapolla	... 454		191. 3. 9
Udagampaha	... 756	1,630. 0. 16	
Pollgampaha	.. 497	1,051. 0. 16	
Pallispattu	... 197	442. 1. 02	
do East	... 25	45 0 0	3,170. 1. 34
Udunuwara Gangapalata	.. 191		139. 0, 4
Udapalata	... 162		48. 3. 38
Kegalla	.. 266		505. 0. 25
Badulla Yatakinda (E 173)	.. 21		195. 0
Matale S. (63. 2. 0.)	.. 989		1,509. 2. 26
do N.	.. 118		123. 2.
do E.	... 39		69. 0. 0
N. Eliya (12. 0. 0 ?)	.. 9		26. 2. 23
We-uda (152).	.. 72		614. 2
do ..	.. 4		91. 2. 0
Yatinuwara (98.)	.. 23		203. 2. 7
Uda Dumbara (511)	.. 95		90. 0 0
Lower Hewaheta (Ampitiya)	.. 317		553. 2. 32
Udapalata	.. 236		242. 3. 18
(E 531. 2. 0)	5,805		8,967 3. 12

GRAFTING CACAO.

Resolved:—"That the attention of the Director, Royal Botanic Garden, be again drawn to the questions of grafting of Cacao, and also to Mr. Hart's remarks under date Trinidad, 13th September, 1898 (copy annexed) with special reference to the following sentence with a request that he will favour the Com-

mittee with his observations thereon:—"The course pursued has been to inarch a branch of a desired variety upon a well grown and healthy seedling, and the result has been that the union has taken place very freely, and there can be little doubt that in future any desired kind or variety can be perpetuated by this means." '

MR. HART'S REMARKS, UNDER DATE, TRINIDAD, 13TH SEPTEMBER 1898, REFERRED TO:—

TRINIDAD, 13th Sept. 1898.—It has on no more than one occasion been asked whether it is possible to graft Theobroma cacao and hitherto I have not been in a position to reply in the affirmative. I have now to report for the information of the Society that experiments have been carried out at the Royal Botanic Gardens, by inarching several varieties of cacao upon young seedlings with all the success that could be desired; and I hope that the grafted plants will be sufficiently hardened to be shown at the next meeting of the Society. The course pursued has been to inarch a branch of a desired variety, upon a well grown and healthy seedling, and the result has been that the union has taken place very freely, and there can be little doubt that in future any desired kind or variety can be perpetuated by this means.

I desire to point out the opening this process will afford for the extensive planting of any desired variety or kind, and that it will enable the planter to put samples of cacao upon the market with less variation in size and quality of the bean than has hitherto been possible.

I also desire to point out, that it may be possible, as it is with apples and pears in a temperate climate—by grafting weaker growing varieties upon kinds having a larger amount of vegetative vigour—to increase the yield of such kinds as that known as "Criollo," to as much as that of the more commonly productive varieties.

It will also be possible to maintain perfectly true, any kind which may have arisen from seed, on any plantation, and to preserve indefinitely any particular kind that may be desired. We have yet to prove, however, how the grafted plants will thrive, but judging from grafted plants of other kinds I see no reason to anticipate that there will be any difficulty under this head. I recommend the practice as well worth the attention of planters who have on their estates single trees, which are noted for the quality of the bean and the quality they produce.

CACAO DISEASE.

I have been requested by a successful and prominent planter, to bring up before the Society the question of disease among cacao trees in Trinidad for discussion. This gentleman has forwarded to me several specimens of (so called) diseased cacao, but after a careful and lengthy microscopical examination, I have not been able to say that the pod have been destroyed by disease. I am free to confess, however, that there is possibility of disease arising in any culture, and therefore in cacao; but I must reprehend as strongly as possible the spreading of views that we have disease of certain kinds until it has been fully proved that such do exist, as it is calculated to do an immense amount of harm to the cacao industry. A strict watch, however, should be kept for anything which appears to be of a pernicious character, and planters would, I think, do well to forward affected specimens to me, to be transmitted to mycological authorities, if necessary. So far, I may say, I have not found anything of a pernicious character; and I should be glad to hear my idea confirmed, that at present there is little cause for alarm.

(Signed) J. H. HART F.L.S.,

A FARMERS' EVERY-DAY LIFE.

NO. XII.

(By an ex-Ceylon Planter.)

AGRICULTURE

is still the chief industry of the country, although less attention is paid to its necessities that to any other; and now that we have got a member who does all in his power to help us, I think it would be very poor form indeed to try to oust him from his seat. He has fought well in the interest of the fishing population, and in return for that they have set up a herring-curer in opposition to him. Let it be so; but although I voted against him when he gained his seat, I hope to record my vote in his favour on the next occasion. He has championed the cause of farmers, and we are much in need of a few like him, seated in the House, for at present, I doubt if there are more than half a dozen legislators to defend the backbone of the country. Our member can honestly say that he has always worked for the good of the greatest number, a thing that but few can pride themseves on, for it often happens that, when one makes enquiries as to what number the average parliamentarian has worked for, it generally turns out to be *number one.* Successful farmers who have the ability have seldom the leisure to stand for their country, whilst there are any number of carpet-baggers stalking round, whose only qualifications for a seat in the House are the gift of the gab and no stake in the country whatever. I do not care what party is in power, so long as the best interests of our tight little island are properly attended to; and in the case of rural matters, I think that party feeling thould be sunk altogether, and both sides of the House should strive to keep in a prosperous and flourishing condition that industry which, on its becoming unhealthy, has signalled the downfall of all the great nation of the past.

TILLAGE AND PASTURAGE

may be said to have begun with the creation of the world. Egypt, shortly after the days of Noah, became celebrated for agriculture. The first art learned by any rising nation was that of cultivating the soil. The ancient Romans were born agriculturists, and their most celebrated commanders were taken from the plough. To be a good farmer was accounted the greatest praise, and the very Senators cultivated their own ground themselves. With the decay of agriculture came the downfall of Rome, as will come the downfall of Britain, for when recruits can no longer be raised in our agricultural districts, and the nation has to depend for its fighters on the scum of the cities, in whom strength of body is about on a par with strength of mind, then will come the beginning of the end of our Empire, and legislators will remember, when too late, that they stamped out the greatest industry of the country, by encouraging the importation of cheap and nasty food from abroad, destroying the physical powers of the nation, and that courage which a conciousness of strength produces.

I have written, on a previous occasion, of the great rise in

THE PRICE OF COALS

during the past few months, the fears of a coal famine during the coming winter, and the national dread lest our mines prove to be almost exhausted. No sooner had I arranged for an extra supply of peats and firewood, as a set-off against the impending coal famine, than a writer to the Press,—one of those

great thinking men, trong on statistics,—springs on the nation the gratifying news that there are still 180,000,000,000 tons of coal in the mines of Britain, and that, at the present rate of consumption, the supply will last 500 years. That news has pleased me not a little: 500 years' supply will last my time, and, as posterity has never done anything for me, it can look after itself for all that I care. In the meantime the vision of myself and family, during the coming winter, seated round the place where a fire should have been, has been dispelled.

We have had a terribly trying time for

HAY-MAKING;

for weeks the rain has rained every day, and it has only been by fits and starts that the hay crop has been secured. It is an exceptionally good crop, however, and, as everything else, has been benefitted by the rain, we have no cause of complaint. I have had to endure much worse than this, when, in the middle of crop on the old coffee estate, the monsoon broke, and the rain poured down for weeks on end. The coolies, shivering with the cold, could scarcely pick the *palam*, which dropped and was washed down the drains. But when the season came to a close, and the estimate had been more than secured, the miserable time of picking was forgotten, and the warm rays of the sun dispelled from the minds of the coolies the recollection of the cold, wet and shivering season they had lately endured.

The abundance of grass has raised the price of

STORE STOCK

considerably, and the first of the lamb sales has gone off with a rise of from 5s to 8s a head on last year's prices. Let tea planters try to imagine what this means to grazers, by comparing these prices with the prices of their own staple. Supposing that a tea crop had sold, last year, at an average of 8d per lb., the planter would, no doubt, have been greatly pleased; but, supposing that the war in China, or some other cause had raised the price of the same crop to 1s per lb. this year, a princely fortune would appear tobe dawning on the proprietor. Such then has been the experience of the sheep farmer this year.

The cry out about

FINGER-AND-TOE DISEASE.

in turnips, which is usually heard at this season of the year, is ringing over the whole land, but the wailers never seem to think that they are themselves responsible for this most terrible disease. Perhaps, in the course of another generation, farmers will have learned to avoid, as they would the plague, manuring, with superphosphate, their turnip break, and will have given up that most deadly style of cropping known as the "five course shift." My land, which lies in grass for eight or nine years, has no sign of canker now. Indeed, I never saw a finer crop of turnips than that which I have this year, here or anywhere else. My next neighbour, who has followed my lead, told me the other day, that he has a field in turnips, this year, which had lain in grass for seven years, and he never had finer and sounder roots in his life. Another of his fields, however, which had only been in grass for three years, is now rotten from top to bottom. It takes a long time to drive a new idea into a farmer's head, but it gets there in course of time, and I hope yet to see this example bearing good fruit.—"*Cosmopolite.*"

TWO MAHOGANY LOGS FETCH £1,536.

Two logs of African mahogany were sold for the unprecedented amount of £1,536 the otherday at the auction sale of Messrs. Edward Chaloner and Co., at Liverpool. These logs formed one tree, and were bought to be cut into veneers to decorate the palatial residences of certain American merchant princes. The veneers are used in place of wall-papers, and, being beautifully figured, give a superb effect. The prices realised for the two logs were respectively 10s 3d and 7s 3d per superficial foot.—*Daily Express*, Aug. 27.

"CEYLON HANDBOOK AND DIRECTORY."

A new edition of this work has been in hand for some months back and a great deal of preliminary work has been done. The circular of estates and other Directory information was issued last month: and we invite suggestions from friends and others interested as to "improvements,"—"what to leave out of the bulky volume," and as to anything that is still wanted We have already received several communications on the subject, and we are bound to say they chiefly embody requests for "*more.*" We have promised in fact to try and give each *plantation's* TELEGRAPH as well as POST station: to show at a glance, the estates belonging to the several Limited Companies, or big individual proprietors; to give a list of all GRANT-IN-AID and PRIVATE Roads (always provided in these cases that the planters concerned are ready to co-operate). These are but a few of the "planting" improvements. In the bulk of the book there will be considerable changes, and although we are hoping to compress the volume a good deal (in regard to Agricultural information and Trade Statistics, etc.) we do not think anything specially required for reference will be omitted, while much that is new and useful will be found, added in. But to secure a really useful Book of Reference and Directory, there must be co-operation all round and every proprietor or manager should see that a return is filled up for *his* estate and sent in as per the Supplement issued last month while, as usual, we feel sure the Mercantile and Trading community of Colombo will do all that is required. From officials—heads of departments especially,—we always receive, and are sure still to receive, all the help we can require to make a volume which is in universal request as correct and complete as possible.

THE ANNUAL CROP OF MUSHROOMS in France is valued at £400,000, and there are 60 wholesale firms in Paris dealing exclusively in them. In the Department of the Seine, it appears, there are some 3,000 caves in which mushrooms are grown, and about 300 persons are employed in heir culture.—*Home paper.*

Correspondence.

To the Editor.

EXTRACTION OF RUBBER.

Etablissement d'Horticulture, Paris, le8me August, 1900.

Dear Sir,—The system of extraction of India-rubber from the bark is now in full working order. Manufacture will be established before the end of October near Paris, and the Company asks for barks from all parts of the world for trial. Landolphia Hendelotii has proved till now to be the best producer of rubber mechanically extracted from the bark, as it is the most suitable for dry and sandy soils where no other plant will grow, so this plant should be a fortune on rich soils; but, many other plants such as Landolphia Kirkii, Vahea Madagascarensis Hancornia and a few Ficus are also good producers of rubber from the bark.

Apocynaceous plants seem, therefore, better designed for that purpose, and I believe it will be interesting for Ceylon growers to have their attention called to plants of this family, such as Cryptostegia, Beaumontii, Chonemorpha and others.

Chonemorpha macrophylla is a good producer of excellent rubber, but I have never received bark from old plants; but only from tender stems a few months old. In each sample rubber is found in the central part of the stem (moelle), but I believe it is the same in many plants when these are young. If you cut a stem of Chonemorpha in small pieces three inches long and let the milk coagulate in the open air, you will find a little piece of rubber large enough to repay the extraction by this very simple way; but I do not know if Chonemorpha is a quick-growing plant. I have only seen small plants in our houses.

I want bark of any producer of rubber and better of any lactiferous plant, for I have received bark of plants reported bad producers which have proved good for our system of extracting the rubber. People say this plant is not good, the rubber does not flow; but perhaps it is so much the better for our system because the rubber coagulated in the bark will be easily extracted mechanically. Where the latex flows easily in the rainy season, the bark is poor; where the latex does no flow in the dry season, the bark is rich: so much I can say actually.

I want only one kilo of each sort of bark, taken as much as possible on plants of known age. Where the stem is too small to permit to bring out the bark, kindly send one kilo of these stems; and believe me to be, your most obliged servant,

A. GODEFROY-LEBEUF.

CEYLON TEA IN NEW ZEALAND.

Dunedin, 13th Aug.

Dear Sir,—I send you a Dunedin *Star* and some printed matter. When read, you will see the Tea Blenders here wish to kill the trade in "Pure Tea." Will you kindly criticise their action and the reports inserted by *Star's* Special Reporter as my own and Mr. ——'s opinions. I may state Mr. —— did a lot of damage three years ago by issuing a circular "Poison in the cup; Tea in lead packets." He makes a hit at cooly labour and coolies handling Tea.—Yours faithfully,

GEO. T. K. MACKENZIE.

TEA IN PACKETS IN NEW ZEALAND.

A petition was presented to Parliament today from tea merchants, timber merchants, manufacturers, tinsmiths and printers asking that a higher duty be imposed on teas imported in packages and boxes than upon those imported in bulk. The petition states that large quantities of teas are imported into New Zealand which have been packed outside the colony in packets and that coolie and other cheap labor is exclusively employed in preparing the packets and boxes in which the teas so imported are packed, and also in packing the teas. Tea merchants in New Zealand, they say, are placed at a disadvantage as compared with foreign tea dealers who can obtain labor for packing at nominal rates, and who contribute nothing to the Income Tax or the revenue of the colony and do not aid in the development of its resources If all teas were imported in bulk and packed in New Zealand large quantities of timber, paper and other material grown and manufactured in the colony would be utilised in the making of packets, boxes and cases and the industry would afford employment to large numbers of tinsmiths, carpenters and other artisans, and also young people. The petitioners therefore pray that an additional duty, say 2d per lb, be imposed on teas imported in packets and boxes weighing less than 30lb. net,

On the subject of the petition asking Parliament to place a higher duty on tea imported in packages and boxes than upon those imported in bulk we have interviewed Mr George M'Kenzie, of the Hondai-Lanka Tea Company, and he condemns the petition root and branch saying:

The Ceylon people are the only ones who put up tea in lead packets. These teas guaranteed pure, are sent to all parts of the world. The effectiveness of the guarantee cannot be questioned. All the packets put up in Ceylon are sealed lead packets. That sealing cannot be done here. The work is so fine that the ordinary plumber cannot do it. it was tried in London and failed. The lead packets put up here are not sealed. A blender can so blend as to get any profit he chooses, whereas the dealer who supplies lead teas does not interfere with the packets—he sells them as he gets them. All who import pure tea from Ceylon get about 1d per lb less profit if sold in sealed lead packets, because the sealed tea packet costs 1½d. and to put up the same tea in paper costs only ¼d per lb. The large proportion of tea sold as pure Ceylon is generally made up of cheap Chinese, Fiji, or Java tea, which can be bought at a much lower price. It is well known that many thousands of chests of Chinese tea were destroyed on the wharf by the Customs, about four years ago. It was not allowed to be landed at Melbourne, and then was condemned in Dunedin. Fifteen thousand chests of the same, condemned in New York last year, were sent to Canada, and from there to England, and the owners could not get it in anywhere on account of its adulteration. I think it would be unwise to facilitate the putting-up of teas in New Zealand. You can buy tea siftings and dust for 2d per lb landed here, and this is the material used for adulteration purposes. If there were no lead packets the business would be entirely in the hands of two or three people, who could give any value they chose. The presence of the packet teas in the market compels the putters-up to maintain the standard. Some of those who were asked have refused to sign the petition, and some in the trade were not asked. I understand that only two or three Dunedin merchants signed it. As for the so-called encouragement of labour, two boys would put up in packets all the tea imported monthly in lead; one printer would turn out 5,000 or 6,00

labels in a couple of hours; the paper used cannot be made here; and there is a very small amount of timber used in making the boxes, for they are sent backward and forward and used again.

THE OTHER SIDE.

Having obtained Mr. M'Kenzie's statement, we deemed it a fair thing to interview Mr. N Harper Bell, who supports the petition, and his views of tea subject were thus expressed :—

The justice of the petition involves three questions—

1st. Whether it is better to have the tea packed locally or by coolie labor.

2nd. Whether there is any injustice to existing importers or to the public in prohibitory duty on the coolie article.

3. Whether the lead packages adopted in Ceylon are superior to the local methods of packing.

1. The tea at the gardens is graded, bulked, put into chests or half chests, and despatched to Colombo. There it is auctioned, and, according to the instructions of Home or colonial buyers, either despatched in original packages or repacked into small lead packets and boxes of from ½lb and 1lb packets to 5lb and 10lb boxes.

As originally purchased, it is extremely exceptional for a tea to combine all the qualities for which the consumer looks, and consequently, as much blending takes place in preparing the teas for the small packages in Colombo as in any other part of the world where such packing is done. The tea to be so blended is necessarily exposed, and in the hot, humid climate of Ceylon it naturally loses its aroma and fragrance at an infinitely higher rate than in a temperate climate such as New Zealand. It is even affirmed that a sample of tea left exposed one night on the liquoring table will be quite mouldy on the following morning. The handling and mixing are done by coolie labor under circumstances of climate, etc., which are, to say the least, not conducive to an improvement in the qualities of the tea. It can readily be seen, therefore, that if blending must take place, it is better that it should be done in New Zealand than in Ceylon. Blending is so absolutely a necessity that without it a very large proportion of the teas of the world would be unsuitable for general consumption. One tea possesses strength without sufficient flavor; another tea has most delicious flavor without the strength necessary for an agreeable liquor. Few original samples of tea, therefore, would meet with the approval of the public palate, which varies very much in different countries, or even districts. The expert blender in New Zealand, having a more certain criterion of the taste of his colony, has a great advantage in this respect alone. On all these grounds, therefore, the advantage to the public rests with the locally-packed article.

2. No injustice is apparently inflicted upon the present importer of coolie-packed teas if the extra duty be imposed, as the stock argument of such a dealer is invariably that tea is only locally packed for the sake of extra profit. In this regard it may be pointed out that inferior teas can be and are grown in all tea countries, but as the expenses of freight, duty, etc., etc., are equally heavy, no matter what the quality, the inducement to add rubbishy cheap teas to a blend is infinitely greater to a Colombo merchant than to a New Zealand one. Further, the argument that teas are only blended in the colony for the sake of mixing cheap rubbishy China tea, etc., with it is an insult to the public, who, in my opinion (after an experience of some sixteen years), are the best judges of a good cup of tea.

3. The question of the best way of packing tea in small quantities is one involving a certain amount of trade dispute. Most people are agreed that the lead package in vogue with the Ceylon packers is superior to paper as regards the retention of the finer distinctions of quality and flavor of the tea, but many people prefer the paper as offering less chances of lead or muriatic acid poisoning. The tin package gradually finding favor in this colony when made by the blocking process, entirely obviating the use of solder, possesses an advantage over the lead package in all ways, and quite overcomes the objection to the paper bag, the paste of which may be as prejudicial as the solder used with the lead wrapper. I has the additional advantage of being absolutely airtight. Personally I have packed the Bell Tea in such tins from its inception, and although a more expensive way of packing the evident superiority of the method has met with public commendation.

THE DUTY ON TEA.

TO THE EDITOR.

Sir,—I see by last night's *Star* that the tea blenders have petitioned Parliament to stop by means of a forbidable duty tea in Ceylon sealed packets, their chief argument being that the work is done cheaper in Ceylon, and therefore in favor of the importer of such packets. This is not the case. It costs 1½d to pack tea in sealed lead packets and boxes, and the same tea would be packed in paper for ¼d to three-eighths of a penny, besides being well blended with dust, fannings, cheap China, and other inferior teas for extra profit, and then put in a paper packet bearing the words "pure Ceylon tea" to mislead the public.

Tea packed in paper will not keep. From the day it is removed from the lead-lined chest in which it came from Ceylon, India, or China till it is used it is losing in strength and flavor. Believe me, but for the extra cost, no tea would be sold in paper bags.—I am, etc., Ex-Planter.

August 9.

A COMPLIMENT TO THE "TROPICAL AGRICULTURIST."

Exposition Universelle, Paris, 1900,

Ceylon Section, Trocadero, Aug. 20.

Sir,—I enclose the card of a Mons. Henry de Varigny—a gentleman connected with *Le Temps*—who wishes to have future issues of the "Tropical Agriculturist" for review in his paper. I shall be glad if you will write to him and say whether or not you are disposed to accede to his request.—Yours truly, W. E. DAVIDSON,

Delegate for the Ceylon Government at the Paris Exhibition.

Monsieur de Varigny is a remarkably-gifted man. He writes also for the French *Nature* and an Agricultural Review.—W.E.D.

[*Le Temps* being the leading paper in Paris, we take this as a special compliment—and agree to send on the *T.A.*—Ed. *T.A.*]

THE RIPENING OF BANANAS.

Galle, Aug. 28.

Dear Sir,—Anent the "fearsome story" about the ripening of bananas taken over from the *Westminster Budget*, the Sinhalese process of forcing on the yellow colour is certainly less objectionable. The plantain bunches are buried in the ground, and then fumigated till the ripening process is complete. Plantains treated in this manner have a very disagreeable taste.—Yours faithfully, A.

FRUIT-GROWING IN LOWER AMBAGAMUWA.

Ambagamuwa, Sept. 5.

DEAR SIR,—I think it may surprise a good many that lowcountry fruits can be successfully grown at this elevation. On this estate, when I came to permanently take up my residence in 1889, I planted the following fruit trees :—Mangosteens 12 plants, 9 now growing, 2 bearing ; Ceylon plums (Uguressa), planted ½ dozen, 2 growing and in full bearing ; lovi-lovi, 2 planted, 1 in full bearing ; rambutans, 2 dozen planted, about 1 dozen growing, 4 in bearing ; num-num, 2 planted, one alive and in bearing ; billingberries, 2 planted, both growing and in bearing ; breadfruit, 4 planted, all growing and bearing profusely ; loquats, 4 planted, 3 growing and in bearing ; jamboos and rose apples, 2 of each in bearing ; oranges and mandarin oranges, a good many, all in bearing. I have even successfully grown peaches, two are thriving, one in bearing. Limes growing almost wild, cropping very heavily. Soursops on this estate and pomeloes or shaddocks go to feed even the coolies. Coconuts I planted about 300 and have about 160 growing luxuriantly ; two trees have borne this year. Thus you will see, sir, that Ceylon fruit, with care, can be successfully grown anywhere in Ceylon, save and except, I suppose, over an elevation of about 3,500 feet. Even this I would question.

I am sending you 1 mangosteen, 1 loquat, 1 num-num and some Ceylon plums and rambutans, the fruit now in season at this "packum." You will, perhaps, find the fruit not quite of such a flavour as the same fruit grown in the lowcountry, but I think you will say "They are not so bad." Your contemporaries would do well to copy this letter for the benefit of their readers.—Yours truly,

ADAM.

[The fruit sent to us look very well-grown, indeed, and are not without flavour, some being very good, the mangosteen and plums especially. This goes to show that every estate in the country ought to have a fruit garden of some kind ; for, undoubtedly, there are fruit-trees suited to each elevation from Colombo up to New Galway, where Mr. Kellow has done so much ; and to Nuwara Eliya, where Mr. John Cotton's growth of plums and strawberries is quite wonderful.—ED. *T.A.*]

RUBBER IN SOUTH AMERICA AND IN CEYLON, &C.

September 9th.

DEAR SIR,—I enclose an extract from *The Field* of 21st July last. The last sentence of the extract appears worthy of correction.—Yours faithfully,

PLANTER.

[The extract is as follows :—

The recent Consular Report on the great interior district of Brazil known as the State of Amazonas, presents itself rather as a description of the country from the pen of an observant traveller than as the list of exports and imports which constitutes the usual contribution to literature of Her Majesty's representative in foreign lands. Ten or twelve pages are devoted to an account of the rubber industry alone. Of late, the enormous consumption of this article in the manufacture of bicycle tyres has created an ever-increasing demand, and although the supply from the Amazon valley has trebled in the last ten years, the former average price of 2s 6d. per pound has now increased to as much as 4s 6d. The total world's output is from 120 to 130 million pounds, of the value of fifteen million sterling, and of this the Amazons supply not much less than half, though the crop obtained from East and West Africa is not far behind. A little comes from Malaysia, Madagascar, and Mauritius, and still less—some 500 tons—from India and Ceylon, but South America is not only first in quantity, but in quality. The low-lying land chiefly affected by the rubber-yielding trees is completely submerged in the rainy season, which lasts from January to July, so that collecting is only possible during the last five mouths of the year. The trees yielding the latex are the *Manihot Glaziovii*, chiefly worked in Ceara, *Hancornia speciosa* the mangabeira of the natives, which is beginning to give results in Maranhao, and *Hevea brasiliensis*. The latter, however, is infinitely the most important, the bulk of the caoutchouc being obtained from it. It is, nevertheless, by no means common in the forests, an average of one tree only to every two acres being good ground. The yield of each tree when worked under satisfactory conditions is not more than from 2 lb. to 3 lb., but though a rest is from time to time necessary, the latex may be drawn for many years without causing the trees to perish, as has been generally supposed. It is therefore improbable that the available supply of rubber will be exhausted in the near future, and, owing to the enormous area over which the tree is found, much of which still remains to be exploited, it is unlikely that the industry will fall off. At the same time, however, attempts to cultivate the tree from seed in Africa and Ceylon have not hitherto been successful.

We take to ourselves blame for not correcting *The Field* long ago. It is quite a mistake to say that the experiments in Ceylon to grow rubber trees (Para especially) from seed have not been successful. Only the other day a small consignment of Para rubber taken from trees in Ceylon realized in London 3s 7¾d a lb. and we hope to see the export increasing year by year now.—ED. *T.A.*]

TEA FREIGHT TO AUSTRALIA.

Colombo, Sept. 17.

Dear Sir,—The accompanying letter, addressed to the Vice-Chairman of the Chamber of Commerce, should be of general interest to both growers and dealers in Tea, and I send it to you for publication should you care to insert it.—I am, dear sir, yours faithfully,

H. WALTHEW.

R50 PER TON FREIGHT TO AUSTRALIA FOR TEA.

Colombo, Sept, 17, 1900.

To the Vice-Chairman, The Ceylon Chamber of Commerce, Colombo.

Dear Sir,—There has practically been a tacit contract between shippers to Australia and the mail steamers that freight should be paid and received at R40 per ton, and although all shippers know the rate to be excessive, they have paid it without a murmur or agitation, feeling that the advantages of a regular mail service compensated largely for this exorbitant charge. Shippers have borne without serious protest the curtailment of space to a point which has practically starved the Australian Markets and permitted other growths (to the incalculable injury of the Ceylon Tea Industry) to find a Market in Australia which they never would have done, if freight space had been plentiful at a time when Australia was starving for the produce of our Island. The mail steamers,

during the past four months, have ignored the wants of our trade, or perhaps more correctly speaking, they have not made arrangements to fulfil the requirements of the Tea Trade, notwithstanding the fact that they have to call in at Colombo for coal and passengers, and will always find ready for them 300 tons of cargo at £2 13s 4d, netting £800; practically sufficient to pay their coal bill to take them down to Australia

The R40 per ton freight which is charged to shippers to Australia equals about 4¾ cents per lb. calculated on the basis of 850 lb., being the average nett weight of a ton of 50 c-ft. of Tea. This is as much as is paid on tea to any port in the British Empire inland and transhipped either at New York or London as far west as Ontario in Canada, or as Far East via Hongkong and the Pacific as British Columbia, and is 25 per cent more than is paid to Australia from Calcutta.

As the Australian Colonies are the principal outlet of teas sold in Colombo, the buyer here has to deduct the extra price of freight which he is paying from the price he pays to the planter, and so the whole industry suffers through shippers having to pay to the mail steamers running to Australia, this excessive rate of 4¾ cents per pound.

We have now arrived at a point when Ceylon tea is so well-known and so well-liked in Australia that the trade requires more freight space to carry the produce of the Island to the Australian markets, and our nominal friends, the Ring of ship owners, whom the trade have been supporting at the above mentioned rate of R40 per ton for so many years, now turns like the proverbial viper and advances its rates 25 per cent or 1¼ cent per lb.

The tea trade of Ceylon is no doubt capable of bearing this blow with fortitude, feeling that the mail steamers are only buying at their own expense the means of bringing in outside steamers to compete with them at a much lower rate of freight, thus helping to break the iniquitous monopoly which has been saddled on the trade of the Island. But the question goes deeper than the question of breaking a monopoly; it is the question now of the Steamer Agents having broken a tacit contract. Speaking for my firm, I should be very pleased to see a much heavier rate of freight imposed for the next month or two upon all tea to Australia, as I happen to have shipped my quantum for a little time at R50 per ton, but the point of the sudden demand upon all Australian shippers, to pay R50 per ton is the absence of consideration for the traders who have supported the mail companies. Many merchants in the Fort have calculated their orders upon a R40 per ton basis, and they have bought to ship at R40 per ton freight. If they suddenly without warning or notice, are called upon to pay R50 they themselves have to bear the loss of R10 per ton. If the mail companies wish to charge shippers R50 per ton, then it is only just and fair that they should give the shippers due notice of their intention. If this had been a port where the freight rate to Australia fluctuated according to the law of supply and demand, no fault could be found with the mail companies in their present action, but however large the space offering here and however small the amount of cargo obtainable no mail steamer breaks the rule of their "Ring."

There has been many a time of depression in tea which could have been relieved, had a steamer come in with empty space and offered same at a low rate. But the "Ring" which manages the mail steamers have no consideration for the industry of the island or her traders: they feel that they have a monopoly, and can take extravagant liberties with the trade as is the nature of mono- polists.

I think the time has come when the Chamber of Commerce should enter a serious protest against the monopoly and against the arbitrary raising of rates without notice, and I think that I am not going wide of the mark, when I make the statement that if a body of shippers were to bang together, a Line of steamers could be chartered, to call in here monthly to carry the tea export of this island to Australia at 35s, thus saving ½d per lb. on the present rate of R40 per ton.

If the ship-owners maintain this rate of R50 per ton, planters from next Wednesday's sale onwards will note a fall in the value they obtain of one to two cents per lb.

I should like this letter to be put before the Committee and with your approval I should like to publish it.—Yours faithfully, H. WALTHEW.

THE SALE OF PLUMBAGO.

(To the Editor "Times of Ceylon.")

Sir,—We have been much interested in the editorial and comments on the subject of plumbago, which have arisen from our original letter to you on the subject. It would appear from suggestions that have reached us, that if a definite *modus operandi* were formulated by which the producers could deal with the consuming centres *direct*, they would be glad to avail themselves of such a system. There are two suggestions we notice, made you which present possible difficulties to be overcome:—

(*a*) That the article requires preparation after it leaves the producers' hands before it can be used.

(*b*) That the non-success of the produce-consumer principle in tea may apply also to plumbago.

The former could be obviated by handing the rough plumbago to one of the Colombo curing firms who undertake to prepare at a fixed rate, or, if the output of the mine was sufficient, it would pay to erect a curing shed and do the work there. We have heard of a firm of curers who, after curing a parcel sent to them for cleaning, refused to allow the mine-owner to ship his plumbago himself, instead of selling it to them as he had been previously accustomed to do. The owner very properly resented such high-handed treatment and started curing himself. Producers, however, should have no difficulty in finding curers to do this work at fixed charge. The reasons of the failure to sell teas direct to the consumer are so obvious, that it is hardly necessary to deal with them in detail. The sale of plumbago, however, is on different lines. The main point to be remembered is that, in tea, the average consumer is a private individual, who buys a pound at a shop within a few yards of his house. In plumbago, the consumer is a large manufacturer who can buy 50 tons at a time. The factory may be situated in the interior of Europe or the United States, and may require a certain time in which to pay for its purchases. To sell to it would, therefore, necessitate an organization which is prepared to take charge of the shipments of plumbago on arrival, deliver it to the factory door, and if necessary, to wait till the factory settling day for payment. If this could be done the producer would be getting the utmost value for his article, as he would be getting *the actual price the consumer pays.* To arrive at this we make the following proposal to those interested in the sale of plumbago:—We are prepared to organise a six-weekly auction sale in London of all the plumbago sent to us for realization. In good time, prior to the sale, we will, as is the custom with the Government sales of ebony, forward to every consumer in all parts of the world, catalogues and samples of the different parcels. We will offer to these latter to take their limits for purchasing in auction, and should they secure the parcel, forward the goods to their port, giving them the necessary facilities for payment. It would not be advisable to hold sales at a less interval than six weeks, as sufficient time would not elapse between the receipt of samples by the manufacturer and the date of sale to allow him to *write* fully as to his requirements; and orders cabled by him would not lend themselves to full and complete instructions regarding his needs for any special quality or quantity. This

will afford the consumer every inducement to purchase through us, as he will see exactly what he is going to buy—an important point—and know that he is buying at first hand—a condition under which, it is interesting to note, he is often prepared, from a sentimental point of view to bid more freely than if he thinks he is paying somebody else a profit. The concentration of bidding thus obtained should show favourable results for producers. We would credit the producer with the actual price thus obtained, forwarding official voucher if necessary. For doing this, that is, circularising prior to sale, selling, shipping to buyer, and, if necessary, giving the latter credit, we would make an inclusive charge to producer of 5 per cent, paying out of this any brokerages or agents' commission we may incur for the better sale of the goods. The above, we think, would offer a means by which the producer should get better prices for his staple than by any other method. But, if we are to make this successful, it is absolutely essential that we have the confidence and support of the producers. It would be of no use our endeavouring to concentrate all the buying of plumbago into one channel, if sales are at the same time being encouraged elsewhere. The assortment which we offer for sale must be sufficiently varied and tempting to compel the buyers in all parts to come and bid up in the sale for their requirements, and the sale would then come to be regarded as the recognised channel of supply. If the producers of plumbago in your island would only take the trouble to investigate the present *modus operandi* of disposing of their consignments, we feel sure they would be anxious to at once effect a radical and sweeping change. The market is largely controlled by one or two brokers, whose interest it is to befriend the manufacturer to the detriment of the unfortunate consignor whose goods *must* be sold. There is no proper organisation or concentration of the buying element, as in tea, and we *know* of many cases where plumbago owned by natives and others has been sold much below its value, merely from the fact that buyers on the Connent and in the States have not been thoroughly advised before the sale.

We shall be glad to receive communications from any producer on this important subject, and give them any information they may require.—Yours, &c.,

CHAPMAN, ANTHONY & CO.

15, Philpot Lane, E C, London, 24th Aug., 1900.

Coconut Planting and Native Enterprise.—We are interested to learn of the success of a retired native gentleman in the cultivation of a coconut property of rather more than 100 acres in extent. When it was acquired by him, over three years ago, it was bearing an annual crop of 73,000 nuts. By judicious and liberal manuring the present proprietor, who is dealing with his soil in a bold and enterprising manner, has succeeded in raising the crop to 123,000 nuts per annum —but hitherto he has consistently allowed his expenditure to exceed his income. He spent more than R5,000 last year on the cultivation of the estate and next year expects the income exactly to cover his expenses. Subsequently, he expects to reap a handsome profit and is fully confident that the yield in a few years more will reach the high figure of 600,000 nuts. The planter in question, as may be guessed, is a gentleman of original ideas and fond of experimental work. We shall watch with interest the results of the present experiment in the "high cultivation" with our great palm staple. Old Mr. Lamont has said there is scarcely a limit to what the coconut tree will utilise of manure and that for every rupee spent on fertilisers, *two* at least should be got back.

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ARBORICULTURAL OPERATIONS IN INDIA.

We have received a copy of the Report on the Arboricultural Operations in the N.-W. Provinces and Oudh, for the year ending March 31st, 1900, of which Mr. W. H. Moreland, Director of Land Records and Agriculture, is the author.

We learn from the Report that 2,213 of the total 2,919 miles of metalled roads, and 4,872 out of 23,220 miles of unmetalled roads, have now been provided with avenues of trees. In 1898 special instructions, intended to encourage the planting of trees by private individuals were issued by Government; but these were issued too late for results to be apparent in the figures for last year, though the Report mentions several instances where private persons have started avenues from one to four miles long. It is expected that arboriculture can be materially extended in this way, through the personal influence of the District Officer. It would appear that it is possible to maintain nurseries in that special expenditure, namely by putting them in charge of road coolies and those in charge of road bungalows.

As regards supervision, operations on Provincial roads remain in charge of officers of the P. W. D., while those on local roads are, as a rule, supervised by officials of the District Staff representing the executive of the District Boards.

The financial results of last year show the aggregate receipts as R84,988 or R500 in excess of the previous year's income: on the other hand the expenditure rose by nearly R8,000, and amounted to R89,196. The Provincial roads show a handsome profit, while there is a deficit on the roads managed by the District Board. This result is due to the administration of the former being closer, while the established avenues are considerably larger; so that while there is little expenditure, there is at the same time an income drawn from them.

TEA CULTIVATION IN INDIA.

The Director-General of Statistics publishes a paper in which he shows all India to have 516,732 acres under tea; but Mr. O'Conor confesses that his figures are imperfect and defective, information being withheld in some cases. We shall give the details later; but meantime we may mention that 33,279 acres of tea are put down for Travancore and the Madras Presidency, and it is estimated that in all India 15,052 additional acres of tea were planted in 1899; 31,561 in 1898, and 36,838 in 1897—thus showing how the higher rupee checked extension. It is stated that last year gave a wonderful increase (23½ million lb.) in production, but this is not borne out by the exports? Mr. O'Conor gives the consumption of tea in India on the average of five years at 5,169,000 lb. of Indian tea and 2,723,000 lb. of foreign tea (chiefly Ceylon). Of course, this could be largely increased if once the millions of India (as in China) took to drinking tea.

SCENT FARMING.

London, Aug. 30.

I heard the other day from someone who ought to know that there is a great opening for "scent farmers" and "growers of sweet herbs." I can believe that this branch of agriculture would be especially pleasing to female gardeners, for it conjures up at once a dream of fragrant perfume, and certainly the cult of sweet lavender and the tending of the modest rosemary should be more attractive than cutting cabbages and digging potatoes. All that is required is pluck and a small amount of capital to start a scent farm. Land, of course, is the principal difficulty. For the raising of lavender the soil must be of deep, sandy loam, if possible overlying chalk. An acre of lavender in good condition is calculated to yield £50 in a season. English lavender is the sweetest in the world and the demand for it is great. It is hardy and needs but little cultivation. There is a typical scent farm at Wallington, near Croydon, and there is no question of its financial success. For miles round the Crystal Palace and the Epsom Downs are fields of blue lavender. The cultivation of rosemary too and of the more plebian peppermint is an occupation with money in it, and I cannot help thinking that it is work essentially fitted for gentlewomen and it might succeed the violet growing. I am told also that a dairy farm managed by ladies would prove most financially successful at any of our crowded seaside resorts. Milk, eggs, and poultry are not to be had for love or money by visitors, most of the country people being pledged and bound to send their produce to London direct. Kitchen garden produce, we all know is most difficult to be obtained at crowded seaside places. I really believe a very lucrative business might be done by ladies able to supply farm produce, vegetables, fruit and flowers to visitors at any of our rising seaside resorts.

A SCOTCH FLOWER SHOW.

I was much pleased by a visit I paid the other day to a country flower show in a remote village amongst the Scotch hills. Such potatoes! such beans, leeks and onions! I never looked on before above ground. Carnations of every shade of colour and of enormous size were stuck in ginger-beer bottles, with a circle of paper round each separate bloom. Deep purple and variegated pansies were displayed on white cards. Bridle bouquets made up of pure white flowers, even baskets for table decoration, were all there, artistically spread out upon the schoolroom tables and desks. But what pleased me more than any of these most creditable exhibits from the gardens of the cottagers were the collections of seeds and fruits made by the boys of the village and the pretty bouquets or "boggies" of wild flowers gathered and arranged by the little girls attending the school. In one boy's collection of wild fruits and seeds 100 different varieties were found, all neatly arranged upon a square sheet of green moss, fir cones, wild raspberries, bilberries, acorns, beech nuts, chestnuts, etc., all collected and carefully arranged by the boy (the first prize winner) himself. I am told that the village schoolmaster (who is somewhat of a botanist) encourages his pupils to employ their leisure hours in searching the neighbouring woods and moors for these botanical specimens, and is most kind in assisting them to name and arrange their treasure trove. What an intelligent and enlightened schoolmaster for an obscure country village in the hills amidst the sheep and the heather! Would that there were more such in our rural villages and hamlets to influence so wisely and intelligently the tastes and pursuits of the rising generation—the youngsters of our country cottage homes.

I forgot to say that rows and rows of competing scones, oatcake, butter, cookies, and home-made jam reposed upon shelves all round the room. I felt so much inclined to test personally the virtues of these fresh and tempting exhibits. I was told that a very handsome prize had been offered at a neighbouring village for the largest collection of queen wasps, and that over 500 had been produced by one small boy. A perfect terror amongst wasps that boy must have been.

PENELOPE.

FORESTRY IN BRITISH INDIA.

BY B. RIBBENTROP, C.I.E., INSPECTOR-GENERAL OF FORESTS, TO THE GOVERNMENT OF INDIA.

A copy of this valuable work has come to us. Its object is explained in a prefatory note:—

The end of my career in the Indian Forest Service is drawing near. It has extended over thirty-years, and though I was not in the country when regular forest conservancy was first introduced under the auspices of Mr. (now Sir Dietrich) Brandis, I arrived when it was still quite a small sapling, and I have seen it grow to the mighty tree it is at present, under the wide-spreading shadow of which I have grown old. This is my excuse for preparing a general description of the forests and a resume of the introduction and growth of forestry in the British Indian Empire, to the publication of which I have obtainted the consent of Government. I am, however, solely responsible for the matter, the form, and the opinions expressed.

The contents are as follows:—

Physical possibilities of India as a forest-growing country; Evergreen Forests; Deciduous Forests; Dry Forests; Alpine Forests: Littoral and Tidal Forests of Burma and Bengal; Riparian Forests; Zones in which no forests grow; Influence of man on the Indian forests; Influence of forests on the climatic conditions of a country; Local influence of forests on the fertility of the country; Early forests policy after British occupation; First attempts at forest administration; The dawn of Forestry in India; Present forest administration and its development; Organization of the Forest Department and its growth; Proprietary status of forests in India; Forest laws; Constitution of State Forest property; Further progress of constitution of Reserved forests under modern legislation; Forest Settlements; Demarcation; Forest Surveys; Working-plans; Communications and buildings; General protection; Protection from fire; Grazing and browsing; Sylviculture; Arboriculture; Works of improvement of existing forest growth; Exploitation and outturn; Minor forest produce; Financial results of Forest Administration; Technical education; Indian forest literature; Forest Administration in Native States. Appendices.—(i) Chart of the average annual rainfall of India (mentioned at page 6). (ii) Map showing the description of distribution of Forest lands under Government control on 30th June 1899 (mentioned at page 123). (iii) Map showing the advance made in Forest Surveys up to 30th June 1899 (mentioned at page 130). (iv). Map showing the advance made in Working Plans up to 30th June 1899 (mentioned at page 139).

The maps are well-executed and very interesting,

WHEAT CROP OF THE AUSTRALASIAN COLONIES.

	1898-9.	1899-1900.	
	Bushels.	Bushels.	
Queensland	607,012	611,414	——
Victoria	19,581,304	15,205,350	Dec. 4,375,954
N. S. Wales	9,286,216	13,586,277	Inc. 4,300,061
Sth A'tralia	8,778 900	8,453,135	Dec. 325,765
New Zealand	13,073,416	7,695,121	Dec. 5,378,295

—*Queensland Country Life*, Aug. 23.

THE CONGO STATE AND COMPETITION: DESTRUCTION OF RUBBER.

A very favourite argument used by the admirers *quand meme* of the Congo State consists in the oft-repeated statement that the country is being developed and is becoming prosperous by the introduction of fresh capital, &c. If by ruining acres of valuable rubber-producing forest land, by depopulating entire districts with fire and sword, by causing thousands of natives in Congo State territory to cross the river into French territory, in order to get quick returns, development is secured, then the country is being developed—not otherwise. Does the circumstance that since 1892 rubber in increasing quantities has been exported and many new rubber-exporting companies formed, prove that the country is becoming prosperous? Let us see. In 1897, 1,662,380 kilos of rubber were exported from the Congo State. Out of these 1,662,380 kilos of rubber *no fewer than 1,071,499 kilos came from the Domaine Privé!* Out of the 1,071,499 kilos, the *Domaine Privé* "taxes" accounted for 721,541, the balance of 349,958 being supplied by the two companies, Société Anversoise du Congo and Abir, in both of whom the Congo State, as already shown, is interested to the extent of one-half the shares. Deducting the output of the *Domaine Privé* from the quantity of rubber exporetd, there remains 590,881 kilos to represent private enterprise. A further examination reveals the faet that one singe company, the Soeiété Anonyme Belge du Haut Congo, the absolute genuineness of which, as a strictly private company without State participation in profits, operating *outside* the *Domaine Privé*, is doubtful (see footnote, Article III.) exported 458,862 kilos out of the 590,881 kilos remaining. So that all the other companies put together merely succeeded in shipping home in 1897 a paltry 142 tons, reckoning 1,000 kilos to the ton! Does this indicate prosperity? Take ivory. In 1897 the Congo State exported to Belgium 280,117 kilos of ivory. Out of this total the *Domaine Privé* produced 198,326 kilos! The export of other products is insignificant. The facts speak for themselves. There is nothing in the remotest degree approaching a genuine increase of prosperity in the Congo State. Private enterprise in three-fourths of the territories is simply non-existent, and even in the nominally Free Trade zone the legimate barter transactions of independent traders are hampered at every turn by the proceedings of the official taxgatherers, who use coercive measures to compel the natives to pay in taxes the products of the forest which they would otherwise exchange against Europen goods. The increasing magnitude of the rubber exports from the Congo State since 1892 is due therefore not to legitimate commerce, but to slave labour. Remove that slave labour and the bubble of "prosperity" is pricked.—*Speaker*, Sept. 1.

THE LAST LONDON CINNAMON SALES.

THE third quarterly cinnamon sales for the year, held in London on 27th August, appear to have gone off very satisfactorily for sellers. When noticing the May sales the following month, we suggested an explanation for the drop that was then recorded, in the heavy catalogue, and the trade disturbance caused by the South African war; and we expressed the hope that, unless our exports continued to advance, there would be a recovery from the slight falling off. As it turned out, there has been no diminution in our cinnamon exports—quilled bark being in excess of the quantity sent away last year, and the shortage as compared with 1897 and 1898 being more than made up by the increased output of chips; and yet the prices show a good advance, with a brisk demand.

Although the report we append speaks of a moderate supply, it will be seen that the quantity catalogued was in excess of that brought to hammer in August last year, and yet—what very seldom happens—almost the whole quantity was knocked down to bidders—all but 8 bales out of 1,141! And how this happened, with an advance in prices of from 1d to 4d—surely a most exceptional experience—is told in a very business-like way in what follows. At the commencement of the sale, it looked as if the easier prices of last May were to rule again; but a brisk competition soon established itself; and prices were forced up almost irrespective of grades. We are not told what excited the unlooked-for competition; but the caution should be noted that this ignoring of qualities and grades is not an experience to be calculated on, as it did not express any particular feeling in the spice market. Probably some broker put in a bid for a mark of which another had long a monopoly, and that led to fancy prices; for it is well-known that some of the best marks are almost invariably bought for Spanish Firms; and Spain has evidently recovered sufficiently from the debilitating war to be able to resume trade on the old lines.

Even more satisfactory than the advance in prices of plantation spice, is the neglect of "wild bark. The former was due to some exceptional local condition; the latter indicates the continued resolution of the trade, as expressed at previous auctions, to have nothing to do with spurious bark. If exporters have not already learnt the lesson that it cannot possibly pay them to send stuff for which no one bids, or which fetches 1d a lb., they will soon be convinced of the fatuity, and that will help to maintain prices for honest spice.—We quote as follows from Messrs. Forbes, Forbes & Co.'s Report on September auctions:—

London, August 23.—*Cinnamon.* At the quarterly auctions held yesterday the supply was moderate, viz:—1,141 bales Plantation quill, against 1,202 bales at the previous sales, and 959 bales at this period last year. We are pleased to report an exceptionally brisk demand, and the clearance of all but eight bales.

The "worked" cinnamon comprised 305 bales, and the "unworked" 836 bales. The "unworked" quill chiefly sold at about ½ to 1d per

lb. dearer; firsts 9½ to 1s 1d; seconds 9½d to 11d; thirds 9½d to 11d; and fourths 8d to 9d per lb. A few lots of native growth sold at 2d to 7d per lb. for fifths to firsts.

The sale of the "worked" cinnamon was very exceptional, and for most of the marks the increase in price ranged from 1d up to 4d per lb. The opening bids for the leading mark. were cautiously made, and it appeared that easier prices were likely to be established.

As the lots progressed, a strong spirit of competition set in between two or three of the leading buyers, with the result that prices were forced in some cases 2d to 4d per lb. firsts, seconds and thirds occasionally being practically bought at nearly the same price. Some lots sold at exceptionally high prices; these, however, must not be taken as representing true market value, and such prices are not likely to be obtained again.

Firsts realized 1s 1d to 1s 8d; Seconds 10½d to 1s 7d; Thirds 9½ to 1s 7d; Fourths 8½d to 1s 1d per lb.

About 1,300 Bales wild Ceylon were quite neglected and all bought in. Of low chips and bark, some 1900 bags offered and were nearly all, withdrawd for lack of bids, a few bags Bark being sold at 1d, Chips 3d and Quillings &c. 6½ to 10d per lb.

Stocks of Ceylon 2,514 bales; Wild 2,581 bales; Chips 5,205 bags; and Wild Bark, &c. 8,037 bales.

Next Auctions 26th November.

FORBES, FORBES AND Co., LTD.

CEYLON IMPORT DUTY ON TEA.

Ceylon imposes a 25 cents import duty on all foreign teas coming into the Island. The abolition of this altogether unjustifiable duty has all along been opposed by Ceylon planters. The *Ceylon Observer* suggests that the Planters' Association should move the Imperial Customs officials to fix a proper tea standard so as to exclude rubbishy and worse teas. The unfortunate part of the business is that Ceylon alone dees not suffer, our produce likewise gets a bad name. People in Australia and other parts of the world are not, generally, sufficiently well versed in geography to distinguish between Ceylon and Indian teas—to them they are one and the same. We think that all the Tea Associations (London, Indian and Ceylon) should take cognisance of the matter, and, working in unison, adopt measures to move Her Majesty's Customs to fix some proper standard at all ports, so as to prevent the shipping of rubbishy teas, and worse, from the countries of production. We have never been able to understand the action of the Crown colony imposing a 25 cents import duty on our produce considering that its teas are admitted free into this country. The tax is undoubtedly detrimental to the best commercial interests of the Colombo port, as, were it not for this prohibitive duty, Southern Indian tea at least would be shipped for sale to that mart. Some time ago we suggested Indian teas being shipped to Colombo and there blended and sold, making that place the great Indo-Ceylon mart for all Indian and Ceylon teas. The suggestion, for obvious reasons, met with no favour. and our fellow-planters in the Island were dead against it, for it of course meant the abolition of the 25 cents import duty. We trust that they will now see that the retention of the tax is opposed to their best interests. A fixed and proper tea standard by Her Majesty's Customs would do away with all necessity for the duty, and its abolition would lead to a great expansion of business in Colombo; which would greatly benefit the Island in very many more ways than one.—*Indian Planters' Gazette,* Sept. 8.

BOOK RIFLES FOR SMALL GAME IN CEYLON.

(*To the Editor of "The Asian."*)

SIR,—In a recent issue of your valuable journal I noticed a most interesting article by your constant correspondent, "Fleur-de-lys." He brought to the notice of sportsmen a branch of sport few realise the existence of—myself amongst the number—*viz*, the excellent rook rifle practice to be had at small game of which there is an abundance in the low country of Ceylon, and which offer absolutely no sport with the gun. In the tank country flamingoes and the larger kind of water birds, inland jackal, big squirrels, hares and pigeon of various kinds are very plentiful, and afford splendid tests of skill with the small-bore rifle, while there would be no fun in shooting them with a shot gun. It is only done when shooting for "the pot" and when there is no danger of disturbing better game. The great objection, in Ceylon at any rate, is the necessity of taking an extra rifle for two reasons, *viz.*, (1) the wrong weapon is sure to be handed to you by the wretched 'trackers' (?) we have to employ; (2) the great trouble of having to keep an extra gun clean—this is no small consideration out here as our servants are quite incapable of keeping firearms clean, more especially small-bores, which they soon succeed in chocking: if you value the weapon you must clean it yourself. However, your correspondent suggests the use of a weapon which is adapted to shoot with a reduced charge. With this end in view I have been experimenting with a breech adaptor and the miniature cartridges in a Martini-Metford ·303 by Rigby. I may be unfortunate with the ammunition, but the accuracy with these cartridges has been most disappointing. What diagrams would your correspondent (who is undoubtedly an expert) think possible at 50 and 100 yds.? Has he, or any of your readers, had any experience with the latest American rifle, the Savage, which Messrs. Westly Richards have taken up the agency of? This rifle has a most taking appearance, being hammerless with a self-contained magazine (6 shot). It shoots a nickel soft-nosed bullet with very much the same velocity and force of the British ·303, and it also has a miniature cartridge which is claimed to shoot with great precision up to 100 yds. The price is also most reasonable, *viz.*, about £4·0·0. Any information on this subject from any of your readers will greatly oblige others as well as—M. L. W.—Madulkellie (Ceylon), 30th August, 1900. —*Asian*, Sept. 11th. [The above initials will be recognised at once as those of a well-known young Knuckles planter and sportsman.—ED. *C. O.*]

SHORT CROP OF CACAO IN CENTRAL AMERICA.—Up to the present time the shortage of cacao from the Machala and Santa Rosa districts exceeds 10,000 bags says a Guayaquil correspondent of the *B. T. Journal*, of July 15. This represents an average value of a quarter of a million sterling, or one-fifth of the exports. Not only does this alone cause a despondent feeling in commercial circles, but the civil war in Colombia along the Ecuadorian frontier also has a bad effect on trade. The export tables of coffee, rubber, hides, and vegetable ivory or tagua show that there exists a considerable amount of excessive trading as well as speculation.

AN INDIAN TEA CESS AND THE CEYLON TEA DUTY.

It is very gratifying to us to see both the Indian and local press now so generally taking up subjects which, for a long time, we urged almost as one crying in the wilderness. We refer to the need of pressing on the Indian Tea planters and also the Government, in season and out of season, the need for establishing a Cess Fund for advertising their tea in new countries, after the pattern set in Ceylon; and secondly the need for abolishing the unwise, inequitable and anomalous import duty on tea in Ceylon. It is well-known that its existence has already cost Colombo much business not only in the handling of the teas of Travancore and other South Indian districts; but also in the manufacture of brick tea for Russia, during the recent crisis—an industry which, if once started, might have led to great and rapid developments in regard to one of our most promising customers. The bugbear held up now as ever, is that, if the duty be abolished, inferior China and Java teas will come here to be blended with Ceylon. But can *any* tea imported be inferior to some that is already sold in the Colombo market?—and why should a blending business be relegated to London, America, or the Colonies, if it can be done in Colombo? No one can be so ignorant as to suppose that Ceylon tea will not still continue in Mincing Lane as elsewhere to be bought on its merits, or that any buyer or dealer can be deceived by manipulation or blending in Colombo. The cry for "Pure Ceylon" tea is of very little value in these days when veritable rubbish is sold at Colombo sales. There must now be the guarantee that it is "good" as well as "pure" tea and such guarantee can be as readily given when Colombo is a free port for tea, as at this moment. If the attention of the Viceroy in Council is called to this Ceylon tea duty, its abolition will assuredly be requested more forcibly than politely. Far better on every account, not to wait for such an invitation or request.

A TEA CESS FOR INDIA.

I have read with much interest your articles on a "Tea Cess for India." It is a great satisfaction to us here in South India to find you using your powerful influence with the object of inducing the Indian Tea Association to make a second appeal to the Government of India to place a small compulsory tax on the export of tea. The feeling of my own Association (and I believe it is the same with others in South India, though I cannot speak with authority for those Associations) is, that a compulsory cess should long since have been imposed; that the small contribution hitherto raised in India for the Foreign Market Fund is a blot on the spirit of enterprise and the dignity of the Indian tea planter, and that a tax on the same lines as that raised in Ceylon would not merely be no hardship, but would be refunded to us over and over again by the certain increased consumption of our produce. In addition to this we down here, who are so near Ceylon and are so closely in touch with those in the islands, feel very bitterly, that we are talking a mean advantage of the liberality and public spirit of our brother planters across the water, and with very small cost to ourselves are reaping what they have sown. It is hopeless to expect the Indian Tea Association to move further in this matter, if they are going to wait for a "fair show of unanimity" from the Indian tea planters. That we shall never get. What we want is a good majority. I think you are wrong in stating that by "unanimous consent" the Ceylon "growers placed the matter in the hands of their Government. Was it not because the growers were not unanimous, that an influential majority placed the matter in the hands of their Government? In all communities, particularly in those so large and so varied as that of the tea planters, you will always find a certain proportion, on whom persuasion and argument are thrown away. In such cases the opinions and wishes of the greater and more influential number should be considered. Surely this is a social law? I am glad to see from your issue of the 16th August, that those standing out from the present Fund in Northern India do not amount to more than 35 per cent., and a part of those standing out would (I understand) not disapprove of a compulsory cess. Might not then the minority, which would be still smaller were Southern India added to the poll, be disregarded?

GRANVILLE L. ACWORTH.

Peermaad *via* Periakulam, Sept. 1st, 1900.
—*Indian Gardening and Planting*, Sept. 13.

"THE TALE OF A TUSKER"

is given in *Macmillan's Magazine* for September in a paper signed "A. D. G-G." We make a few quotations. The paper opens:—

Most shooting stories tell of success, of some good bag, or of the gain of a particular head; for a change, here is a tale of defeat. This is the account taken from my journal, of a long day after elephants, a most interesting and exciting day, to which I look back as among the very best of all my sporting time. Then I was a comparative novice at big game. The country was Ceylon, and the month January. For arms, I had a ·450 express, while the big rifle (a ten-bore) was carried by Hena, a Cingalese, who was an indifferent hunter, plucky enough, but quite ignorant of woodcraft. . . . All at once Hena bent and peered into the foliage to the left, where I saw a few leaves gently shaking. "*Alliah* (an elephant)," he whispered, and then clutching my arm in his excitement, "*Eta, eta, eta alliah* (a tusker elephant), and suddenly I saw among the leaves a long and shining tusk. Without the slightest warning we had walked straight up to a tusker. Now in Ceylon tuskers are extremely rare, so rare that few sportsmen ever see one. I can think of half a dozen people who have shot one, but I know nobody who can claim two. It was difficult to make the elephant out in the half-light of the dense cover, but he was not of great size, probably something over eight feet high. He was broadside on, perfectly motionless: and as I loaded and cocked the ten-bore, more noiselessly than I had ever done before, as I crept cautiously towards the animal and paused when he made a quiet pace forward, as I halted within ten yards to wait an opportunity to

fire, confident in my two or three previous triumphs, I never doubted of success. The foliage was so thick about him that I could not see his head distinctly, but his quiet advance, for he took now and then a slow step onwards, promised soon to bring him into a gap near me about a yard broad. Into this, accordingly, I crept and crouched down, six or seven yards from where I thought he would pass. For full five minutes I waited. The elephant was quiet, evidently dozing, but now and then he would swing his trunk against the thin stems on either side, causing a shiver and rustle of their foliage. I could hear the deep rumble of his inside, and the great breaths that once or twice bust up from his lungs; I could see his forefeet distrinctly, but no vital spot. Then he came forward and stopped, the brute, at the very edge of the gap, his brain covered by a thickish sapling, his forehead and trunk in full view. Not daring to stir I waited, for an age as it seemed, noting every wrinkle of the loosely-hanging trunk, every blink of the half-closed eye, every stain and blemish of the tusks; the left one, the nearer, stood two feet beyond the lip and was broken sharply at the end; the other was a foot longer. I do not know how long the animal stood there, but at last round he swung into the gap towards me and as I hurriedly raised the rifle and pulled the trigger he was towering above me barely five yards off. I was too close to him and felt my aim had been too high; his advance had taken me by surprise.

But a two-ounce bullet hits hard and this one knocked the tusker over like a nine pin, as the tremendous crash of branch and sapling plainly told, a torn-off twig hitting my shoulder. The smoke hung very dense, and I did notlike to advance, but a shrill trumpeting and continued crashing showed that the beast was struggling to his feet and when I plucked up courage and went forward, he was on his legs, his feet far apart, his body swaying drunkenly from side to side, his head buried in the branches. Of course I ought now to have fired at his heart, but I was a beginner and did not, trusting to the common rule in Ceylon which bids one fire only at the brain. Already he began to make some staggering sort of way forward. He got back into the gap but never exposed his head; his pace quickened into a run, and then wildly trumpeting, he rushed headlong forward, crashing, smashing, rending, straight through the thick and cumbered forest. My dash in pursuit hindered at every step by the chaos of destruction in his wake, was hopeless; the bushes closed behind his tail and I saw him no more.

Then come five pages of jungle description, in following the elephant, being benighted and in getting back to the hut :—

I have had the luck to know a little of many jungles, and they are all delightful; from the muddy fastnesses of the Sunderbunds and its mysterious waterways arched in with palms, to the glowing autumn pinewoods of the Himalayas; from the vast grass coverts of the Terai to rocky bamboo-clad hills and upland teak-forests, black, burned and leafless in the Central Indian summer. But for Ceylon I keep an extra warm corner in my heart, poor though its trophies mostly are. There first I shot big game; there first I saw the jungle and drank in and made my own its spirit. Sad would I be to think that spirit could ever leave me or that I am never again to follow through the forest some one or other of its greater denizens, and to be there, more truly than it is possible elsewhere, my own master owing allegiance to no man.

CHEAP TEA FOR INDIAN VILLAGES.

I am absolutely ignorant with regard to the tea trade, but I have read a good deal lately about the "booming" of Indian teas, and it seems to me that one opening which might be made use of is neglected, so I venture, very humbly, to point it out. I mean the sale of cheap tea, or tea dust, among the poorer class of natives in agricultural districts. These districts are often malarious, and officials who have to do a good deal of camping find that their servants keep free from fever if supplied with tea while they are out. I happened to live for a short time in a small station in Behar where fever was very prevalent among the natives. My servants considered "a little tea" a remedy for all ills, and the demands on my tea-caddy were so great, that at last I procured a quantity of tea dust at four annas a pound from a garden in Darjeeling, and told my servants that they might have as much of it as they liked at that price, paying the freight mys f. The whole supply, 10 lb., was gone in a day, and I could have got rid of four times the amount for many of my neighbours' servants were anxious to buy it too. The cheapest tea to be had in the station was adulterated tea-dust, sold by the local Whiteley at seven annas a pound! Since then I have always kept a supply of dust for my servants, they appreciate it greatly, and buy it most willingly at 4 annas a pound. Most of them, I believe, drink tea at least once a day, and they declare that it keeps them in good health. Whether this is really so I do not know, but they certainly keep very well, although this place has a bad name for fever, and once when the supply of dust ran out, and it was some time before a fresh lot arrived, so many began to ail that I was obliged to get them some more expensive tea from the nearest station. I believe the native *pesaris*, or druggists, sell a dreadful compound which they *call* tea, and I knew of one enterprising servant, in a particularly malarious district, who buys cheap tea dust, through a relative working on some tea garden, and sells it to the villagers at 8 annas a pound.

Every large village has a *bazaar* once or twice a week, and I have no doubt that cheap tea would find a ready sale on these occasions, or it could be disposed of by employing men to take it round from village to village, like the native pedlars or *soudagars* who sell cloth and other cheap articles.—TEA.—*Indian Gardening and Planting* Sept. 6.

GREEN TEA IN THE NORTH-WEST HIMALAYAS.

In a recent number of *Indian Gardening and Planting*, a correspondent of yours remarked that he was unaware that green tea had ever been extensively manufactured in India. That he is in error as to the above, the following facts will shew. Up to about ten or twelve years ago, the districts of Dehra Dun, Kangra and Kumaon, in the North-West Himalayas, confined their attention solely to green teas, which were all exported at very profitable rates to Kabul and Central Asia. We found the manufacture simple as well as remunerative, as the cost per pound was far less than that of black tea. The qualities preferred were Young Hyson, Hyson, and Gunpowder, all of which had, however, to be entirely free of dust or broken tea, which sold separately at something above cost price. In speaking of my own district, the Dun, I remember the time when Central Asian merchants visited the gardens early in each year, and cheerfully advanced large sums to secure the whole season's crop; and later on, after the rains, they used to return with their own camels and carts and buy up all the tea, for cash down, that the gardens could produce: in fact the demand generally exceeded the supply. The tea was simply packed in gunny bags. lined with some thin cloth within. Each bag con-

tained about a maund more or less, and the packing cost on an average seven annas per bag. When I mention that the cash price paid at the factory before delivery amounted to anything between As. 12 to R1·4 per lb., it will be realised how profitable the manufacture of green tea was at that time.

But those halcyon days of prosperity came to an untimely end, and in the beginning of the "nineties" this profitable business wholly vanished. Its destruction may be assigned to three causes, viz., first, the prohibitive customs duties levied by the Russian Government in Central Asia; second, the suicidal fiscal policy of the Amir of Kabul; and last, but not least, the apathy, and I may say the pusillanimity, of the Indian Government, in not vigorously supporting the planters of Northern India. Unanimous representations were made by the districts abovementioned, with a view to having these disabilities removed if possible, and a strong deputation waited on Sir James Lyall, the then Lieutenant-Governor of the Punjab. Though we were well received, and given every opportunity of thoroughly explaining the ruinous situation, we could not help feeling disappointed at the official *laissez faire* attitude adopted towards the whole tea industry. And it was apparent to us that the Indian Government had evidently not yet emerged from the destructive thraldom of the "masterly inactivity" school; and as a consequence the unfortunate deputation broke up without having obtained any tangible results from the powers that be. Subsequently I had the honour of a personal interview with the then Viceroy, Lord Lansdowne, who though showing the greatest sympathy with the planting community in its distress, he yet professed his inability to do anything for the industry in the direction desired. It is a noticeable fact that just about that period, both the Kabul and Russian Governments treated the Indian Government as a wholly negligible quantity in politics, and we were far too weak and vacillating in our policy to resent such derogatory treatment, and claim an equitable reciprocity in trade.

Be the cause what it may, once again nothing was done to help the struggling planters in these parts. In despair I offered to proceed to Kabul myself, and personally represent matters to the Amir from the non-official trader's point of view. Fortunately this proposal found favour, and I was accorded permission to accompany Lord Roberts' mission to the Amir. However, the mission, as everybody knows, did not proceed to Kabul, for political reasons, and once more an opportunity was lost of obtaining some redress. As a last resort I applied to be allowed to address His Highness the Amir direct by letter. This request was granted with the proviso that I should first submit my communication to the Government at Simla for approval. The letter was considered satisfactory, and was graciously translated into courtly Persian, and returned to me to forward on to Kabul. That was many years ago, but in spite of proverbial Oriental politeness, His Highness has not to this day had the courtesy to acknowledge a respectful and important petition, concerning the trade interests of so many of his own subjects, as well as those of the Indian Government. Some months after the despatch of my letter, I heard from private sources, that the Amir had declared his firm intention not to be guided in any way by the Indian Government in matters concerning the internal trade of his kingdom; and we were therefore sacrificed to the whim of an unenlightened potentate, and the ineptitude of our own rulers.

The above ends the lamentable history of a once flourishing trade in Northern India. The green tea market having been destroyed through the machinations and neglect of others, we were perforce obliged to turn to the manufacture of black tea, but with nothing like as profitable results. The wisest course now, in my opinion, would be to revert again to green tea, if not altogether, at any rate to a considerable extent; and to make it this time especially for the American consumer. From the fact that the Central Asian, and subsequently the Bombay traders, have pronounced our green teas as very similar to the same qualities from China and Japan, I feel convinced that the hill gardens of Northern India are capable of producing a commodity that would compete on more than favourable terms against China and Japan teas in the American market. But I cannot say I feel very sanguine that any such business-like step will be generally undertaken in these days of official neglect and regrettable drift and disunion among those connected with tea. When planters show so little cohesion and community of interests, and Government show such marked opposition and discouragement to all private enterprise, no decided improvement can logically be expected, in the tea industry of Northern India.—J B Leslie Rogers.

Camp Dunga Gully, *via* Murree, Pujab, Sept. 4. —*Indian Gardening and Planting*, Sept 13.

BRICK TEA FROM LONDON TO RUSSIA: INDIAN TEA AND THE PARIS EXHIBITION.

TEA COMMISSIONERS NOT OF MUCH USE IN NEW COUNTRIES!

(*From a prominent London merchant writing to the Calcutta "Planter."*)

For several years back a large shipment of brick tea in baskets has been sent annually from China to London for re-shipment from there to Siberia through the Kara Sea. This route has proved rather unfortunate and is, I think, now entirely abandoned. One year, tea to the extent of 4,000 tons was on board the P. & O. steamer "Aden" which became a total loss on the island of Socotra. Last year's shipment was despatched in a fleet of 3 or 4 light draft steamers bound for the Yenisei River, one of which was totally wrecked somewhere about the White Sea, and the others being unable to get through had to return to London, where the tea was re-warehoused. It lay in bond here all winter, and sometime last spring it was re-shipped, a statement being made that it was going Overland from Vladivostok. I query the route as the Siberian Railway is so incomplete, and I question whether the tea may ever reach its destination owing to the disturbed conditions in the north of China, but anyhow I am told those who tried to work this service do not intend to re-open it. At present there is litigation involving a very serious amount of money in the London courts, the owners of the tea claiming to be refunded by the steamer people who had made the contract to carry the tea to Siberia, the amount of the cost that it is now entailing upon them for sending it through by the other route.

If you happen to see the London *Grocer* for Saturday 18th Aug. there is a page there on "Tea in the Paris Exhibition" *contributed by me. The *Grocer* has excised certain references to Japan tea which I think it would have been well to print, but they were cutting the article down to the limit of a page. You will see that I have endeavoured to deal fairly with the representation of tea by each of the countries, and that I take a much more favourable view of what the Indian people have done as compared with the others than some of your correspondents have expressed.

Of course the Indian planters lack the energy of the Ceylon man and do not advertise themselves so thoroughly, but all practical tea experts regard

* This article has been already reproduced in the *Tropical Agriculturist*.—Ed. T.A.

Indian tea as a much more satisfactory article than Ceylon tea and appreciate it accordingly, as you can see from the higher price which they have to pay for it. I think a great deal of nonsense is being talked and written about producing green teas and about the lack of missionaries to open up foreign markets. The ordinary trader is a much better missionary than any special commissioner, and I do not think the latter have ever achieved much wherever they have gone. They have simply upset the ordinary distributive methods, which to my mind work in almost an automatic manner, blenders making use as they go along of the tea from which they can get the best value. This is how Indian and Ceylon teas have made progress gradually in all black-tea-drinking countries, merely displacing China tea, but it is a totally different thing to displace green.

Please note that I have not written this for publication over my own name, but you can make what use you like of the statements I give you, and I will accept responsibility for any of them.

TEA IN TRIPOLI.

Tripolitania.—Tea is now supplied by England in very large quantities, most of which are re-exported to the interior of Africa. Formerly several Hamburg firms used to sell tea here also, but for some years past they have had to withdraw from the market as they could not compete with English prices and conditions. The most current qualities are green teas ranging in price from 1.90 frs. to 2.20 frs, per kilo. c.a.f. Tripoli.—*M. Ernest Labi, Belgian Consul at Tripoli.—British Trade Journal*, Sept. 1st.

PLANTING NOTES.

Manganese Mining in Central India.—A Syndicate, with extensive Manganese ore rights, has, it is stated, approached the Bengal Nagpur Railway Company with a proposal for the connection of their workings by a 2ft. 6in. gauge mineral siding to the Tharsa station, a distance of ten miles. In addition to the ore traffic, the proposed branch would serve the large pilgrim traffic to Ramtek in the Central Provinces.—*Pioneer*, Sept. 15.

The Passion Fruit.—A London horticultural journal states that shipments of passion fruit packed in the shredded bark of the tea tree have arrived in London in an excellent state of preservation. The same organ refers to the great possibilities there are in shipping dried fruits from Australia, not only to England, but to other parts of the world. The dried fruits of Mildura have made a good impression, and demonstrated the possibility of a profitable trade being carried on, provided all the primary conditions of careful curing and packing are scrupulously and undeviatingly fulfilled.—*Indian Gardening and Planting*, Sept. 6.

Gas Lime.—The usefulness of gas lime for land is becoming better known every year, and the proper time to apply it is directly the corn crops are carted home. But it must not, says a contemporary, be put on "seed" fields, because if applied fresh and in quantity, it kills all vegetable life. Albeit when it has lost its sulphur which it does in a few months, it is no longer injurious to plant life, but succors it, and acts as a potent fertiliser. It acts most usefully when fresh in killing all kinds of creature pests in the soil, which are very destructive to crops in many fields. Tipula grubs, slugs, and wire-worms are the worst pests, but gas lime kills them when applied properly—that is, in sufficient quantity and quite fresh.—*Journal of Horticulture.*

Egg-Preserving in Westralia.—The Department of Agriculture intends to have a thorough test made of the various modes of preserving eggs, and for this purpose a large stock of eggs will be obtained and treated with different preparations at the Government refrigerating works. The eggs will not be tested until the next Producers' Conference.—*Westralian paper*, Sept. 5.

Flower Farming in the United States.—There were in the United States last year no fewer than 9,000 farms on which flowers for cutting were grown under glass for sale, the total areas actually under glass aggregating 22,500,000 square feet. The Department of Agriculture at Washington estimates that the retail value of the cut flowers sold from these flower farms annually is no less than £2,500,000 apportioned as follows:—

	Number of cut flowers	Value per 100	Total value £
Roses ...	100,000,000	24s	1,200,000
Carnations ..	100,000,000	16s	800,000
Violets ..	75,000,000	4s	150,000
Chrysanthemums	——	——	100,000
Miscellaneous flowers, Lilies, &c.	——	——	250,000
Total ...			£2,500,000

In addition to this it is further estimated that the retail value of the plants sold from these flower farms is £2,000,000, and the number about 100,000,000. The total retail value of the annual output is thus £4,500,000 or just 4s for each square foot of glass. On the average one man is required for every 1,500 feet of glass, making 15,000 employed in the industry in all. The State of New York comes first in connection with this industry, having 4,500,000 square feet of glass; Illinois is second with 4,250,0 0 square feet; and Pennsylvania third, with 4,000,000 square feet. The amount of capital invested in the industry over the entire country is over £2,250,000 and it is estimated that this sum is actually received by the growers each year for the plants and flowers sold.—*Journal of Horticulture.*

The Consolidated Tea and Lands Coy., Ld., has a good deal of tea and coconuts in Ceylon, and in every sense the proceedings at the annual meeting is of local interest. Sir John Muir's speech deserves attention: he strongly condemns the Indian Government for its "rupee" policy and rightly enough shows the advantage gained by China and Japan; but to be quite frank Sir John should have added that the higher rupee put an end to his own policy of further large planting extensions, and that this stoppage was greatly to the benefit of the tea industry, generally. It appears that the Directors and Agents are to always make up any balance required for a 7 per cent dividend out of their fees and commissions. This time they give up half, showing that the total fixed for Directors and Agents in Calcutta, Colombo and London is under £7,000 per annum or the equivalent of about 5s per planted acre. Sir John rightly takes credit for the Company's holding and further planting of cinchona in Southern India—and why not in Ceylon, as well as coconuts? Altogether this Company is a very large and important one and it will be seen that it tries to push Indian and Ceylon teas in America on its own account.

EILA TEA COMPANY OF CEYLON, LD.

REPORT

The Directors submit their Report and Accounts for the year ending 30th June, 1900.

The crop on Eila Estate was 256,403 lb (exclusive of 21,335 lb made from bought leaf) against an estimate of 241,000 lb, and on Kanangama 106,570 lb against 150,000 lb estimated.

The total amount of tea manufactured was 384,313 lb and the cost of production, including the purchase of 85,320 lb of green tea leaf was 22·76 cts. per lb.

The average price of tea after estimating the value of that unsold was 30·38 cts. per lb as against 33·11 cts. for last season.

During the year a further instalment £500 was repaid to the Standard Life Assurance Company on account of their Loan of £7,000

The Directors regret that while there is an increased profit this season from Eila, the young clearings on which estate are now coming on well and give good promise for the future, there has been little or no profit from Kanangama; this is due partly to the drought in the earlier months of this year which reduced the yield for the season and partly to bad management by the Superintendent, and the Directors have reluctantly been compelled to make new arrangements for the working of the estate.

The net profit for the past season after writing off depreciation on buildings and machinery is	R12,468·84
to which must be added the balance from last season	2,907 49
making in all	R15,376·33
Out of this the Directors propose to pay a dividend of 5 per cent absorbing	R15,000·00
and to carry forward	376·33
	R15,376·33

The estimate for the current season provides for a crop of 416,500 lb. Tea at a cost of R90,680·45.

The estates of the Company at this date consist of:—

Eila—564 acres Tea 5 years old.
62 " " 4 "
90 " " 3 "
240 " Forest.
956 Acres.

Kanangama—215 acres Tea 5 years old and upwards.
108 " China and Patna.
323 Acres.

During the year Mr. Stanley Bois was elected to the Board of Directors in place of Mr. Percy Bois, who has left the Island.

Mr. F W Bois retires in accordance with the articles of Association, but being eligible offers himself for re-election.

The shareholders will have to appoint an Auditor for season 1900—1901.

PUTUPULA TEA ESTATE CO., LTD.

REPORT.

ACREAGE.

Tea in full bearing ..	421	
Do partial ..	33	
Do two years old and under	7	
		461
Do Coffee and Para Rubber		21
Forest, Grass, Wasteland &c.		217
		699

The Directors beg to submit to the Shareholders the accounts for the year ended 30th June, 1900.

The crops secured amounted to 182,749 lb. of made Tea against an estimate of 185,000 lb. or 12,449 lb. in excess of last season's crop.

The nett average price realized was 33·09 cents per lb., costing to produce 24·58 cents f.o.b., including the purchase and application of manure to 180 acres costing R6,248·21. The cost per lb. on manuring was 3·42 cents.

The yield works out a little over 400 lb. per acre calculated on all but 7 acres of Tea under two years old.

The clearing and planting of 11 acres with Para Rubber was carried out costing R318·04. This expenditure, it is expected, can be reimbursed by the sale of Para seeds and plants, 20,000 of the latter now being in nurseries.

During the past season the withering accommodation has been extended by raising the roof of the Factory and adding another storey, the extra space thus acquired, measuring about 33,300 sq. ft., will be of great assistance in coping with the increased yield resulting from manuring operations. The total cost, R5,972·32, which includes the erection of a new weighing platform and stair case, is being carried forward and will be charged in the present season's working account under capital expenditure.

The yield for the present season is estimated at 190,000 lb. at an outlay of R45,713, which includes the treatment of 140 acres with artificial manure to cost about R5,460. The profit for the year amounts to R12,713·50 which the Directors recommend should be applied as follows:—

6 per cent Dividend ..	R12,000·00
Bonus to Superintendent ..	500·00
Balance carried forward ..	213·50
	R12,713·50

In terms of the Articles of Association Mr. W. B. Kingsbury retires from the Board of Directors, and being eligible, offers himself for re-election.

The appointment of an Auditor for the current year rests with the Meeting.

PLANTING ON THE ANNAMALAIS, S. INDIA.

COFFEE—TEA—CARDAMOMS.

WE are pleased to see Mr. E. J. Martin, formerly of the Kelani Valley, looking so well after his spell of hard work in opening land and pioneering on the Annamalais. If Sir Arthur Havelock has done nothing else for the Madras Presidency, during his five years of administration, he has at least developed a new and promising Planting District in the Presidency and induced several reliable Ceylon planters to bring their capital and experience to the Annamalais. Altogether some 20,000 to 25,000 acres of forest-land have been taken up, and out of this, as much as 3,500 acres, Mr. Martin estimates, have been opened and planted with coffee, cardamoms and tea. Sir John Muir (or one of his Companies) has 6,000 acres and has opened chiefly in coffee and cardamoms. Mr. O. A. Bannatine, formerly of Maskeliya, is one of four partners who have taken up 2,500 acres and he has opened some hundreds. Mr. Martin himself has 1,500 acres with 400 opened—300 or so in tea and 100 in cardamoms. The latter product may be said to be indigenous and a good deal of income has been made last year from gathering cardamoms in the jungle. Mr. Martin speaks well of the labour supply, though not many workers can be got, during crop time in the ricefields in the lowcountry. As for transport, Coimbatore is 45 miles off; but another station 20 miles nearer will soon have the railway, and Governor Havelock, true to his promise, is giving the district a

cart-road right into the estates, the trace being now cut through Mr. Martin's property. This for a district only three years old is exceedingly good and the Annamalai planters altogether will have cause to regret the retirement of Sir Arthur Havelock who has taken a warm personal interest in their advancement,—an advancement, however, which brings benefit to the whole community.

All the products grown look very promising. Mr. Martin's elevation is about 3,500 feet with magnificent outlooks to the Travancore Hills. The climate is hotter than in Ceylon at the same altitude and the rainfall (which is much above the average this year) though plentiful, is not well distributed, rendering some months about April rather unhealthy. Nevertheless, we could only congratulate Mr. Martin on looking so "fit" after his hard work as pioneer, and we added that he ought to have had a dozen or score of paying "creepers" to benefit by what can so rarely be got now, real jungle work in clearing and planting, away from railways and roads with few or no luxuries. Such an experience it is that makes the contented planter—contented when eventually he sees all in order, and the cart-road within hailing distance. We may add that the terms for these Annamalai lands are 50 cents a year per acre rent and one rupee on land planted and in bearing, the lease being for 30 years with the privilege of renewal for another 30 years on the same terms. The Madras Government do not intend to give out any more land beyond the 25,000 acres; but there are some blocks which were taken up by Ceylon men who have never touched them. These we suppose, or rather their leases, are probably available for sale or transfer, if the claims have not expired. Meantime we congratulate Messrs. Martin and Bannatine and other Ceylon friends on their good prospects and trust they may have the due reward of their labour.

TEA IN SOUTH CAROLINA, UNITED STATES.

We are indebted to several home correspondents for cuttings from the London *Times* and other papers respecting tea-growing in Carolina, as if it were an important matter to us in Ceylon. But with labour at a dollar a day, no tea industry can ever grow to much in the Southern States.

Plantation Doctors in California.—In the long ago there were doctors for the "coloured pussons" held in bondage on Southern plantations; now it is the plants cultivated that are treated by doctors—or their equivalent; for we find, according to the report of the Californian State Board of Horticulture, that inspectors are required to make plants of infected orchards, showing the exact locatiod of each infested tree; and as a result of the careful work of the inspectors, great success has attended their efforts. Twenty-eight orchards in Riverside County, which in 1897 had a total infection of 1609 trees, had in 1899 only 433, a reduction of over 73 per cent.—*Gardeners' Chronicle*, Sept. 8.

BRITISH ASSOCIATION AT BRADFORD.

BOTANICAL SECTION.

Mr. J Parkins read a paper on "Fungi found in Ceylon growing upon Scale-Insects."

GERMAN EAST AFRICA: PROGRESS IN DEVELOPMENT.

The Foreign Office has just issued encyclopædia report by Mr. Vice-Consul Dundas on German East Africa from 1892 to 1899. It opens with a description of the boundaries, position, and size of the territory, its lakes, rivers, climates, history from the most ancient times, population, administration, public health (including the hospital accommodation), posts and telegraphs, agriculture, industry, lighthouses, shipping, roads, transport, imports and exports, schools, troops, the military expeditions, the various divisions, with details as to the condition of each, and much other information of a similar kind. Under the head of population, some remarks occur on the two classes of Bantu tribes, known as the elder and the younger, which should prove of interest to ethnologists. The imports and exports increase year by year, and in 1898 amounted to £581,013 for imports and £212,399 for exports. Cotton goods amount to nearly half the imports, foodstuffs and other provisions coming next in importance; while the main exports are ivory, rubber, copra, copal, sesame, and coffee. The export of ivory, however, appears to be decreasing, as Congo ivory now goes by the West Coast, while that from Uganda is exported by Mombasa. Zanzibar has a preponderating share in both the import and export trade. On the whole, Mr. Dundas says that the general impression left on the traveller in the region is that the German Government has thrown its heart into the thorough development of East Africa. "No stone has been left unturned, no opportunity missed, to make the most of everything to be found in the territory, which undoubtedly possesses many natural and rich resources. The Government loses no time in ascertaining the natural wealth of the country, and no money is spared in making experiments. The planter and farmer are not behindhand in their endeavours, and are content to spend their money freely in hopes of getting a large return later on. Some have obtained very reasonable results. The British trader does not appear to have thought it worth his while to try his fortune in this the largest of German colonies. The cause is probably not far to seek. He no doubt would not be satisfied to have small results at first, and therefore seeks out some other place. He also expects to have everything his own way. His prospectuses, price lists, inquiries must all be in his mother tongue, regardless of the fact that those to whom he sends them are foreigners, and perhaps not conversant with the English language. The largest foreign community is, of course, the Indian. They appear to be in a flourishing state, although complaints are made as regards taxation. This grievance is in reality quite unfounded. Zanzibar and Mombasa, both so close at hand, spoil the Indian and native as regards taxation. They fail to understand the difference which must necessarily prevail here regarding taxation, and they cannot discriminate between rates and taxes. The East Indian traders must bear in mind that, though somewhat more heavily taxed than in India, they make more than in India. Moreover, the want of knowledge of the German language and Govern-

ment system is a great disadvantage to them. They have been too prone to expect the same conditions of life under German rule that they were accustomed to in India and Zanzibar."—London *Times*, Aug. 27.

SIR JOHN LAWES AND SCIENTIFIC AGRICULTURE :

THE FIRST EXPERIMENTAL STATION AND RESULTS.

In 1842 a patent taken out for treating mineral phosphates with sulphuric acid marked the beginning of the manufacture of artificial manures, an industry which has since attained enormous dimensions. In 1843 a young chemist, Dr, (now Sir) J Henry Gilbert, a former pupil of Liebig, became associated with Mr. Lawes, and the foundation of the Rothamsted Agricultural Experiment Station dates from that year. With the exception of the station founded by Boussingault at Bechelbronn in Alsace, the Rothamsted station is older than any other, for the earliest German station (Möckern) was not founded till 1852, whilst the first of the American stations (Middletown, Connecticut) dates only from 1875.

The plot upon which wheat has been continuously grown, year after year, for more than 50 years without manure of any kind, the land merely being kept free from weeds, is in the highest degree remarkable, for it has given over the whole period an average yield of between 13 and 14 bushels o dressed grain per acre, which is more than the annual average yield of the crop as grown in the United States and several other leading wheat countries. The manurial experiments upon the mixed herbage of permanent meadow, carried out over a long series of years, have yielded results of the highest practical value, and in particular they have shown what a dominant factor is the character of the season in determining the size and the quality of the crop. The field experiments in general have demonstrated how essential are nitrogenous manures for cereal crops, potash manures for leguminous crops and phosphate manures for turnips and swedes. The relative values of sulphate of ammonia and nitrate of soda as sources of nitrogen, the composition of rain and drainage waters, he utilization of town sewage, and the manufacture of silage are other lines of inquiry which in turn received attention. The publication in 1861 of the classical memoir on the sources of the nitrogen of vegetation marked an epoch in the history of plant physiology. The question as to whether plants assimilate free or uncombined nitrogen was answered unreservedly in the negative, and for more than a quarter of a century this was regarded as a cardinal doctrine, if so it may be termed, of physio logical faith. But, as our knowledge of micro-organisms advanced, the position taken up with so much confidence had to be reviewed, and in 1891 it was admitted, in a Rothamsted paper dealing with the sources of the nitrogen of our leguminous crops, that considerable fixation of free nitrogen may—and does—take place. In his brochure on "Fertility," published in 1881, Sir John Lawes stereotyped the views which he had enunciated 20 years previously, and thereby added much to the difficulty of modifying his opinions at a subsequent date. The 70 pages of this masterly pamphlet all pointed to one conclusion—that the soil is a mine and not a laboratory. The author wrote :—"If the evidence of the Rothamsted experiments up to the present time has not established beyond all cavil that practically the source of the whole of the nitrogen in our crops is the store within the soil itself, and the nitrogenous manures brought upon it, there can be little doubt that in the course of their future progress they will afford conclusive evidence on this point." Nevertheless, ten years subsequent to the publication of these words conclusive evidence came from Rothamsted itself which pointed in quite the opposite direction. It is a matter of regret that if Sir John Lawes did not find an opportunity of rewriting his essay on "Fertility" in the light of the fuller knowledge since attained of the micro-organisms of the soil.—London *Times* Sept. 1.

THE ACME TEA CHEST.

A planter having complained of the weight of the tea chest on inspection in our office, we are able to give the following information :—"About 17 lb. are the tares of the acme veneers complete against say 26 lb. for momies including hoops, lead, nails, etc. If your planting friend refers to gross weights then : A size of chest when filled with Souchongs, Pekoe Souchongs, or Pekoes comes in well under the 129 lb. limit of London warehouses, and B size (smaller) suits, in the same way, for B.P., etc."

PLANTING NOTES.

THE COFFEE CROP in Nicaragua for this season is estimated, by both Government and planters, at fully 150,000 bags, as against 75,000 bags for the last season ; the export duty on which will amount to 300,000 pesos, or sufficient to pay the interest on the foreign debt of $1,400,000 and leave a handsome surplus of $40,000 or $50,000 gold.—*British Trade Journal.*

THE NYASSALAND Agri-Horticultural Society's Committee held a meeting on Thursday evening when they made some important changes in the published list of classes to which they wish attention drawn. Also to the additional notice at the end of the advertisement. Next week the prize list, which is a very good one (over £130) will be published in full.—*Central African Times*, August 18.

BASIC SLAG ON CLAY SOILS.—A writer in a weekly contemporary praises in generous terms the beneficial effects of basic slag on the stiff weald clays of Sussex. The use of this phosphatic manure on the Uckfield College and neighbouring pastures has been productive of extraordinary results, grass land that a few years ago was scarcely deserving of the name having been rendered productive and fertile by the prudent application of this substance. The basic slag answered well alone, but it was most effectual when employed with sulphate of ammonia, the weight of yield being increased by the addition of two cwt per acre of nitrogenous dressing, while the quality of the herbage was of a better order than when nitrate of soda was the accompanying substance. The writer relates a striking instance of an incredible farmer in proximity to the college being brought a convert to the virtues of basic slag through practical demonstration of its effects. After much persuasion he was induced to dress part of a grass field with the manure, and so clear and tangible was the result that he is now an extensive user and a strong advocate of the material. For clay soils there seems to be no more serviceable artificial manure than basic slag.—*Journal of Horticulture and Cottage Gardener*, Sept. 6.

Pruning oftentimes is entered upon with the impartiality of Mrs. Squeers, when that estimable being dispensed her brimstone and treacle, "if they didn't need it then, they might at some other time." No pruning at all would be better in the end than this, but it would be vastly better than either, were trees properly pruned at planting, and yearly cared for to keep them in the right way.—*Queensland Country Life*, Aug. 23.

The Parsley-leaved Bramble.—Any time from the end of October onwards to March is suitable for planting this useful Bramble, provided the weather be suitable for the operation. Perhaps early in November is as good a time as any. It is done the same as planting Raspberries. Fertile yet rather porous soil is best, as the plants do not become established quickly in cold heavy land. This Bramble is good for covering walls or fences,or it may betrained in the form of arches over walks, or in any other convenient manner desired. When it commences bearing all that is necessary is to cut the portions out and retain the best of the young growths, is in growing Raspberries.—F.—*Journal of Hotriculture and Cottage Gardener*, Sept. 6.

How Water Ascends in Plants.—At one time there was oonsiderable difference of opinion as to the course pursued by the sap of trees in ascending from the roots, and that followed by the food materials elaborated in the leaves when being transferred to the various portions of the tree in which their process of growth was in progress. It has now been established that all the moisture required by the tree or plant for its existence and growth is taken up by the roots, and that the water so absorbed is conveyed to the higher regions through the medium of the woody part of the stem. On the other hand the food material elaborated by the leaves are conveyed to the various parts of the plant system by the bast tissues which immediately underlie the bark, and are ranged around the outside of the wood.—*Journal of Horticulture*.

Trade of British New Guinea.—The annual report of British New Guinea for the year ending June 30th, 1899, shows that the exports of indiarubber for that year were £1,935, against £3,683 in the previous year. Of sandalwood £2,920 worth were exported, a decrease of £20 on the previous year. The report goes on to say that the decrease in indiarubber is probably partly due to the most accessible country near the coast having been more or less worked out. At present, also, it is next to impossible to prevent the destruction of the trees in new country. Apparently the export of sandalwood may increase during the coming year, as the price has risen. The industry is now carried on in a more systematic fashion than it used to be.—*British and Colonial Druggist*, Aug. 24.

Sir John Lawes, says the London *Times*—was one of the greatest benefactors of agriculture—perhaps the greatest—the world has seen. His originality in experimental research and his inflexibility of purpose, coupled with a genius of no ordinary kind, enabled him to discover grand truths which have had a profound influence upon the progress of agriculture. Happily, through the munificence of their founder, the Rothamsted experiments do not cease at his death. By a trust deed, executed in 1889, Sir John Lawes set apart a sum of £100,000, together with the laboratory and certain areas of land, for the prosecution of the investigations in perpetuity. The unique feature of the work at Rothamsted—its long unbroken continuity—will thus be characteristic of it in an ever-increasing degree.

Various Essences and Perfumes can be obtained, says the last annual report of the Government of Cyprus, from the aromatic herbs growing in the State forests, and experiments are being made to ascertain whether they can be produced on a commercial scale to yield a fair profit. There is a small Government garden at Nicosia from which plants are distributed so far as means will allow; but there are no botanical stations.—*B. and C. Druggist*, Aug 24.

Planting in Nyassaland.—Our correspondent, Mr. Henry Brown, formerly of Matale and Dimbula, fairly takes our breath away by his enumeration of all the good things to be enjoyed, and produced, in his adopted land; and yet who ever heard of any one making money in Nyassaland—and can Mr. Brown tell us of half-a dozen men who have stood and enjoyed the climate as long as he has himself with his exceptionally strong constitution? It is, however, extremely interesting to read about the growth of so many old and new products—chillies and fruit among the rest.

Ceylon Tea in New Zealand.—We direct attention to a letter on another page from Mr. G T K Mackenzie of Dunedin, who has taken a leading part in pushing the sale of pure Ceylon tea in New Zealand. It will be observed that he complains of a move on the part of certain local dealers to get an import tax placed on packet teas imported from Ceylon and yet the same agitators are so inconsistent as to say that such Ceylon packets are far inferior to their own, inasmuch as our "coolie" labourers who pack, cannot be depended on for cleanliness. Now Mr B.—or who ever he is who urges this argument - shows the crassest ignorance of Ceylon conditions, inasmuch as every factory and store manager here is most particular about all the workers in tea,—whether firing, sorting or packing—being specially tidy and clean. If the New Zealand authorities are so ill-advised as to tax our packets of pure tea, it will be to the distinct disadvantage of their own people, and moreover it may lead to a disagreeable reprisal one of these days.

Dearer Quinine.—By the last advance of cinchona bark at the Amsterdam auctions, which nowadays are the means through which the world obtains almost the whole of its quinine, the price of bark has reached the highest point touched in recent years, ever since, in fact, Holland and Java became what they are. Quinine has advanced in consequence though it has not yet reached the price to which it attained last year. This is mainly due to the fact that specnlators are not so weak and "heady" a body as they were twelve months ago The "small" men got severely bitten in many cases then, and have left the article alone since. The result has been beneficial to the quinine market, which today occupies a sounder position. It is, as we show in an editorial note, a cause for congratulation that, after six months of consistent high prices, quinine is cheaper than it was after one sudden leap on the part of bark to a less height than it now occupies. Another healthy sign is that the London stocks of quinine have been reduced during the last two months after a long period of increase. Speculators are still commendably cautious, and makers, though eager buyers of barks at the high rates, keep their price of quinine in clos e tonch with that of cinchona. The outlook is thus very promising, especially as the autumn demand is near at hand.—*B. & C. Druggist*, Aug. 31.

TEA AND THIBET: "GREEN" *vs.* BRICK TEA.

In the absence of any practical experiment it is, of course, impossible to say how great a measure of success would attend an attempt to create a demand for Indian tea in Thibet, but it should most certainly be made. Although the proposal to manufacture green tea for the American market has fallen rather flat with Assam and Bengal planters, a proposal to manufacture brick tea would probably meet with some response. The tea refuse, etc., which Messrs. Barlow & Co. offer to dispose of, would not in any way affect brick tea manufacture, as the latter would be made from prunings, etc. It would, of course, take some time for the commodity to establish a market for itself, and for it to do so at all would doubtless prove a matter of much difficulty, but as the tea would be manufactured from material, which at present is not utilised at all, planters in Assam and Bengal would find it to their advantage to make it. Mr. A Dalgleish pointed out in 1881 that the Thibetan market was "capable of taking all the surplus tea for which, in the home market, there is no demand," and, further stated that it was one which "we can supply without increase of production, and at the same time without withdrawing a single pound of the tea which can find a sale in the London market." There were at the time opponents to the scheme propounded by Mr. Dalgleish, who thought it better to look for a market to America and the English Colonies rather than to Thibet, but this, we think, was due to a misapprehension of Mr. Dalgleish's plans. The trade in brick tea with Thibet would not be in preference to, but in addition to, extension in other directions. The Thibet market and the others are entirely distinct, and the kind of tea required for the former is an altogether different article to that required by the home and foreign markets, and would not in any way interfere with our export trade with other countries.—*Indian Planters' Gazette*, Sept. 15.

CHEAP BANANAS:

EFFECT OF THE NEW WEST INDIAN MAIL SERVICE.

Bristol is to be the port. and London the chief market for the new West Indian service, which Messrs. Elder, Dempster and Company are inaugurating immediately after Christmas next. The new service is to carry mails and merchandise as well as passengers. It is to help the West Indies to forget the iniquities of a foreign sugar bounty system, and it is to place West Indian truits and other products on the English markets to an extent never before attempted. The start with, the English consumer will be invited, on tempting terms, to dispose of 500 tons of bananas a fortnight.

Steamers will arrive at Avonmouth and discharge direct on to the railway alongside. Two hours later the boat trains will be at Paddington, or, if needs be, Midland trains can be loaded by the waterside and sent without loss of time to the heart of England. The Bristol Dock authorities have been bestirring themselves to cope with the new traffic. Along the Avonmouth quayside a passenger station and fruit store are to be provided, as well as other necessary accommodation, at a cost of £16,0Ç0. The Bristol Chamber of Commerce has established a West Indian section, and the section is sending out a Commissioner who is going to arrange forthwith for an exhibition in Jamaica or Bristol manufactures.

It is under a ten years' contract with the Crown Agents for the Colonies that Elder, Dampster and Co. are establishing the new service, the Government paying a yearly subsidy of £40,000. For the first three years the steamers employed must have a carrying capacity of not less than 3,000 tons, accommodation for fifty-five passengers, and be capable of a speed of 15 knots an hour; and another stipulation is that every boat shall bring over 20,000 bunches of bananas (equal to 500 tons.) After three years have elapsed boats capable of carrying 5,000 tons cargo and 150 passengers will be placed on the service.

The first steamer dispatched from Bristol will be the "Port Royal," which will leave on Jan. 16th She is one of four steamers being specially constructed for the line, and has accommodation for one hundred first-class passengers, fifty second-class passengers and 5,000 tons cargo. It is reckoned that she will do the trip to Jamaica in eleven or twelve days, and it is likely that Mr. and Mrs. Chamberlain will be amongst the party travelling by her in January. At all events they have expressed a wish to be with the first passengers by the new service. The service to Jamaica will be fortnightly to begin with; later it may be weekly; and one of its special features will be low fares to boys and girls sent from the West Indies for education in England.

The large quantities of fruit that each steamer will bring to England will be conveyed in holds specially adapted. In each hold the temperature will be kept uniformly low. Bananas will be ranged in rows or "streets," and all that science and experience can suggest to achieve the best results will be done. Experts have already left for the West Indies to make arrangements for the collection and shipment of fruit, and an expenditure of £30,000 will be incurred on account of cooling machinery. It is evident that in Jamaica big things are expected of the new service, for the report is that already land there has gone up ten per cent in value.—*Daily Chronicle*, Aug, 31.

SCIENCE AND TEA PLANTING

In your issue of 19th July, page 45, Mr. Stebbing asks me how I propose to carry out the natural desire to make tea "pay." He refers to my letter in yours of 28th June and in that I said that what we want to know is how to make an unprofitable garden pay and how to improve the tea of that garden and the way to do so is to get such a garden and improve it.

I contend that an experimental garden would be of greater value than a scientist. Of course if the scientist could be employed *on* that garden it would become of greater value.

Mr. Stebbing says that my views are not shared by the bulk of planters, but I note (in yours of 16th August, page 110) that Mr. H. J. Lawrie, in his speech, has almost repeated what I said about Mr. Bamber and the value of another scientific investigator. If Mr. Mann could be placed in charge of a tea garden, with an experienced assistant to teach him the rudiments of tea planting, there is no doubt that he would do great things. He would then investigate tea pests, and the question of "fermentation" from their proper base, *i.e.*, in regard to "profit."

He could try all the proposed remedies for pests, and he could try all the latest discoveries in tea-making, such as red lights for the colouring room, or the refrigerating process. I see that Mr. Stebbing agrees generally with the proposal for an experimental garden, and I fancy that he imagines that I am running down the scientific officer himself. I do not doubt that Mr. Bamber, for instance, did *some* good for tea planting, but he made no discoveries, and has done little more than compile an encyclopœdia of existing knowledge, and in my opinion Mr Mann will accomplish no more unless he is fixed to one place and investigates improvements which are practicable and profitable. Supposing that the garden he takes over has been making 6-anna tea for the last five years and a yield of four maunds per acre ; he will try all sorts of manures, giving their costs and the results in increased yield ; and he would try various methods of manufacture, and keep records of results. He might, if he pleased, analyse the soil before manuring and tell us that he returned so much per acre of what was wanting, but that information alone, without the facts as to increased yield and cost of manuring, would be of no interest or use to tea planters. The decadence of every moribund tea estate can be placed to the faults of the proprietors. As a rule, they grudge funds for absolute necessities ; they imagine that money cut off from the expenditure means so much more profit. What we want is an experimental garden which will show the proprietors that a certain course of action ought to result in a certain profit, and they will *then* find money for the necessary improvements.

A large number of estates pay handsomely, and it may be asked why these should subscribe to show the way to their less fortunate brethren. There is nothing more certain than that tea planting is a progressive industry. Every manager should look ahead. He should find out what he should do if his tea goes down one or two annas per pound. I would not mind betting that within six years Assam tea will go down two annas per pound, and that the tea of other districts will remain at the present figure. How many Assam planters reckon on a loss of two annas per pound? If this does happen they *must* make more tea per acre and the experimental garden will show them how to do it. The decadence of Assam averages is hardly a part of the heading of this letter, but as I have mentioned it I may as well give my reasons. Assam tea prices are not given for their value for drinking, but only because of their ability to bolster up weaker teas. Every improvement in the weaker teas will thus decrease the value of the "strengthening" Assams. The weaker teas will have to improve to keep their present prices, and they *will* improve; each year sees improved machinery and process. Whatever happens, even the best estate *must* look ahead and be prepared to increase its yield if necessary; the necessary knowledge can be acquired and stored up by the experimental garden. I would bar all catch crops, we want to know how to make "*tea*" pay. Universal improvement will not reduce the value of our teas, in fact, it is only by steady and marked improvement in the quality of our tea *as a whole* that we shall be able to extend our markets and oust the Mongolians Mr. Lawrie said that every pice that we can spare should be used in opening out new markets, but improved quality of tea will be a great factor in doing so. Is it too late to have both the scientific officer *and* the experimental garden? The cheapest way would be to lease a garden which does not pay, for a period of five years; the same could be done five years hence in another district.

The great difficulty in experiments is keeping accurate records, and a scientific man would of course have been trained to keep records.

I should imagine that some of the larger companies would be glad to lease out say 200 acres of their worst tea, and allow the scientist to investigate the manufacture of their teas. The vendors of manures would give their goods free of cost as an advertisement. New tea machinery would also be given free of cost till proved of value.

I agree with Mr. Stebbing as to the possibilities of catch crops, but they must be kept severely apart from tea science. Catch crops will only enable bad gardens to hang on longer, and swamp our market for the sake of a small profit from other crops.—A.C.—*Indian Gardening and Planting.*

PLANTING NOTES.

Orchid Fibre,—Orchids are famous for beauty and general attractiveness, but it is not generally known that they have a place in the arts that ministers to the physical wants of man. But in some parts of the tropics, where Orchids abound, a very delicate fibre is prepared by the natives which they use in the preparation of the many ornaments these races prepare for trade with he paler races of men.—*Journal of Horticulture.*

Phenomenal Sale of African Mahogany.—On the 24th ult., at the auction sale of Messrs. Edward Chaloner & Co., at Liverpool, two logs of African mahogany were sold for the unprecedented amount of 1,536*l*. These logs formed one tree, and were bought for the purpose of being cut into veneers for the decoration of the palatial residences of some of the merchant princes of the United States of America. The veneers are used in the place of wall paper, and, being beautifully figured, give a superb effect. The prices realized for the two logs were respectively 10s 3d and 7s 3d per superficial foot, which is a record for African mahogany logs in the rough state, as imported.—*British Trade Journal*, Sept. 1.

The Glut of Fruit.—With the present enormous fruit crop, especially Plums and Damsons, it is devoutly to be hoped that means are being taken to preserve it whole, or as jam, so that the cultivators will not be losers by the bounty of Providence. Such bulky goods at the present onerous freight rates charged by the railways often cost more in transit charges than they sell for, but preserved on the spot, or in the vicinity of the fruit orchards, their bulk is considerably reduced and their distribution as preserves made lighter and much less costly. We hear this year of Cherries and Plums left to rot on the ground, and it will doubtless happen that much of the Damson crop will be a loss to the growers because of low price and high railway rates, unless something be forthwith undertaken to turn the fruit into a marketable commodity.—*Gardeners' Chronicle*, Sept. 8.

A Substitute for Turf on Lawns.—In *Die Gartenwelt* for August 25 last, we remarked that a correspondent recommends as a substitute for grass in dry places under trees, and in any place where grass does not succeed, or mowing is not desirable, Veronica repens (erroneously called V. alpina). V. repens is but little known in gardens, but it is a plant worthy of being highly recommended. The plants form a regular, green, fresh-looking carpet, and possesses the desirable attribute of not suffering in unfavourable weather. The plant is covered in the spring with innumerable whitish flowers, so that the lawn looks then as if covered with fresh-fallen snow. The plant is propagated by division after the flowering is over in April, much in the same manner as Violets and Chamomile are treated, and the plantlets set out at 6 inches asunder in well-tilled soil, being copiously afforded water at the start. In four or five weeks the plants will have grown together. Although the plant endures uninjured every sort of weather, it is advisable in time of drought to sprinkle overhead freely once a day.—*Ibid.*

MUCH ADO ABOUT COIR.

[How time and money are wasted at the Imperial Institute.—Ed. *T.A.*]

It is recorded in the abstract of the proceedings at the thirty-first meeting, on the 11th April, 1899, of the Indian Section Sub-Committee of the Imperial Institute, Sir Steuart Clive Bayley, K.C.S.I., in the chair, that Sir George Birdwood, one of the members of the Committee, reported that enquiries had been made by firms anxious to import coir fibre into the United Kingdom direct from India as to the best means of obtaining supplies, and also the amount of our coir fibre available for this purpose, and that the information asked for had been obtained and communicated at once to the enquirers. Yet, towards the close of last year Sir Frederick Abel, Bart, KC.B., D.C.L., &c., the Honorary Secretary and Director of the Institute, was moved to place himself in epistolary communication, by what is departmentally described as the "flying seal,"—whatever that may mean—with Dr. George Watt, C.I.E., Reporter in Calcutta on Economic Products to the Government of India, on the subject of coir. His letter is not given in the Annual Report of the Institute, which was presented to both Houses of Parliament by the Secretary of State for India, on behalf of the section, last month, nor is even an abstract of it offered. Whether the Institute had it in mind to improve its slender finances by

A LITTLE DABBLE IN COIR YARN,

or whether the Director only thought of ascertaining where he could secure, on exceptionally favourable terms, the means for covering the floors of the long, and generally empty corridors of the Institute with coir matting, is thus left to the imagination. Be this as it may, the Reporter immediately placed himself in communication with various members of the mercantile community of Calcutta.

Thus it was that he was informed by Messrs. Bathgate Pim & Co., that they "handle that article to some extent," but they were of opinion that coir "of better quality at a cheaper price is to be obtained in Ceylon than in Calcutta." They determined, therefore, to send on the Reporter's letter to their firm in Colombo. In due course the Ceylon firm informed him that it would be glad "to undertake to supply annually the 300 to 400 tons of coir desired by the Imperial Institute authorities. As we are uncertain as to what form of coir is wanted, we are sending to you, under separate cover, samples of the products of the coconut husk, viz.: mattress fibre, first and second quality, bristle fibre, coir yarn, and coir dust. Please indicate which of these products is required by the Imperial Institute authorities." Messrs. McLeod and Co., of Calcutta, stated that they were large shippers of coir, and that they would be obliged if the Reporter would favour them with full particulars of his requirements in order that they might be in a position to follow up the matter. Messrs. Blackwood Blackwood & Co. wrote that they were in a position to do business in coir, and would be pleased to learn if tenders for the supply of the article were required, and what quality was needed. Messrs. Ullmann Hirschtorn & Co. similarly expressed a wish to have details, together with a sample of the coir required. Messrs. Simpson & Co. said that they would be much obliged to the Reporter if he would favour them with the name and address of the officer in charge of the Institute to enable them to address him direct on the subject of coir. Messrs. F. Munjie & Co. wrote:—"Referring to your enquiry regarding any merchants in Calcutta who might be able and willing to undertake the supply of coir, we beg to state that we are able and willing to do the same, whether coir, coir fibre, or coir yarn, up to any quantity that you may desire, and all qualities, as we are thoroughly conversant with this class of business, and shall be glad to wait upon you with our samples and quotations on receipt of your reply mentioning the class of goods you require." Finally, the Inspector-General of Jails reported that his Department was prepared to supply coir fibre to the Institute and he asked for a statement of conditions and other particulars.

But it seems at last to have dawned on the Reporter that he had not addressed to his enquiries

TO THE BEST QUARTER,

for he was informed by the Bombay Chamber of Commerce that there were shippers of coir on the Malabar Coast, notably Messrs. Volkart Brothers, of Cochin and Tellicherry, and Messrs. Peirce Leslie & Co., of Cochin and Calicut. The Chamber then remarked that the latter "have their firm in London (2 Lime Street Square), and if the Director of the Scientific Department of the Imperial Institute will communicate with them he will no doubt obtain all possible information regarding the article." In other words, the Director could have obtained all the information that he needed on the subject of the supply of coir by trotting down from Kensington to the City, or writing a few lines to some well-informed commercial acquaintance in Mincing Lane, who would probably have placed himself at once in telephonic, or personal communication with Messrs. Peirce Leslie & Co., or some other firm of experts round the corner. The Collector of Malabar was referred to by the Madras Board of Revenue, and he said that Messrs. Peirce Leslie & Co. were willing to give the information that was desired. Meanwhile, however, the Deputy Collector at Cochin had referred to Messrs Aspinall & Co., Messrs. Grieve & Company, Messrs. Peirce Leslie & Co., Messrs Volkart Brothers, Messrs Ramachandra Mahadeva & Co., Mr Dharsey Khetser, Mr Gulaveney, Mr Kussein Haji Ibraim, Mr Kadam Kandi, and Mr Moidin Kutli, all of Cochin, about procuring 'brush and mat fibre,' and the majority of these merchants said that they were willing to undertake the supply of the required quality and quantity of fibre. Messrs Peirce Leslie & Co. remarked that they were unable to give the information regarding the quality of fibre wanted by the Director in the absence of sample, but they suggested that the shipment of fibre can be made from Cochin to London direct to save the heavy cost of sending it to Madras.

The Collector of South Canara was also referred to by the Board of Revenue, and he placed himself in communication with Messrs Peirce Leslie and Co. at Mangalore, who informed him that the supply of "coir fibre in this District is small in comparison with the quantity obtainable in the Malabar District, and we do not think any firm here could ship to Europe at a price that would compete with shipments

FROM COCHIN AND CALICUT.

Our firm at these latter ports, we may mention, ship annually large quantities of coir fibre and yarn to Europe, and if Mr G W R Curtis would communicate with our London office, through whom all our business in Europe is worked, they would be pleased to give him all information, and to submit him samples with quotations of the various qualities usually exported from the Malabar Coast". Thereupon the Collector reported to the Board that there are two of the European firms at Mangalore who "do not wish to enter into the business of supplying coir or coconut fibre to Mr. G. W. R. Curtis, while the remaining firm, Messrs Peirce Leslie & Co., say that their London office would be pleased to give Mr Curtis all the information that he would require, and submit to him samples with quotations of the various qualities usually exported from the Malabar Coast. I do not think that any native firm would undertake the business." The record throws no light, sad to say, on the domicile, occupation, or needs of Mr. Curtis. But there is reason to suppose that he is one of the exceedingly few individuals who yielded in the year under notice to the temptation of making an enquiry of the Indian Section of the Imperial Institute about an Indian product that is thoroughly well understood in "the Lane," since some 152,800 tons of coir of the value of $2\frac{3}{4}$ crores of

rupees, or about £1,850,000, were shipped from India —mostly from the Malabar Coast—in the ten years ending 1897-98, the greater portion of which was "handled" in London.

The Report omits to state what was the outcome

OF ALL THE CORRESPONDENCE

that was caused by the Director's enquiry. Perhaps the subject is still under the consideration of the Indian Section, which is so badly off for something of a really useful nature to do. But the episode serves to show once again, that the "economic products" of India can be studied far better in the business haunts, of those who trade largely in them than at the Institute, whose motto might well be "Great cry but little wool." The suggestion would not perhaps commend itself to Mr. J R Royle, C.I.E., the Secretary and Curator of the Indian Section, who draws a salary of £500 a year. For, on the 24th October last, at a meeting of the Sub-Committee, a letter was read from him, in which he drew "attention to the fact that the present term of his appointment would expire on the 31st March, 1900, and asking whether it would be renewed, and if some addition to his salary could not be recommended." The Sub-Committee thereupon drafted a letter to the Secretary of State for India, in which it may, or may not have asked for enhancement of the salary. But as no more than £500 is budgeted for in the estimate of expenditure for 1900-1901 it may be concluded that Lord George Hamilton, while approving of the rentention of the services of Mr. Royle, regretted his inability to sanction an increase in conformity with the wishes of the present incumbent of the Curator's office. To most people who study the Report of the Sub-Committee it will probably appear that a salary of £500 does not err on the side of illiberality, for it means an expenditure by India of R625 per mensem, for which there is very little in the way of benefit to India to show.—*Madras Mail.*

RICE.

CHANGES IN THE VARIETY HANDLED ON THE PACIFIC COAST.

Within the last year or two, says the *San Francisco Grocer and Country Merchant*, a great change has come over the position of rice in this market. Up till that time the chief description sold here to white people was the Hawaiian product, which, under the reciprocity treaty came in free of duty; but since then the imports of this variety fell off, until it has almost completely disappeared, and is no longer a factor in the trade. The cultivation of rice in the islands appear to have largely give way to that of sugar cane and the more profitable articles; and the increase of the local population has not only consumed all that was raised there, but has called for extensive shipments of Louisiana rice from this market, as well as of other descriptions from China and Japan. Their normal parity, in fact, has been and is above ours; under which circumstances evidently they can send us little or no rice.

As the Island supply became exhausted, domestic consumption turned to the Japanese article or to that from Louisiana, according to which was the cheaper. Of late this has been the Louisiana article, as crops have been abundant there and prices low, while on the other hand values in the Orient, owing to the Indian famine, have been abnormally high. Jobbers have naturally given all possible encouragement to the Louisiana article, as, owing to the great varieties of it that are always on offer, it affords a much better chance of a profit than the foreign descriptions that come only in standard grades, and are consequently sold for the slimmest sort of a margin. The off grads of foreign would not be worth the freight here and the import duty; and consequently they are consumed at home, where, in fact, they constitute the staple diet of the people. The wonder is that jobbers do not follow the same policy with regard to sugar, instead of co-operating with the Trust to restrict the sale to limited varieties at fixed prices.

The changes that have taken place in the character of the staple consumed on the Pacific Coast have naturally given rise to a good deal of substitution and misrepresentation, which, when once stated, is apt to become by force of competition, more or less general. Louisiana was first substituted for Island, and now Louisiana, Japan, or rice grown in Louisiana from Japan seed, is being substituted for the genuine imported article. In many cases it is difficult, except for an expert to distinguish on sight, the one from the other, but on cooking the difference is quite manifest since the seed article does not cook dry and free like the imported, but comes out more or less gluey or mushy, so that the Japanese at least cannot be deceived by it; and it would be well for our readers to take note of this fact.

Another substitution that is now being tried is a mixture of a large proportion of low-grade Louisiana with China mixed for the genuine China mixed, the market value of which is always known to a nicety, and which consequently generally sells very close to cost. A practised eye will, by comparison, at least, readily detect the difference in this case by the size and appearance of the grain. The name "China mixed" unfortunately ends itself too easily to this sort of substitution, and should never have been adopted. It is in reality not China rice at all, but rice grown by Chinamen in Siam and shipped here via Hong Kong, thus covering up its origin.

While on the subject of rice it may be opportune to caution our less experienced readers against receiving any old and weevily stock in their warehouses and thereby infecting their goods, which very readily occurs. This, of course, is not likely to be sent them from any responsible source, as it is, in fact, tantamount to a crime. Fortunately, however, it is easy of detection, for if sacks containing weevily rice are left for half an hour in the sun the weevils will appear on the outside, and this is the test that consignments are subjected to by jobbers before receiving them into their warehouses. Even the exposure during the trip from the wharf, depot or warehouse is frequently sufficient to bring these animals to the surface; and goods infected in this way should never, on any account, be taken to accouut. The same applies to beans.

Pea Nuts or Earth Nuts for Poultry.—In most of the coastal districts it is comparatively easy to obtain good crops of these "nuts." For poultry, according to an American authority, pea nuts are a food that can scarcely be excelled. In the experience of the authority quoted, they are far more satisfactory than maize, wheat, or oats for laying hens, as well as for growing chicks. Hens and chicks do not get so fat on them as upon grain. As a dainty to throw into the feeding yards, a few plants, nuts and all, come in very handy.—*Agricultural Gazette of New South Wales.*

Correspondence.

To the Editor.

THE DEATH OF SIR JOHN LAWES.

Analytical Laboratory 79 Mark Lane, London, E. C., September 6th, 1900.

SIR,—I send you a cutting from last Saturday's *Times* containing an appreciative memoir of the late Sir John Lawes whose death is very sincerely regretted by all those interested in agriculture who have read the numerous papers published during the past fifty years in connection with the well-known experimental plots at Rothamsted.

I have had the honor and pleasure of paying several visits to the well kept farm and the particular objects of the various experimental plots have been personally explained to me by Sir John Lawes, whose genial manner and kind hospitality always added so much to the pleasure of a visit to Rothamsted.

The writer in *The Times* in his reference to the absorption of free nitrogen from the atmosphere by leguminous plants, gives the impression that the more recent theory is, that these plants, CAN absorb free nitrogen *themselves* whereas the fact still remains as true now as it was when first enunciated by Sir John Lawes in 1861 and repeated in his essay on "Fertility" in 1881, that leguminous plants can only absorb nitrogen indirectly through the agency of bacteria, by which the primary work of fixation of the free nitrogen from the atmosphere is performed.

It may be useful to point this out as otherwise a wrong impression might be gathered from a perusal of this otherwise very correct memoir.

JOHN HUGHES.

[For the greater part of the notice in *The Times* see page 273.—ED. *T.A.*]

Re IMPORT DUTY ON TEA.

Hewaheta, Sept. 22.

SIR,—I would not abolish the import duty on tea, but would suggest that it be reduced to 25 cents per 100 lb. By so doing sufficient funds would be available to enable Government to appoint Tea Inspectors, whose duty it would be to inspect all tea coming into the Island and all tea leaving the island. Direct garden shipments might be passed without inspection, as the countries to which they go have their own inspectors.

Blends of pure Ceylon might be so stamped by the inspectors and blends of China and Indian and Ceylon stencilled in large letters across the packages.

If possible, a standard of quality should be fixed: it is not only the red leaf—for, excepting its bad appearance, it often draws a very good liquor—but some teas sold by public auction lately in Colombo consisting of whole invoices were objectionable: the dry leaf, bad in colour and smell; infused leaf, black and nasty, and liquors loathsome to the palate. Would some enterprising man get such teas analysed, possibly a standard in leaf might be fixed and a standard of liquor based on chemical analysis. Should the Tea Inspector think any teas not up to this standard of liquor he might hand samples to the Public Analyst. If Colombo became the centre of the tea industry—and I see no reason why it should not—what a grand thing for Colombo; and, as we should always be the nearest producers to the central market, I see no reason why we should not reap some advantage. The question of blending China tea with Ceylon applies just as much now, as it would if the blending were done in Colombo, except that the Government Inspectors here would have more hold than when the blending was done all over the world.

If any confusion arose *re* the import duty on Tea being mixed up with the Tea Cess, doubtless some arrangement could be come to with Government *re* division of duty, but I am inclined to think in a very few years the revenue from the import duty of 25 cents per 100 lb. would be far in excess of the cost of collecting and payment of inspectors, and Government might see its way to hand over any balance to the "Thirty Committee" for exploiting tea in foreign countries.—Yours, &c., E. T.

P.S.—Would the nominal duty of 25 cents per 100 lb. stand in the way of houses making Colombo their headquarters? I hope not.

E. T.

RUBBER PLANTING IN TOBAGO, WEST INDIES.

Richmond, Tobago, Aug. 28.

DEAR SIR,—The cultivation of rubber, particularly the Castilloa elastica, is more than likely to prove very successful in this island.

I recently sent to London a sample, weighing 21 lb., of rubber obtained from Castilloa trees I planted on this estate eight to nine years ago. It was valued at 3s 6d per lb. by Messrs. Lewis and Peat, who report that this rubber would have a ready sale at that price.

I cannot yet say what the yield of rubber per tree is here, as the experiments I made in tapping were carried out just after an exceptionally dry season; and being anxious not to run the risk of spoiling the coming seed crop, I only tapped the trees very lightly. But from a tree tapped lightly on three different occasions at a week's interval, I obtained a half-lb. of rubber.

The Castilloa does remarkably well here. One tree eight years old measures five feet in girth at three feet from the ground, and another of the same age measures four feet and ten inches.

The Louis d'Or rubber plantation, started here two years ago, is progressing exceedingly well under the able management of Mr. T. Orde. The estate has now 160 acres of Castilloa and 40 acres of Ceara rubber. There are several other estates in the island now being planted up with cacao, rubber, nutmegs and coffee, all of which thrive well in the Windward and Northern Districts.

I find that cacao bears very well under the shade of Castilloa. Nine years ago I planted an acre of rubber and cacao together—the rubbers at 24 feet apart, cacao at 12 feet—and so far I have noticed very little, if any, difference in the bearing of these cacao trees and those under the shade of the "Bois immortelles." Finding this the case I planted last year 15 acres in the same manner, and there is every reason to expect that in another eight or nine years, they will give a gross return of about £30 per acre. Coffee also bears very well under the Castilloa,

A question of great importance to rubber planters is whether a paying quantity of rubber can be got from either one year-old seedlings or saplings three to four years old. If it proves that this can be obtained, of course, close planting would be carried out, followed by a quick return. Can you give me any information on this point?

Last year I sent to England the bark of a four-year old Castilloa tree to be experimented upon. The dry bark weighed three lb, all but one oz., and it gave 4½ oz. of rubber. As this was the result of a laboratory experiment, I cannot say if the process, applied on a large scale, would make close planting profitable or not.

Another matter of great importance is to ascertain the quickest and most effective method of tapping the trees. I hope that Mr. Willis will, before long, publish details of the experiments carried on at the Gardens since the issue of his circular of June, 1899.—I am, dear sir, yours truly,

M. SHORT.

RUSSIAN TEA TRADE.

Kandy, 26th Sept.

SIR.—I herein enclose copy of letter and accompanying despatches received from Government on the subject of the effect of the Chinese Crisis on the Russian Tea Trade.—I am, sir, yours faithfully,

A. PHILIP,

Secretary, Planters' Association of Ceylon.

Colonial Secretary's Office, Colombo, 25th September, 1900.

Sir,—I am directed by His Excellency the Governor to forward to you for the information of the Planters' Association, the enclosed copy of a despatch from the Secretary of State for the Colonies, together with copies of the despatches from Her Majesty's Ambassador at St. Petersburg on the subject of the effect of the Chinese Crisis on the Russian Tea Trade.—I am, sir, your obedient servant,

(Signed) A. G. Clayton, for Colonial Secretary.

Secretary, Planters' Association of Ceylon.

(Copy No. 146. Commercial.)

St. Petersburg, 8th August, 1900.

My Lord,—With reference to my despatch No. 134 of the 26th ultimo I have the honour to transmit to your lordship herewith a further report which has been addressed to me by Mr. Cooke on the subject of the Crisis in China and the Tea Trade.—I have &c.,

(Signed) Charles S. Scott.

The Marquess of Salisbury, K.G., &c.

THE CHINESE CRISIS AND THE TEA TRADE.

The *Commercial and Industrial Gazette* of St. Petersburg, commenting on the nominal opening of the great Nijni-Novgorod Fair (July 15 to 28) with reference to the prospect of the tea trade states as follows:—The Chinese Crisis came on just when the first and principal crop at Hangkow was brought up and ready for despatch for Russia. The question is: was it safely sent away? The two routes are by sea from Hankow to Odessa, and via Siberia overland. The latter direction is either (1) by water to Liantsen and thence by land to Kaljan and through the Mongolian steppe to Kiata or (2) along the Amur, and in this case, from Hankow by sea to Vladivostock or to Nikolaevsk. According to Moscow tea dealers, up to June 8 to 21, 1900, the purchases (made were 648,955 half-chests of the first crop against) 609,052 in 1899) of which 590,306 were bought by Russian firms, or 35,552 more than last year. The first crop is the all important one in the tea trade, 2nd and 3rd crops being comparatively insignificant. This first crop being safely brought in at Hangkow, and Russia having solid supplies over from last year, though mostly of the inferior 2nd and 3rd crops, there need not as yet at least be any sensible disturbance in the international market. The whole question is how much has been despatched from Hangkow and in what direction? The disturbances became serious just as the ordinary despatch from Hangkow should have begun. Thanks to the crisis and to the shallowness and other difficulties of navigation on the Amur, the oversea route alone remained. But here too the Volunteer Fleet steamers were taken by the Government and difficulties arose in finding others. All that is known at present is that the Steamship "Kherson" (Volunteer Fleet) has arrived with tea at Odessa, as also the Steamship "Odessa," while the "Yaroslav" (Volunteer Fleet) has passed Port Said with tea for Odessa. The English Steamship "Drumgard" chartered by the Volunteer Fleet, has left Hangkow with tea as also the "Siam" of the East Asiatic Company, the latter with 70,000 half-chests, originally destined for Siberia. More black tea was bought up at Hangkow this year than last, and bought up earlier, so the stocks there are larger. Ceylon and London teas (the latter both Chinese and Ceylon) are in greater stocks than last year, and now probably rapidly increasing. Some 30,000 chests of brick tea were sent in the spring from London to Vladivostock, after failing last year to reach Siberia via the Obi and Yenisei route. On July 1 to 14, 1900, there were 114,192 half-chests in Moscow Customs Depôts, against 66,908 in 1899. In general there is considerable doubt and hesitation in the market, all awaiting events, though some have raised prices. Prices in Siberia have risen considerably and promise to continue rising. Much depends on what trade is done at Nijni Novgorod market now opening.

(Signed) Henry Cooke.

PLANTING NOTES.

Ratwatte Cocoa Coy.—We have to thank Messrs. Geo, Steuart & Co., (agents and secretaries) for a copy of the directors' report which was to have been submitted at the annual meeting in Kandy this afternoon. It is published on another page, and shows that, while no dividend is recommended, a profit of R5,320 has been made on the crop-bearing portion of the estate and that the prospects both for tea and cocoa for the coming season, are good.

Baked Land.—A good many people who experience great difficulty in working land that bakes readily after rain may be interested in the following advice issued by the Texas Agricultural Experiment Station:—"There are several things which can be done to improve your land, the choice of which one, or of a combination of two or more, will depend upon your local surroundings. Subsoil ploughing will prove of benefit. If you combine with this a considerable quantity of lime, say at the rate of one-half ton per acre, it will perhaps prove more beneficial than anything else that you could do. But as this may be too expensive you may find it necessary to try this: Deep ploughing, eight to ten inches, and the application at the same time of large quantities of swamp muck, barnyard manure or any fertiliser rich in vegetable mould. Green manuring, that is ploughing under a green crop of any kind of forage or luxuriant growth, is a practice method of great value. Wood ashes in large quantities, two or three tons to the acre, will prove very beneficial. This is perhaps the only remedy which would prove of any value so late in the season as it is now. The deep ploughing and heavy dressings of manure should be done not later than midwinter."—*New South Wales Agricultural Gazette*

COFFEE AND PEPPER FROM WESTERN INDIA.

We call attention to the annual Report of Mr. R. Tatham of Messrs. Arbuthnot & Co., Tellicherry, giving the year's exports of the two staple products, coffee and pepper. It will be seen that apart from 127,331 cwt. of plantation coffee, no less than 81,000 cwt. are said to be native coffee; while 168,000 cwt. pepper are declared to be of a value exceeding 6,300,000 rupees! — and the planters, Mr. Tatham says, are more and more growing pepper as a bye-product to coffee. This is just what we have wanted the tea planters of Kelani Valley and other similar districts to take up. If they cannot do much in rubber or cinchona, they should do a great deal in pepper; for Kegalla was a famous pepper-growing district 150 years ago, as also the upper portions of the Matara division of the Southern Province. We would therefore press more and more for a revival of the pepper-growing industry, among the lowcountry planters of Ceylon.

PLANTING IN B. C. AFRICA: COFFEE, &c. IN NYASSALAND.

(By an ex-Ceylon planter.)

Mlanji, B. C. Africa, Aug. 16.

This is supposed to be a country void of comforts, and inhabited by savages; at least anybody reading the books written by most travellers would arrive at that conclusion. I myself came here expecting to have to rough it and prepared to do so, even to the same extent as the savage races whom I expected to have to civilize.

Now I find I was mistaken and that every comfort that the most fastidious appetite could desire is here; also dwelling-houses not to be despised by the most ambitious orientals—brick houses with windows and doors of excellent finish; and wattle-and-daub bungalows which would put some of the Ceylon planters' P.D. houses in the shade.

To enumerate some of the

VARIOUS PRODUCTS

we have in cultivation, as well as the fruits, vegetables, and grains we luxuriate in, might surprise some of your readers. Of Ceara rubber we have growing trees 12 feet high, with a diameter of one foot at only three or four years' age. This rubber is being planted pretty extensively as boundary trees, and amongst the coffee on some estates. It may do better than it did in Ceylon, as the climate here is more like that of the home of the Ceara tree. At all events the tree seems to be a deeper feeder here, and does no harm to coffee planted along with it, as it did in Ceylon.

CACAO.

I only know of one plant in the country, and Mr. J W Moir, of Lauderdale, is the owner. This plant was imported about five or six years ago, and is now only about four feet high, and measures three or four feet across the branches,—not a promising specimen by any means, especially to any one who has seen the growth of cacao in Dumbara and Matale. My opinion is that our climate in Nyassaland is not suited for cacao, unless near the rivers and lakes at a lower elevation, but there the rainfall is much less—25 to 30 in. We have too great extremes of heat and cold. We get frost in June and July and in October and November dry heat, reaching 96° to 100° in the shade, which neither

COFFEE NOR CACAO

likes. Shade may mitigate those evils, but I doubt if the rainfall is sufficient for cacao even with shade, but I may be wrong; at all events, it does not thrive here.

CARDAMOMS

should suit our climate well. We have none here that I know of. I brought some seed with me from Ceylon, and gave them to the African Lakes Co.'s Gardener to plant, but I do not think he ever got them to grow; at least I have not heard of any in the country. We have growing wild here any amount of *Amomum meleguetta*, Grains of Paradise, which produce a seed that was much sought after in days of old, and largely exported from the west coast, but now superseded by Malabar and Mysore cardamoms. I gathered and sent home to my London agents over half a ton of seed a few years ago, but they could not find a purchaser for the consignment, and it was destroyed in bond. The undergrowth of our forests in the wetter parts of this country is composed of this variety of cardamoms, with two other sorts nearly allied to this. Ginger grows well here, and is cultivated by the natives, along with Turmeric, as a condiment.

TOBACCO

of an excellent quality can be and is grown here; the soil and climate seem to suit the weed. And when grown from a fine variety seed is of excellent quality. I have made cigars equal in flavour to the best Havana, but to get the nigger to manufacture a couple of cheroots of the same quality would baffle an expert's patience and perseverance —nothing but machinery will keep the kaffir uniform.

FIBRES.

Fibres, we have galore in the bush, *Sanseviera* of two kinds grow wild. We have a variety of China grass, as well as the real, imported variety. A number of trees supply bark of which the natives make excellent rope, as also two "Momba" trees, from which the bark cloth to cover the savage is made, as well as excellent cordage and binders for housebuilding, etc.

Aloes are common all over the country, and one or two indigenous varieties are found in the bush. We have some excellent timber trees here, Mahogany trees, 150 ft. high, and 20 to 30 ft. in circumference. African teak and a variety of legnamsuti, as well as many other valuable cabinet woods are plentiful.

AUSTRALIAN GUMS

grow well, blue and red gums thrive splendidly. Robusta trees I have growing over 100 ft. high, and 5 ft. in circumference, at 6 years' age—I have plants from the seed of those trees 8 and 10 ft. high at 18 months age. White ants do an awful amount of damage to gums, causing the death of many plants, and even well-grown trees. Annatto trees of enormous dimensions are here, and they bear very large crops of seed, but I never thought it worth while extending their cultivation as the price of the article is so

low. I have one Pepper vine doing well. Vanilla and Kola plants were introduced, but they died before reaching maturity. Wild Pepper, both the vine and the tree varieties, are to be found in the forests.

CINCHONA.

Ledgeriana and a good hybrid were introduced by somebody and are to be found on some estates, but they are not cultivated to any extent. I have often thought of putting in a nursery of Ledgeriana, as it seems to grow well, and now the price is better, there is encouragement for attention to this valuable tree.

I remember the days when the Dimbula planters used to value Cinchona Succirubra trees at so many rupees each, and calculate their fortunes by the number of growing trees, and their age;—quinine was then selling at a guinea per ounce. I went in for planting cinchona with the rush, but found when my trees were fit for harvesting that the bark, when delivered in Colombo, did not pay.

CHILLIES.

Some time ago I saw a letter in the *Observer* from somebody in Rakwana, enquiring about the cultivation of chillies. I have 100 odd acres planted between the lines of coffee as a catch crop; they are now three years old and lots are beginning to die off after continuous cropping for two years. After the first crop I cut them down and dug them in as manure to the coffee; they grew up again quickly, and I have now nearly finished a second crop. I intend to uproot and dig them in altogether in the course of a few months more, as the coffee has now closed in upon them and they have served me well, having more than paid for the opening of the coffee-clearing. I could not pick half the crop for want of labour; but I should say each tree gave more than 1 lb. of dry chillies, and the price I got was from 37s 6d to 56s 6d per cwt. The variety I have planted is the common bird's-eye used by the Ceylon cooly and found growing on most estates wild in Ceylon. This kind, if of good quality, bright and clean, always meets with a ready sale. I have tried other varieties, and Capsicums, but there is a very limited demand and uncertain market for any kind, except the very pungent bird's-eye chillies. Chillies take about eight months before they begin to bear fruit.

I might give your readers a list of our

FRUITS

to shew them that we are not wanting for delicacies for the table:—Soursop, oranges, bullock's-heart, pomegranate, loquats, guavas, red China, pink-hearted and gooseberry varieties; papaws, peaches, plums, figs are here, all in bearing for the past two or three years. Apples, pears, and cherries are growing on one or two estates. Pineapples, raspberries and Cape gooseberries are common everywhere, the latter a weed like tomatoes on estates. Flowers—shoe-flower, convolvulus, roses of different kinds, amaranthus, nasturtiums, caliopsis, geraniums—are in profusion in most little garden plots in front of bungalows,

FOOD SUPPLIES.

By way of food supplies we can boast of the cheapest if not the choicest in the world. English potatoes 1d per lb.; sweet potatoes 3d per bushel; cabbages 1d to 2d each; village fowls 2d each; rice 1d per lb.; pumpkins and cucumbers about 6d per basket; beans in great variety, Indian corn and millet, all at 1s per load of about 60 lb.; eggs 3d per dozen; plantains and bananas in great variety, 3d per bunch.

Store prices for imported goods are:—Flour 6d; sugar 6d; tea 2s 6d; jams 1s; butter 3s per lb.; and other articles in proportion. Cassava and arrowroot are grown everywhere, and are as cheap as other native products. We can always get fairly good curries made here; the only thing we do miss is the coconut. Breadfruit I have never seen here. We have no jaks either; I had some plants once growing about 2 ft. high, but they were eaten by white ants.

HENRY BROWN.

COFFEE PLANTING IN B. C. AFRICA.

[TO EDITOR "CENTRAL AFRICAN TIMES."]

Dear Sir,—As I have already stated I shall only be too glad to visit any plantation where berries are in a state of growth, with Mr. Henry Brown or any other planter, so as to convince me that we are troubled with much worse enemies whether borer or "drought which do the maximum amount of damage to our coffee," and I should like to see "some old estates where no bug is to be found which have 80 to 90 per cent spotted and light berry caused by these enemies."—I am, &c.,

KENNETH CAMERON.

Namasi, August 9th.

Dear Mr. Editor,—The first time I observed coffee in this district really affected by drought was in 1896, when the thermometer registered 98 degrees Far. (at some stations over 100 degrees was registered I believe). The coffee drooped, the leaves and bark shrivelled up, the natural healthy flow of sap was checked, fissures were laid open in the bark of the trees, and canker set in on fifty to seventy per cent of my coffee trees after which bastard and barren wood was very visible.

Dr. Macvicar paid me a visit after another dry season, 1897, when my coffee also suffered from drought and in the course of conversation one day asked me if I had anything I would like examined with the microscope. I suggested the sap of coffee trees in the shade and in the open. He first went to work on the leaves and bark from a number of trees in the open. When the sap from those trees was examined it was found to contain brown spots which proved beyond a doubt that the sap cells were damaged and the sap diseased. When the sap of the bark or leaves of the shaded trees was examined it was found to be perfectly natural and of a light green colour.

The above observations, I think, prove beyond a doubt that our coffee is damaged by excessive heat and the fact is well-known that coffee will not do well where the shade temperature reaches ninety degrees without shade and heavy shade too.

I have tried heavy pruning and cutting down both as a remedy for sunstroke and canker in coffee, but when the trees are damaged into the ground as is often the case, it is as bad as canker in the flesh of a human being and had better be abandoned to the inevitable. Roadside shade trees are frequently cut down on the plains in India for sunstroke and canker.—Yours, &c.,

H. B.

Mlanje, 1st August.—*Central African Times.*

PROPAGATION OF MANGOES BY BUDDING.

The following interesting paragraph occurs in Mr. Gollan's report on the Saharanpore Botanical Gardens for 1889-1900:—In paragraph 88 of the last annual report it was noted that the mango was said to be successfully propagated in Jamaica by budding. With a view of testing this assertion a series of experiments were conducted last summer. The first trials were made about the beginning of April and were repeated at intervals of a fortnight until the end of August. No difficulty was experienced during the whole period covered by the experiment in finding clean and apparently well developed buds, nor was there any difficulty in finding stocks with bark that would rise readily, but only one of the various lots of buddings which were made proved a success. In the successful case the buds were inserted on the stocks on the 4th July and they began to shoot out in about a month after the date of insertion. In every trial a dozen plants were operated on, and as eight plants out of the dozen budded on the 4th July were successful, this is a fair percentage when comparisons are made with other kinds of trees which are not easily budded. On the 20th of the same month, and on two dates in August, a dozen plants were in each instance operated on, but not a single success was met with, nor on any of the dates on which budding was tried prior to the 4th July. The budded plants now stand with shoots from 12 to 15 inches long, and by July next, or within the year from date of budding, they will be quite fit to plant out to where they may be intended to be grown. I am not yet prepared to say that the method is an improvement on the universal system of propagating the mango under grafting by approach, but as it is intended to have a more extended trial made in July next, I have to give a definite opinion on this point in the next annual report.—*Gardening and Planting*, Sept. 13.

COCOA IN DUTCH GUINEA.—The cocoa crop in 1899 exceeded that of the previous year by about 50 per cent; prices have shown an upward tendency. The total crop for the year was 3,969,945 kilos. The following are the amounts exported during the past five years:—

Year.		Quantity. Kilos.
1895	... ...	4,456,338
1896	... ...	3,302,567
1897	... ...	3,584,715
1898	... ..	2,830,414
1899	.. ..	3,859,980

—*Planting Opinion*, Sept. 22.

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1895.	1896.	1897.	1898.	1899.	Av of 30yrs.	1900.
	Inch.	Inch	Inch	Inch	Inch.	Inch.	Inch.
January ..	5·00	2·92	3·81	2·32	6·98	3·22	3·72
February ..	0·81	0·35	1·68	1·98	2·78	1·93	0·63
March ..	1·84	5·64	3·66	4·21	0·88	4·78	3·71
April ..	9·34	5·93	10·97	22·81	6·66	11·31	15·12
May ..	10·09	9·31	8·30	5·80	17·73	12·09	10·63
June ..	13·99	8·37	10·14	10·94	9·23	8·37	7·83
July	0·52	2·85	5·24	6·15	1·11	4·38	6·77
August ..	0·92	6·35	9·09	0·97	0·62	3·67	7·35
September	4·09	10·99	4·58	6·90	1·48	5·01	4·00
October ..	30·36	16·78	4·71	20·60	12 99	14·52	0·12*
November..	5·83	19.81	11·66	17·38	8·58	12·66	
December..	9·44	11·76	8·89	3-05	4·44	6·39	
Total..	92·23	101·06	82·73	103·11	73·48	88·33	59·88

* [From 1st to 3rd Oct. 0 12 inches, that is up to 9-30 a.m on the 4th Oct.—ED. *C.O.*]

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS OR AUG 1900.—We append the Monthly Return of in from which it will be seen that the highest fall in Aug, was at Padupola in the Central Province. 46·71 inches and the lowest at Marichchukaddi in the Northern Province, 0·03 inches.

WESTERN PROVINCE.

Negombo, Mr. Bucknall (6) ... 4·82
Kalutara Mr. Gregson (36) ... 7·49
Labugama, Mr. Bond (369) ... 12·37
Henaratgoda, Mr. Silva (33) .. 7·79

CENTRAL PROVINCE.

Katugastota, Mr. Morgan (1,500) ... 4·88
New Valley, (Dikoya) Mr. Ward (3,700) .. 20·41
Helboda (Pussellawa) Mr. Gosset (3,300) .. 17·39
Yarrow Estate, .. Mr. Padwick (3,400) 10·48
Peradeniya Mr. ... MacMillan (1,540) ... 8·04
Duckwari, Mr. Edwin (3,300) ... 9·55
Caledonia, Mr. Goork (4,273) .. 14·75
Pussellawa, Mr. ... Powell (3,000) .. 10·67
Hakgala, Mr. .. Nock (5,581) ... 6·59
S. Wanarajah Estate, Mr. Tatham (3,700) .. 23·49
Padupola, Mr. Ward .. (1,636) ... 46·71
Mylapitiya, Mr. Fletcher (1,707) ... 0·30

NORTHERN PROVINCE.

Mullaittivu, Mr. Ebert (12) .. 0·06
Jaffna Mr. Macdonnel (8) Nil
Mankulam, (N. Road) Mr. Ebert (167) ... Nil
Elephant Pass, Mr .. Silva (7) – Nil
Vangalachettykulam, Mr. Oorloff (179) .. Nil
Point Pedro Mr. Chitampalam (24) ... 0·83
Jaffna College, Mr. Cooke (9) .. Nil
Kayts, Mr. Macdonnel (8) .. Nil
Kankesanturai, Mr. Pararachasinghe (10) .. 2·00
Pallai, Mr. Silva (24) .. Nil
Murlkandy, (North-Central Road) Mr. Silva (7) Nil
Nedunkeni, Mr. Ebert (122) ... 1·23
Chavakachcheri, Mr. Silva (16) ... Nil
Udupiddi, Mr. Brown (35) .. 1·47
Marichchukaddi, Mr. Thampue (14) 0·03
Muruugan, Mr. Walker (52) Nil
Vavuniya Mr. Ebert (318) 1 71

SOUTHERN PROVINCE.

Ella Vella Mr. Caldicott (262) 9·86
Kekanadura, do (150) 7·05
Denagama, do (286) 10·20
Udukiriwila Mr. Lourensz (235) .. 4·84
Kirama, Not received (260) —
Hali-ela Mr. Caldicott (200) 11·73
Tissa Mr. Silva – 1·01
Matara Mr. Caldicott (15) 2·62
Dandeniya, do (157) 8·96
Urubokka, Mr. Caldicott (890) 12·19
Tangalla Mr. Russell (94) 4·26
Mamadola, Mr. Doole (56) .. ·20

EASTERN PROVINCE.

Irrakkamam, Mr. Bower (42) ... 1·62
Devilana, Mr. Vanderstraaten (136) Nil
Sagamata, Mr. Bower (40) ... 0·60
Ambare, do (65) 1·47
Kantbalai, Mr. Carte (150) 0·14
Allai, Mr. Carte (95) 0·75
Rukam, Mr. Vanderstraaten (120) ... Nil
Periyakulam, Mr. Carte (20) ... ·35
Chadaiyantalawa, Mr. Edge (57) 0·10
Kalmunai, do 12) 1·46
Rotewewa, do (30) 1 02
Lahugala, do (70) 2·30
Naulla, do (30) 3·50
Andankulam, Mr. Carte (41) ... 1·80
Manalpuddy, Mr. Vanderstraaten (21) ·50
Maha-Oya-Tank, Mr. Vanderstraaten (190) 1·82
Potuvil, Mr. Sinnayah (10) 1·56

N.-W. PROVINCE.

Magalawewa, Mr. Gunaratna (176) .. 3·75
Maha Uswewa tank, Mr. Adams (160) ... 0·60
Tenepitiya, Mr. Churchill (8) ... 0
Batalagoda, Mr. Madahapola — 3·99

N.-C. PROVINCE.

Kalawewa, Mr. Chellappah (268) Ni
Maradankadawala, Mr. Emerson (443) ... 0·31
Mihintale, Mr. Ondaatje (354) ..
Horowapotana, Mr. Oodaatje (217) .. 0
Madawachchiya, Mr. Ondaatje (285) .. 0·90
Topare, Mr. Jayewardane (200) .. Nil
Minneriya Mr. Eves — Nil

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) .. 1·20
Haldummulla, Mr. Kanagaratnam (3,160) .. 2·05
Kumbukan, Not received (446) ... —
Koslanda, Mr. Rowland (2,258) ... 0·77
Tanamalwila, Not received (550) .. ..
Bibile, Mr. Silva (680) 0·92
Talcena, Mr. Fernando (1,100) .. Nil
Alutnuwara—Mr. Leembruggen (300) 0·23

SABARAGAMUWA.

Ambanpitiya, Mr. Dassanayaka (729) 7·85
Pelmadulla, Mr. Robertson (480) 21·46
Kolonna Korale (Hulandaoya) Not received (203) —
Avisawella, Mr. Clarke (105) .. 19·45

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	950	—	—
Ceylon Tea and Coconut Estates	500	—	—	—
Castlereagh Tea Co., Ltd.	100	90	95	—
Ceylon Hills Estates Co. Ltd.,	100	—	—	—
Ceylon Provincial Estates Co Ltd.	500	500	—	500
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	75	—	—
Clyde Estates Co., Ltd.	100	40	—	—
Doomoo Tea Co., Ltd.	100	60	—	—
Drayton Estate Co., Ltd.	100	120	150	—
Eila Tea Co., of Ceylon, Ltd.	100	50	60	—
Estates Co., of Uva, Ltd.	500	220	250	220
Gangawatta	500	—	—	—
Glasgow Estate Co., Ltd.	500	—	975	—
Great Western Tea Co.,	500	625	—	—
Hapugahalande Tea Estate Co.	200	—	—	—
High Forests Estates Co., Ltd	500	550	—	550
Do part paid	350	—	—	—
Horekelly Estates Co., Ltd.	100	—	70	—
Kalutara Co., Ltd.	500	—	375	—
Kandyan Hills Co., Ltd.	100	—	70	—
Kanapediwatte Ltd.	100	—	90	—
Kelani Tea Garden Co., Ltd.	100	—	—	—
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	67½	—
Maha Uva Estates Co., Ltd	500	—	—	400
Mocha Tea Co., of Ceylon, Ltd.	500	675	—	—
Nahavilla Estate Co., Ltd.	500	—	400	—
Nehoda Tea., Co. Ltd	500	—	500	—
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estate Co., Ltd.	100	—	—	—
Palmerston Tea Co., Ltd.	500	—	500	—
Penrhos Estates Co., Ltd.	100	—	100	—
Pine Hill Estate Co., Ltd.	60	—	52·50	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	—	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co. Ltd.	100	—	57½	—
Roeberry Tea Co., Ltd.	100	60	—	—
Ruanwella Tea Co., Ltd.	100	—	40	—
St. Hellers Tea Co., Ltd.	500	510	..	—
Talgaswela Tea Co., Ltd.	100	35	...	—
Do 7 per cent Prefs.	100	..	.	...
Tonacombe Estate Co., Ltd.	500	..	450	...
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	200	...	...
Upper Maskeliya Estate Co. Ltd.	500	—	450	..
Ovakellie Tea Co., of Ceylon, Ltd.	100	65	75	..
Vogan Tea Co., Ltd.	100	...	80	75
Wanarajah Tea Co.,Ltd.	500	..	1060	..
Yataderiya Tea Co., Ltd.	100	...	375	..

Ceylon Commercial Companies

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	25	50	..
Bristol Hotel Co., Ltd.	100	..	125	...
Do 7 per cent Debts	100	107·50	...	..
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	...	225	...
Colombo Apothecaries' Co. Ltd.	100	140	142·50	..
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	..
Colombo Fort Land and Building Co., Ltd.	100	..	100	—
Colombo Hotels Company	100	291	300	..
Galle Face Hotel Co., Ltd.	100	—	..	145
Kandy Hotels Co., Ltd.	100	...	130	...
Kandy Stations Hotels Co.	100	..	25	...
Mount Lavinia Hotels Co., Ltd.	500	175	200	...
New Colombo Ice Co., Ltd.	100	180	..	185
Nuwara Eliya Hotels Co., Ltd.	100	25	30	..
Do 7 per cent prefs.	100	..	100	..
Public Hall Co., Ltd.	20	15	16	..

LONDON COMPANIES *

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon,	10	8½	9½—10	..
Anglo Ceylon General Estates Co.	100	..	35—45	..
Associated Estates Co., of Ceylon	10	—	3—4	...
Do. 6 per cent prefs.	10	..	6½—7½	..
Ceylon Proprietary Co.	1	...	⅝—⅞	..
Ceylon Tea Plantation Co., Ltd.	10	..	26—27	..
Dimbula Valley Co., Ltd.	5	..	5½—6	..
Do prefs.	5	..	..	...
Eastern Produce & Estates Co.	5	...	5½—5¾	...
Edeiapolla Tea Co.,	10	...	8	...
Imperial Tea Estates Co., Ltd.	10	...	..	.
Kelani Valley Tea Asscn., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	7—8	..
Lanka Plantation Co., Ltd.	10	4½	4—5	..
Nahalma Estates Co ,Ltd.	1	—	¼—¾	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	...	10
Ouvah Coffee Co., Ltd.	10	..	5—7	...
Ragalla Tea Estates Co., Ltd.	10	..	10	..
Scottish Ceylon Tea Co.,Ltd.	10		13—15	...
Spring Valley Tea Co., Ltd.	10	3	4—5	..
Standard Tea Co., Ltd.	6	..	11—12	..
The Shell Transport and Trading Company, Ltd.	100	..	...	..
Yatiyantota Ceylon Tea Co., Ltd.	10	...	8—9	...
Do. pref. 6 o/o	10	...	9¾—10¼	..

BY ORDER OF THE COMMITTEE.

Colombo, October 5th, 1900.

* Latest London Prices.

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, Oct. 4th, 1900.

Coffee:—		
Estate Parchment per bushel	R8·00 to 10·50	
Chetty do do	Nil.	
Native Coffee per cwt.	Nil.	
do F. O. B per cwt.	Nil.	
Liberian coffee:—per bushel	Nil.	
do cleaned coffee:—per cwt	Nil.	
Cocoa unpicked:—per cwt	Nil.	
do cleaned do	Nil.	
Cardamoms Malabar per lb	80c to 1·00	
do Mysore do	R1·25 to 1·45	
Rice:—		
Soolai per bag of 164 lb. nett	R9·75 to 10·00	
1st quality:—per bushel	R3·75 to 3·80	
Soolai 2 & 3rd. do do	R3·75 to 3·80	
Coast Calunda	R4·12 to 4·25	
Coast Kara	R3 87 to 4·02	
Kazala	R3·65 to 3·68	
Muttusamba Ordinary	R5·25 to 6·00	
Cinnamon per lb No 1 to 4	53½c	
do do 1 and 2	62½c	
do Chips per candy	R92·50 to 95·00	
Coconuts Ordinary per thousand	R35·00 to 38·00	
do Selected do	R36·00 to 39·00	
Coconut Oil per cwt	R14·12 to 14·37	no business done
do do F. O. B. per ton	R282·50 to 287·50	no business done
Poonac:—		
Gingelly per ton	R102·50	
Coconut Chekku do	R82·50	
do Mill (retail) do	R85·00	
Cotton Seed per ton	R87·50	
Copra per candy		
Kalpitiya do	R43·00 to 44·50	
Marawilla do (Boat)	R42·00 to 43·50	
Cart Copra do	R36·00 to 41·00	
Satinwood per cubic feet.	R2·00 to 2·25	
do Flowered do	R5·00 to 6·00	
Halmilla do	R1·90	
Palu do	R1·00 to 1·12	
Ebony per ton	R75·00 to 175·00	
Kitul fibre per cwt	R30·00 to 32·00	
Palmyra do do	R5·00 to 13·00	
Jaffna Black Cleaned per cwt	R13··0	
do mixed do	R10·00 to 11·50	
Indian do	R7·00 to 10·50	
do Cleaned do	R8·00 to 13·00	
Sapanwood per ton	R50·00 to 55·00	
Kerosene oil American per cases,	R6·75 to 7·00	
do bulk Russian, per tin	R3·12 to 3·15	
do Russian per cases	R6·50 to 6·75	
Nux Vomica per cwt	R2·00 to 3·50	
Croton Seed per cwt	R20·00 to 22·00	
Kapok cleaned f o b per cwt	R24·00	
do uncleaned do	R5·50	
Plumbago per ton, according to grade — Large lumps	R300·00 to 700·00	
Ordinary size lumps	R250·00 to 625·00	
Chips	R150·00 to 450·00	
Dust	R75·00 to 300·00	

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 1st Oct. 1900.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·40
Do. dull medium do. 1·20
Special assortment, 0 and 1 only do. 1·70
Seeds do. 1·30

CINCHONA BARK:—
Per unit of Sulphate of Quinine 10c—For 1½ to 3 o/o

CINNAMON :—
Ordinary assortment per lb. 59c.
Nos. 1 and 2 only per lb. 63c.
Nos. 3 and 4 only per lb. 54c.

CINNAMON CHIPS :—
Per candy of 560 lb R95·00

COCOA :—
Finest estate red; unpicked per cwt R50·00
Medium do do „ none
Bright native, unpicked and undried „ none
Nominal. None offering.
Ordinary do do do „ none

COCONUTS—(husked).
Selected per thousand R48·00
Ordinary „ R39·00
Smalls „ R30·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb. 13¾c

COCONUT OIL—
Dealers' Oil per cwt. R14·37
Coconnt Oil in ordinary packages, f. o. b. per ton R322·50 Business done.

COFFEE.—
Plantation Estate Parchment on the spot per bus. R10·50.
Plantation Estate Coffee f.o.b. (ready) per cwt.—R55·00. Nominal. None offering.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb. 65c.

COPRA—
Boat Copra per candy of 560 lb. R43·50
Calpentyn Copra do do R44·50
Cart do do do R41·00
Estate do do do R45·00

CROTON SEED per cwt R22·00

EBONY—
Sonnd per ton at Govt. depot—R205.
Inferior R155. As per Govt. sales of 3rd Sept.

FIBRES—
Coconnt Bristle No 1 per cwt R10·50
Do „ 2 „ none
Do mattress „ 1 „ 4·00
Do „ 2 „ 3·00
Coir Yarn, Kogalla „ 1 to 8 18·00
Do Colombo „ 1 to 8 16·00
Kitool all sizes 38·00
Palmyrah 16·00

PEPPER—Black per lb 28c.

PLUMBAGO—
Large lumps per ton R700
Ordinary lumps do 625
Chips do 450
Dust do 300
Do (Flying) 125

SAPANWOOD— per ton R52·50

SATINWOOD (ordinary) per cubic ft. R2·50

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	—	—	—
Orange Pekoe do	—	—	—
Pekoe do	—	—	—
Pekoe Souchong do	—	—	—
Pekoe Fannings do	—	—	—
Broken mixed dust, &c. per lb	—	—	—

No sales.

CEYLON EXPORTS AND DITRIBUTIONS FOR SEASONS 1899 AND 1900.

COUNTRIES	Tea. 1900 lbs.	Tea. 1899 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon. Bales lbs.	Cinnamon. Chips. lbs.
To U K. ..	84375947	76887609	6050	..	6050	18021	262900	618163	195682
„ Austria ..	11152	7491	..	..	..	..	..	1500	19600
„ Belgium ...	12455	12349	70	..	70	417	...	68769	92286
„ France ..	199899	76014	68	...	68	78	3407	88988	41786
„ Germany ..	267616	289578	350	..	350	380	62970	419877	381021
„ Holland ..	2000	22874	..	..	..	...	...	5000	88168
„ Italy ..	5032	11991	..	..	..	...	519	119600	116480
„ Russia ..	6584343	2719244	128	..	128	..	..	..	...
„ Spain ..	15130	13800	..	...	..	...	..	162500	42000
„ Sweden ..	52743	47244	9	..	9	..	4051	2400	..
„ Turkey ..	22202	15230	..	..	..	..	2120	...	10
„ India ..	583090	417300	169	4	173	...	43545	500	..
„ Australia ..	12525799	12222006	2280	..	2280	39	336	8840	19596
„ America ..	3502286	2219553	135	..	135	561	2641	229000	120400
„ Africa ..	150496	231088	16	..	16	..	2315	10100	2408
„ China ..	935252	959257	24	...	24	82	1800	67400	...
„ Singapore ..	80890	50322	1	..	1	675	1340	..	..
„ Mauritius ..	700	73701	..	..	..	..	...	...	..
„ Malta ..	335573	223467	..	...	..	..	..	...	..
Total export from 1st Jan. to 1st Oct, 1900	109662605	96500118	9300	4	9304	20253	387944	1802637	1129437

COUNTRIES	Coconut Oil. 1900 cwt	Coconut Oil. 1899 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts. No.	Plumbago. 1900 cwts.	Plumbago. 1899 cwts.	Fibre.	Ebony cwts.
To U K. ..	168391	112485	15522	6100803	..	8388630	87483	135521	39718	280
„ Austria ..	7281	2064	25742	75470	...	..	2	14	...	..
„ Belgium ...	1326	1602	56878	356934	64976	...	27123	32714	13969	...
„ France ..	...	...	22140	17902	201	..	102	814	400	220
„ Germany ..	10373	6542	51105	843311	58027	603009	40006	63010	11432	2045
„ Holland ..	..	..	..	123530	..	25050	912	5776	440	...
„ Italy ..	..	404	1500	..	..	5011	..	..	..	45
„ Russia ..	..	..	51034	..	...	1590	1004	1188	...	..
„ Spain ..	..	..	..	...	...	..	..	...	..	..
„ Sweden ..	...	206	4403	...	..	..	105	307	...	...
„ Turkey ..	...	..	1	...	..	2000	...	..	..	...
„ India ..	57645	47850	146	...	..	218050	1045	435	120	..
„ Australia ..	634	720	..	528612	42	..	1999	759	3360	27
„ America ..	44802	72640	..	1211750	...	..	108630	223169	6193	..
„ Africa ..	42	..	..	25770	...	1296333	..	..	1907	..
„ China ..	827	3184	20	83555	...	..	41	127	...	..
„ Singapore ..	2427	22333	..	...	..	—	...	..	42	...
„ Mauritius ..	..	..	...	...	..	...	..	...	..	..
„ Malta ..	...	...	...	..	..	..	..	..	..	..
Total export from 1st Jan. to 1st Oct, 1900	293748	270030	228491	9367637	123246	10539673	268452	463834	77581	2617

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, September 5th, 1900.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 85s
Zanzibar & Hepatic ,,	Common to good ...	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt.		
Zanzibar & White ,,	Good to fine	£6 a £7 10s
Bombay Yellow ,,	Fair ,,	£6 10s a £6 15s
Madagascar ,,	Dark to good palish	£6 5s a £6 10s
CAMPHOR, China ,,	Fair average quality	187s 6d
Japan ,,	,, ,, ,,	190s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 6d a 2s 9d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s 7d a 4s 2d
	Seeds .	1s 10d a 2s 4d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	1s 10d a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4d a 4½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	37s 6d a 47s 6d
CINCHONA BARK.— lb.	Ledgeriana Orig. Stem	3⅜d a 6⅜d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅛d a 5⅝d
	Renewed	5⅝d a 7¼d
	Root	3¼d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	11d a 1s 8d
2nds	,, ,,	10d a 1s 7d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	3½d a 9d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar and Pemba	Good and fine bright	3¾d a 4d
	Common dull to fair	3⅜d a 3¾d
Stems ..	Fair	1½d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	100s a 117s
	Middling to fine mid ...	85s a 95s
	Low mid. and low grown	75s a 82s 6d
	Smalls	55s a 75s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	37s a 45s
COCOA, Ceylon ,,	Bold to fine bold	90s a 105s
	Medium and fair	82s a 90s
	Native	72s a 80s
COLOMBO ROOT ,,	Middling to good	12s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair	£14 a £19
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£18 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	30s a 40s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	28s 6d
Calicut, Cut A ,,	Good to fine bold	75s a 85s
B & C ,,	Small and medium	35s a 72s 6d
Cochin Rough ,,	Common to fine bold	25s a 33s
	Small and D's	25s a 28s
Japan ,,	Unsplit	24s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		67s 6d a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 85s
	Ord. stony and blocky	6s a 25s
KINO ,,	Fine bright	1s a 1s 3d
MYRRH, picked ,,	Fair to fine pale	65s a 75s
Aden sorts ,,	Middling to good	33s a 55s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 2¾d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS.
INDIARUBBER, *(Contd).*		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s 3d
Mozambique ,,	Good to fine Ball ...	2s 8d a 3s 6d
	Ordinary to fair Ball..	2s a 2s 10½d
	Low sandy Ball	1s 3d a 1s 7d
	Sausage, fair to good..	2s 6d a 3s 3d
	Liver and livery Ball .	2s 4d a 3s 1½d
Nyassaland	Fair to fine ball	3s 1d a 3s 2½d
Madagascar ,,	Fr. to fine pinky & white	3s a 3s 3d
	Fair to good black .	2s a 2s 10½d
	Niggers, low to fine ..	11d a 2s 8d
INDIGO, E.I. ,,	Bengal—	
	Shipping mid to gd violet	3s 7d a 4s 6d
	Consuming mid. to gd.	3s a 3s 6d
	Ordinary to mid.	2s 9d a 3s 3d
	Mid. to good Kurpah	2s 4d a 3s
	Low to ordinary	2s a 2s 3d
	Mid. to good Madras	1s 7d a 2s 6d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 4d a 1s 4½d
MYRABOLANS, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 4d a 2s 6d
Bombay & Penang ,,	110's to 65's	11¼d a 2s 3d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable	6s 5d
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	3d
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1/0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody...	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	6¼d a 6⅝d
Singapore	Fair	6 5-16d a 6⅜d
Acheen & W. C. Penang	Dull to fine	5¾d a 6¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	35s a 40s
	Middling to good small	20s a 32s
chips ,,	Dull to fine bright	10s a 20s
dust ,,	Ordinary to fine bright	4s a 11s
SAFFLOWER ,,	Good to fine pinky ..	65s a 75s
	Inferior to fair ..	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	53s a 59
SENNA, Tinnevelly lb.	Good to fine bold green	5d a 8d
	Fair middling medium	4d a 5¼d
	Common dark and small	1¼d a 3½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's D's and B's Small ...	£4 5s a £5 7s 6d
Mergui ,,	Small to bold ..	£5 12/6 a £7 10s
Mussel ,,	Small to bold ...	18s a £2 10s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	15s a 16s
per cwt. Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 24s
TURMERIC, Bengal cwt.	Fair ...	28s nom.
Madras ,,	Finger fair to fine bold bright	25s a 27s 6d
Do. ,,	Bulbs ..	20s a 21s
Cochin ,,	Finger ..	24s
	Bulbs ...	7s 6d
VANILLOES— lb.		
Mauritius 1sts	Gd. crystallized 3½ a 9 in	17s 6d a 27s
Bourbon 2nds	Foxy & reddish 4½ a 8 ,,	15s a 22s
Seychelles 3rds	Lean and inferior ...	15s a 13s 6d
VERMILION lb.	Fine, pure, bright ...	3s 3d
WAX, Japan, squares cwt	Good white hard ...	35s a 36s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

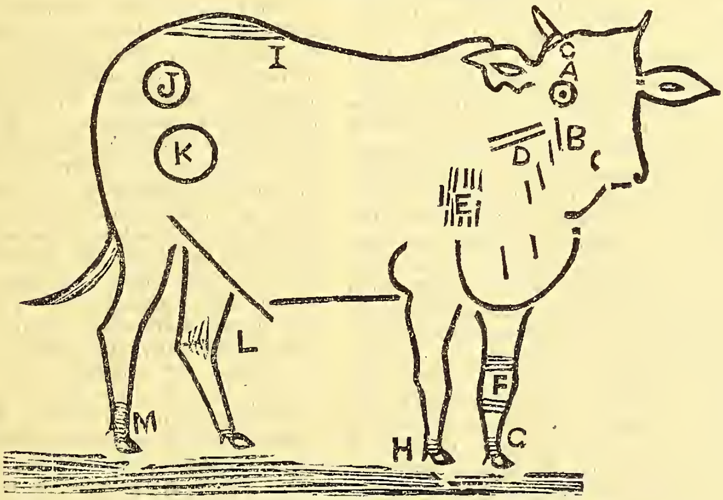
Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for October:—

Vol. XII.] OCTOBER, 1900. [No. 4.

THE BRANDING OF CATTLE.

(Continued from last number.)



A. Round eye.

B. On cheek.

C. Rouud root of horn.

D. On neck.

E. On shoulder.

F. Round knee.

G. Round fetlock.

H. About suffraginous bones.

I. Loins

J. Point of hip.

K. On round bone.

L. On hock.

M. Hind fetlock, suffraginous bones and coronet.

The common method of branding cattle in this country—by which a great part of the body is covered with letters, figures, designs and diagrams—tends, so to speak, to deaden the skin, so that its physiological functions are seriously interfered with. What our village cattle keepers have to be taught is that it is not the immoderate use of the firing iron, or even of drugs, that induce's cattle to develope and put on flesh, or impart strength to them; but that it is the food and the care bestowed on them. I shall now go on to consider the second division of my subject, viz., branding for identification. In Ceylon there is no system adopted by cattle-owners, nor are there any regulations specified by the State, in regard to branding for identification. As a rule, the letters branded for identification are of unnecessarily large size, and it is not uncommonly the case that the initials of the owner's name practically cover the entire side of the animal's body. In some countries there are special regulations as to the places where branding for identification might be done. I am inclined to think that the best places for marking is the croop or the thigh, and that no letters need occupy more than three square inches. I have heard it suggested that animals should be branded ou the neck, close behind the ear, as this does least injury to the hides. But I am not inclined to sanction this, particularly when the branding is done by the ordinary village hand, as the spot indicated is too delicate—I almost said vital—to be subjected to the action of a hot-iron, particularly when this instrument is carelessly handled. I quite see the force of the remark that hides are damaged by branding, but at the same time I cannot abandon my recommendation made from a veterinary point of view to suit commercial ideas. I would, however, avail myself of these ideas to enforce my objection against indiscriminate and immoderate use of the firing iron, since the more it is used the greater is the damage done to hides and the lower the prices they fetch. Many other devices have been conceived for superceding the firing iron in marking for identification, such as ear-marking, tatooing, and branding with chemical solutions, but when we consider the circumstances of the mass of the Island population, it is not to be hoped that any of these devices can either be recommended or enforced. I do not think that branding with the hot iron could be superceded as a convenient and satisfactory method of marking for identification, but what is necessary is that such branding should be limited by certain regulations, which should be enforced through the ordinary administrative channels, so that while the cattle-owner marks his cattle in a manner and to a degree sufficient for purposes of identification he does not cause unnecessary suffering to the beast, nor damage the prospective value of its hide.

A. CHINNIAH.

(*To be concluded.*)

[*Erratum.*—For "opening parotid," in line 19 of the first part appearing in the September number, read "open parotid."]

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF SEPTEMBER, 1900.

1	Saturday ..	3·87	17	Monday ..	Nil
2	Sunday ..	·45	18	Tuesday ..	Nil
3	Monday ..	·42	19	Wednesday...	Nil
4	Tuesday ..	·45	20	Thursday ..	·12
5	Wednesday...	·03	21	Friday ..	Nil
6	Thursday ..	·50	22	Saturday ..	Nil
7	Friday ..	·45	23	Sunday ..	Nil
8	Saturday ..	Nil	24	Monday ..	Nil
9	Sunday ..	·04	25	Tuesday ..	Nil
10	Monday ..	Nil	26	Wednesday...	Nil
11	Tuesday ..	Nil	27	Thursday ..	Nil
12	Wednesday...	·37	28	Friday ..	Nil
13	Thursday ..	·07	29	Saturday ..	Nil
14	Friday ..	·65	30	Sunday ..	Nil
15	Saturday ..	Nil	1	Monday ...	·57
16	Sunday ..	Nil			
				Total..	7·12
				Mean..	·22

Greatest amount of rainfall in any 24 hours on the 1st Sept., 3·87 inches.

Recorded by Mr. C. Driebebg.

OCCASIONAL NOTES.

A correspondent, who is evidently interested in tropical drug plants, for which we know there is some enquiry from Europe, sends us a list of plants and asks us for the Sinhalese names. We give below a note on each of the plants named: 1. *Michelia champaca*, Champak, Sapu. 2. Sweet Basil, *Ocinium basilicum*, Suvandatala. 3. *Tinosporae.* There are three indigenous species of Tinospora: *T. malabarica.* var. Tomentosa, Bukinda, Walkinda; *T. crispa*, Tittakinda; *T. cordifolia*, Rasakinda. 4. *Wrightia antidysenterica*, now *Hollarrhena antidysenterica* is Kenchi a Conessi bark of commerce. It is not indigenous and has no native name. A close ally is *Hollarrhena mitis*, Kiriwalla or Kirimawara, is found native, and the bark is much used medicinally for fever and dysentry. Dr. Trimen states that the bark is sold under the name of "Kalinda." 5. *Emblica officinalis*, now *Phyllanthus emblica*, the *Emblic myrobalan*, Nelli. 6. *Saraca indica*, Diyatalmal or Diyaratambala. 7. *Abroma augusta*, "abrome," not indigeuous and no native name. 8. *Nigella indica*, now Nigella sativa, small fennel or black cummin, Kaluduru. 9. *Trapa bispinosa*, Ikiliya. 10. Aloes, the drug is the product chiefly of *Aloe vulgaris*, not indigenous, no native name. 11. Neem, Margosa or Kohomba, *Azadirachta indica.* 12. Sepalika, this is the native name of *Nyctanthes arbortristis.*

A correspondent signing himself Robert Thompsou has addressed a letter to the Secretary of State for India on the subject of Cacao Cultivation, which from the writer's experience of cacao he is led to believe will succeed in certain parts of the Empire. Mr. Thompson has seeu cacao grown successfully under irrigation ou vast areas where the rainfall is very meagre, and he is sanguine that the same can be done in parts of India if the trees are grown under "shade." Refering to past

failures in the attempt to establish cacao gardens in India, Mr. Thompson says that notwithstanding the abortive attempts referred to, there can be little doubt that in Southern India numerous sites could be selected for the establishment of plantations of this important product.

There is perhaps no plant more peculiar in its relation to soil, temperature, rainfall, aspect and such natural conditions than is cacao, as witness the very restricted area in Ceylon in which cacao flourishes. However, we sincerely hope Mr. Thompson is right in his conjecture, which coming from a man of his experience is worthy the notice of the Imperial authorities, and we thrust that a fair trial will be given by the Indian government to cacao culture under the conditions indicated by the writer in question.

The Superintendent of the Calcutta Botanic Gardens, referring to Rhea, mentions in his report that a machine which is said to meet all requirements, and which certainly meets the needs of Rhea growers better than any hitherto offered, has now been put upon the market, and its advent appears likely to give a fresh inpetus to rhea cultivation. It is a pity the machine in question is not more definitely referred to, for there are a number of people in Ceylon possessing stocks of rhea, who would be glad to have further particulars.

Dr. Reginald Ashe, the Superintendent of the Jail at Mymensing, has lately used with much success, in the treatment of diarrhœa and dysentery, flour made from the plantain. Any variety of plantain, he informs the *Indian Medical Gazette*, will do, but the *kutch kala (musa sapientum)* from its size is the best to use. The plantains are cut just before ripening, they are skinned with a sharp wooden knife, so as to avoid blackening, then cut into thin slices, sun dried, pounded in a mortar, and sifted through muslin. The fine powder or flour should be stored in air-tight glass bottles. The issue is 2 oz. for each meal, cooked in a brass vessel with a little water. *Dahi*, or butter milk, can afterwards be added. The taste of the plantain powder is slightly astringent, but fruity and palatable.

In the last published report on the Department of Agriculture, Bombay, the following occurs under the head of Agricultural Education:—As a step towards reviving the agricultural classes which were languishing for want of students, the scholarships attached to the classes have been reduced in number and raised in value. The University have recently agreed to the conversion of the diploma in Agriculture into a degree, and Government have also been pleased to direct that the licentiates of Agriculture should have a preferential claim to District Inspectorships of Agriculture before other officials of the Revenue Department or those of the Survey Department who do not know English, and that they should also be placed on the same footing as licentiates of Civil Engineering for admission to the Forest Department, provided they undergo the special course of training in forest subjects and pass the same tests in those subjects.

The same report, under the head of cattle disease, gives the following interesting statement showing the percentage of deaths from Rinderpest and Foot and Mouth disease in the Bombay Presidency. Rinderpest—attacks 1,220, percentage of deaths 68·85; Foot and Mouth disease—attacks 2,679, percentage of deaths 4·23. It is remarked that this shows a decease in the number of attacks as well as in the percentage of deaths.

PROFESSOR ROBERT WALLACE.

After a considerable interval of time we have had the pleasure of hearing from the Professor of Agriculture at Edinburgh University, who has always taken a keen interest in Tropical Agriculture, while he has already visited Ceylon three times in the course of his travels to India and the Australian Colonies. Professor Wallace, who is possessed of remarkable energy and great power of observation, has made it a point of studying the agriculture of the British possessions on the spot. His first visit was to Canada, and later on he traversed India, Australia, and the Cape, dealing with the agriculture of each of these countries in a book or pamphlet, or a course of lectures. In the letter received by last mail, he writes:—

"I am now busy writing my new Indian lectures, and find the work most interesting. Of course I include Ceylon in my new course, and anything of importance you think should be noted, I shall be glad if you will let me know. I may go out again some day to Australia, so there is a more or less remote chance of my looking in upon you. My brother from Egypt (where he is Director of Agriculture) who is staying here (Thornhill, Dumfriesshire) has just returned after a trip 'round the world,' but went by Japan instead of your way."

Professor Wallace encloses a syllabus (issued as a supplement to the *Edinburgh University Calendar*) of the new course: The Garton lectures on Colonial and Indian Agriculture. The course is dealt with in the following manner: Section 1. (Session 1900-1901, 20 lectures) India and Ceylon, Egypt, South Africa. Section 2. (Session 1901-1902, 20 lectures). The Dominion of Canada, Australasia, the smaller Crown Colonies (West Indian Islands, British Guiana, the Straits Settlements, Uganda, and other African Continental possessions and Islands; Islands in the South Atlantic and Pacific Oceans.) The agriculture of India and Ceylon is treated of, under the following heads, which are again divided into a large number of subheads: Introduction, Tillage Implements, Cultivation of Crops, Irrigation, Manures and Live Stock. As showing the interest which the Professor still takes in the East, we reproduce, on another page, a letter written by him to the *Scotsman* on the subject of Indian Forestry. Query: Is the Ceylon Forest Department more considerate of the Forest rights of the natives?

CEYLON TIMBERS.

Still another Report on the specimens of timber sent from Ceylon to the Imperial Institute has reached us. We have already referred to the Report of Professor Unwin; the present report is by Mr. Herbert Stone, F.L.S., one of the expert referees of the Imperial Institute.

Mr. Stone, at the outset of his report, states—and gives good reasons to support the statement—that there is but a poor chance of our Colonial timbers competing with English woods, unless they present some peculiar merits. The exceptions are those timbers which in some way resemble English staple timbers and which will pass under the same name. Three examples are Suriya-Mara (*Albizzia odoratissima*) Halmilla (*Berrya ammonilla*) and Lunumidella (*Melia dubia*). These, if imported respectively as "Ceylon rosewood," "Ceylon Satinwood" and "Ceylon Cedar," would, it is expected, with the help of assiduous advertisement, readily be bought on trial, and probably be adopted for many purposes. Unless such a plan (which Mr. Stone hastens to assure us, is no deception, from a trade point of view) is adopted, only one out of the nineteen specimens of Ceylon woods examined has any chance of gaining a footing in England.

Mr. Stone writes short but interesting notes on the following timbers:—

Michelia champaca, Sapu, S; Sanpakam, T.
Pleurostylia Wightii, Piyari, S; Panakka, T.
Calophyllum Burmanii, Gurukina, S; Chiru-punnai, T.
Pterospermum suberifolium, Velanga, S; Toddi, Vinnaku, T.
Vitex altissmia, Milla, Milila, or Sapu-milila, S. Mailai Kata-manaku, T.
Zizyphus jujuba, Masan, Maha-debara, S; Ilanthai, T.
Vatica Roxburghiana, Mendora, S.
Carallia calycina, Ubberiya, S.
Cryptocarya membranacea, Tawenna, S.
Carallia integerrima, Dawata, S.
Azadriachta indica, Kohomba, S; Vempu, T.
Melia dubia, Lunumidella, S; Malai-Vempu, Patiri, T.
Alseodaphne (*Persea*) *semicarpifolia*, Wewarani, S. Ranai, Yavaranai, T.
Heritiera littoralis, Etuna, S; Chomuntiri, T.
Thespesia populnea, Suriya, S; Pu-varasu, T.
Berrya ammonilla, Halmilla, S; Chamandale, Male Kuda-munakku, T.
Albizzia odoratissima, Suriya-Mara, S; Karuvakai, T.
Preicopsis mooniana, Nedun, S.

Presumably it is the same collection, consisting of twenty-two specimens, which was submitted both toProfessor Unwin and Mr. Stone for report. Of these twenty-two, the present report deals with nineteen, those not dealt with being *Calophyllum bracteatum*, Walukina, S., *Artocarpus integrifolia*, Kos, S., Pila T., and *Artocarpus nobilis*, Del, Waldel, S. Why such common building timbers as the two latter have been left out is not stated. It is a pity that a number of errors in nomenclature has crept into both Professor Unwin's and Mr. Stone's reports—particularly as regards native names. To give an instance, one specimen is referred to as Vuinaka and is said to have been marked Vincol. In order to identify the wood the specimen was sent to Kew, but the name could not have been found in its corrupted form in any of the lists. It is most probable, however, that the wood referred to was *Pterospermum suberifolium*, and we so give it in the above list in which we have inserted all the Sinhalese and Tamil names as well. Again, one or two errors are likely to lead to great confusion,—for instance, Tawenna is given as *Dicopsis petiolaris* (now *Palaquium petiolare*, order Sapotaceae) instead of *Cryptocarya membranacea*, order Lauraceae). It is doubtful therefore which is the correct name of the specimen at the Imperial Institute, whether the Sinhalese or the botanical one.

As might be expected from his general remarks with reference to Ceylon timbers, Mr. Stone has not much to say in his notes in praise of our woods except in the cases already mentioned. Regarding Ubberiya, he says "this wood is the most beautiful of the series, resembling remarkably the most beautiful wainscoat oak in every direction of the grain. Apart from the reddish tinge, there are very few persons, even in the trade, who would not pronounce the wood to be oak." But even this beautiful wood has its drawbacks, since it does not darken with age, nor preserve its colour when polished.

In the note on Lunumidella, which, as stated above, Mr. Stone selected as a marketable timber, we read "to obtain the best effect of the grain, Lunumidella must be cut in the direction of the radius, *i.e.*, quartered, as the beautiful satin lustre does not appear in the tangential section." This is a hint—if the fact is not already known—which local timbermen and builders should take note of. The lightness of Lunumidella is said to be remarkable, and for this quality alone, says Mr. Stone, it should have a future before it. Suriya-mara, referred to as "the sweet-scented *mimosa*," (a name by the way we have never heard it called by) is perhaps best spoken of in the report. The timber is said to be a 'genuine rosewood,' the wood "extremely hard, even harder than Ebony." (Indian rosewoods are the product of *Dalbergia latifolia* and *D. sissoides.*) It is recommended that Suriya-mara should be allowed to season for at least two years before shipment, as the logs examined were found to be quite wet, though it is surmised that they must have been felled not less than eighteen months previously. This would lead us to suppose that the wood specimens reported on must have been a late contribution from Ceylon to the Imperial Institute collection, and not part of the original consignment of samples made some 8 or 9 years ago. Of Nedun, which is considered one of our best furniture woods, Mr. Stone has, strangely enough, very little to say in commendation.

We cannot help thinking that to be able to report to the best advantage, the timber expert should, in addition to the application of technical tests, examine timber not merely by means of hand or block specimens of doubtful age, but in the mass and even *in situ* before making deductions which are intended to have a practical and commercial bearing.* If, however, Mr. Stone has been the means of introducing three of our Ceylon woods to the notice of English timber dealers, we, and all who are interested in the development of the Island's resources, will have occasion to be grateful to him; but then it is a question whether the Island can spare, for purposes of export, any appreciable quantity of the three timbers which are said to have a future before them.

CLINICAL NOTES.

VASECTOMY.

On the 25th of August last I performed this operation on an Arab horse "Anthony." Instead of amputating the whole cord, I removed only about two inches of the *vas deferens,* more by way of experiment than for any other reason. I am glad to say that the operation was attended with no bad results, but in fact was as successful as could be desired, as the animal was able to be ridden on the 12th day after the operation.

The following was the *modus operandi*:—The animal was thrown down and secured in the usual way, but no chloroform was used. I began by making an antero-lateral section, with proper antiseptic treatment, on the off side of the scrotum along the line of the cord, and carefully dissected and took out the *vas deferens,* which was eventually severed and a piece about two inches in length removed. I fastened the wound with catgut ligature and covered it with antiseptic cotton wool and painted it over with colodion. The incision on the near side was postero-lateral, and made close to the groin. As a result there was slight bleeding from the scrotum. This wound was treated similarly to the first. The first wound was an exposed one and required to be protected from flies, but that on the near side did not give this trouble, though from its peculiar position it caused an awkward gait in the animal till it was perfectly healed. I however prefer the antero-lateral to the portero-lateral section.

The advantages of this operation over ordinary castration are: (1) It preserves the testicles, as a natural appendage of the horse. (2) It is less painful and cruel as no nerve is burnt, cut, or twisted. (3) The healing is quick, and in this, particular care was effected in what I consider to be the minimum time. (4) There is no liability to tetanus. (5) There is less chance of the growth of a schirrous cord. (6) There is little or no bleeding. (7) There is economy in the preservation of tissues which in the ordinary operation are cut or mutilated. Perhaps the only objection that could be brought against this operation is that it is apt to cause perplexity to the breeder, and even mislead him, as the presence of the testicles is apt to deceive him into the belief that an animal so operated on is still a stallion. A new term would be required for such horses, for the term gelding would not correctly describe them.

A. CHINNIAH,
Veterinary Surgeon

[*Erratum.*—In August number, under Clinical Notes, for "bracheal" read "median."]

THE GRAFTING OF THE MANGO.

In Ceylon we only hear of grafted mangoes in the Northern Province where this system of propagation was taught the Jaffna Tamils by Mr. Dyke, a past Government Agent, whose name is still associated in the North with many useful measures for the improvement of Agriculture and Horticulture.

In the Bombay Presidency the common method of grafting in vogue is that known as inarching or grafting by approach. It differs from graft, ing in that the scion is not removed from the parent until they are both firmly adherent. The operation is thus described in Dr. Nicholl's Tropical Agriculture: A branch of the parent having been selected about the same size as the stock, the bark and a portion of the wood are pared away to the extent of two or three inches, and they are then bound fast together, the bark of the wounds being accurately fitted, and grafting wax applied over all. It is usual to make tongues in the stock and the scion, so that one may fit into the other, but this is not really necessary, although it helps to prevent movement, which is always fatal to union.

On a visit to India some years ago the writer saw this method of propagating the mango extensively practised in the neighbourhood of Bombay. It would appear, however, that there is anothor method of grafting even simpler and more sure than inarching, which we think is worth a trial by all growers of the mango in Ceylon. Mr. Horace Knight, writing to the *Queensland Agricultural Journal,* says that after long and close observation and numerous experiments, he has arrived at the conclusion that no other tree is simpler to graft according to this new method, and that the work can be done at any time, though it is best done when there is an upward flow of sap. He then goes on to describe the process which he has adopted and finds so successful, namely, that in which the bark only is used without any adhering wood. The process is in fact more akin to budding than to true grafting, since the grafts are simply pieces of bark, which though they have no growth on them, contain dormant eyes or buds. The size of the pieces of bark may vary according to the size of the trunk or branch on which they are to be grafted, but the most convenient proportional dimensions are said to be length twice the breadth, and if the pieces are taken off from places where rings occur, there will as a rule be found two or three latent buds in the pieces. The bark may be taken off either old or young trees, but the older bark is more easily removed and handier to trim into shape. In carrying out this method of grafting the first thing to be done is to cut out the section for inserting upon the host. Should the edges of the piece cut out be bruised or torn, cut the injured parts away till sound healthy bark only remains. Now press the piece firmly over the spot on the host where the piece is intended to grow, and make a clean cut into the bark of the host all round the piece and of the shape of the piece. Next take out the bark on the host which has been cut into and put the prepared section in its place. Do not make it fit so tightly that it has to be squeezed in, but make it a nice fit. Now bind it on with ordinary candle cotton, or other convenient material, with just sufficient pressure to make it touch the underlying tissues of the host, avoiding, if possible, binding over the buds. Clay or grafting wax is not required, as is commonly supposed, to keep out air and so effect a union. It may happen that the prepared piece of bark is thicker

than the bark of the host; but even in such a case if carefully applied and tied on, union will follow. If the weather be hot and dry the leafage above the graft may be left for shade, but should be ringbarked 6 or 8 inches above the graft. In two or three weeks' time the upper growth of the host may be removed by cutting at the point where it was ringbarked. If at the same time the buds on the graft are found to have started into growth, the binding may be removed. All young shoots except those on the graft must be rubbed off as soon as they appear. In favourable weather on the other hand the host could be deprived of its leaves and the majority of its branches. At this stage, the tree, being highly impregnated with sap, will take kindly to the piece of foreign bark that is inserted into its own bark and bring about union without delay.

MYRISTICA KINO.

Agricultural Ledger, No. 5, of 1900, deals with Kino obtained from the so-called wild nutmegs (Myristica, sp.) Kino, as obtained from the barks of trees, is of two kinds: Malabar Kino, which is the best, is got from *Pterocarpus marsupium.* This tree, which is indigenous to Ceylon, is known by the Sinhalese as Gamalu, and in Tamil as Venkai. Trimen, in his Flora, records the fact that a red gum-resin exudes from the bark and is used medicinally, also that it affords a fine timber, very hard and heavy, dark reddish brown, durable and containing a red resin. The other kind, called Bengal Kino, is the product of *Butea frondosa*, also indigenous to the Island, and known in Sinhalese and Tamil respectively as Gaskela and Parasu. Dr. Trimen says of it: "A dark red astringent juice exudes from the bark, which hardens into a brittle ruby-coloured resinous-looking gum, the Bengal kino of commerce." The wood is described as soft, light, and not durable.

These gums are used largely in medicine as astringents, the former having been for long an official drug in the British and American pharmacopœias.

Some four years ago Dr. Edward Schaer, Professor of Pharmacology in Strasburg wrote a paper on a new kino from Myristica, after examination of an extract handed to him by Dr. Warburg of Berlin who had received it from the Director of Kew. The specimen was obtained from *Myristica malabarica*, and was like the official kino in appearance.

Professor Schaer succeeded in obtaining from Buitenzorg further specimens of products of other wild nutmeg trees. In each of these he found a crystalline deposit which distinguished them from the kino from other sources. This deposit was determined as *Calcium tartrate*—a conclusion of some interest in vegetable physiology as inorganic crystals peculiar to plants have hitherto been traced to *Calcium oxalate*, sulphate, phosphate and carbonate.

Dr. Schaer summed up the result of his investigation as follows:—The dried juice of several Asiatic species of Myristica (*e.g.*, *M. malabarica*, *M. fragrans*) as regards appearance and physical qualities, show but little difference from Malabar Kino. 2. This substance which may be termed "*Myristica kino*" agrees in the chemical reactions due to their constituents in all important points, with the kino of *Pterocarpus marsupium.* It can therefore be stated that drugs of a very similar character, and partly of close resemblance to official kino, are to be found in the families Leguminosæ (*Butea*, *Pterocarpus*, *Milletia*), Saxafragaceæ (*Ceropetalum*), Myrtaceæ (*Eucalyptus*, *Angophora*) and Myristicaceæ.

3. Myristica Kino differs as far as can be observed, from the *Pterocarpus kino*, and probably also from Butea and Eucalyptus kino, by containing in the crude state of the inspissated fresh juice, smaller or larger amounts of a distinctly crystalline calcuim salt, viz., calcium tartrate, suspended in, and depositing from the liquid juice. By this characteristic admixture it can be easily distinguished from the official kino and probably also from other kinds of commerce."

There is no doubt that the property of secreting this so-called "Kino" is possessed by nearly all species of Myristica; indeed, Kurz in his "Forest Flora of British India," remarks that one of the features of this genus is that the bark "abounds in an acrid juice which is viscid and stains red." *M. longifolia* is said by Dr. Watt to exude a red resin, while *M. gibbosa* and *M. Kingii* (both Indian trees) also yield gum resins which can be evaporated into a kino-like substance, particularly the former, of which it is said that the evaporation of the clear juice gave a kino which was almost indistinguishable from commercial specimens of Malabar kino.

In Ceylon we have four indigenous species of Myristica. *M. horsfieldia*, the Sinhalese "Ruk' is well-known for its wood which is used for boat-making (the flowers of which have the characteristic odour of sandalwood); *M. irya*, Sin. Irya; *M. zeylanica*, and *M. laurifolia*.

This last is the familiar "Malabodde" or "wild nutmeg" of Ceylon, the arilled fruits of which are very like the true spice fruit. The wood of this tree is light and sometimes used for tea-boxes, while Dr. Trimen mentions that an orange-red astringent gum exudes from the bark. Mr. T. F. Bourdillon, Conservator of Forests for Travancore also refers to *M. laurifolia* as secreting "a thin red juice" from its stem.

The report on Myristica Kino concludes thus: "If the fresh juice could be collected in any quantity from the wild nutmeg trees of India, and evaporated to dryness without much delay, the residue would be an admirable substitute for commercial kino." At present, however, there is no call for Kino from the new sources indicated, as there is enough of the commercial article produced by the forests of the west coast of India. Still it has been shown that such new supplies will be always available to be drawn upon whenever necessary.

CULTIVATION OF THE ARECANUT IN BOMBAY DISTRICT.

[A note by Mr. J. W. Mollison, Deputy Director of Agriculture, Poona.]

(*Continued.*)

The palms are raised in seed-beds and are once transplanted before they are planted out permanently. The first seed-bed is carefully prepared, the soil is dug, broken fine and mixed with leafmould. Fully matured nuts from old trees are specially selected for planting. These are planted about 9 inches apart, in April. The seed-bed should be kept thoroughly moist. The shoots appear in June. The seedlings are transplanted in October into any moist place in the garden or along the water-courses about 2 feet apart and remain thus until permanently transplanted. This permanent transplantation is usually done towards the end of the rains. In the following March the trees are manured with leaf manure and the manure is covered with fresh cut branchwood which is partially withered, but which retains the leaves. The object of placing a layer of small branches above the manure is to break the force of heavy rain. The rain soaks through the brushwood, moistens the manure, but does not carry it away as would be the case if it were uncovered or covered with soil or in any other ordinary way.

The betel-trees are manured as described every second year and come into bearing in ten years or so. The plantains are maintained for some years after the betel-palms are permanently planted, but in time are removed and the cardamoms are planted between the palms and on the stems of the latter pepper vines are trained.

The *bharan* gets more or less washed away during each monsoon and the channels more or less damaged. This to some extent is prevented if plantain leaves, dried grass, and other available rubbish is put on the surface. But despite any precautions, the *bharan* is more or less denuded. The earth from the pathway is therefore removed to repair the drainage channels, &c., and new Kogodali earth is brought in, in headloads from the cuttings which border the gardens and placed along the centre of the *bharans*. This renewal is necessary at least every third year. It is an expensive operation, but the excavation from the cuttings is done in a systematic manner, the area of the garden can be gradually extended. The trees in the first plantation of betel-palms generally stand wide apart, but as they grow other young trees are planted between them. A nursery is always maintained to provide young trees for this purpose and to replace those which die from time to time.

Betel-trees are known to fruit for thirty or forty years, and there is a popular belief that they sometimes propagate much longer. On an average each tree has two bunches of fruit, sometimes three or four. But two good bunches yield as much as three or four inferior ones. The size of the bunches depends upon the manure used and upon the rainfall. A good bunch gives 200 to 300 nuts, and a specially good one about 400. with unfavourable rain or cloudy weather in April or May, many of the young nuts fall off and a smaller number of nuts on each bunch reach maturity. The trees produce flowers in March and April and the nuts are ripe in November or December, but to some extent the trees produce flowers and fruit out of season. Immediately below each bunch there is a frond, or leaf. It, with its sheath, remains attached to the tree for about two months after the inflorescense comes. Then these leaves fall to the ground. A few additional leaves fall during the monsoon. The sheaths of the leaves are a valuable product in the garden economy, they are used to provide hoods for protecting the bunches of betel nuts from the rain. If not protected the nuts rot. Two sheaths are used to make one hood.

The sheaths are skewered together to form a hood by means of thin pieces of split bamboo in a manner which is easy to demonstrate, but difficult to describe in writing. The hood is made adjustable in a very ingenious manner: and when it is bound round the bunch with thongs of plantain bast, it efficiently wards off rain.

The hoods are made and tied on by professionals who come from Mysore territory and below the ghats. A good workman can make 250 hoods per day and is paid Rs. 2 per 1000. This operation and tying them on carts at contract rates Rs. 10 to Rs. 12 per 1000 bunches and 2 meals per day, the men do not ascend and descend each tree, when once they have climbed up, they by means of slight exertion swing the tree and deftly catch hold of another and rarely descend to the ground for hours. The expert climbers who gather the fruit by cutting the bunches from the stem, getting Rs. 4 per 1000 bunches and three meals per day. Some garden owners or their regular servants are experts in making hoods, in adjusting them, and in climbing the trees. It is extremely interesting to note the manner in which the work is done. The climbing in the fair season looks extremely simple and easy to an onlooker, but in the monsoon with falling rain the tall smooth stems are slippery and the ascending process is much more difficult. The climber first ties his feet together round the insteps with strongbands, stripped from the sheath and leaves of the betel palm: this helps him to grip the stem with his feet. He carries with him strung round the neck a wooden rest on which to sit when he gets to the top. This rest is shaped like a two armed pick, and through a hole which corresponds to the shaft hole of a pick, a rope is passed and spliced, so that it is endless, when the fruit is reached the rest is unstrung and attached to the tree. The double end of the rope is passed round the stem and is long enough to pass over the two prongs of the rest, and when drawn tight secures the rest to the tree. It does not slip down, because the circumference of the stem increases downwards and the rings in the tree offer obstruction

to sliding and slipping. The operator sits resting one thigh on each wing of the rest and one hand at least is comparatively free to fix the hood over the bunch of nuts or to sever the bunch, when ripe, from the stem. The bunches when ripe are lowered to the ground by being slung to a rope over which they ride. Any one who has seen a bunch of betel-nuts can easily determine how the bunches are placed on the rope. They rapidly slide down and are caught by a man who holds the end of the rope at the ground. The stretched rope is held inclined at a considerable length from the tree.

(To be Concluded.)

ON THE FORESTS AND WASTE LANDS OF CEYLON.

By A. F. Broun, Esq.,
Conservator of Forests.
(Concluded.)

The Mountain Zone.—The forests of this zone form the cap of the island. It is from them that all the most important rivers take their rise, and for the preservation of water supply it is therefore necessary that they be preserved. The highest summits of the island, unless they are too rocky for tree growth, are covered with trees which form a continuous sheet from Pedro Peak to Hakgala, from thence to Totapela, and in a curved line to Kirigalpotta and Adam's Peak. The forests are found on both sides of the ridges, but the tea estates of Bogawantalawa and Maskeliya have encroached far up the slopes. It is not improbable that to these clearings is due to the silting up of the lower reaches of the Kelaniganga, and the consequent frequent inundations which are a plague in the low-country. A wise rule now prevails to allow no sale of Crown lands above 5,000 feet, and there are not many of these left between 4,000 and 5,000 feet. The general character of the forests of the mountain zone is the same as that of the dry country; the trees are flat topped, not generally very tall, and the undergrowth is not unlike in general appearance, the most characteristic are several species of *Eugenia, Calophyllum Walkerii, Michelia nilagirica, Gordonia zeylanica, Elaeocarpus obovatus, E. glandulifer, Meliosma pungens, Litsea* (5 species), *Rhododendron arboreum*, &c.

The undergrowth consists, especially above 5,000 feet, mostly of the numerous species of Strobilanthes which flower and die down every twelve years, and some of which reach a height of 20 feet and a girth of trunk of 12 inches. During the flowering time the forest is a blaze of colour, and swarms of bees, attracted to the flowers, produce abundance of honey, which has a peculiar flavour. When the seed ripens, thousands of jungle fowl suddenly appear wandering up from the low-country for the food, which they obtain abundantly.

Besides these plants, there are also large quantities of the little hill Bamboo (Arundinaria), species of *Coleus, Hedyotis*, and ferns, of which the most noticeable and characteristic is the handsome tree fern *Alsophila crinita*, which is found in moist places, in gullies, or on the face of moist rocky precipices. The stem of this occasionally attains a length of 40 feet. Among others the most interesting are *Lomaria Patersoni, Lastroea Beddomii, Leptogramme Totta, Osmunda javanica* (in sunny places near streams), *Diacalpe aspidioides, Doodia dives*, and *Marattia fraxinea*, the last being only found in the lower portion of zone, replacing *Angiopteris evecta*, which it closely resembles. The moisture in the atmosphere causes the branches and trunk of trees to be covered with epiphytic plants, such as numerous mosses, ferns, of which some *Hymenophyllums* closely resemble the mosses, and orchids, the most beautiful of which latter are *Dendrobium aureum, Cologyne odoratissima*, and *Eria bicolor*, and creeping plants such as *Piper, Medinilla fuchsioides*, &c. In this zone are found the strange *Balanaphoras*, which are found at higher elevations only within the tropics.

European genera are found mostly in this zone, but, on the whole, they occur chiefly in well-lit localities, or in patanas, and, excepting *Rhododendron arboreum*, the majority are shrubs or herbaceous plants, such are *Berberis, Cardamime, Viola, Hypericum, Rubus, Viburnum, Anaphalis, Lobelia, Campanula, Gentiana, Pedicularis, Drosera*, &c. Exceptions to this rule are *Impatiens*, of which there are numerous species, some extremely handsome, *Vaccinium* and *Ilex*, which all grow under shade.

This concludes my sketchof the forest flora of Ceylon. It is a very incomplete one, but with a wealth of species to choose from, it is difficult not to omit a number of characteristic ones. To this may be attributed any glaring omissions, as well as to the fact that the writer of this notice can in no way lay any claim to being considered anything botanically but an amateur.

INDIAN FORESTRY.

University, Edinburgh, August, 1900.

Sir,—The reference to Indian Forestry made in the London letter of your issue of 30th July opens a subject that should receive more notice at this time in view of its bearing upon famine in India. The following quotation conveys a world of meaning to the initiated:—"Lord Elgin corrected the one mistake of the Department, which carried out too stringently the rules for minor produce. Now the forest pastures and brushwood are thrown open to the people to preserve their cattle in time of famine, and the old jealousy between the district and the forest officers has ceased."

In the published account of my visit to India in 1887, while pointing out the great benefits to India of forest conservancy and urging its enormous extension on more rational lines, I was able to point to more than one mistake of the Department and also to give several excellent reasons why such mistakes were possible. I believed then, as now, "that the best interests of the Empire must suffer if the main object of the efforts of the Forest Department is reduced to the growth of forest trees." It is probably a little premature to assert that the Forest Depart-

ment has made but "one mistake" when it took about forty years to discover the mistake in question and to have it rectified. People must not jump to the conclusion that we have adopted the wisest course in connection with the whole forest area of India by following the German plan of management and thereby entirely discarding the natural condition of annual purification by fire under which all the great forests of India have been grown during past generations. Probably time may show even from a forestry point of view that it would have been better not to have had our eggs all in one basket. There are many weighty reasons from the agricultural standpoint (now that the culivator has had restored to him some of the privileges of which Government, while ill-advised, saw fit to deprive him) why certain forest areas as of old should be regularly purged by fire. The position is fully discussed in the chapter of Forestry in *Indian Agriculture;* and the late Dr. Cleghorn, who kindly read the proofs of that chapter, without assuming any responsibility for the statements it contains, declared that, if my views proved to be correct, very important changes might require to be made in the system of forest management in India. After a lapse of ten years one of the most important changes asked for has been given effect to. Whether other necessary alterations will be made and how long it may take for their accomplishment remain to be seen.

It was specially gratifying to see General Michael, writing on 2nd August, emphasise the credit due to the late Dr. Cleghorn for the very important part which he played in the establishment of scientific forestry in India, but no one mentioned the fact that General Michael himself may be justly described as the pioneer of Indian Forestry. The forestal condition of India to-day might have been in a sorry plight, indeed, but for the grasp which the then Lieutenant Michael, from the time of his appointment as a forest officer in 1848, took of the situation in Madras, and the great success which he achieved in saving what remained of the ancient forests of Southern India, which were being rapidly and wastefully destroyed. There is no gainsaying the fact that the so-called "benighted Presidency" gave origin to the Imperial Forestry Department for all India, which with all its defects has achieved so much, and General Michael (1848 to 1855), followed by Dr. Cleghorn in 1856, were the instruments used in the preliminary work which led to its formation and to the appointment of Sir (then Mr.) D. Brandis as Inspector-General in 1864. It is a significant fact that largely owing to the judicious way forest conservancy was introduced in Madras the absence of friction between the forest officers and the people has been a conspicuous feature of the forest management in that Presidency. The so-called "old jealousies" to which your correspondent refers were experienced further north, where forest conservation was introduced more on the cast-iron German system (now happily begun to be relaxed), which did not sufficiently respect and adjust itself to the interests of the agricultural community, and to which it was my painful duty to refer in writing in 1898, "that much of the valuable time of the Forestry Department is taken up in fighting the Agricultural Department."—I am, &c.

ROBERT WALLACE.

August 15th, 1900.

ARTIFICIAL CHANGES OF PHYSICAL PROPERTIES OF SOIL.

(Continued).

Keeping in mind the great influence directly and indirectly exerted by the temperature of the soil upon the growth of plants, the practical agriculturist will endeavour to find means to modify the temperature according to the necessities of the plants. In colder climates, naturally efforts must be made to promote a rise in temperature, while in warmer regions it will often be necessary to proceed in the opposite direction. In what ways and to what extent the temperature of the soil may be influenced is briefly discussed below.

In the cultivation of plants which furnish products of high market value, such as vines, fruit trees, &c., and which require a rather high temperature, artificial changes in exposure or inclination (producing south-west, south or south-east exposure, or inclining the plane of growth more directly towards the south) may be of considerable benefit especially in cold climates. The method will, however, be productive of good results only when the soil contains sufficient moisture, because only in that case is the high temperature beneficial, and the increase in yeild sufficient to justify the outlay required to make the change. This method need not be restricted to hilly lands but can be applied to level soils. Roof-like elevations may be constructed with broad surfaces facing towards the south and rather narrow exposures towards the north. The former may be planted with crops that require considerable warmth, the latter may be renewed for grass or such other foliage as requires less heat. This method is not adopted to extensive field culture of crops furnishing products of comparatively low market value, both on account of the very unequal growth of the plants on the two opposite inclinations, and because the benefit derived even under favourable circumstances would not justify the outlay.

On hilly land in hot climates a reduction of temperature of the soil may be necessary on steep inclines facing the south, south-east or south-west, because under such conditions, not taking into account the fact that the moisture is generally insufficient for maximum crops, the temperature of the soil frequently exceeds the limits for the perfect development of plants. In such cases the construction of terraces offers special advantages, since by their means the temperature of the soil may be lowered and the moisture in the soil regulated in accordance with the needs of the plant. Another common method of altering the exposure of the soil consists in the construction of beds, running through the whole length of the field and separated from each other by furrows. The effect of this arrangement is to bring about a more rapid removal of water from surfaces of high water capacity, but, leaving out of account the fact that

this result may be accomplished by simple means (water furrows), the process in question has the disadvantage of producing unequal heating of two oppositely inclined surfaces, resulting in unequal growth of the plants on the two sides. For this reason bed culture is not suited to fields that are to be planted with only one kind of crop. In such cases level cultivation which secures a higher and more uniform temperature is decidedly preferable.

If, however, this method is followed the bed should run north and south if the field permits since the difference in temperature between the east and west slopes is far less marked than that of slopes facing north and south. In other words, the disadvantages of unequal heating is least with beds running north and south, an excellent means of raising the temperature of the soil in the cultivation of plants in ridges or in hills. Soils so cultivated have a higher average temperature during the growing season than those cultivated level. The effect is of longer duration in ridge culture than in hill culture, because in the former the ridges are constructed before seed time, while in the latter the hills are made in the more advanced stages of growth of plants. For this reason ridge culture is especially suited to plants which require a considerable amount of heat (maize, sunflower, beets, &c.,) in climates unfavourable, as regards temperature, to the growth of these plants. However, this is true only for regions in which the weather in spring is not too cold, for the plants growing on the top of the ridges are, on account of their exposed position, more easily injured by late frosts in spring than those planted on the level soil and hilled up later. As a general rule, both these methods are mainly adopted to such soils as have little capacity for collecting and retaining heat (clayey and calcareous soil), and which are also apt to collect excessive quantities of water. It is evident that the increase of temperature due to ridge or hill culture is of no advantage on soils of little water capacity and great permeability (sand) when precipitation is scanty. Under such conditions level culture is to be preferred. It should be remembered when ridge or hill culture is used that ridges running north and south are of higher and more uniform temperature than those running east and west. Regulation of the store of water is the soil is another means of modifying the temperature. If the soil is wet elevation of temperature is brought about by removal of the excess of moisture.

The proper means to this end are direct removal of water, lowering water capacity, and increasing permeability of the soil as already explained. That the desired result may be obtained by these means has been proved by various experiments. Another means of changing conditions of temperature in soils is intermixture with soils of opposite properties as regards heat. Admixture of sand with clay or earth rich in clay and limestone results under natural conditions in an average increase in the temperature of the soil, while the opposite process produces a lowering of the temprature of the soil. By thoroughly intermixing sand and humus a soil results which collects heat more rapidly and to a greater depth than is done by either separately. Increase of humus in mineral soils as, for instance, by the liberal application of manures of organic origin prevents extremes of temperature.

The TROPICAL AGRICULTURIST MONTHLY.

XX. COLOMBO, NOVEMBER 1st, 1900. No. 5.

NATIVE AGRICULTURE IN CEYLON.

PROPOSALS for Instruction of Natives in Improved Modes of Cultivation and the Introduction of Suitable New Products by E. Elliott, late Government Agent. Southern Province.

Precis of Proposals.

(1.) Separate European interests and leave them in hands of Director, Botanic Gardens and staff. §1-2.

(2.) Continue care of native interests in Public Instruction Department. § 3, 4, 9-10,

(3). Natives ready to follow example and adopt new process or products, if shewn to pay (instance given). § 5.

(4.) Duty of Government to shew the way by planting model market gardens, in villages throughout the Island, and working them by trained gardeners. § 6-7.

(5.) These men to be ignorant of English and to be drawn from the districts to which they will return after training, and required to open gardens on certain terms of remuneration for a limited period. § 8, 13, 14, 15, 16, 17, 18.

(6.) Training to be done at Government expense at Agricultural School, but all instruction to be given in Vernacular, and supplemented by a year's practical work on a farm on a line of rail not far from Colombo. § 9, 1[illegible].

(7.) Produce of farm to be sold at a stall in the public market, and it is believed it would be self-supporting after first year, as all the labour is to be supplied by students. § 12.

(8.) Seeds of all kinds to be provided at Agricultural School, and given freely to the gardeners.

(9.) Instruction to include breeding of poultry making of butter, and ghee, diseases of cattle and castration, &c.

(10.) Instruction in Paddy to be confined to cultivation of experimental plots at the central farm, to test suitability of seeds, manures, &c. Subsequent distribution to be through Government Agents or gardeners, but no cost of cultivation to be chargeable to Government. Other proposals for encouragement of the extension of paddy cultivation.

(11.) Cost of Scheme; immediate outlay to be raised from R10,000, (present cost of Agricultural School) to R20,000 and ultimately to R30,000 exclusive of cost of providing farm and buildings.

The Commission which has recently reported on the proposed department of agriculture has undoubtedly failed to ennunciate a practical scheme, and this I think is largely due to its not recognising at the very outset that what is suitable and probably required in the interests of agriculture as carried on by Europeans and other capitalists on a large scale, is not wanted for the humbler native cultivator of praedial products,

As regards what may be called European agriculture, it seems as if its requirements had been already fairly met by the recent additions of a Chemist, a Mycologist, and an Entomologist, and it may be left to Government in consultation with the Planters' Association to consider if this should be turned into a department with the Director of the Royal Botanic Gardens as the recognised head, which he now is to all practical purposes I believe.

As regards native agriculturists, the interference of these scientists is not required and is indeed to be deprecated, though their services would doubtless be available to advise in special cases, such for instance as an invasion of insects or extraordinary pests.

The object of this paper is to put forward a moderate scheme exclusively dealing with the interests of native cultivators working on a small scale:

The first fact to recognise is that native cultivators are ready to adopt improved methods and new products if they see that there is money in them. As instances of this I may recall that the native owners of small gardens freely bought hand pulpers when they found the *coffee* thus prepared fetched a higher price. In *sugar*, when a cattle mill for expressing the juice was provided at a moderate price, it was freely adopted by the cane growers in the Southern Province. *Citronella*, which was first grown by Europeans, was freely taken up, and thousands of acres in the Southern Province were cultivated with this product, and the oil extracted with the aid of steam and modern apparatus. When there was a demand for European *vegetables* in Galle for the French steamers, the agent of that line supplied seeds, and very large quantities of lettuce, chives, beet-root, tomatoes and other similar products were grown in the neighbourhood of Galle; but these have disappeared since the demand ceased.

The motto therefore for those desirous of improving and extending the scope of native agriculture should be *via per exemplum*. In the absence of the European element in most rural districts, the example should be set by Government—by the institution of model gardens—and their gradual multiplication all over the Island,—which would be more or less objects for imitation and centres for the distribution of improved seeds and new varieties. [The cultivation of paddy may be excluded from the scope of the general scheme and be dealt with seperately in the mode I will presently deal with.] In fact what is required in the first instance is the improvement of the cultivation of fruits and vegetables in villages and the substitution of regular vegetable gardens for the spasmodic crops now raised in chenas. Collateral branches requiring attention also are the improvement of the breed of fowls, dairy products, treatment of cattle including castration. To provide for the necessary instructors, or supervising agency for these model gardens, it will be necessary to gradually train a number of persons drawn from the localities to be served, and as they are qualified to return them to their own neighbourhoods throughout the country, beginning with gardens at the Agencies and Assistant Agencies with at least one smaller garden in each headman's division.

The training and controlling agency, with ramifications all over the Island for extension, is already available in the Educational Department, with which the Government Agents, their assistants and headmen are closely in touch and already work amicably.

A former Director was the first to take up the question and induce Government to give some measure of support. Any retrogression is due to the appointment of a gentleman who was a schoolmaster and took small interest in the subject. The position is now filled by a Civilian who has prior to his appointment paid some attention to the question, and as his tenure of office is likely to last for some years, there is a guarantee of a continuity of administration, which justifies adhesion to the existing arrangements in preference to a new departure.

Besides retaining the Director as the controlling authority I would adhere to the Agricultural School (subject to the modifications I will detail) as the mechanism for teaching a certain amount of theoretical knowledge (during the first year) and supplementing it with a working farm of some size on a line of railway, but as close as possible to Colombo, for practical work during the second year of the course. The farm should be rather a large market garden, at which vegetables of all kinds, country as well as introduced, should be cultivated by the students themselves according to the very best method, and the training should be such as to make them good practical working gardeners, conversant with European modes of Horticulture, as well as breeding of poultry, treatment of cattle (including ability to castrate). All agricultural work and attention to cattle should be done by the students, and no cooly labour allowed. A garden so worked should show fair profits, and should supply an existing demand for vegetables, green meats and good fruit in time.

The next consideration is, having your trained man, how to keep him in his village. The best safeguard for this is to look on a knowledge of English as a disqualification for admission to the Agricultural School, and to have all instruction at it conveyed in Sinhalese (Tamil can follow later after the wants of the majority in the Island have been fairly met). I would draw the first students from young vernacular schoolmasters and the most intelligent pupils in vernacular schools who have passed in the highest standard—a few from each district—and put them through a two years' course as already indicated. I would at first restrict the number of admissions to 20 a year, say for 5 years, and to induce the proper class to come up for instruction I would make it perfectly free, including cost of travelling to and from their homes, only excluding personal clothing. I believe a sum of R15 per head per mensem would cover this item. The knowledge now required on entrance and the further education given in general subjects at the school are fatal to the chances of those now trained at some cost adhering to an agricultural course: and to raise the standard would still further reduce the chances. If there is a demand for a higher course from those prepared to pay *moderately* for it, such students would be I think very few and familiar with Sinhalese colloquially, and would therefore benefit by the oral and practical instruction given, and be competent to supplement this by reading text books in English and some private tuition in the more advanced branches. To such a class Government might offer a scholarship yearly to proceed to one of the Indian Colleges for an extended course of education, and from them would be drawn the future teachers of the school.

My scheme proposes eventually to have

1. Provincial gardens at G. A. Stations.
2. District gardens at A. G. A. Stations.
3. Village gardens in Principal Headmen's Divisions
4. School gardens.

If suitable men are available I would make an immediate beginning with the 1st and 2nd class. Sites of moderate size are doubtless available or can be procured on moderate terms. Each garden should be allowed one cooly for a few months, after which the garden should be self-supporting by the sale of produce, and a regular account kept of receipts and expenditure. The gardens should be under the immediate control of the G. A.'s and A. G. A.'s of the stations. As funds accumulated improved breeds of fowls should be procured and the eggs sold or given away free (with the authority of the Agent) to villagers willing to undertake the rearing of poultry. Young cocks should also be distributed in like manner. Each gardener should be competent to castrate cattle and be required to do it free of charge. Dairies &c. might follow in time at the larger stations or where grazing is available.

As these stations are filled and the first purely vernacular gardeners trained under this system become available, one should be attached to each principal headman who should be required to find him a proper site for a garden, in which he should be expected to raise vegetables, fruits &c., in the mode he has been taught, digging up the soil, properly manuring, &c., giving information and setting an example and supplying seed to his neighbours. He should also be required to visit a certain number of schools in his neighbourhood and teach the scholars for say an hour twice a week, and induce them to start small plots round the school, the master being instructed to co-operate.

I look to this preliminary teaching to develope a taste for gardening, &c., and a useful guide to the selection of scholars for the Colombo school. The men should receive a small salary for the first year say of R15, to be reduced to R10 in the 2nd year, and R6 in the third payable half-yearly on production of a certificate to be granted by an Inspector or some other authority to be appointed by the Director that the payee is keeping up a proper garden. The produce of course he would be at liberty to sell and keep the proceeds. After a few years it would be possible to reduce the remuneration to a small grant or a more substantial prize for the best garden in a given area, &c. There would be then a margin for increasing the number without entailing a larger aggregate outlay. For certificated school-masters who have gone through the Colombo Agents, of course the Director would possibly secure re-employment as school-masters, and they should receive some additional remuneration on condition of keeping up a good garden, stock of poultry, and being ready or willing to castrate bulls *free* on application. I note Mr. Willis in his memo. (p. 7) speaks of the necessity of having gardens, but he connects with it a higher standard of education which is beyond all requirements, at all events at present. He also yearns for a better class of student, sons of wealthy native landowners. Such men invariably acquire a knowledge of English, are attracted to the towns, are not likely to take to a rural life and would only go to the Agricultural School for the general education he very properly deprecates.

My students would be drawn from the sort of landed population who are likely *not* to be spoiled by a temporary residence in Colombo, and are pretty sure to return to their villages.

To assist the Director in this branch and to secure an officer who will devote his whole attention to the working of the scheme, I would utilize the services of Mr. Drieberg (with suitable additional remuneration) as assistant for Agriculture and Inspector of Experimental Gardens. These he should personally visit and see how the gardens are working and give them instructions. He should, however, remain Principal of the School, but be relieved of personal tuition or lecturing, and also supervise the Model Farm visiting it very frequently.

I would suggest the D. P. I office might be housed at the Agricultural School. It would keep the Director more in touch with this branch of his duties and obviate the necessity of Mr. Drieberg's absence while attending an office in the Fort.

At the Central Farm special attention should be paid to country vegetables for the production of good seed for distribution to the rural gardens, as well as to the importation of seed of other vegetables which can be grown in the Island. There is a great demand in all parts for vegetables which is now met very imperfectly. Seeds of all kinds should also be cultivated for sale to the public at moderate rates.

Paddy Cultivation should also receive a great deal of attention at the central farm, and an area of 25 acres be kept continually under tillage, but this should be largely of an experimental nature to test suitability of new kinds of imported seed, their periods of growth, ratio of return, &c., also the value of various kinds of manure. The discovery of a plough which will turn up the soil to a sufficient depth but can be worked by the ordinary cattle is a matter that should receive attention. Other points on which research is desirable will suggest themselves to the Superintendent, and he will be in a position to give advice and information based on *practical* experience, which Mr. Drieberg is not able to do at present. The labour for this experimental cultivation will, of course, be supplied by the students, and they will thus become generally familiar with the trials, and the results: it is to be hoped they will carry away some useful ideas, and give them a trial in their villages. By way of encouragement students should be informed when leaving that they could at any time obtain the loan of an improved plough and a gift of good seed if they see their way to utilizing them.

More expenditure in pushing the actual experimental cultivation of paddy in all villages I would not advice. Except perhaps the advantages of deeper ploughing there is little or nothing the native cultivators as a whole are not aware of, and when they do not work in the best known native methods it is due to poverty or other disability. One, for instance, is the difficulty of getting cattle and in some districts even good seed paddy is the want not in their power to rectify. When in the Batticaloa district recently heard a good deal of the paddy was not worth milling, it gave so small an outturn of rice which in the Hambantota district is as a rule 50 per cent. In such cases Government should step in and make a present of say 1,000 bushels of paddy. Again, where good seed has been introduced by some energetic Assistant Agent, it has got so hybridised as to lose its original productiveness and the knowledge where it came from is lost, or if known it is not easy to get a further supply.

As regards cattle it is worthy of consideration if Government should make advances on the security of the holdings to landowners to purchase buffaloes as is I believe done in India, repayment being spread over a number of years. There is at present I understand great scarcity of cattle all along the South-east coast of Ceylon, while there is a surplus in the western side

Connected with this is the question of pasturage for cattle which has been much restricted since the prohibition of chenas, and is becoming serious both in the more settled districts and where cultivation is being extended in the more outlying parts.

But these are points which may be considered and dealt with apart from the scheme I have formulated:—

Estimate of Cost.

Asst. to Director, and Inspector ..	R4,000	
Teachers and Instructors ..	4,000	
Keep of 40 students at R200 ..	8,000	
		R16,000
6 Provincial gardeners.. ..	2,000	
10 District do	2,400	
45 Village do	4,400*	
Allowance to certified teachers ...	600	
Prizes of R50 each for the best-kept village gardens over 2 years in existence	1,000	
		10,400
		26,400
Contingencies		3,60
Total Estimated Cost of Scheme when in full working		R30,000

Each village gardener should be entitled to a lease at a rental of 25 cents an acre, of two acres of suitable Crown land for the purpose of cultivation of praedial products (excluding coconuts) so long as he keeps up a proper market garden. With this inducement and after 2 years' training and 3 years,' endowment, while making a start in his own village, besides eligibility for promotion as a district gardener, and the possibilities of substantial prizes for the best-kept garden, as well as others at district shows which should be held regularly—with all these encouragements, there is every hope, if not certainty, of most of these men keeping to the trade and working on the lines they have been taught. Thus in time there will be a large number of Government market gardens even in the most out-of-the-way parts of the Island more or less of an example and a source of advice and assistance, by issue of seed and otherwise, to the villagers.—E. ELLIOTT, October, 1900.

[Mr. Elliott, in the above paper, draws a distinction between Planting and Native Agriculture: the former

* 15 at R180, 15 at R120 and 15 at R60

he considers, can be served from Peradeniya; the latter by a reformed Agricultural School to be continued under the Department of Public Instruction. Our objection to this course is that it would not secure the personal interest, attention and responsibility of the Provincial and District revenue officers and their headmen, without which we are hopeless of any real permanent progress being made in the improvement of native agriculture.—*Editor, Tropical Agriculturist.*]

THE FIRST PUBLIC SALE OF GREEN TEA IN COLOMBO.

FULL PRICES REALISED.

FINE GREEN TEAS FROM A KALUTARA ESTATE.

At the public sale of tea, on 10th Oct. last an event which is certainly worth noting took place. It was the first auction at which green teas were sold in Colombo. and the result must surely be regarded as eminently satisfactory. Two estates invoices were offered—one of high-grown tea and the other of low grown—and there was, curiously enough, very little difference in the prices paid for each. The breaks were divided into Young Hyson, Hyson No. 1, and Hyson No. 2, and the following were the prices paid for the high grown invoice, sold by Messrs. Forbes & Walker:—

LABOOKELLIE GREAT TEAS

1,575 lbs...Young Hyson..52 cts.
1,260 lbs..Hyson No. 1..42 cts.
3,920 lbs..Hyson No. 2..37 cts.

These prices must be considered good, though Labookellie, being an estate at a considerable elevation, is accustomed to get excellent prices for its teas; and no doubt, when the Superintendent has had more experience in the manufacture of green teas, he will turn out a very much better sample than even these.

The second estate offering green teas, was Arapolakanda, the property of the Eastern Produce and Estates Co., in Kalutara, and, inasmuch as the prices paid for its invoice of green teas was almost as good as that given for Labookellie, green teas, the Superintendent of the estate who made the tea has to be congratulated on the result. As the estate referred to offered an invoice of black teas in the same sale, we are able to make a very effectual comparison, of the prices realised for the one and for the other. They compare as follows:—

ARAPOLAKANDA.

Green Teas			*Black Teas*		
lbs.		cts.	lbs.		cts.
1,710	Young Hyson	50	3,780	Broken Pekoe	39
1,360	Hyson No. 1	41	2,400	Pekoe	34
852	Hyson No. 2	37	540	Pekoe Souchong	28

We think our readers will agree with us that this result is one of which all of us in Ceylon can heartily congratulate ourselves. It clearly demonstrates that even leaf from Ceylon low-country estates can be made into excellent green tea, and that prices can be paid in the open market as high as, if not higher than, those commanded by black teas.

We may state that some of this teas were purchased by Mr. Tokmakoff to be sent to Russia; others we believe are destined for Canada.

We may say that the leaf of the Arapolakande tea had a better appearence than the other, whilst its liquor was more pungent and had more of the true green tea flavour, which is the more remarkable as it is a low-country tea, and it was thought that leaf from such estates could not be made into the best green tea.—Local "Times."

RUBBER IN RHODESIA.

We have received an interesting little pamphlet upon the rubber industry in the British South Africa Company's territories. The writer is Mr. Philip Lyttleton Gell, one of the directors of the Chartered Company, and although the information at the disposal of the writer is admittedly imperfect, he gives facts which clearly show that there is an extensive field for the development of the rubber trade in the extensive territory controlled by the Chartered Company.

In the introductory notice Mr. Gell has arrived at certain conclusions which he briefly states under eight headings, which are as follow: (1) All the rubber should contribute to the revenue; (2) all wild rubber should be regarded as a capital asset of the company; (3) immediate legislation is necessary to regulate the industry and protect it from extirpation; (4) no monopoly should be granted, although outsiders wishing to collect rubber must obtain the local licence; (5) the duty of, say, 3d per lb. should be levied upon all traded rubber; (6) all licences to be available only within the district specified; (7) a department of forestry should be established; (8) encouragement should be given to the investment of capital in the systematic cultivation of rubber.

In the course of the pamphlet the writer deals with the sources of rubber, extensive tracts of north-east and north-west Rhodesia producing natural rubber of high commercial standing, whilst it is indigenous in abundance in the southern part of the country. The native methods of extraction are, as usual, very destructive and the methods of preparation faulty, but it is believed that the various rubber species can be introduced and cultivated, and the rubber latex collected under proper management.

The chief indigenous rubber belongs to the Landolphia species, which flourishes in the Mweru districts.

Dealing with the regulations enforced in other countries, he says that in the Congo State the industry is largely worked by the Government. Concessions for extracting rubber within fixed areas and for limited periods are also granted, but the lessees are bound to plant a certain number of new trees each year, bearing a fixed proportion to the weight of rubber extracted. Amongst other restrictions the felling of rubber trees is forbidden, and for the infringement of this and other regulations, penalties of from 100f. to 10,000f. and imprisonment may be imposed, employers, directors of companies and State agents being liable for the payment of fines incurred by their servants. Export duties on rubber are fixed at 10 per cent. by treaty with France and Portugal. There is apparently an additional duty of 50 centimes per kilo. fixed in February, 1898, and a fee of £200 is charged for every licence to establish an India-rubber warehouse. Natives who hold licences to collect rubber apparently have the option of compounding for their fees by paying one-fifth of the rubber collected to the State.

In Lourenço Marques a monopoly of the production and trade in rubber for twenty-five years has been granted over the unoccupied State lands. The concessionaires pay a rent of 200,000 reis (equal to £44 7s 11d) per annum, and undertake to plant 20,000 trees in two years. They further pay a duty of 50 reis (equal to 2·65d.) per kilo, for seven years; rising to 75 reis (equal to 4d) per kilo. for the remaining eighteen years. They are exempt from all other imposts. They have the option of retaining the land at the same rent at the expiration of the monopoly, which, however, does not restrain the cultivation of rubber on private property and its export by private persons.

The Mozambique Company forbids any individual to purchase rubber from natives, or to extract it through agents, without a special annual licence, extending only from February 1st to August 31st, which costs £3 per annum. 30 reis (equal to 1.6d) per kilo. must be paid before rubber can leave the district in which it is collected, and a receipt for the tax must always accompany the goods. Every person purchasing rubber or collect-

ing it must keep books showing the amount received daily, and report it once a month to the district official.

RESTRICTIONS IN BRITISH POSSESSIONS.

The system in Lagos is based upon a theory that the ownership of forests is vested in the local tribes, under their "native authorities," that is, chiefs. Within districts under the control of such "native authorities," no person may collect rubber without a licence, for which he pays £5 to the "native authorities" and 2s. for each load of rubber. No tree of less girth than 3 ft. at a distance of 3 ft. from the ground may be tapped. It may not be tapped more than once in eighteen months, and only in the manner prescribed by the "native authorities." The preservation of the protecting timber is also provided for. No tree of a girth less than 9 ft. at a point 10 ft. from the ground may be felled, and a similar tree must be planted in the nearest suitable spot within seven days. A permit must be obtained from the "native authorities" for all trees felled, and a fee of 5s a tree must be paid. This system, Mr. Gell understands, proves ineffectual.

The British Central Africa Protectorate has not yet established any adequate system for preserving the rubber industry and deriving substantial revenue from it. The protectorate does, however, forbid the destructive traffic in root-rubber and rubber obtained by boiling bark, and it levies a 5 per cent transit duty on rubber for the maintenance of roads, which produces about 1½d a lb.—*India-rubber Journal*, Sept. 17.

A report on the rubber industry of the British South Africa Company's Territories has been prepared for the company by Mr. Littleton Gell, and the following particulars extracted from it are taken from the *Board of Trade Journal*:—

It is now ascertained that extensive tracts in North-West and North-East Rhodesia produce natural rubber of high commercial value, while in Southern Rhodesia indigenous rubber is reported in abundance in the Sabi Valley and along the Zambesi. There is also good ground for believing that various foreign species of a yet more valuable character can be gradually established throughout the territory, and there are certain kinds which may be expected to thrive even in the drier climate of the Southern Rhodesia plateau.

On the other hand, the native methods of extraction are very destructive, and in the absence of protective regulations the opening of markets will not inevitably tend to the rapid extirpation of indigenous rubber trees. Further, the existing methods of preparation are faultly, and impair the market value of South African rubber.

The indigenous rubber, which (so far as official information goes) has at present been identified in the British South African territories, belongs chiefly to the class of gigantic creepers scattered amongst other growths.

Passing on to the administrative aspects of the rubber industry, the elementary principle which emerges is this—that the indigenous rubber must be regarded from the first as State property (as in the Congo, Lorenço Marques, and Mozambique territory), and should not be abandoned to private exploitation. It represents an exhaustible accumulation of natural capital, to which neither the nomadic natives nor the casual adventurer has any proprietary claim, but which should be husbanded, and, if possible, increased to sustain the immense expenses of developing a new territory. The native, who extracts it, and the trader, who exports it, must, of course, receive an adequate inducement for their services. But in the indigenous stage the rubber industry does not require any outlay on plant or large capital. It is not speculative; the settlement of the country diminishes the trader's risks. Transport is comparatively cheap for an article highly valuable in proportion to its bulk. No expensive management is involved. Accordingly, whatever profit there may be after the native and trader has been reasonably remunerated should be retained.

The problems which present themselves may be conveniently dealt with in the following order:—

1. The measures necessary to preserve the existing sources of rubber.

2. The methods of obtaining a revenue from the industry.

3. The future development and expansion of the industry, including the suppression of detrimental methods of extraction and preparation.

4. The policy towards purposals of exploration.

The systems established for the protection of the rubber industry in other territories have been of the following types;—*(a)* Forests, including rubber trees, are reserved as State property; they are directly administered, and the rubber is collected by a forest department. (*b.*) The forests are retained as State property, but private enterprise is permitted over specified areas under terminable leases and strict conditions. (*c.*) Tracts of forest are transferred to private or joint stock ownership, and the development is left to individual action under some degree of legislative regulation. *(d.)* Forests are abandoned to the first comer, subject to more or less effective regulations as to methods of extracting or trading rubber; this appears to be the usual British principle outside India, and the least wise of any.

The regulations existing in other African territories afford some useful suggestions, though speaking generally, they appear to be very imperfectly enforced.

Penalties of from 100 francs to 10,000 francs and imprisonment of ten days to six months may be imposed, employers, directors of companies, and State agents being liable for the payment of fines incurred by their servants.*

There will probably be no hesitation in recommending that immediate regulations should be framed for North-West, North-East, and Southern Rhodesia for the protection of wild rubber which should embody certain well ascertained principles, *i. e.*:—(*a.*) A minimum age and girth should be established, below which a tree must not be tapped; the exact measurements must be adapted to different species and localities, so that legislation should only establish the principle empowering our officials to promulgate the precise regulations for each district, after reports have been received as to the nature of the rubber plants there prevailing. (*b.*) The intervals at which trees may be tapped should also be regulated. Subject to local modifications, it would be safe to forbid tapping the same trees, or the same area, in two successive years. (*c.*) A general regulation will be required that rubber may only be collected by tapping, that no tree may be cut down, and no roots grubbed up and boiled; on the other hand, to avoid unreasonable rigidity, or to deal with exceptional conditions, a local official should be empowered to modify this regulation.† (*d.*) A general regulation is desirable providing for the plantation of young rubber trees in forest land by persons extracting rubber, in some propotion to be fixed by the local official, and a small reward for every tree planted should be paid.‡

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* Export duties on rubber are fixed at 10 per cent. by Treaty with France and Portugal. There is apparently an additional duty of 50 centimes per kilo. fixed in February, 1898, and a fee of £200 is charged for every license to establish an india-rubber warehouse. Natives who hold licenses to collect rubber, apparently have the option of compounding for their fees by paying one-fifth of the rubber collected to the State

† Root rubber is reported in North-West Rhodesia as a special product of the country. Unless it differs from other rubbers extracted from roots the process is not to be encouraged.

‡ In Indian forest districts the systematic plantation of any trees which it is desired to establish is secured

If in special districts the extraction of root rubber is permitted, the rate of replantation must be high—not less than two to one. (*e.*) The forest trees which provide the indispensable shade must also be protected from destruction. (*f.*) Powers should be taken to forbid absolutely the extraction or sale of rubber in a district for a fixed period; as a penalty for breach of regulations, or merely as a protective matter.

As regards the future development of the industry, the important points are as follows:—(*a.*) The steady replanting of indigenous trees, and the preservation of the shade trees in forest areas (*b.*) Improved methods of extraction and preparation. (*c.*) The introduction of superior species in cultivated areas. (*d.*) The formation of a small forestry department, a member of which would have special experience of rubber.

SOME QUESTIONS ON CACAO.

Sir,—Will you kindly allow me elbow room in this column to ask —

(*a*) If anyone in the Island knows what Mr. Arden actually meant by "topping" cacao? Mr. Gibbon alludes to it as "very unusual."

(*b*) If, however, "topping" is merely what is more commonly known as "suckering" (*i. e.* ridding the tree of young shoots upwards from the stem in order to promote crop, and decrease height), is not this system of "topping" rather the rule than the exception.

(*c*) And what is the allusion to the "topping" of shade trees?

(*d*) And if Mr. Arden was "presumptious" to comment on an "absence of light and air," why have most cacao planters exemplified the justice of the verdict by increasing the intervals between their shade trees?

(*e*) And is it not probable that Mr. Arden's remark on this head had as much, if not more, to do with the distance at which cacao itself has been planted in the past?

(*f*) And why does one gentleman talk about "topping cacao," and another about "cacao topping itself"?

(*g*) And why should it be supposed that "suckering (*i.e.* forcing) a tree strengthens it?

(*h*) And if "suckering" strengthens a tree why was it considered "not wise to remove them all" (the "suckers"?)

(*i*) And if "suckering" weakens a tree why should Caraccas be considered doomed? Has it not always been "suckered" (weakened) systematically, until its health has become such that, when the canker came, it was unable to resist it? Has it, therefore, had a fair chance?

(*j*) And has it been satisfactorily demonstrated that Forestero is such a far more hardy variety than the "red"?

(*k*) And is there anyone who can say that "suckering" Forastero will not eventually reduce it to the present anæmic condition of Caraccas?

(*l*) And why is it planters consider Forastero a "stingy cropper" in comparison with Caraccas, when the former (a tree many sizes larger than the "red" variety), is rarely planted at greater distance than the "red"?

(*m*) If Forastero at 12 ft. by 12 ft. gives 2 cwts. per acre, what will Forastero at 24 ft. by 24 ft. give per acre?

(*n*) Until someone is in a position to answer this question from practical experience, what sort of justice is that meted out to Forastero

(*o*) And is not the complaint of "stinginess" probably owing to the fact that the free cropping Forastero varieties have been saddled with the "stinginess" of other Forastero varieties and which have no (colloquial) distinctive name? It is not possible that planters have been too "sweeping" in their statements when they have compared the cropping capacity of the highly-cultivated Caraccas with that of the numerous varieties of Forastero from time to time imported into the Island, and between which scarcely any trouble is taken to disinguish?

Well, Sir, this is a long list. The truth is when I first began asking questions I had no notion my ignorance was so great.—Yours, etc., POD.

MR. J. B. CARRUTHER'S ANSWERS.

PUCKERING—PRUNING—ANEMIA—VARIETY—EXPERIMENTS.

On referring 'Pod's' queries to Mr. J. B. Carruthers, he has kindly jotted down some partial answers to the questions asked, which he considers are of interest as shewing a desire to get an accurate knowledge of cacao, and as such he welcome them. He takes the queries in the alphabetical order thus;—

"PODS" QUERIES,

a. to *f.* Mr. Arden's remarks must be considered only in relation to the cacao estate he saw and the methods carried out there.

"Topping" probably means pruning the highest vertical branches.

g. & *h.*—"Suckering"—*i. e.* cutting off "suckers" is not "forcing"—it gives the impression of strengthening the tree, because the nutrition taken up by the root has less branches to support and consequently those that remain are strengthened.

i—Pruning for fruit is only necessary when a tree produces long, unbranching shoots which shows no flower buds, suckers in cacao produce flower buds and fruit after one year's growth. Nature should not be interfered with unless an increase in the yield can be obtained.

j.—There is much evidence that Forastero is hardier. Exact experiments would, however, give a moreabsolutely trustworthy proof.

k—"Anæmia" is a disease of the blood in animals with a circulatory system, and in plant life there is no analogous system and therefore no disease which has any similarity to "anæmia."

l.—Do planters consider Forastero a "stingy cropper?" The largest tree in Ceylon are red cacao (Caraccas), but they are older in most cases than the Forastero.

m—Such an experiment would undoubtedly give knowledge of great importance to planters.

o.—No experiments of an accurate kind have been made to show the relative fruit-producing qualities of the two varieties, and all opinions are only based upon local observations often not very correctly made, and the deductions obtained not very carefully or legically worked out.—Local "Times."

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by paying the natives trifling rewards for sowing seeds' distributed to them during the last season before they migrate from exhausted clearings to take up fresh ground. Small further payments are annually made for three or four years as a reward for weeding, &c., until the new trees can protect themselves. This system has proved effectual and cheap.

Ramie Fibre as a Substitute for Cotton.—Mr. D. Edward Badclyffe, Regent's Park, writes that Lancashire is threatened in connection with the cotton industry with a serious loss, and he asks why this country does not profit by its lessons. When the last great famine took place during the American war Great Britain, he says, was shown the folly of relying on one country for it supplies. "We have," he adds, "a vast territory in which we could grow Ramie, which is a fibre far superior to cotton. It will grow where cotton grows, and where it will not. The possibilities of this plant are enormous. It grows wild in India and many other of our possessions. It will make anything that can be made by flax, cotton, wool, or silk. If our Colonies would turn their attention to Ramie growing, the possibility of a vast industry being crippled for the want of supplies would be a thing of the past."—*Journal of Horticulture.*

ARTICHOKES.

I have been asked to give information about Articbokes, the different kinds of which are often confused. The Jerusalem Artichoke is the first and best known. This is an entirely distinct vegetable from the globe or crown artichoke, being cultivated solely for its tuberous roots, which somewhat resemble those of the potato, while the edible portion of the crown or true artichoke is the receptacle of the unexpanded flower heads. It is somewhat unfortunate that the name of Artichoke should have been applied to both the above, and still more so that it should have been also adopted in the case of the comparatively new Chinese artichoke (so-called)—*Stachys tuberifera*, a totally distinct plant.

The true "Jerusalem" artichoke is really a species of sunflower *(Helianthus tuberosus)*, a native of the American prairies, the word "Jerusalem" being merely a corruption of the Italian "girasole," or sunflower. It grows, in good ground, to a height of 8 ft. or 10 ft., and, though it seldom flowers, it usually affords, under even ordinary culture, a heavy crop of useful tubers. Its nutritive value is very nearly the same as that of the potato, slightly—though very slightly—inferior; but the plant being more hardy and easily cultivated, succeeding in any odd corner or shady plot, fully compensates for this. The peculiar sooty flavour of the tubers, when cooked, though liked by some, is objected to by others. The proper time for planting the seed tubers is from November to March. The sets, consisting of the smaller but fairly well shaped tubers, should be planted in much the same manner as potatoes, that is, in furrows about three feet apart, placing them one foot asunder. Though the Jerusalem artichoke will grow freely and produce more or less good crops in poor, shallow or shady ground, yet it enjoys a fairly sunny and moderately sheltered spot, with well-worked and liberally manured soil. The tubers being perfectly hardy may be left in the ground until required for use, but it is just as well to lift and store them in a cool place in case the soil should become so hard as to prevent their being dug in the open. When selecting tubers for seed, those of moderate size and a nice, smooth shape should be chosen, as being more likely to produce tubers of the same character. There is a new, white-skinned variety which is claimed to be a great improvement on the type, but it is scarcely as prolific as the other.

2.—The Chinesese Artichoke.—This is a totally distinct species, bearing a large number of knotted-looking roots of good flavour. It should be planted in drills or furrows like those for potatoes but rather closer. It is very prolific, but the roots are small.

3. The Globe, or Crown Artichoke.—This is likewise a distinct plant from the foregoing. It is a strong-growing, perennial herbaceous plant (*Cynara scolymus)*, with handsome foliage, but cultivated for the sake of fleshy flower receptacles or heads, which are boilded till tender, and eaten with melted butter, toast, etc.

The plant are increased by means of division, as a rule, though seed of two or three varieties is now obtainable, and where a large stock has to be raised in a short time, this is an excellent method. When the new growth commences, any old plants may be either lifted bodily, and divided into pieces, with one, two, or three good crowns or growths apiece; or some of the outer suckers (rooted) may be separated and planted out in a properly prepared quarter. Salt and nitrate of soda are among the best of fertilisers or stimulants for this plant.—*Jamaica Agricultural Journal.*

MANUFACTURE OF COCOA.

The selected cocoa beans are first cleaned from the dust and attached particles which have come from various sources during the frementation of the seeds. The machines for cleaning the beans are very ingenious and effective, removing from the seed coat every trace of foreign matter. The cleaned seeds are next roasted in the most careful manner, every precaution being taken to secure a uniform effect through the whole mass. During the roasting the seeds change colour somewhat, and become more or less modified in taste. In under-roasted seeds the flavour is not fully developed, while in over-roasted seeds the pleasant taste is likely to become greatly impaired, or it may even be wholly replaced by a bitter and harsh flavour. These relations of colour and taste to the roasting of the seeds make this portion of the manufacture one of the most delicate processes from beginning to end. By the roasting, the shell becomes more readily detachable, and its complete removal is the next step. The crushing of the seeds into small fragments is easily accomplished; and this is followed by a thorough winnowing, by which the lighter shells are carried away by themselves, leaving the clean fragments of the roasted seeds ready for further manipulation. Among the fragments can be detected minute and very tough bits of tissue. These bits are the hardened germs, or rather portions of the germs, and these are separated from the rest by an apparatus of much simplicity and efficiency. The cleaned shells are usually placed at once in packages for transportation. They are extensively used for the domestic preparation of a wholesome and very low-priced drink. This beverage contains a fair proportion of the active principle of the chocolate seeds themselves, and the flavour is suggestive of chocolate. The cleaned fragments constitute the so-called "cocoa nibs" of some foreign markets, and in this state they are used for the preparation of a simple decoction. But in this form they require to be boiled a long time for the development of flavour, and it is, therefore, better to have them treated beforehand in order to reduce the time of boiling; and this is all the more necessary, since during the long boiling a part of the more delicate aroma peculiar to chocolate seeds is apt to be dissipated. In the preparation of chocolate, the fragments are ground by a complicated mechanism until they attain the greatest degree of fineness, and constitute a perfectly homogeneous mass or paste. If it is to be a plain chocolate it goes directly into the moulds for shaping it. The moulding is a noisy but interesting operation. The chocolate cannot be pressed into moulds, because it sticks to the presser; it is, therefore, shaken in. A plastic lump of the proper weight is placed in a shallow mould. A number of these moulds are put in a wooden tray, placed upon a table, which is shaken automatically, causing the metal moulds to jump up and down in a very lively manner, and making as much clatter as a regiment of cavalry crossing a bridge. Every step of the process has to be watched with the most assiduous care. When the plastic mass has been shaken into the mould so as to be perfectly uniform in shape and size, the pans are removed to the cooling-room. If the chocolate is to be sweetened, a definite amount of the purest sugar, previously pulverized, is added before the moulding, and the whole ground and commingled. If it is to be a vanilla chocolate, the finest quality of Mexican Vanilla beans (which are superior to those gone elsewhere) are blended with the semi-fluid mass, and formed in moulds, as already described. The variations in the process are innumerable, many of them comparatively unimportant when taken singly; but to secure the best results it is important that each of these slight changes should be made at just the right time and in the right way. The manufacture of breakfast cocoa is based upon two important factors—first, the removal of a definite portion of the cocoa-oil from the roasted seeds; and second, increasing the miscibility of the powder s[illegible] securing the greatest practicable degree of [illegible]
The method of manufacture is substantially as follows:—The ground fragments of roasted seeds are subjected to hydraulic pressure, by which a certain amount of the fat is eliminated. The pressed mass is, in the most successful process, treated mechanically in such a manner as to divide and sub-divide the minute

particle until they are capable of pressing through a sieve having several thousand meshes to the square inch. But such pulverization as this would, under ordinary circumstances, reduce the mass to a dull and unattractive powder. In the process devised by the owner of the best cocoa manufacture, this high degree of fineness is secured without any loss of brilliancy in the powder—the color being of the bright red which is not only attractive in appearance, when conjoined with the natural chocolate odour and flavour is characteristic of absolutely pure cocoa of the highest grade.—*Jamica Agricultural Journal.*

FLAX CULTURE.

The cultivation of flax for fibre purposes would doubtless yield a profitable return in many parts of this colony, and it is equally certain that on dairy farms where a large quantity of skim or separated milk is available for feeding calves and pigs the growing of flax seed for mixing with the milk would pay the farmer handsomely. The cultivation of this crop is simple and inexpensive, and for stock feeding purposes at least, it is one of the most useful products that can be raised. It is not necessary, nor is it desirable, that the soil on which flax is grown should be very rich. On the contrary, excessive luxuriance of growth is injurious, and generally results in the crop being "laid," which renders it comparatively worthless either for fibre or seed. The best soil is a sound dry, deep loam, with a clay subsoil. By good and careful cultivation, however, flax may be grown on various soil, but the class of soil just mentioned will be found to give the best results. In the preparation of the soil for the crop one of the points of greatest importance is that the land should be thoroughly cleaned of weeds, and made into a fine state of tilth of a moderate depth. The soil to a depth of three or four inches cannot be too fine. If the autumn cultivation has been carefully carried out a good harrowing in spring will generally effect perfect pulverisation of the soil. Following the last harrowing it is necessary to roll thoroughly, in order to secure an even surface and consolidate the land, which may be broken up again with a short-toothed or brush-harrow before sowing, drawn up and down in the direction in which the land had been ploughed. The seed best adapted for the generality of soils is Riga, although both Dutch and American varieties may be used with equal success in certain localities. In purchasing seed a point should be made in seeing that it is plump, shining, and heavy, and of the best brands, from a reputable merchant. It should be seen that it is free from the seeds of weeds; this will save a great amount of trouble afterwards when the crop is growing. Home grown seed is usually the most reliable, and we would, therefore, recommend every farmer to only sow each year as much foreign seed as would produce a sufficient quantity for his flax crop the following season. The produce of seed averages about 12 bushels to the acre, so that the seed saved of one statute acre would sow about six. In growing flax for fibre, it is better to sow thick than thin, as with thick sowing the stems grow tall and straight, with only one or two seed capsules at the top, and the fibre is found greatly superior in fineness and length to that produced from thinly sown, flax. The latter usually grows coarse and branchy, and produces a large quantity of seed, but very inferior quality of fibre. It is not advisable to grow flax more frequently on land than once in three or four years. It does well, as a rule, after a grain crop, but in America and and the Argentine, the usual practice is to sow flax on the sod on newly broken up land. In those countries it is held that the crop is more beneficial to new land than a bare-fallow, as it materially assists in pulverising the sod, and from the shade it affords helps to retain the moisture in the subsoil. There is every reason to believe that this practice would be equally successful in the wheat-growing districts of New S uth Wales. It is true that flax is a somewhat exhausting crop on the fertility, but this may be more than compensated for in the better condition the soil is left after it, compared with the pulverising effects of a bare fallow, and the system is, at any rate, worthy of a trial. The flax crop is not easily drouthed if it gets a fair start, and covers the ground fully before the dry weather sets in. Its roots penetrate much deeper than the wheat plant, and it will succeed almost anywhere with a rainfall averaging 20 inches and upwards per annum.—*Sydney Herald.*

RAIME FIBRE AS A SUBSTITUTE FOR COTTON.—Mr. D. Edward Radclyffe, Regent's Park, writes that Lancashire is threatened in connection with the cotton industry with a serious loss, and he asks why this country does not profit by its lessons. When the last great famine took place during the American war Great Britain, he says, was shown the folly of relying on one country for its supplies. "We have," he adds, "a vast territory in which we could grow Ramie, which is a fibre far superior to cotton. It will grow where cotton grows, and where it will not. The possibilities of this plant are enormous. It grows wild in India and many other of our possessions. It will make anything that can be made by flax, cotton, wool, or silk. If our Colonies would turn their attention to Ramie growing, the possibility of a vast industry being crippled for the want of supplies would be a thing of the past."—*Journal of Horticulture.*

COCOA IN THE PHILIPPINES —The Cocoa plant grows in great abundance in the Philippine Islands, and it is stated that there is a good opening for the manufacturers of chocolate products of all kinds in the islands. The Cocoa plant in the Philippines is more like a shrub or bush, being about 10 feet in height, than the plant in South America, which averages about 25 feet in height, and forms quite a tree. The reason for the bushes not growing taller is to be found in the lack of proper cultivation, as the farmers of the islands give little attention to their farms. The large planters have as yet done little to develop the Cocoa industry, though their other crops are large and often well cultivated The Cocoa plant grows near the protected towns, and will furnish two crops a year without cultivation. In the mountains tons of Cocoa go to waste every year. The leaves at certain periods of the year have a deep, rich, green appearance, while the flowers take on different colours and are most striking. The fruit is a large pod, oval in shape, which contains the beans from which the chocolate is manufactured. If, says an authority, modern methods of working the product were introduced, much of the waste occurring through primitive appliances could be avoided, and the profits be large.—*Journal of Horticulture.*

THE LAC INDUSTRY OF ASSAM.—A recent report of the Assistant-Director of Agriculture in Assam deals in detail with the lac industry there. Lac occurs in its natural state in various parts of the forests of Assam, as well as of Burma, but chiefly in parts of the Khasi and Garo hills, and the export in recent years has averaged 16,000 maunds, or something over 500 tons, but in some of the forests, owing to the ravages of the Kolaazar epidemic and depopulation, the production is declining. The production in Manipur is not sufficient for the local needs, and quantities of lac are sent there from the Kubo Valley of Assam. In Assam the lac is usually collected twice a year, first in May and June, and then in October and November. The first is mainly used for seed purposes, while the second forms the export. A few days after the collection, pieces of of stick lac containing living insects are tied on to the branches of the trees on which the next crop is to be grown. The usual plan is to place the lac in small bamboo baskets and tie these on the twigs of the trees. The insects soon crawl out, and spread over the young branches, on which they promptly begin to feed, and secrete the resin. This is allowed to go on for about six months, when the lac is collected; but if the secretion has been defective or insufficient the insects remain undisturbed for another six months.—*Gardeners' Chronicle.*

CINCHONA CULTIVATION IN SOUTH INDIA.

We take the following extracts, on practical cultivation from the annual administration report on the Government cinchona department, Nilgiris for the year 1899-1900.

The total expenditure on factory account amounted to R1,17,092—13—11 under the following principal heads :—

	Rs.	A.	P.
Purchase of 207,258 lb. bark	67,069	9	8
,, of new machinery	4,211	14	5
Cost of chemicals and cost of manufacturing and distributing alkaloids	45,811	5	10
Total ..	117,092	13	11

General Condition—*(a) Dodabetta.*—Notwithstanding the exceptional dryness of the season this estate continues to look well. With the exception of a few patches where the soil is inferior, the older trees look healthy and vigorous, and the trees on the small plots of new land planted in 1897 and 1898 have made very good growth. Further experience confirms the opinion expressed in the last Administration Report that the local seed has not deteriorated, for the seedlings raised from seed taken from the estate trees and planted in new land in 1898 have come on quite as well as those raised from seed received from Jamaica. The estate was well cultivated during the year. In addition to the ordinary weeding and forking, 14,328 renovation pits were made and 3,380 yards of deep drains were dug in plots which required drainage. A damp sub-soil is well known to be a fruitful source of injury to cinchona and the beneficial effect of the deep drains was well marked ; 113·35 acres of the estate were pruned and the yield of dry bark from this operation was 71,640 lb. or 632 lb. per acre. The trees had not been prnned for many years and the yield of bark from the thicker branches and from extra stems was consequently high. It is a well known fact that cinchona trees, whose stems are shaded from the direct rays of the sun, yield a higher percentage of alkaloid in their bark than trees whose stems are freely exposed; and in order to prove whether it will pay to protect the stems of old trees, a plot of 6 acres in an exposed position was selected and the stems of the trees were closely covered with grass. The treos being large, the cost of the work was high, amounting, as it did, to R58-2-10 per acre; but the effect of the grassing on the appearence of the trees was most beneficial. The bark will be analysed when the trees have been under the protection of the covering for two years, and it will then be possible to show whether this mode of increasing the alkaloidal value of the bark is profitable or not. An increased yield of 941 units, when the value of the unit is one anna, would cover the cost of an annual covering of grass, but as the covering will probably last for several years, and as the quantity of bark on each acre is at least 4,000 lb., a very small increase in the richness of the bark would repay the cost of the work. An increased yield of snlphate of quinine in the bark of 50 per cent. would give 2,000 units more per acre and an increase of 25 per cent. would give 1,000 units per acre.

The total expenditure on Dodabetta for the year was R15,211-10-5 or R47 1-8 per acre; the crop obtained was 80,248 lb. and the cost of each pound of bark was therefore R3-0-39.

(b) Nedivattam.—Although this estato suffered moro from the drought than Dodabetta, still the amount of actual damage done by the failure of the rains was not large. When it is noted that out of the 151 days from the 1st of November to the 31st March there wero only 5 days on which rain fell, and when it is known that the cinchona tree thrives best in a climate where the rainfall is well distributed throughout the yoar, it is remarkable that the old and yonng trees on the Nedivattam estate withstood the drought as well as they did. The coppice plots showed no signs of being affected by the drought, but many of the oldest trees as well as younger trees standing on old ground with a south-west exposure suffered from the want of moisture and lost a good deal of their foliage. Dying trees to the number of 6,837 were cut down and yielded 33,488 lb. of bark. The estate was weeded as usual and was well dug before the dry weather ; 30,500 renovation pits were made in plots 28 and 10 and were filled in with weeds ; 33,500 eucalyptus plants were put out in plots 22, 27 and 32 and vacancies in the proceding year's fuel plantings were supplied. A large number of these plants, however, succumbed to the drought. The total expenditure on the estate was R14,189-14-1 or R45-0-10 per acre. The crop obtained was 33,488 lb. and the cost of each ponnd of bark was therefore As.6-9·55.

(c) Hooker.—The old portion of this estate which consists of 145·33 acres of cinchona, 48·24 acres of fuel trees and 9·93 acres lying fallow, cannot be said to be in a satisfactory condition. It was found necessary during the year to coppice 10,588 sickly and dying trees which yielded 26,543lb. of dry bark, and it is to be feared that this process of the elimination of the unfit will have to be repeated year by year until the old land is entirely cleared. In the Administration Report for 1896-97 it was pointed out that there were only 10·59 acres growing a first crop of cinchona, while the remaining area was growing a second crop. The trees on the 10·59 acres are looking well and their growth on the whole is very good, but the second planting on old land has never been satisfactory. This land, which was originally rather poor grass land with a bad exposure, has now been under cinchona for 31 to 34 years and it is not surprising that under these conditions the trees fail to attain their maximum growth The total expenditure on the old Hooker estate was R4,927-2-7, or R25-7-3 per acre, and the cost of the crop of bark was As. 2-11·64.

The No. 1 extension of 80 acres of forest land which was planted in the southwest monsoon of 1898 has come on very well. The young plants suffered very little from the drought and their growth has been most satisfactory. The plants were only from 3 to 4 inches high when they were put out. Many of them are now over 6 feet high, and the tallest of 50 plants that have been selected for quarterly measurements was 6 feet 10 inches at the end of the year. A comparison of the growth of these plants with the measnrements of plants recorded by the late Mr. McIvor in the early days of the cinchona enterprise is of particular interest as it shows that under favourable conditions the present growth of cinchona plants raised from local seed and from seed received from Jamaica is quite as vigorous as was the case with the plants and seed received direct from South America.

The No. 2 extension of 80 acres was planted during the year, and although the south-west monsoon was a failure the plants have grown well and promise to do as well as, if not better than, those on the No. 1 extension.

A commencement was made with the felling and nurseries for the No. 3 extension which will be planted during 1900-1901.

IV—Manure —On the Dodabetta estat 17·9 acres were manured with cattle and stable manure and 41·73 acres were treated with lime at the rate of 7½ cwts. per acre. The lime was spread over the ground and lightly forked in at a total cost per acre of R18-4-5. The effect on the trees was decidedly beneficial. An experiment was made on 1 acre with a mixture of fish, snperphosphate, Thomas' phosphate, sulphate of iron and potash. The total cost of the manuro and its application was R185-6-4. The effect so far has been a very marked improvement in the appearance and growth of the trees. The bark will be analysed after the manure has been down for two years. The plots referred to in the last Administration Report were inter-coppiced with the result that the trees manured with the mixture of bonemeal, white castor poonac, nitrate of soda and nitrate of potash gave 4·75 per

cent. sulphate of quinine and 1·18 per cent. febrifuge, while the plot treated with bone meal, white castor poonac, superphosphate and nitrate of potash gave 5·18 per cent. sulphate of quinine and 1·25 per cent. febrifuge. At Nedivattam plots 10,14, 28 and 29 were manured with cattle manure and at Hooker the plots thus treated were Nos. 1, 2, 7, 8 and 14.

V.—Nurseries.—At Dodabetta the measures referred to in the last Administration Report to eradicate the nematode worms which were damaging the plants in the nurseries have proved tolerably successful, but it cannot be said that the evil has been entirely remedied. At Nedivattam and Hooker the growth and condition of the plants in the nurseries have been quite satisfactory and there has been no sign of any disease. At Nedivattam succirubra seed has been put down to ensure a good supply of strong seedlings on which officinalis and Ledger will ultimately be grafted. Fourteen pounds of officinalis seed taken from trees, some of which analysed from 9 to 10 per cent. sulphate of quinine, were received from Mr. Van Leersum, the Director of the Government Cinchona Plantations in Java. This seed has been put down in the nurseries at Nedivattam and Hooker and has germinated well. Mr. Van Leersum also forwarded a Wardian case containing 50 grafts of Ledger, officinalis and hybrids on succirubra stocks, but owing to the delay caused by the landing of the case at Colombo instead of at Madras, only 15 of the plants were alive when they reached the estate, and of these 15, only four successful grafts are growing the growth in the remaining eleven being confined to the succirubra stock. Mr. VanLeersum's kindness and liberality merit the warmest acknowledgement and it is greatly to be regretted that after all the care and trouble he bestowed upon the grafts, they should have been so neglected on the voyage and then detained at Colombo instead of being landed at Madras.

Crop.—The total quantity of bark harvested on the three estates during the year was 140,279 lb. or 38,972 more than in 1898-99. The crop which consisted of 19,458 lb. red bark and 120,821 lb. crown and hybrid barks was obtained by the coppicing of sickly trees and by thinnings and prunings. On the Dodabetta estate 1,920 sickly trees were coppiced and yielded 8,608 lb. of dry bark and 113·35 acres were pruned and gave 71,640 lb. of bark or 632 lb. per acre. The trees coppiced at Nedivattam numbered 6,837 and yielded 33,488 lb. of dry bark and the number coppiced at Hooker was 10,588, the yield being 26,543 lb. A magnifolia tree at Nedivattam which had to be coppiced, because of illhealth, yielded the large total of 120 lb. of dry bark. This tree was about 34 years old and was one of the best grown trees on the estate. The amount of bark purchased from private growers was 207,258 lb., and 16,553 lb. were harvested from a plot of land in the Bikkatti village on the Kundahs. This land having reverted to Government, the Collector of the Nilgiris offered the cinchona trees that were on it to this department. The trees were accordingly coppiced and the bark was sent to the factory. The cost of harvesting and transport from the Kundahs was 6·24 pies per lb. of dry bark and the expenditure incurred was charged to the Dodabetta estate. In estimating the cost of the year's crop, the sum expended on the harvesting and transport of the Bikkati bark, viz., R538, has been deducted from the total spent on Head office and old plantations. The result, viz., R48,941-2-9, represents the cost of the 140,279 lb. of estate bark or As. 5-6·98 per lb. From statement No. 7 it will be seen that at the commencement of the year the stock of bark amounted to 286,579 lb. and at the close of the year there was a balance of 305,822 lb.

Factory.—The total quantity of bark worked up during the year was 344,312 lb. consisting of 318,881 lb. crown and hybrid barks and 25,431 lb. red bark, and the alkaloids extracted amount to 14,803 lb. consisting of 10,188 lb. sulphate of quinine and 4,615 lb. febrifuge. The output was thus less than in 1898-99, but it was considered sufficient to make about 10,000 lb. of quinine during the year under review, whereas during the preceding year an effort was made to show how much quinine could be made in the factory in one year with the present machinery. Unless the demand for quinine increase largely an output of 10,000 lb. of quinine annually will be quite sufficient to meet all requirements. The boilers which had worked well for years, broke down in June and their condition was reported on by the Inspector of Steam Boilers in July. The smaller boiler was reported to be worn out and not worth repairing and the larger boiler was repaired in accordance with the Inspector's directions. Sanction was given in G. O., No. 2885, Revenue, dated 11th August 1899, for the purchase of a new boiler which will be put up during the current year, and in G. O., No. 626, Revenue, dated 18th September 1899, a new disintegrator, a centrifugal machine and new boiling and crystallizing pans were sanctioned. The disintegrator which arrived at the end of the past financial year will be put up at once and the other machinery will be installed during the current year. The quantity of bark purchased from private growers during the year was 207,258 lb. and the price paid was R67,069-9-8, or As. 5-2·13 per pound against As. 3-2·9 per pound paid in 1898-99. The quality of the purchased bark was about the same in the two years and the higher price per pound paid during the year under review was due to the rise in the price of bark in the London market.

The statement given above which includes all factory and manufacturing charges as well as the actual cost of all the bark used does not include the item of R4,211-14-5 for new machinery and plant, as this is not a legitimate charge against the factory for the year. This item appears in the stock statement as an addition to the value of stock, and it is intended in future to wrote off 10 per cent. of the value of plant and machinery and debit it to the factory. This has not been done in the present instance as the new machinery has not been erected and the cost of the existing stock of old machinery has been debited in full in former years, so that there is no necessity to write off any sum for its depreciation. The following table shows the cost of the 14,803 lb. of alkaloids manufactured during the year, compared with the cost of the 19,841 lb. of alkaloids made in the preceeding year :—

1899-1900.

	Crown and hybrid barks.			Red bark.			Crown, hybrid and red barks.		
	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
Cost of each pound of alkaloid in the bark.	6	14	6	9	3	2	7	1	1
Cost of manufacture etc., per pound.......	2	8	3	1	9	0	2	7	2
Total cost per pound....	9	6	9	10	12	2	9	8	3

1898-99.

	RS	A.	P.	RS.	A.	P.	RS.	A.	P.
Cost of each pound of alkaloid in the bark.	4	4	2	8	1	5	5	7	1
Cost of manufacture etc., per pound	2	7	11	1	4	0	2	4	6
Total cost per pound...	7	6	1	9	5	5	7	11	7

It will be seen from the above that the increased cost of the alkaloids made during the year under review was chiefly due to the higher cost of the bark that was used. The cost of manufacture and distribution per pound of alkaloid extracted from all the bark used was R2-7-2 against R2-4-6 in the preceding year. The increase of As. 2-8 per lb. is due to the fact that a larger proportion of quinine-yielding barks was worked up during the year. The proportions of quinine barks and red barks used were 92·7 per cent. and 7·3 per cent., respectively, against 81 per cent. and 19 per cent. in the preceding year. The cost of the manufacture of the alkaloids

from the red barks was As. 5 per lb. higher than in the preceding year. The explanation is that a much smaller quantity of red bark was worked up during the year, and the cost of the labour was proportionately higher. The crown and hybrid barks averaged 3·19 per cent. sulphate of quinine and 1·11 per cent. febrifuge against 3·37 per cent. sulphate of quinine and 1·01 per cent. febrifuge in the preceding year and the red barks averaged 4·19 per cent. febrifuge against 3·94 per cent. the year before. The percentage of total alkaloids from all the barks worked up was 4·299 per cent. against 4·297 in 1898-1899.

The total cost of the alkaloids from the quinine barks including packing and distribution was R1,29,390-3-9 or R9-6 9 per lb., but as the febrifuge from the crown barks is a bye-product in the manufacture of quinine, it may be considered that the 10,188 lb. of quinine cost R1,29,390-3 9 or R12-11-2 per lb. and the 4,615 lb. of febrifuge from the crowns and red barks cost R11,493-8-7 or R2-7-10 per lb. These valuations have been adopted in the stock statement (No. 11).

The following table gives the outturn of quinine and febrifuge since the commencement of manufacture at Nedivattam ;—

	Crown and hybrid barks.	Red barks.	Total bark.	Outturn of alkaloids. Sulphate of quinine.	Febrifuge.	Total alkaloids.
	LB.	LB.	LB.	LB.	LB.	LB.
1889 90..	6,650	8,600	15,250	234	357	591
1890-91...	96,200	..	96,200	2,928	1,050	3,978
1891-92...	122,500	22,000	144,500	4,425	3,174	7,599
1892-93..	157,771	13,946	171,717	4,933	3,139	8,072
1893-94..	52,600	122.400	175,000	2,000	5,775	7,775
1894-95..	152,800	43.800	196.600	4,770	1,756	6,526
1895-96..	136,000	97,800	233,800	3,600	2,284	5,884
1896 97..	237,000	1,100	238,100	7,891	3,350	11,241
1897-98...	125,934	114,650	240,584	5,092	6,389	11,481
1898-99..	373,967	87,750	461,717	12,603	7,238	19,841
1899-1900	318,881	25,431	344,312	10,188	4,615	14,803

Quinine.—At the close of last year the stock on hand was 11,591⅛ lb. and during the year under review 10,188 lb. were manufactured, making a total of 21,779⅛ lb. The issues during the year amounted to 7,378¼ lb. and there remained a balance in store at the end of the year of 14,400 14-16 lb. The amount of quinine issued exceeded the total of any previous year, and the increase, as compared with last year, is due to the fact that, under the orders of the Government of India quinine is supplied by this department to all provinces, except Bengal Punjab and Assam. The number of hospitals and dispensaries supplied direct with quinine was 650 against 396 last year, and the number of 5-grain powders sent out was 1,127,785 against, 1,018,532 in 1898-99.

Febrifuge.—At the close of last year the stock on hand was 11,274½ lb. The quantity manufactured during the year was 4,615, making a total of 15,889-8. The issues were 2,676½, leaving a balance in store of 13,213 lb.

Issues of Quinine and Febrifuge since 1889-90

——	Quinine.	Febrifuge.	Total.
	LB.	LB.	LB.
1889-90 .	234	7	241
1890-91..	1,256	200	1,556
1891-92..	3,344	3,017	6,361
1892-93..	3,204	2,608	5,812
1893 94..	2,536	3,513	6,049
1894-95..	3,631	3,956	7,587
1895-96..	5,644	2,666	8,310
1896-97..	5,908½	3,709¼	9,617¾
1897-98..	6,336½	1,955½	8,292
1898-99..	4.629⅞	1,623½	6,253⅜
1899-1900	7,378¼	2,676½	10,054¾

Miscellaneous.—(a) *Issues of quinine packets to Collectors.*—During the year 400 packets of 102 5-grain powders were issued to Collectors for sale, and the amount realized by the sale of powders by Revenue officials was R764-12-0

(b) *Sale of quinine at Post offices.*—It was noted in the last Administration report that, owing to the raising of the price of the powders from 2 pies to 3 pies, there had been a falling off in the sales at post offices. During the year under review, however, the number of packets sold was 5,501 and the number sent out as permanent advances was 936·44. The corresponding figures for 1898·99 were 4,766·14 and 279·48 and it is expected that the return to the original price of 2 pies per 5-grain powder during 1900-1901 will result in a further increase in the sales. A special report on this subject and on the sales by Revenue officials will be submitted to Government on the 1st September.

(c) *Deputation of the Director to Java.*—In accordance with G.O., No, 1394, Revenue, dated 17th April 1899 the Director visited Java in May 1899 and and on his return journey paid a visit to the Bengal Government Cinchona Plantations near Darjeeling. A special report on Cinchona in Java was submitted to Government and was reviewed in G.O., No. 608, Revenue, of the 8th September. The success which has been obtained by the Java Cinchona planters was shown to be due to the care taken to grow the richest possible bark. The climatic conditions in Java are undoubtedly more favourable than in India ; but, on the other hand, the Dutch planter is more heavily taxed than the planter in this country. If the principal of selection based on analysis is followed, and if cinchona are grown on suitable soil, and well cultivated, sthe cinchona industry in Southern India might be revived with a very good prospect of success.

(d) *Subordinate Staff.*—Messrs. H. V. Ryan and E. Collins, the Superintendents of the Dodabetta and Nedivattam estates and Mr. D. Campbell, the Manager, of the Head office, have done very good work during the year. The work of the office has been largely increased, owing to quinine being supplied to other provinces including Native States, and as there has been no increase in the establishment, the work has at times been very heavy.

(Signed) W M. STANDEN,
Director,

Statement showing the Receipts and Expenditure of the Government Cinchona Plantations, Nilgiris, for 1899-1900.

Receipts.

Classification.	Budget estimate.	Received estimate.	Actuals up to the end of the year.		
	RS.	RS.	RS.	A.	P.
Sale of 7,277¾ lb. quinine.........	68,000	98,000	1,26,104	14	6
Sale of 2,778 lb. febrifuge	30,000	20,000	27,868	0	0
Sale of 545½ lb. cinchona bark	450	450	185	15	3
Sale of 12,10-16lb. seed	..	...	50	8	0
Sale of 171 lb. jalap	550	..	171	0	0
Miscellaneous..	1,000	1,550	2,090	12	1
Total.....	1,00,000	1,20,000	1,56,471	1	10

TANNING IN INDIA.

The *Indian Mechanic* says: At the present time tanning might almost be said to rank among the decadent industries of India, although it is but a few years since the prosperity of Indian tanners became quasi-proverbial. The enormous export trade in tanned skins and hides that was done by Madras a few years ago, was a trade that yielded large profits. Now, however, not only are profits reduced

but in many instances tanners have incurred heavy losses, output has been reduced, and the whole trade has lost ground. Not only this. Some 10 years ago factories were opened in Calcutta for the purpose of drying skins and hides, and the dried articles began to be largely exported to the United States of America, where they underwent the tanning processes. The reason for this was not merely that American tanning produced better leather, but also rhat it was both more expeditious and cheaper. More recently a "pickling" process has been resorted to in Madras in place of tanning; and pickled skins are now being exported in lieu of tanned skins. Not that shipments of the latter have been stopped entirely. The pickled article has only partially taken the place of the tanned, but unless some considerable improvements are made in the process of tanning resorted to in Southern India, it appears probable that every year will see an increased proportion of the skins and hides of the country exported in an untanned state, so that they may undergo in America or England the cheaper and more expeditious processes of tanning than are in vogue there.

Circumstances such as those briefly alluded to, lend additional interest to any practical suggestions for the improvement of local tanning or for the introduction of new tanning agents. We are led, therefore, to call attention to the latest number of the *Agricultural Ledger* (No. 9 of 1899) wherein the merits of Tari or Tari pods as a tanning agent are discussed. Hitherto Tari appears to have been regarded chiefly as a dye-producer, but in the publication under notice a report on an analysis of the pods by Professor Wyndham R. Dunstan, M.A., F.R.S., Director of the Scientific Department, Imperial Institute, London, calls attention to the valuable properties of the plant as a tanning agent. In some localities in India, the Tari pods are already used for tanning purposes, but the properties of the plant do not appear to be generally-known, and its cultivation is perhaps not as extended as it should be. Professor Dunstan, after distinguishing between *Cæsalpinia digyna* (Tari or Teri) and *Cæsalpinia coriaria* (Divi-divi) remarks upon the analysis of the pod cases of the former. The pods, it may be remarked, hold two thick-shelled peas which contain oil, but very little tanning matter. The seeds are removed, the pod-case is then ground alone. It is easily powdered, and from the powder water readily dissolves the tanning constituents, furnishing a liquid which is of a light or dark brown colour, according to its strength. Professor Dunstan recently analysed three samples of Divi-divi pods, with the result that the poorest showed 19·73 per cent. of tanning matter, the best 32·79 per cent., the average about 30 per cent. When he came to analyse the powdered pod-cases of the Teri, he arrived at a percentage of over 50 per cent. of tanning matter, and in one instance (a sample from Assam) the percentage was nearly 60. Commenting on this, Professor Dunstan remarks that is clear that the tanning value of Teri is greater than that of the South American Divi-divi. Moreover, in the case of Divi-divi the usual plan is to prepare for the use of the tanner and "extract" of the material, but the pod-cases of the Teri are so rich in tanning that the material could be used direct by the tanner without the previous preparation of an extract, "which, as is well-known, is a disadvantageous process, since it always leads to a considerable enhancement in colour," With the view of obtaining a practical opinion as to the tanning value of this Teri powder, a sample was furnished to a well-known tanning expert, who reports that he is much impressed with the results obtained. They compare very favourably with those contained by the best Divi-divi, whilst the aqueous liquor from *C. digyna* did not appear to undergo the injurious fermentation that is the difficulty in the use of *C. coriaria*. Professor Dunstan gives in tabular form the results of the analysis of three specimens of the powdered pod-cases of *C. digyna*, derived from Burma and Assam (though he erroneously refers to one of the Burma samples as from Bombay). The table is as follows:—

Cæsalpinia Digyna.

I. I. No.	Serial No.	Whence received.	Moisture per cent.	Tanning matter in material dried at 110 per cent.	Total soluble matter per cent.	Non-tanning matter per cent.	Ash per cent.
		Pegu Circle.					
6,921	6,258	Bombay....	11·07	53·82	61·95	14·08	3·28
		Eastern Circle.					
6,372	4,887	Burma.. ..	10·93	53·86	62·83	14·86	3·76
9,293	10,795	Assam......	11·40	59·89	65·80	12·73	1·84

The sample from Assam is the richest in tannin. No sample was sent from Madras, and we are not aware to what extent, if any, the plant is available in the Southern Presidency.

Mr. David Hooper, in an introduction to Professor Dunstan's report in the *Agricultural Ledger*, briefly sketches the history of Teri-pods, but makes no allusion to it as growing in Madras. The earliest samples tested were from Chittagong, where the plant was growing wild. Mr. John Tait, of Kidderpore, tanned a skin exclusively with the pods, and the process of tanning extended over four days. He remarked:—" The leather I conceive to be of a very superior quality, possessing not only an equality in softness with that tanned with Divi-divi (*Cæsalpinia coriaria*), but surpassing it in colour and appearance, and is consequently capable of being used far more extensively for tanning purposes, especially when a bright colour is required, than the Divi-divi." Some years ago, Messrs. Cammiade Brothers, of Madras, wrote to the Reporter on Economic Products, Calcutta:—" The pods of *Cæsalpinia digyna* are said to yield leather as white as snow. If that report is correct, this tannin ought to cut out all others in Madras, provided it can be grown cheaply." Mr. Evans, Chemist, of the Tanners' Laboratory, Bristol, has reported upon the pods:—

"They yield about 33 per cent. of tannic acid, which is in some measure like that of the babul (*Acacia arabica*) pods, which gives a cream-coloured precipitate; but this unites with gelatine in the form of a precipitate as white as driven snow, and its reactions with other chemicals give divers colours, which will make it equally attractive to the dyer. In saying this much, we can say with satisfaction as a chemist that it is almost perfect; what may be its behaviour in the tannery remains to be proved."

Enough has been said to show that the merits of Teri as a tanning agent are considerable. As to the plant itself, a report from Prome describes it as a thorny scandent shrub growing on low ground and near streams in forest without bamboo. From Toungoo we learn that the tree is never found in country that is in the least hilly, nor in country that is swampy. Its habitat *par excellence* is a level ground, either near the banks of streams or on waste land near villages, deserted village sites being favourite spots. Another report describes the leaves as, generally speaking, bearing a very close resemblance to those of the tamarind tree, while the pods are smaller, and the tree itself is seldom higher than 10 feet. The pods when ripe are roasted, and the seeds then eaten, principally by the younger portion of the population. If a large quantity be eaten in this way, it has an intoxicating effect.

It would be interesting to know if this plant grows wild in any parts of Southern India, and we trust that our present remarks will direct sufficient attention to the subject to elicit some information on this point. There is little room for doubt that the local tanning industry must gradually die out unless some special agent such as the above can be produced locally.—*The Leather Trades' Review*,

BONE MEAL.

We are constantly being asked by our readers whether we consider bone meal (or bone dust) to be a good manure; whether it should be used in a fine or coarse state, and whether it is good for this or that crop. It appears to us that a few words of explanation are necessary. To begin with, bone meal as a fertiliser scarcely has an equal; mixed with saltpetre, cowdung, castor-cake, or linseed-cake it has been found to produce very heavy outturns when used for field crops. For coffee it has been found to give excellent results, either alone or when mixed with other manures. In the case of tea also it has been found to give very satisfactory results. To give our readers an idea of the value of bone meal compared with other manures in common use, we reproduce below analysis of ten samples of manures chemically analysed by Dr. J. W. Leather, Agricultural Chemist to the Government of India:—

Manures.	Moisture.	Organic matter.	Sand.	Nitrogen.	Phosphoric acid.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Poudrett	34·01	8·18	48·27	0·44	1·15
Bone dust	7·90	27·51	5·06	4·69	23·49
Cowdung (Bazar) ..	43·26	18·86	31·77	0·53	0·29
Dung, litter and urine ..	62·15	17·92	15·82	0·59	0·38
Dung alone	80·06	10·94	7·51	0·36	0·29
Litter alone	46·68	26·28	20·57	0·84	0·37
Dung alone	78·45	10·06	9·91	0·30	0·19
Urine-earth from cattle getting concentrated food	16·73	10·11	65·29	0·44	0·23
Urine-earth from cattle getting no concentrated food	11·63	8·73	68·39	0·33	0·20
Sheepdung	50·01	16·26	26·02	0·87	0·53

From the above it will be seen that bone dust had the smallest percentage of moisture and sand, and the largest percentage of organic matter, nitrogen and phosphoric acid; the two last named are the two most important elements of plant-food. Potash and lime are also important constituents of plants. Of the former, bone meal has a trace, and of the latter 28 per cent., against 0·28 per cent. in cowdung. Taking all the foregoing circumstances into consideration, it will be readily understood that bone meal is a very valuable manure.

So far we have only discussed the question from the planters and agriculturists, point of view. In the garden it has been found to be of immense value, not only for flowering plants in pots and in the open bed or border, but in the kitchen and fruit garden as well. We have seen some remarkable results obtained from the use of bone meal for roses, aroids, ferns, and even annuals, such as heartsease, stock, etc. We have seen it used in combination with Ichthemic guano and cowdung for flowering plants, and with linseed-cake and saltpetre for cabbages, cauliflower, turnip, knol-khol, etc.; also for vines, peaches, plums, etc., in combination with linseed-cake. It has been given as a surface dressing to the orange tribe with great benefit. Pomeloes, especially, derive great benefit from its use. There is an idea prevalent that it takes a long time before bone meal can be absorbed by plants. Chemically this is no doubt quite correct; in practice the results obtained in the garden would seem to negative this theory. We have seen bone meal applied to Cannas, which were in a very poor condition. Two months after those very plants were over five feet high, and in robust growth, having sent up dozens of suckers. No other manure of any kind was applied. This would go to prove that the action of bone meal is more rapid than is generally believed. There is one point on which some misconception exists. It is considered by some that a coarse grist is useful for farm crops. Our own experience is that the finer the meal the more readily is it assimilated by the roots of plants. Therefore in order to derive immediate benefit from this fertiliser it should always be used in the shape of fine powder, whether for field crops, garden or pot culture. To those who intend exhibiting at the next flower show, whether flower, fruit or vegetables, we strongly recommend the use of bone meal.—*Indian Gardening and Planter.*

FRUIT CULTIVATION IN CEYLON

THE EXPERIMENTS WITH ORANGE GROWING IN UVA.

Under the first heading above, our London correspondent, in the portion of his letter published yesterday, makes reference to the scheme contemplated by Mr. A. J. Pearson, of Messrs. Brown and Co. some years ago, for starting orange-groves in Uva and says that he does not think the scheme ever, got beyond a newspaper article. One of our representatives, who saw Mr. Pearson yesterday, learns that the chief difficulty the latter experienced in starting the scheme on a large scale was his inability to secure a suitable piece of land. Owing to this, and not having sufficient time at his disposal, Mr. Pearson has been unable to carry on the scheme as vigorously as he could have wished. At the same time he has by no means lost interest in the subject, and, as a matter of fact, gets regularly every year from Australia a fairly large number of trees for friends and others. Last year, for example, he imported about a thousand grafted orange and lemon trees. These have been planted in all parts of the island and are doing particularly well. On the Uva side they seem to thrive the best on account of the dry climate which prevails during the fruiting season, and at Hatton also they do well; but the weather, there is generally inclined to be wet at the time when the fruit is ripening. It would be impossible Mr. Pearson explained, to get accurate results of the experiments for a year or two, but many of the trees planted three years ago are now bearing fruit, and on a small scale, the scheme has been most successful. He thinks there are great possibilities for the cultivation of oranges and lemons in Ceylon if suitable land could be obtained,

Mr. Pearson is also of opinion that many of the deciduous sub-tropical fruits could be grown well in certain parts of the Island, such as the fig, peach, apricot, nectarine, persimmon, Japanese plum, &c. He states that he has seen splendid Peach trees at elevations of 4,000 ft. and over, but the fruit on them indicates them to be worthless mongrel seedlings, and there seems no reason why the very best varieties of grafted or budded trees should not do just as well. The deplorable habit of growing from seed is answerable for the bad quality of fruit that is general in the island, and if people would only realise, when planting fruit trees, that when they plant a seedling tree, or grow from a seed, the chances of obtaining fruit of decent quality are about 10 to one against, they would probably be at more pains to secure plants they could depend on. Then, in addition to the uncertainity as to the quality of the fruit, it has to be borne in mind that seedling trees take about eight years to come into bearing, whereas a healthy grafted plant with proper cultivation may begin to shew fruit in two years from planting, and should certainly do so in three years.

The orange industry in Jamaica has grown considerably of late years. That Island has no advantages over Ceylon as regards climate for citrus cultivation nor transport facilities, and it seems strange that an industry which is looked on as one of great importance in other parts of the world should be here so entirely neglected.

QUEENSLAND ARROWROOT.

With reference to the prices of arrowroot in Great Britain, which appear in British price lists as much hgher than can be obtained by the growers and manufactures of Queensland who export the article, we wish to draw attention to the fact that Queens-

land arrowroot, under the provisions of the Food and Drugs Act, cannot be sold in Great Britain as arrowroot, and this is a matter of great importance to the growers here. The authorities in England, with whom the administration of the Act lies, have decided that the article made here and sent into the English market is not genuine arrowroot, because it is made from *Canna edulis* and not from *Maranta arundinacea*. Much correspondence has passed on the subject betweeen the Department of Agriculture here and the Acting Agent-general for the colony in England, Mr. Chas. S Dicken, who parcticularly interested himself in the matter, and placed himself in communication with Mr. Chamberlain, with the result that arrowroot made in this colony from the *Canna edulis*, can be sold in Great Britain only when labelled "Queensland Arrowroot." The Hon. A. J. Thynne, when Minister for Agriculture, advised growers not only so to designate the manufactured article, but to add the words "Prepared from *Canna edulis*." So the matter stands; and when arrowroot is quoted in British price lists, it should be understood that in every case the standard arrowroots of St. Vincent, Natal, and Bermuda are referred to.

Those prices were given in a letter from the Agent-General to the Minister for Agrieulture, so far back as 1896, as follows;—

Bermuda ..	..	2s	2d per lb.
Natal ..	..		6¼d ,,
St. Vincent (1)	..		2¾i ,,
St. Vincent (2)	..		1¼d ,,

The army and Navy Stores supplied samples of ve kinds with their prices, viz:—

Bermuda ..	..	2s	6½d per lb.
Bermuda (kind)	..	1s	1d ,,
Natal (finest)..	..		9½d ,,
St. Vincent ..	..		3½d ,,
St. Vincent (fine)	..		6½d ,,

The reason for the wide difference in value was the limited supply of Bermuda. There is no sample or price given for Queensland arrowroot for the reasons stated

"Strictly speaking," says the Assistant Secretary of Inland Revenne, London, in a report on the subject to the Under Secretary of State, "the term 'arrowroot,' without prefix or qualification, should be restricted to the starch derived from plants of the genus *Maranta*, the most important member of which is *Maranta arundinacea*, a native of the West Indies, and which furnishes most of the genuine West Indian arrowroot. The Maranta starchd is perfectly distinct in its physical character and properties, and is readily identified under the microscope. A purchaser simply asking for arrowroot would presumably, by use and wont, expect to be supplied with Maranta starch.

Tous-les-mois, or Queensland arrowroot, the product of the *Canna edulis*, is quite a different starch, and its physical properties and appearance are distinct from those of Maranta starch."

We are informed by Messrs. Lahey Bros. that the price of the Queensland article has varied mnch in price, sometimes falling to 1¾d per lb. or £16 per ton, with freight at ½d per lb, sometimes reaching as much as 4d per lb, or over £33 per ton. The average price in Brisbane, the Messrs. Lahey stated to range from £12 to £20, or, say, an average of £15 per ton.—*Queensland Agricultural Journal.*

HONEY PRODUCTION IN PALESTINE.

The American Consul in Jernsalem, in a recent report gives an interesting account of the rear of bees and the production of honey in Palestine, which has always been famous for its honey, although the methods in vogue were until lately very crude. The development of the industry by the application of modern methods of late years is due to a family named Baldenspergen, which emigrated from Switzerland in 1849 and settled at Artas, seven miles north of Jerusalem, near the famons pools of Solomon. The father was always interested in bees and kept some in the native hives, which are long terra-cotta jars, and he aroused in his five sons an enthusiasm in the industry which has led to considerable results. In 1880 they really commenced the work under an American teacher, and soon adopted the plan of carrying the bees about from place to place for the best food. Thus from Ramleh they had the hives taken on women's heads 12 miles to Yafa, where tho orange-blossoms were plentiful, so that in April there was an abundant harvest of this kind of honey, while at other times it was obtained from cactus and acacia blossoms. From another apiary and in other places harvests were obtained from lemon blossoms and from wild thyme. In 1884 the 50 hives at Yafaalone yielded 6,000 lb. of honey in less than a month. The Turkish officials soon cast thier eyes on the industry as a source of taxation, and at first charged about 5d. per hive, but shortly after enormonsly increased the amount payable by counting every door, window, and hole through which the bees could be seen at work as hives, so that 150 hives counted as 2,000. After much litigation the Baldenspergers were fonnd to owe the authorities £100 on account of a single apiary. This they refused to pay, wherenpon the houses were sold by auction in Jerusalem at 5s. each, but when the officials came to deliver the hives to the purchaser, as they were bound to do, it was found that the bottom boards of the hives were unhooked, and the bees swarmed ont to attack their distnrbers. A compromise had to be made and the bees remained with their original owners. Then the local sheikhs demanded toll whenever an apiary was moved near their villages, otherwise the hives were stolen, fire or water being used to kill the bees. Indeed, now, abont a tenth of the honey has to be given away as blackmail. Occasionally even camel-loads of hives on their way from one feeding-ground to another are stolen by the Beduins, so that the industry is beset by many obstacles and calls for patience, tact, and perseverance. A colony is about 35,000 to 50,000 bees, and in distributing these colonies great care is taken not to overstock any special locality. The Baldenspergers do a considerable business to exporting queen bees, and when their enterprise was threatened by exeessive taxation, they sold a large number of their hives to natives, whom they had trained, and to the Jewish colouy in the plain of Sharon, so that there are now 700 hives at work in the country in addition to their own colonies. Queen bees exported by them have sold for as much as £3 each in America. All the honey prodnced finds a good market in Europe.—*English paper.*

LECTURE ON ORANGE CULTURE:

BY HON. J. T. PALACHE.

I will proceed to point ont what is to my mind the best method of establishing a grove. Select a well drained piece of ground, let the size be according to your means, clear it of all noxious vegetation, then line it in 20 feet sqnare. It is best to begin with to get plants of good varieties from a nursery. Afterwards, as yon extend yonr cnltivation, I will point out how you can supply yourself with yonr own budded plants. Dig the holes fonr feet in circumference and two feet deep—then pnt your plants in, being careful to see that they have been carefully taken up with all the fibrous roots, and in planting lay these carefully out on some loose soil so as to enable the roots to begin to take up the nutriment from the earth at the earliest possible period. If the weather is dry cut back all the leaf branehes, if wet you can leave them on, and if the plants have been carefully lifted and planted they wil grow without any stoppage. If the weather is very dry, water for about a week every day, after that every other day, until yon are satisfied that the plants have fairly started. Then proceed to cultivate the spaces between with catch

crops—beans, corn, cassava, potatoes, yams, etc., taking care always to keep round each plant clear so as to prevent crowding. The citrus plant cannot stand crowding or overshading as it immediately under such circumstances develops disease and blight. Keep the soil for about four feet round the plant well forked, so as to let in light and air, and thus procure the best advantages of sunshine and showers.

Having started your grove—set to work to get a nursery. Prepare a seed bed by ploughing a nice level piece of land free from stones. Open trenches about one inch deep and one foot apart. Get Seville orange or hog shaddock seed and drop them in the trenches about one inch apart, and cover lightly. And when the seeds begin to grow be careful to keep the land round about well stirred and free from weeds. It is well to steep your seeds the night before you plant out in a solution of bitter-wood, to prevent them being eaten by any mice and other pests. When these plants are about eight months old they will be fit to put out in the nursery. Prepare the nursery land carefully. Plough deeply and then harrow it off. A portion of your grove in which you have not planted catch crops will do for this purpose and will effect a great economy, as whilst you are cultivating your nursery stock, you are also cultivating and improving your grove trees. Line off in rows two feet apart and drill out the plants six inches apart, and as they grow, stire the land round about well and keep the weeds down so as to give your plants all the advantages to be derived from the soil. Twelve months after the time of planting out from the nursery the plants will be ready to be budded. And if your grove trees have got on well you will get plenty of bud-wood from them, by cutting back some of the superfluous shoots which they have put out. And I think I will best serve the purpose by giving you a practical lesson in budding—all the materials for which I have at hand. After the bud has been in 14 days—If you see it still green and beginning to close round the edges, you may be certain it has taken. Cut back the stock about six to nine inches from the bud. Those that have not taken, you leave to rebud another day. It is advisable not to cut the top quite off but half through and bend over the head, so as not to get an over-flow of sap to the bud and endanger its existence by repletion. When the bud has grown about a foot, and has hardened up, remove the top altogether and give the bud shoot the benefit of the entire flow of sap, it will then be able to utilize it all. When the bud is about three months old, with the aid of a sharp strong scissors, clip the head of the stock quite close to the apex of the bud, and this gradually heals over making for the plant one straight trunk, and you soon lose sight of the point where the bud was put in. It will surprise you how quickly these buds grow and how soon they outstrip seedlings. This grape fruit which you see here was only budded last November. And an important advantage not to be lost sight of in building is, that it is the only method of propagating the citrus family to ensure getting the original variety you wish, as owing to the ease with which the blossoms of this family are fertilized by bees and other insects, seedlings are always furtive and producing all sorts of hybrids, most of which are useless for any purpose. This shaddock is from a tree budded August gone, three years, from the far-famed Cinnamon Hill Shaddock, and it has come perfectly true to the original in shape and quality. Here also are Grape fruit budded from the Wilton Grape Fruit which in flavour, shape and quality, are the exact counterpart of the fruit from the parent tree. Here also are Navel Oranges, the bud of which came by book parcel post from the Riverside Groves in distant California, and not one of the trees from which these fruit were gathered are yet four years old—some of them barely three. I think these are examples which sufficiently prove that propagation by budding is the best to adopt and vastly superior to all others. The next question tha should occupy the citrus growers attention is, wha are the best varieties to grow. I am quite certain that of oranges there is no finer variety than the ordinary Jamaica Orange; and with cultivation, selection and propagation by budding, it will in time hold its own with any variety in the world; but in the meantime as our best market is in America, we have to consider the taste and prejudices of the consumers —hence it is well to calculate the varieties most highly thought of in America. Another very important desideratum is to have such varieties that come in at different periods of the season. To have a crop coming gradually to maturity and extending over the whole season, the following varieties will be found to meet these requisites to a great extent:—Boones Early—the earliest in cultivation in Florida, ripens in September, and I feel certain from what I see on my trees, this variety will be still earlier in Jamaica. The two next earliest are Centennial and Parson Brown—the Centennial is a very prolific bearer with a fine shaped fruit, follows close on Boones Early. The Parson Brown is a very fine Orange indeed, large and well shaped and a heavy bearer. For mid-crop, the Jaffa, Washington Navel, Pine Apple and the blood varieties, such as Ruby Blood, Jaffa, Blood and Maltese Blood are the best. The Washington Navel is the favourite Orange in California and the most generally grown there. This Orange I have discovered growing naturally here, and I have the word of a gentleman who has eaten this fruit in the Riverside Groves, that our Jamaica Navel is as good in all respects as its valued relative in California, Now here is the native Orange to to propagate and cultivate. We in Jamaica think too little of these things, and the following facts will illustrate what I mean. Thirty years ago the Washington Department of Agriculture sent to Bahia in South America, and got 10 trees of this variety, when they arrived in Washington only two were alive - when planted, only one grew; and it is from this one tree that the thousands of acre were planted in California now yielding million of dollare to their fortunate owners. Twenty-five years ago Captain Rivett brought from Bahia two trees of this very Orange and planted them at Petersfield, in St. Andrew—both grew, and up to two years ago they were the only two trees known in the Island. The Jaffa and Pine Apple are very vigorous growers in our Island climate and bid fair to make large compact trees capable of producing heavy crops of fruit, and I notice in the Parson Brown and Jaffa, an almost entire absence of attacks of insects and disease of all sorts which is quite remarkable, and for these reasons I would recommend these varieties for cultivation above all others. The late varieties —Hart's Tardiff, Kings's and Californian Joppa, complete a list which I think, will enable the grove owner to have Oranges from September to June of the following year, without the great loss from over-ripe fruit which would naturally be the case if only the early varieties were planted—or the long waiting, if only the late varieties were cultivated. The Joppa is a comparatively new variety. It is quite thornless and bears a seedless fruit, and it is said that the fruit will remain on the trees perfectly sound until June. Of the fancy varieties the Daisy Tangerine and the Satsuma are the best to grow, as they have a tough, leathery skin, which makes them keep well and good travellers. The Satsuma has only recently been introduced from Japan, and it is said that its keeping and travelling qualities are so good, whilst preserving the colour and qualities of Tangerine that it will soon take the place of all other fancy varieties. Another variety of the citrus family that is much valued in the Northern markets are Lemons, and the varieties best for cultivation here are Genoa and Villa Franca. The mode of culture and propagation is the same as oranges, but much greater care is required in the gathering, airing, and packing of the fruit. The above varieties grow here

with great vigor; and from the fact that I am now gathering fruit from trees not yet three years old, I feel confident in recommending the culture of Lemons to you as likely to add at no distant date, a valuable quota to our fruit exports. Yet another variety of valuable citrus family is the Pomelo or Grape Fruit. Americans have developed a great taste for this fruit, and when it gets better known in Europe it may have a great future, and be a source of wealth to this community; for no where else can better Grape Fruit be grown; and the rapidity with which this fruit grows and begins to bear is very encouraging. Some of our native varieties are excellent, whilst there are a great many bad and rubbishy hybrids that it will be useless to waste time and space to cultivate. Of the imported varieties Royal Pomelo, Triumph Walters and March Seedless are the best; whilst of natives, the Wilton and the Windsor are the best that can be procured, although there are no doubt, several other good varieties in the country. But whatever you do, select a variety of proved good quality. It will always pay to grow the best. The cultivation and propagation are the same as for oranges. The greatest troubles that the orange grower has to contend with are insect pests and disease. But the grove owner should bear in mind that his best weapon against these enemies is careful and constant good cultivation. Bear in mind always that insects and disease will always attack the sickly and weakly plants: whilst the well cultivated, vigorous growing plant will have within itself power to resist and throw off the attacks of its enemies, the weakly illcultivated plant will easily succumb. It pays therefore to keep out weeds and ply the cultivator regularly through your groves, if for no other reason than to keep your plants in vigorous growth, so that they may be able to resist the encroachments of their natural enemies. Time will not permit me to give you an elaborate lis of Latin and Greek names of the insects that are enemies to citrus cultivation, but the coloured plate which I have here will show you which are your friends and which are your enemies, for by that wonderful provision of a beneficial providence one set of insects prey on the other, so as to preserve the balance of nature. There is however one active little enemy to combat against; an enemy whose name is legion, and who if allowed to follow out its own plans will nip off the embryo leaves of the plants the moment they appear above the ground. I refer to those very industrious creatures whom the primers hold up to us as an example to emulate, but it could be wished that their proverbial industry was more tempered with judgment in consideration for struggling humanity. I mean ants, of course. They evidently regard your citrus leaves as special dainties, and must be taught to keep their distance. An application of air slaked lime or hard wood ashes on the seedling bed and a planting of strong solution of bitterwood on the larger trees, will damp their ardour. Another enemy is the rust mite which attacks and destroys the fruit and exhausts the oil cells and renders the orange unmarketable. Here is an orange attacked therewith. A solution of one pound whale oil soap to five gallons of water, and applied with a brush to the affected parts of a tree just before the blooming season, is an effective remedy. Sulpher is also a good thing to spray with for this insect. The scale insect is another dangerous enemy, and I have here a limb with some scale on it. The Laybird is its greatest enemy, but if no Ladybirds are in your grove a solution of lime, kerosene oil and water is a very effective remedy. And here is one of the most deadly enemies to citrus cultivation, the beetle, we know as Fidler. It feeds in the leaves of the trees, then deposits its eggs at the root of the trees, and in time produces the larvæ which feeds on the bark of the roots. and as the roots are barked the whole tree ere long feels the loss of its necessary nutrition, and twig after twig, branch after branch, dies back, often puzzling the owner to determine the trouble. So soon as you notice the dying back begin, search carefully round the root of the tree, and you will find numbers of larvæ, very like "Mackaka" worm but smaller with a hard black pointed beak. Deal out death to every one and apply about half lb. of sulphate of ammonia and this will drive them away. Prune the trees, carefully back, removing all dead or dying branches. Prune the roots also cutting away the barked roots to give those left alive a chance to recover vigour. Wage perpetual war against Mr. Fidler wherever you see him—let death be his certain lot and thus keep down a dangerous pest..—*Journal of the Jamaica Agricultural Society.*

TEA CIRCULAR ON TEA REFUSE TEA WASTE AND DAMAGED TEA FROM MESSRS. BARLOW AND CO. 37, STRAND, CALCUTTA.

Dear Sirs,—A considerable quantity of the above occurs on all factories from various causes, and is swept out of the tea house and thrown among the bushes or on the ash-heap. Hitherto there has been nothing else to do with it. We have, however, lately learned that, though useless for human consumption, it has a certain value for other purposes. We recommend you, therefore, to have all the following collected and put into *good* old rice bags and sent down to us in these bags, when we will dispose of it for you to the best advantage-

Tea Fluff.—This is fairly abundant in every part of the sifting room, and should be regularly cleared off the walls, roofs, beams, etc.

Tea Refuse.—This includes all pickings during sifting. Tea blown into odd corners from the dryers, teas accidentally left in the corners or under bins, etc., etc., till soft and unfit for mixing with sound and marketable teas.

Tea Sweepings.—This includes all tea house sweepings after the work is done, freed of dirt and dusty earth or sand as far as possible.

Damaged Tea.—Any tea rendered unfit for mixing with sound and marketable tea, from any cause whatever, such as water, fire, or smoke, should be collected and put separately into bags. Any sunk tea, or tea otherwise damaged by water, should be re-dried as soon as possible.

It is however, to be practically noted that any such damaged tea is to be kept entirely separate, and not mixed with the above, till you have received instructions as to what is to be done with it.

Such tea should not be thrown away, as it is of some value.

Tea Dust.—Not fit for human consumption on account of the earthy dust mixed with it, should be sent down in bags.

We believe it is the practice with some concerns to sell the above refuse locally. This is a most objectionable practice, as it frequently gets into the hands of natives in Calcutta, and possibly out of India, and is sold as tea much to the detriment of the reputation of Indian teas. The practice is, therefore, most harmful, apart from all sanitary considerations. We trust you will do your best to stop such traffic.

We give our absolute gurantee that none of the, supplies of the above sent to us will be used for human consumption in any way whatever.

N.B.—Tea stalks by themselves are useless and should not be sent down, as we are advised at present, but any normal mixture of stalks with the above refuse will not effect the sale.

Please advise us about what quantity of the above you will have available from now to the end of the present season, On hearing from you, instructions will be sent to you for forwarding it to Calcutta.

We are, Dear Sirs, yours faithfully, *Per Pro* Barlow and Co., H. W. Sutcliffe.—*Indian Gardening.*

COFFEE IN DAYS OF OLD IN CEYLON.

(*By a Coffee Planter of the "Forties"*.)

Dublin, Sept. 4.

I read the *Overland Observer* and find allusions therein to things that draw me back to the good old times when in full vigour I roamed over the hills looking after coolies, engaged in holing, lining, and planting. My first experience was on "Alpittykande," the property of Robert Craig and "Mahaleecumbura," the property of Post-master-General Lee and Mr. Saunders of the Customs. In those days when forest lands could be got at 5s the acre, many of the Civil Servants invested and some made money.

My object in writing this note was on seeing

"ALPITTYKANDE'

mentioned, in a late issue of the *Observer*. I well recollect when I traced a path from the Monument and had it widened out to run "pack bullocks," for I did not like my men to be beasts of burden. Subsequently the track was extended to Gampola, and as this track succeeded well, a deputation of the Superintendents waited on me from the other side of the main road, asking m to trace a path to their estates. These were the first private roads in the Kaduganawa district, and to show their value "Alpittykande," Mr. Craig's property, sold for £12,000, Messrs. Lee and Saunders were offered £35,000 by the same purchaser, but refused and subsequently lost in the disastrous years 1845-1846 and 1847, when I gave a bushel of parchment for a bushel inferior rice.

Well, to return to

COFFEE

which was ruined by hoe and scraper, I must bear record to the only practical Planter I ever met in Ceylon (George Crosbie). After he had planted "Bowhill," near Nawalapitiya, he never allowed hoe or scraper to be used by any of the weeding gangs: instant dismissal was the punishment of any infringement. The consequence of his wise rule was a growth of *moss* all over the planted portion, and in seasons when shorthanded he had the berry picked from under the trees and cleaned at his store, such coffee realising 5s per cwt. more than parchment cleaned at Colombo. After his death new-fangled ideas were introduced, hoe and scraper came into requisition and soon the soil which "G C" tried to secure for the nourishment of the coffee tree was running off as pea-soup to enrich lowlying paddy fields; the trees roots exposed and gradual decay. For ten years the average of Bowhill was 10 cwt. 1 qr. 15 lb. per acre; after the new change it dropped off to 9 cwt. 7 qr. 5 lb. and 3 cwt. per acre and eventually like all estates similarly treated, became worthless. Poverty brought disease which like any other plague extends and lays hold of good and bad. In this case, however, there was no remedy, for as coffee is a surface feeder and the soil which should be strictly conserved was wasted. The soil on Ceylon hills is light, and never can be replaced by any artificial manure, and to keep cattle is unproductive, as I know by experience. I never saw a coolie drop his basket of manure beside a tree that had to be holed to receive it, but I said there goes 3s.

How far

TEA

will pay I have no opinion to offer as I never was engaged in its culture. It is a shrub that will grow from Pidurutalagalla to the Fort of Galle, and from what little experience I gleaned from a relative modern machinery has not added to the flavour of tea. I recollect the small plot Mr. Grant had on the road from Nuwara Eliya to Kandy which was cured by *hand labour*, and certainly *none* of the machine-cured tea can at all come up to it in flavour. Mr. G. always sold his at three rupees a lb. and I would give that amount in preference to 1s of the present stuff sold under the name of Tea. The Beaulys of Dublin have still a small quantity of tea, part of a cargo that they had from China about 50 years ago. On State days they regale friends (they belong to the Society of Friends) and no greater treat could be offered. This particular tea was *hand-cured*.

R.

CEYLON PLANTERS' RUBBER SYNDICATE, LD.

This is the title of a proposed Company of which the memorandum and articles of Association appeared in a recent *Gazette*. The object is to acquire lands in the Malay Peninsula or elsewhere for the purpose of producing rubber, tea, coffee, cinchona, cacoa, cardamoms, rhea, ramie, plants, trees, etc., and the nominal capital is R90,000 divided into 180 shares of R500 each. The signatories are:—A R Wilson-Wood, Kotagala; W H Aitken, Dikoya; Wm. P Halliley, Nanuoya; P J Gaisford, Talawakele; Prior S Palmer, Dimbula; Ernest Hamilton, Dolosbage; and Harry Whitham, Dolosbage.

EXPERIMENTAL TEA CULTIVATION IN SOUTH CAROLINA.

In the last report of the British Consul at Charleston a section is devoted to describing the results of experiments in tea growing in the State. At Summerville the experiments began about ten years ago. At the beginning they were conducted on a small scale, but they have been gradually increased, until now over 50 acres have been planted with tea. When the plants arrive at full bearing the yield should be at least 10,000 lb. of high-grade tea annually, and this, it is supposed, will suffice to show conclusively whether tea may be profitably grown under existing local conditions of climate, soil, &c. The problem of providing cheap labour for gathering the leaf was solved by training a band of negro children. The South Fraser tea garden, containing a little over two acres, has done very well so far. The bushes were raised from seed planted in 1892, produced from a celebrated garden near Hang-chau. This tea is not exported from China, as it costs about 6s 6d per lb. at Hang-chau. The Summerville garden is in very good condition, the unsuccessful plants amounting to about 4 per cent only, and visitors acquainted with Oriental gardens have expressed surprise at its luxuriant and uniform growth, comparing favourably with similar gardens in the East. The bushes are thick, somewhat low in growth, and globular in form, the leaf, as a rule, being rather small and quite tender, and adapted for the manufacture of either green or black tea. The soil is a clay loam, with a stiff, dry subsoil; it has been heavily enriched every spring with a high-grade fertilizer at the rate of 600 lb. to the acre, and the yield of dry tea last year reached 500 lb. per acre, while few gardens in China yield over 200 lb. The 1898 crop amounted to 3,000 lb. in all, and was sold at a profit of about 25 per cent. The black tea produced there has a distinctly characteristic flavour, and, like some of the choicer Oriental teas, its liquor has more

strength than the colour indicates. The severe cold weather of last winter appears to have conclusively tested tea culture in South Carolina, so far as climate is concerned. The unusually cold weather did not materially diminish the crop, the percentage of plants apparently injured was small, and of those killed still smaller The production is necessarily dear, owing to the comparatively high price of labour, and this difficulty must be met by greater productiveness, substitution of machinery for hand labour in the factory, and by the cultivation and manufacture of those qualities of tea which, from inherent chemical causes, cannot be transported from the East without losing their delicacy of flavour. One essential to greater productiveness is abundance of the richest plant food, natural or artificial. High-class teas in the East are dried at low temperatures in order to preserve those volatile principles that give them delicacy and flavour. They do not retain their best qualities for any length of time, and cannot for this reason be advantageously shipped abroad. Herein may be found the most profitable field for tea experiment in America, as there can be no competition from abroad in the higher grades if it can be demonstrated that their successful cultivation is possible. It has been suggested that probably the best chance for success in this direction will lie in the development of selections of long Pekoe tips for the manufacture of Mandarin tea such as is made in China. —London *Times*, Sept. 3.

PUMPKINS AS A FODDER.

Writing to the *Auckland News*, a farmer says: "My experience with the pumpkin is, all the animals that I have, including the cats, relish it; cooked or uncooked, every part, seeds and all, disappear quickly. For a number of years I have used various foods for dairy purposes—potatoes, turnips of several kinds, mangolds, also green maize. The root crops are costly to produce; too great a percentage of water in them. The mangold gives well-flavoured milk and butter when used or fed with good grass hay. The best results I obtained was from the pumpkin with grass hay and prairie-grass. Whatever the experience of others may be, my opinion is that the three above-mentioned foods are superior to all others for dairying or fattening purposes. The pumpkin is highly nutritious, the prairie grass is far superior to any of the other grasses as hay, or used in the green state. The pumpkin is easy of cultivation, clean to handle, no cost of digging as in root crops. Should anyone elect to use the three foods, and after fair trial they find them more suitable and profitable foods, their advice and knowledge would be very acceptable. The most convenient method to produce the pumpkin and prairie-grass would be to grow both in one suitable paddock—say three acres—one acre pumpkins, and two acres grass. When pumpkins are taken off, prepare for grass; break up one acre of grass, and use for pumpkins, or, in other words, use in rotation. A stack of good meadow hay as a stand-by is very desirable. The result will be, with a good shelter shed, good milk and butter, and rich manure."

REID'S BREAKER OR TEA LEAF EQUALISING MACHINE.

AN IMPORTANT IMPROVEMENT.

A machine that has been before the public for a number of years, and one that has proved its merits and usefulness by the large number of sales, is the Self-Feeding Tea Breaking Machine, introduced by Mr. George Reid, of the Meleng Tea Estate.

An improvement has recently been made in this machine. The hopper arrangement and the fluted roller have been done away with, and a large rocking tray is substituted. It was found at times when the tea was carelessly fed into the hopper, that more dust was made than was desirable, and moreover, foreign substances, such as nails, pieces of bamboo, &c., which in the best regulated tea-houses do sometimes manage to find their way into the tea bulk, were not easily detected. The rocking tray, above alluded to, presents a large surface, on which a whole basketful of tea may be emptied, and spread out, the tea being gradually moved towards the "Breaker" by the vibration of the tray, and any foreign substances can be easily detected and removed. Moreover, no possible breakage, or rubbing, of the tea can take place, until it comes in contact with the knives, or cutting teeth, in the interior of the machine.

This tray is moved by a small eccentric on each side of the projecting driving spindle, and is balanced by weights; it works noiselessly, and a most satisfactory report upon it has been received from Assam, where the new attachment has been thoroughly tested.—*H. and C. Mail*, Sept. 14.

Bogus Tea.—During the past year 226 samples of tea, representing 3,322 packages when tested at the Government laboratories, were found to contain exhausted leaves, or to be mixed with sand or other illegal substances and were consequently refused admission for home consumption. Of these 3,322 packages 2,274 were exported, presumably as being good enough for foreigners, and 1,048 packages were destroyed. It would be interesting to learn more about this tea, and to discover where it comes from and where it goes to, that is the 2,274 exported packages. We trust they are not described by the name of Indian or Ceylon in some foreign country where the knowledge of tea is very limited.

When China Wakes Up.—Indian and Ceylon planters are often told that one of these days China will rouse herself and become a formidable competitor in the attempt to control the tea markets of the world. In this connection it may be noted that in the Geographical Section of the British Association an address was delivered on Tuesday by Mr. G. Chisholm, upon some consequences that may be anticipated from the development of the resources of the Chinese Empire by modern methods. He assumed that its development was about to progress. Referring to tea and silk he said that: "In the silk trade China had felt constrained, by the example of Japan, to discard primitive hand methods of manufacture, while in the tea trade the severe as well as continuously progressive competition of Ceylon and India had taught the Chinese a salutary lesson, and induced them to make experiments with leaf-rolling machinery, the product of which was found to yield high prices in London." Mr. Chisholm claims that the development of China was bound to have world-wide effects, on a scale of extraordinary magnitude. Among the consequences that might be anticipated from this opening up were: —(1) A rise in prices in China, especially in the industrial regions; (2) the creation of a demand for food stuffs not likely to be supplied by China itself, a demand which in itself would be one of the most powerful causes contributing to maintain the rise in prices; (3) the imparting of a great stimulus to the food-producing regions most favourably situated for meeting this demand, more particularly Manchuria, Siberia and Western America and probably the Pacific States of North America to a greater extent than Canada; (4) perhaps the most important of all would be the creation of a tendency to a gradual but prolonged rise in wheat and other grain prices all the world over, reversing the process that has been going on since about 1870.—*H. and C. Mail*, Sept. 14.

TEA MACHINERY AND TEA FACTORIES:

MR. J. A. WILLIS TAYOR ON THE SUBJECT.

A planter, upon whose knowledge of all that concerns tea and tea gardens we can thoroughly rely, writes us as follows:—"I see that some of the Indian papers refer to this book as one of 'exceptional interest,' but I fear that anyone practically acquainted with tea planting who reads this treatise with the idea of discovering new ideas or enlarging his knowledge of the subject with which it professes to treat, will be disappointed. I am under the impression that the author has never been upon a tea plantation or seen a tea bush, and this is obviously a drawback when writing about the cultivation and preparation of tea for the market. He tells us that the chemistry of tea is a subject upon which he has barely treated, but with the cultivation of the plant and the process of manufacture or preparation of the leaf he has been forced to deal to a certain extent, in order to be enabled to describe intelligibly the various machines and apparatus employed.

"In his reference to cultivation and manufacture he gives the ideas of recent writers, and there are liberal quotations from the views of Mr. Christison and Mr. Crole, which are duly acknowledged. I fail to see the relevancy of the description given of the various kinds of steam ploughs, steam draining, and ditching machines, and the different systems of steam cultivation, as there is no attempt to solve the problem how they could be profitably employed on tea gardens. While admitting that it is not altogether impossible that level grass land might be prepared for planting, and that steam ploughs in this connection might prove useful, I do not see, nor does Mr. Wallis Taylor explain, how such operations could be profitably carried on, even if the steam cultivator could be moved about and kept constantly employed upon grass land extensions. The idea, if it is suggested, that these cultivators could be used upon forest clearings, planted gardens, or on hill-side gardens, is a somewhat remarkable one. As a preliminary to his account of tea machinery he describes, the author devotes some space to bridges, portable railways, steam and electric traction tramways, oil engines, refrigerating machines, &c., and here, no doubt, as an engineer, he is quite at home, but I cannot see the point of that which is written so far as its application to tea, or tea making or manufacture is concerned. In describing the various machinery used in the manufacture of tea, Mr. Wallis Taylor treats of some thirty-seven tea-driers, including machines that, so far as I am aware, never came ino actual use, and others that are obsolete. Even in dealing with such a well-known maker as Mr. Jackson, whose dryers are named, no drawing is given of any but the Britannia, which has been superseded by an improved invention by the same maker. The chapters on Tea Machinery are apparently compiled from the Patentees' Catalogues, with the addition of some illustrations drawn from the Patent Office. A study of the complete catalogues of the few firms who now manufacture tea machinery would therefore be much more to the purpose from a practical point of view than this elaborate volume.

"In regard to tea chests, a list of woods from which they are made is given, but from the 36 different kinds named the 'Toon,' decidedly the best, is omitted, while the reference to patent chests is altogether inadequate and incomplete. The book is well illustrated, is got up nicely and contains useful memoranda on various engineering and mechanical points, but I cannot discover that the volume, the net price of which, I believe, is 25s, throws any new light on tea manufacture or tea machinery.—*Home and Colonial Mail*, Sept 14.

THE (CEYLON) PLUMBAGO COMPANY.

The first ordinary meeting of the Plumbago Company, Ltd., was held on Sept. 12 at the offices, 57½D, Old Broad-street, E.C., Mr. D C Rutherford presiding.

The Chairman having expressed his regret at the absense of Mr. Pyman (the Chairman of the company), said the shareholders were aware that was only the statutory meeting, and as there was no business to transact it would only be necessary for him to take up their time for a few minutes. The company was registered on 16th May last, and the working capital amounting to £10,000, was fully subscribed by the signatories to the memorandum and articles of association, and four shillings per share had been called up. On 22nd May Mr. Alpine Wodehouse-Pearce was appointed managing director of the company and he sailed for Ceylon on the 13th June, and since his arrival there, he had been and still was inspecting the properties in which the company was interested, and his reports were generally of a satisfactory character, especially so in regard to the Talgaswella Estate. He (the Chairman) regretted that there had been considerable delay in the shipment of the necessary mining machinery on account of the engineering firms being so fully occupied, but the orders were now completed and the last shipment would be made on 15th inst. Mr. William Shedlock was engaged as engineer to the company, and he sailed for Ceylon on 23rd August, and up on his arrival he will set to work to erect the machinery upon the property selected by Mr. Pearce as quickly as possible.

The proceedings then terminated with a vote of thanks to the Chairman.—*Financial Times*, Sept. 13.

[To prevent mistakes we may point out the gentleman who presided was not *H. K.* Rutherford who has nothing to do with the Company.—Ed. *T.A.*]

PLANTING AND SPORT IN TRAVANCORE

ELEPHANTS GALORE—A BIG SNAKE.

An ex-Ceylon planter writes under date 21st Sept.:—

"I think you will be interested to know that I shot a cobra at the Kaduakarum bungalow last December, 1899, which measured 10 feet 1 inch: no snake yarn as I have the skin.

"I resigned charge of T— estate to take up work here as a manager of three estates. These estates have been abandoned for a long time, so that I have a lot of work before me. The labour is plentiful as all the coolies going to and from Peermaad have to pass through Placart through which the main east road runs. Rice, of course, is the same and I can buy it from R3·50 to R4 per bushel. Wild animals are abundant, as are also red deer, elk or sambur, bison and elephants. I saw no less than 33 elephants in a flock yesterday, about 800 yards away from my pluckers, and I believe

there were up to 30 of them, some of which had not come round the hill when they were disturbed.

"I will give you acreages, &c., later on as I have some tea to recover from jungle. The total in land is 1,258·98 acres."

ANOTHER SCIENTIST FOR PERADENIYA, CEYLON.

Mr. A G Tansley, who studied botany at Cambridge, and there knew Messrs. Willis, Carruthers and Gardiner, and other of the younger scientists who have recently visited Ceylon, arrived on Sept. 30th, by the ss. "Oceana,"—says our evening contemporary—to join Dr. Lang, who has been in this island two months, engaged in botanical investigations. They will continue at Peradeniya together, until November or December, and then will start for the Malay States. Mr. Tansley, who will stay with Mr. Carruthers while at Peradeniya, will, during his six months in this part of the world, more especially study the lower forms of plant life. In August last, shortly before starting, he met at Cambridge Mr. J Stanley Gardiner, who recently conducted an exhaustive research in the Indian Ocean atolls. [Mr. Tansley is, we believe, an old pupil of Dulwich College—a school which is constantly sending up scholars who attain distinction in the sister Universities.—ED. *T.A.*]

RUBBER INDUSTY IN MANICA.

The "Manica Mining Journal" is complaining of the destructive way in which the rubber industry is exploited by Indians in Manica. Until quite recently (it says) the wealth of the country in india-rubber was known only to Indians, who traded with the natives at considerable profit to themselves. The Indian stores buy yearly about 12 tons of india-rubber, of a value of nearly £4,000. On that sum they have something like 60 per cent. profit, or a net return of £2,400. The complaint is not that these Indian traders should make handsome profits on their transactions, but that in the making of them one of the most important natural products of the country is being ruined. The natives bleed the lianes very carelessly, in many cases killing them, in order to lessen the difficulty of their task. To mitigate, if not to remove, this evil, our Manica contempory suggests that the Mozambique Company should charge a yearly licence of £100 or more per stone to all india-rubber buyers, and, further, that the working of the lianes should only be permitted to the concessionaires who bind themselves when the season is over and the crop gathered to plant again a certain number of new trees, and strictly forbid any working to the natives. The Mozambique Company has already granted one concession under these conditions, and it is, no doubt, the intention to impose them in future contracts.—*India-Ruberr Journal*, Sept. 17.

THE GRAPHITE INDUSTRY OF BAVARIA.

In a report on the economical condition of Bavaria, Mr. Harford, of our Legation at Munich, says that graphite is one of the most valuable minerals found in Bavaria, and like the lithographic stone, represent almost a monopoly for the country, as the only formidable competitor in the supply of natural graphite is Ceylon. The production in Ceylon has, however, decreased in the last six years from 30,000 tons to 12,000 to 15,000 tons annually, causing a great rise in prices, as the deficit could not be made good from other sources. The price of Ceylon graphite ranges from £50 to £75 per ton. In Bavaria the graphite deposits are found near Passau, and are inferior to the Ceylon graphite, as, while the latter is nearly pure, the former has about 60 to 75 per cent of earthy substances mixed with it. The Passau graphite however, can be purified by a very simple and inexpensive process, and a substance produced that is quite equal to the Ceylon graphite. Unfortunately this process is little used, as the deposits are spread amongst a number of small proprietors, who work on a small scale in the cheapest manner possible; the result is that there is waste of raw material, of which it is said that nearly 90 per cent is absolutely thrown away owing to the unscientific system of working which must lead to the premature exhaustion of the deposits. In 1898 there were 49 graphite works in Bavaria, employing only 216 men, which produced 4,593 tons of graphite, worth £19,583.—London *Times*, Sept. 10.

THE PRECIOUS STONE CUTTING INDUSTRY OF BIRKENFIELD.

The cutting and polishing of precious and semi-precious stones forms the chief industry of the little principality of Birkenfeld, up among the hills of the Nake River in Oldenburg, and gives employment to over 5,000 persons. Although an improved factory system is gradually superseding the laborious methods of former times, there are, nevertheless, plenty of the old polishing and cutting works, which bear evidence to the lives sacrificed to this industry. The United States Consul at Mainz says that in the early days of the trade, agate quarries existed in the adjacent hills, and this stone was cut and polished by a very laborious method, which is still practised, although the agate quarries have long been exhausted, and the raw material—as well as amethyst, jasper, opal, topaz, &c.—has been imported (since about 1834) chiefly from Brazil, whence it is shipped to Birkenfeld, to be cut, shaped, and polished for the jewellery trade. The usual method employed in cutting and polishing these stones is as follows:—In a rude hut by a stream, which furnishes the power, four large grindstones about 4 feet in diameter are so fixed that their axes are only about one foot above the floor, into which a slit is cut, so that part of the grindstone is below its level The lowest portion passes through the water, thus keeping the stones constantly wet. The operator has a bench or block of wood, about 18 inches high, hollowed out to receive his chest and body. On the bench he lies at full length, and with his fingers holds the small piece of opal, amethyst, or other stone which is to be cut, against the grindstone slightly above the level of the floor: in this position the men lie from morning to night, day after day. Consumption usually carries them off at an early age, but other men are found to follow this vocation, as the earnings are comparatively high. The operator usually owns his grindstone, or at least half of one. This represents an investment of about £20, and a skilled lapidary can earn from £3 to £5 per week. He does not usually cut and polish stones on his own account, but generally contracts with manufacturing jewellers, who supply him with the stones in the rough to cut and polish at a certain price per gramme (gramme = 15·4 grains). As the stones, even in the rough, represent quite an outlay of money, the honesty of the workman must be greatly relied upon, for nobody can say in advance how many grains of finished stones a certain piece of opal, amethyst, or the like may yield. Besides these semi-precious stones, precious stones such as diamonds, &c., are also cut and polished there, but this is an entirely different branch of the industry, and is chiefly carried on in

factories with modern machinery. Another branch of the industry in the district of Birkenfeld is the cutting of cameos. Pearls are also polished, drilled, and cut, and shipped in large quantities to all countries.—*Journal of the Society of Arts*, Sept. 14th.

FRUIT-CULTURE FOR NORTH CEYLON.

It is quite the thing to talk and write about new industries for Jaffna or for Ceylon, but much of what is written is impracticable, and hardly worthy of serious consideration. The Northern railway is now assured, and with communication with the metropolis, it behoves Jaffna to be wide awake to its own interests or others will be coming in and starting new enterprises and taking away the profits that really ought to belong to Jaffna. We should like to call attention to a matter of minor importance believing that the time has come when enterprising men should bestir themselves. We refer to the setting out of such fruit trees as will grow here readily, and the fruit of which will be in demand even more than at present when railway communication has been established.

THE ORANGE

for example, might be more extensively cultivated. Why should not men who have a little capital, invest it in planting out two or three acres in orange trees of approved varieties. Colombo now gets shipments of oranges from Italy and Australia, but let our sweet juicy oranges once be brought upon the market and in spite of some defects, they will supplant those imported from other countries. As it is, no one person has more than a few trees. We should like to see a number of small gardens—say two or three acres each—started in localities where these fruit will do well. If good healthy trees are set out this year they will begin to bear in three or four years; and as the orange tree seems to be short lived, new gardens should be planted every two years or so. Better also to graft on the good varieties, so as to be sure of your fruit. The oranges from Copay and vicinity are thought to be especially nice; they are sweet and juicy and have a thin outer skin or rind. And the experiment might be tried of grafting on scions of the Sicily, Florida and California navel, oranges. The soil should be thoroughly prepared and the trees watered regularly and also properly pruned in order to insure the best results. Along with the orange could be raised limes which are already in demand.

There is another fruit which might be more extensively raised, and that is

THE GRAPE.

There seem to be two varieties, one more solid and less juicy than the other. The very sour grapes that one gets hold of so often, no doubt belong to one of these varieties, but the vine has not received proper treatment or the fruit has been gathered too early thus accounting for the acidity. The grape is grown principally in another locality of the peninsula in the vicinity of Pandeterripoo, and we believe the cultivation could be largely increased if some men of enterprise and a little capital would take it up. There are other varieties that possibly might do well though it would be well to consult some authority before investing. The vine needs careful treatment, and its enemies are numerous. As to

THE PINEAPPLE

it does not seem at all likely that the Jaffna variety will ever be in much demand when we have such luscious varieties of this fruit grown in Badulla, Matale and other localities in the hilly country of the island. But what about

GRAFTED MANGOES?

Would they not always be in demand? At present there are few, comparatively speaking, of grafted trees in the country. The fruit brings a higher price in the market than the ordinary kinds, and there should be a good demand for it when the railway is opened. Every year there is a greater demand for young grafted trees we are told, and in time there should be no lack of good fruit.

Other fruits might be mentioned, but at least a beginning might be made with these. The attention of our people needs to be called to the changes that are bound to take place when Jaffna is no longer isolated.

Our Assistant Government Agent, Mr. Leake, has started a class in Agriculture, but whether Horticulture is included or not, we cannot say. It might be well for some of our prominent men to turn their attention to this branch of farming.—Jaffna "Morning Star," Sept 27.

THE PROPOSED ZOOLOGICAL GARDEN FOR COLOMBO.

SITE SELECTED.

The geographical position of Colombo makes it eminently fitted as a centre at which might be organised one of the very best Zoological Gardens in the East. An attempt to carry this out is about to be made by a syndicate of Colombo gentlemen, and from what we can gather, there is every promise of the undertaking proving a huge success.

In an interview recently, Mr. John Hagenbeck, whose very wide experience in the organisation of Zoological and Botanical gardens in various parts of the world will be available in connection with the starting and carrying on of the Colombo "Zoo," stated that the site for the Garden had been selected in the Cinnamon Gardens

CLOSE BY THE HAVELOCK RACE COURSE.

The last novelties, the newest buildings, and the best possible arrangements will be introduced, and with this object in view Mr. Hagenbeck has been travelling all over the Continent and has got together a collection of sketches which will be of great value to him in making the gardens up-to-date and smart. The first object of the gardens will be the education of the children, to show them what animals exist and where they come from. There will, at the same time, be something for the scientific to see and learn.

A band-stand is to be built, the Military and Volunteer bands will be engaged, and in the course of time moonlight fêtes and concerts will be organized. There will be "fashionable days" for the more opulent visitors, and there will be days when a lower charge for admission will be made. Another feature is to be a restaurant, run, probably, by one of the local hotel managers, and it is hoped that the "Thirty Committee" may be able to see their way to establish a Tea Kiosk.

COLLECTION OF CEYLON ANIMALS TO BE MADE FIRST.

In the first instance a collection of Ceylon animals will be got together, and then Mr. Hagenbeck will obtain specimens from the four corners of the earth. He hopes, and we think he may confidently expect, to get help from the residents of Ceylon, European and native. Mr. Hagenbeck, in consequence of his business connections in various parts of the world, contemplates no difficulty whatever in getting together a varied and valuable collection of animals, and firmly believes that the Zoological Garden is to be *the* future attraction of Colombo. Amongst other attractions will be a pleasure garden for the use of children, with swings, "merry-go-

rounds, performing animals and other forms of amusement. Elephant rides will, of course, be a prominent source of fun. It will be the endeavour of Mr. Hagenbeck, in designing the plan of the Zoo, to give as much space and freedom to the animals as possible. The cages for both birds and beasts will enclose as many trees as is necessary, and the surroundings will be as near nature as practicable. In all, the grounds will cover about 20 or more acres.

THE MODE OF ADVERTISING.

With regard to advertising the Colombo Zoo and making it as widely known as possible, large boards will be fixed in prominent positions at the jetty, notices will be placed in the hotels and at various points of vantage in our thoroughfares. Another mode of advertisement will be the distribution of small hand bills, or cards, to the passengers, the American style of advertising being followed as closely as possible.

The Zoo is to be opened each day of the week, including Sunday—on which day, of course, concerts will not be held—and the time of closing will be 6 p.m. or 6-30 p.m. A good portion of the revenue is expected to be derived from the charges for the elephant, dromedary and camel rides. Help has been promised from the Zoological Garden proprietors in India, who offer to send animals at cost price. All gifts of specimens to the Zoo will be acknowledged in the papers the same as they are in London.

"We hope to make an actual start with the laying out of the grounds next month, and as soon as the buildings are ready we can very quickly get the animals housed, remarked Mr. Hagenbeck. The site has to be surveyed in order that the places for the ponds may be fixed upon and that the necessary levelling may be done. "It may be," said Mr. Hagenbeck "that the gardens will be ready by the time the troops come back from China." The directorate will be composed of about half-a-dozen well-known European and native residents of Colombo.

Season and family tickets will be issued, but the charge for admission has not yet been settled.

The idea is to incorporate a botanical section with the Zoo, and in this connection, it is hoped that some help may be given from those in authority at Peradeniya Gardens.

We have every belief that under the experienced and able guidance of Mr. Hagenbeck the scheme will turn out a success in every sense.

TROPICAL AFRICAN RESOURCES.

(Before the British Association.)

Mr. Edward Heawood, in the course of a paper dealing with the commercial resources of tropical Africa, said that at least 70 per cent. of the total trade of Africa fell to the countries of the extreme north and south, leaving the whole of tropical Africa, with an area of some nine millions of square miles, a total trade of at most £30,000,000, of which nearly £7,000,000 belonged to the small islands of Mauritius and Reunion. Among historical reasons for the smallness of the existing trade were the attraction exercised during the age of great discoveries by America and the East and the consequent neglect of Africa, the political condition of the African peoples, and the effects of the slave trade; geographical causes were found in the massive form of the continent and consequent absence of natural means of communication and the unhealthiness of the coast lands. That many of these causes were not necessarily permanent was shown by a comparison with Brazil, which afforded a close parallel with tropical Africa in many rsepects. This showed hat, given natural resources capable of supporting an increased export trade, the commercial future of tropical Africa need not be hopeless. The resources of a new country might be classed as exhaustible, principally minerals, and permanent, chiefly animal and vegetable products, the second group being more important. They might be again subdivided into jungle products, which, though not necessarily exhaustible, were likely to suffer diminution, and cultivated products. The former might, under cultivation, be transferred to the latter subgroup, which was the most important of all. In Brazil, for instance, the vast preponderance of the exports was made up by the four products coffee, sugar, tobacco and cotton. Rubber and timber, at present jungle products, and cacao, made up the seven principal resources of Brazil. In tropical Africa, jungle products, principally rubber and palm-oil and kernels (total annual value over £1,000,000), were at present those on which the export trade mainly depended. A period of development of plantation products had, however, set in, and coffee, cacao, cotton, tea, &c., had been grown with success in various parts. The chief difficulties to be encountered arose from the want of means of transport and the scarcity of labour; but these were now in a fair way to be overcome. The modern tendency for each country to depend for tropical produce largely on its own colonies must favour the commercial development of Africa, while the comparatively low polulation of Africa per square mile rendered it probable that it would in the future play an important part in providing a food supply for the more thickly peopled continents.—London *Times*, Sept. 12.

DEVELOPMENT OF CHINA.

(Before the British Association.

Mr. G. G. Chisholm had a very instructive paper on "Some Consequences that may be Anticipated from the Development of the Resources of China by Modern Methods." He said that the subject, which was one of enormous magnitude and deserved a careful study, would engage the attention of the world at large for a long time to come. He assumed that the development of China was about to begin. There were political and economical causes which must force on this development in spite of the opposition of some sections of the people. The chief political cause was that the Chinese had themselves been compelled to resort to the methods of Europe and America in self-defence. One railway, at least, was constructed by them for purposes of defence, and they were also compelled to have arsenals in different parts of the country. There were economic causes. So long as China desired to sell a pound of silk or of tea she must compete with other countries, and the competition of Japan had compelled the Chinese silk producers to adopt some of the modern methods. In the case of tea competition came not so much from Japan as from India and Ceylon. That competition, however, had also been continuous and progressive, and the Chinese had lately been compelled to make experiments with the leaf-rolling machinery used in India and Ceylon. Having learnt their lesson from this competition, they had established cotton mills with the most modern machinery in several places, and these were kept working night and day, including even the most sacred Chinese holiday. Attempts had also been made to establish the iron industry. All these causes tended to introduce modern methods of transport into China. In his belief the objection of the Chinese to these improvements had been much exaggerated. Although, no doubt, the governing classes were hostile to them, the great bulk of the people were inclined to welcome them. What, then, would be the consequences of this development when it came about? First, there would be

a rise of prices in China, especially in the industrial regions. The pecoliarity of the position of China was this—that it was the one region in the world with all the means for industrial development on a gigantic scale that remained to be opened up. So far China had been a country of phenomenally low prices owing to the fact that the means of communication were so bad that outlying parts were practically cut off from one another, and the cost of transport being so great, there was no outside market for the disposal of produce. The country was enormously rich in coal, iron ore, and cheap and efficient labour. Three provioces were especially richly endowed—namely, Hu-nan, Szu-chuan, and Shan-si. The last-named gave the most promise of immediate development because of its remarkable mineral richness and its proximity to navigable waters. A district in the mountainous regions of this province was so rich in minerals that it was estimated that a railway would pay although in some parts it would cost as much as £16,000 a mile. A second consequence that might be anticipated from the development of China was the creation of a demand for foodstuffs not likely to be supplied by China itself—a demand which in itself would be one of the powerful causes contributing to maintain the rise in prices. A third consequence would be the imparting of a great stimulus to all the food-producing regions most favourably situated for meeting the demands of China, more particularly Manchuria, Siberia, and Western North America, probably the Pacific States of North America to a greater extent than Canada. But perhaps the most important consequence of all was that the result of China coming into the world's market as a country demanding foodstuffs would be the creation of a tendency to a gradual but prolonged rise in the price of wheat and other grains all the world over, reversing the process that had been going on since about 1870 as the consequence of the successive opening up of new countries. If this last-mentioned consequence of the development of China came into operation it would have an effect of very great magnitude, very wide-reaching in space, very far-reaching in time, very diverse, and very complex.

BIG GAME IN AFRICA.

(To the Editor of the Daily Graphic.)

SIR,—Socalled "sportsmen" have been sc ruthless in the destruction of big game in Africa that, at the present day, large tracts of country which formerly abounded in hartebeestes, antelopes, koodoo, eland, &c., are now desert wastes so far as livestock is concerned. In the *Daily Graphic* of August 10th I saw a paragraph dealing with this subject with quotations from a Consular report made by Mr. Commissioner Sharp. What led me to write this was a chance glance at an advertisement in a Cape newspaper, the "Wynberg Times," and advertisement which proves that big game is already becoming scarce in South Africa. It is as follows:—

ANIMALS WANTED.—I will give £150 each for Mountain Zebras; £100 each for ordinary Zebras, going in harness; £100 each Blue Hartebeestes; £500 a pair Young Hippopotami; £40 a pair Wart Hogs; £50 a pair Cape Hunting Dogs; £20 a pair Kaffir Cranes. Large Antelopes, Brown or Tortiseshell Hyænas, £40 per pair, Koodoo, Eland, or other large Antelopes high prices landed Southampton. Persons having friends up-country please communicate, &c., &c.

If something is not done many varieties of interesting animals will shortly become extinct.—Yours faithfully,

"A TRUE SPORTSMAN."

CEYLON TEA PLANTING.

REPORT BY THE NEW INDIAN EXPERT.

Mr. Harold H Mann, who passed through Ceylon on his way to take up a post in India, has now issued a report on what he saw and gathered here. The following are references to it in the *I.P.G.*:—

The appendix to the report contains a short report from Mr. Harold H Mann on his visit to Ceylon when *en route* to India. Mr. Mann's remarks afford most interesting reading. The Committee of the Indian Tea Association desired that he would visit Ceylon on his way out to this country and the object of his visit was laid down in the following terms:—"You will take advantage of the opportunity to make yourself acquainted with the tea gardens in Ceylon, and to learn what you can as to the scientific methods and treatment of the plant which have been found of service *especially in increasing the yield per acre* and in maintaining the health and vigour of the bushes. (The italics are ours.) Surely the sentence in italics was inserted by a mistake. With over-production staring us in the face, and thousands of new acres coming into bearing, what shall we do if we increase our yield per acre? Ceylon has already over-reached herself in this direction, and done an injury not only to herself but to us also in flooding the London market with cheap teas. If Mr. Mann's mission to India is to teach us how to increase our yield per acre, planters may well exclaim —"Save us from our friends." To increase our yield per acre in the same way as Ceylon has done, would, under present circumstances, simply spell ruin to us. It is to be hoped that Mr Mann has disabused himself of the idea that Indian planters want him to teach them how to increase their yield per acre. Mr Mann clearly points out in his report the vast difference that exists in planting condition between the island and ourselves, he emphasizes the entire difference in the method of culture and treatment of the plant in Indian and Ceylon tea gardens. In India, while the plucking of the leaf and the manufacture of tea from it is confined to the nine months of the year, —April to December—(Mr Mann says six months), in Ceylon it is continuous. This, of course, has an enormous influence on the culture generally, on the manuring, and on the treatment of the pests and blights affecting the plant. Pruning is done, within limits, when most convenient, and not necessarily at any particular season. Except in the low districts, an annual pruning even is not necessary, and on some of the higher estates it is the custom to allow three or even four years to elapse between the pruning without harmful effect. Passing over Mr. Mann's remarks as to the nature of the soil in Ceylon we will briefly notice what he has had to say regarding manuring. In the island a great deal of careful and systematic attentions has been paid to this matter, with the result that it is now almost considered essential to manure all except the richest land. He states that in Ceylon it is universally recognized that

MANURING SHOULD BE DONE.

The differences of opinion on the subject are only concerned with the amount and kind of manure which it will pay to apply. According to Mr. Mann the best authorities are in accord that the foundation of the manuring should be the burial of the green prunings, preferably

with lime or basic slag. Some danger has been anticipated from the encouragement given to fungoid pests by this means, but up to the present the danger has been found to be illusory, especially since lime and basic slag have been buried with them. It seems essential, however, writes Mr. Mann, that the prunings should be (1) buried green, (2) *completely* buried, (3) buried with some "blight destroyer" such as lime or basic slag. Of these two "blight destroyers," basic slag is usually preferred as it also affords a means of applying phosphoric acid and the lower oxide of iron at the same time as the lime. Mr Mann has been assured that in almost every case where the trials continued for a sufficiently long time, this burial of the prunings had been a distinct success. On one estate he was shown prunings, buried six months before, filled with the feeding roots of the tea plant, while the prunings themselves had a pleasant "leaf mould" smell. As to the further manuring of the tea plant opinions are divided, says Mr. Mann, as to whether a more or less "forcing" mixture should be applied; as to whether the manuring should be for quantity or quality, and as to whether the manures should be forked in round the tree or buried in the holes where the prunings had previously been put. Opinion seems, however, to be tending in favour of not attaching *too* much importance to a large immediate increase of yield by means of a "forcing" manure, the final result of which *may* be to wear out the bush, but rather to try and obtain a moderate increase of yield at once, at the same time build up the bush for future seasons.

The manures Mr. Mann found chiefly in use were cattle manure, rape cake, castor cake, dried blood, sulphate of ammonia and nitrate of potash, superphosphate, basic slag, bones and potash manures. Castor cake was in much favour, but manures containing very much sulphate of ammonia or nitrate of potash were not recommended by the best authorities.

Mr. Mann states that although green manuring—say, with a leguminous weed such as *crocolaria striata*—had been strongly recommended, he was not able to find an estate, in the course of his tour, where it had been tried. Green manuring with the ordinary weed growth of the land is not used in Ceylon, for on practically all estates hand weeding is adopted and all weeds kept down. Mr. Mann was astonished at the general freedom of gardens from insect dests and fungous blights, after what he had previously heard.

THE HARD WOODS OF PARAGUAY.

Quebracho is one of the most profitable woods in Paraguay. It yields an extract used for tanning leather. The forests of Paraguay are said to be full of it, and among other trees in the unexplored territory west and north-west of Paraguay are the following:—Virapuita, virara, lapacho (very heavy, and a fine hard wood much in request in Buenos Ayres), jacaranda, palo santo (which derives a fragrant odour from its resin, and from which a fine extract is made), and curupay, which is excellent for building purposes, and whose bark contains tannic acid. The United States Consul at Ascencion says that quebracho and the other woods named are found in the west and north of Paraguay. In the south-eastern part, 360 miles along the Alto Parana, stretches a forest full of the most precious hard woods as follows:—Incienso, with an extract used as incense in the churches; curupay and lapacho, the last more abundant than in the north; urudai, timbo, iviraro, piteribi, quayavi, &c. Cedar grows widely, the trees are about 80 feet high and 12 feet or 15 feet in circumference. The bark is used for tanning. A league of land in Paraguay containing cedar costs about £200.—*Journal of the Society of Arts*, Sept. 14.

PLANTING NOTES.

Forest Conservancy.—The very pith of Mr. Broun's Report for 1899 is in the following:—

Re-organization of the Department.—During the year under report the Department has made a new start and a vigorous one. The proposals of the Forest Re-organization Committee having been approved of by Government, no time was lost in carrying them into effect. Fellings, instead of being made, as hitherto, here, there, and everywhere, were concentrated in specified localities according to market centres, trees were stamped for sale, and enumerations of growing stock were made to ascertain the potential capabilities of our forests. At the same time. demarcation lines were cut, round proclaimed reserves, 10 feet broad, round other forests 6 feet broad, and compartment lines were cleared, the total length of lines cleared and re-opened aggregating to about 1,084 miles. Notwithstanding the expenditure on these works, the surplus revenue of the Department increased very considerably, as can be seen by reference to Chapter V., and, generally speaking, the Department can congratulate itself on the progress made.

The Esparto Grass Trade.—The *Journal* of the Board of Trade publishes reports from our consular officers in Tunis and Algeria on the causes of the diminished supplies of esparto grass. From Tunis it is reported that the low prices in England do not make it worth the while of the Arabs to pluck the grass and take it down from the mountains to the coast. Several years ago the price on the English market was £12 per ton, while recently it has been only about £3. When the barley crops are good it is much more profitable for the Arabs to attend to them than to collect esparto, and even when the latter is collected on the mountains the Arabs sometimes leave it there rather than run the risk of loss in carrying it to the coast. Political troubles or military movements have had nothing to do with the supply of esparto. The acting Consul-General at Algiers says that the esparto business is mostly confined to two areas, in one of which labour could not be got to pluck the grass because of the barley harvest and the great fall in prices in recent years, while in the second, or Oran, area, political troubles and the military situation in Southern Algeria, as well as the excellent barley harvest, have had their effect on esparto. Much labour was required for military transport, and numbers of camels died, so that the means of carriage were diminished to a large extent. In addition, the esparto fields in part of Algeria are being exhausted by continual plucking, and the arrangements for transport to and payment in Great Britain are unsatisfactory, as there is no regular communication and the practice is to pay in England according to weight and quality there. The Acting Consul-General strongly recommends English buyers to have an agent at the port of loading to look after their interests and make all necessary arrangements for them. Competition amongst buyers at Oran is said to be so keen that prices are being paid in the interior which are higher than the market value in Great Britain.—London *Times* September 14.

SOLDIER SETTLERS IN SOUTH AFRICA.

TO THE EDITOR OF THE (LONDON) "TIMES."

Sir,—My experience relates exclusively to the Transvaal, and is not obtained from any hearsay or *en passant* information, but is the result of a 13 years' residence as farmer and landowner.

The first consideration on the subject of soldier settlers is—What parts of the country offer the best prospects, and what is the present price? Mr. Dicey, in the *Fortnightly*, states that "there are millions of acres of land throughout the veldt which could be had almost for a song." I know of no part, going round the southern to the western districts from Standerton to Zeerust, where a farm of 10,000 or 12,000 acres could be bought for less than £4,000 even any of those where the natural supply of water is limited to the irrigation of ten or 12 acres of land. A relative of Oom Paul has a farm near Standerton, suitable for horse-breeding, for which he refused an offer of £10,000. A farm in the Waterberg or Zoutpansberg districts could no doubt be bought at a much lower figure. Fourteen years ago there was a public sale by auction in Pretoria of a number of farms in those districts, the reserve price being £60, but not one of them was sold. No Boer would think of buying a farm in those unhealthy districts to reside there; they are also too far from Johannesburg, which is the only market in the Transvaal. I cannot endorse Colonel Stopford's opinion in the *Nineteenth Century* magazine that £500 would be sufficient to stock a farm for cattle breeding, as a means of livelihood for soldiers settlers. Thirteen years ago I bought good cows for £4 or £5, oxen for £7 or £6, but since the rinderpest they are difficult to get at three times the amount, and it would take three years before any income could be derived from the capital invested. The Rustenburg district, which is justly called the Garden of the Transvaal, is the most suitable part for soldier settlers; it is near the market, and anything will grow there from a potato to a banana. My own case offers the best argument in the matter. I was utterly unacquainted with farming when I bought my property, consisting of about ten acres of irrigable land, having one day's water per week; the dwelling-house was separated from the land about 200 yards, and there was no water, no garden, not even a tree near it. I made a large dam and a water furrow, 600 yards long from the brook above (about eight or ten days' labour). I planted in the early autumn about 300 fruit trees—viz, orange, lemon, peach, apricot, apple, pear, plum, cherry, and fig. The peach and apricot trees were three years old and bore fruit the next season, to the great surprise of my neighbours the Boers, who told me it was the wrong time of the year to plant and they would all die. Not less surprised were they at my success in goat and pig breeding. Their goats were continually sick, and they lost hundreds in two years. I commenced with 17 and in three years' time I had 60, besides those I sold and killed. They would not believe me when I told them that during the rainy season they should provide sheltered kraals for them. However, when they found that my goats increased, they followed my example, and there is much less mortality amongst them now. It was the same with horses. I never lost one in ten years. I did not mention that the purchase of the ten acres of waterland, which is called an *erf*, includes the right of cutting wood for home consumption and grazing for cattle over the whole farm of 8,000 acres; in fact, the whole farm is the joint property of ten owners, and we can, if mutually agreed, sell any portion of it, which we did last year, measuring out ten *erfen*, some of which were sold for £150.

There is suitable land enough for five times the present agricultural population; it is simply a question of water, and as soon as the war is over one of the first considerations engaging the attention of the Government should be the construction of dams, without which the contemplated soldier settlements will be a complete failure. No Boer would object to pay for the water; it would increase the value of his property at least 50 per cent., and the money invested by the Government would bring in good returns. I think the Government will encounter fewer difficulties in obtaining land than in providing settlers with the necessery number of oxen for ploughing and transport purposes, unless the oxen and mules now used for war purpose were instead of being sold, apportioned to the settlers.

There is little doubt that if roads are made, new markets created, and money spent on its development the Transvaal will offer a widely different future—an almost boundless field for the employment of industrial and agricultural immigrants; and to any man with a large family and a capital utterly disproportionate to the position in life to which they were born and in which he hopes to place them I confidently say—Go to the Transvaal, to its wider fields, its freedom from pretence and expense, its sunshine and pure, exhilarating air. There is not a happier being in the whole world than a Boer with his ten acres of waterland, a span of oxen, and a wagon; his only trouble is when his neighbour's pigs get into his garden and he has to shoot them.

Steenbokfontein, Zwaartruggens. G. S.

TOMATOES AND COLD ASHES

Coal ashes are generally conceded to be deficient of manurial constituents—at least of ammonia. According to "Johnson's Gardeners' Dictionary," however, coal ashes contain carbon, silica, alumin sulphate of lime, iron and potash, carbonate of lime, and oxide of iron, and are said to be a good manure for grass, Peas and Potatoes. Thus the assimilation o some if not all of these constituents is likewise beneficial to the Tomato, and probably in a marked degree. The relation of a case in point may go far to prove this. It was experienced by my brother when resident at Rhode Island, New York. Having no further use for a brick built pit, used for plunging half-hardy plants in pots in during the winter, it occurred to him to add more furnace ashes to the pit, and plant Tomatoes therein. A shovelful of fresh cow manure was the only additional stimulant added, merely placing it beneath each plant, returning the ashes to each hole, and then placing a plant on the spot, and when the plants became fully established the hose was freely applied during the summer, resulting in a heavy crop of fruit of fine size and quality; some of the plants extended to eighteen feet in length, year after year in the self same ashes, much to the astonishment of the neighbouring gardeners. Moreover, the "spot" or "sleepy" disease never made its appearance. I must state that the long deep pit was filled up the depth of five feet within eighteen inches from the top, thus leaving space of wintering bedding stock and a single Tomato plant was allotted to each sash space. Whilst, of course, the sashes were not required for the Toma-

toes during the summer and autumn seasons, but long laths were laid over the pit to train the plants on. The cow manure, of course, afforded a stimulant for the young plants. I have seen the advantage of coal ashes for Tomatoes mentioned in the *Journal of Horticulture* by, I think, Mr. Iggulden, and the testimony I give may tend to increase their use.

Were another case in point needed to prove the efficacy of coal ashes, I may instance that by an amateur grower of Zonal Pelagroniums, and whose success was remarkable with plants grown in 4-inch pots. The plants were grown in pure turfy loam, with perhaps a little leaf mould added; but nothing in the shape of manure was given afterwards, simply pure water. The roots, however, in due course penetrated through the bottom of the pots, and then completely permeatod the layer of coal ashes, spread over the staging up which the plants were arranged.—W. G.—*Journal of Horticulture and Cottage Gardener* Sept. 6.

INDIAN COMPANIES.

A very reliable London authority has favoured us with the following comparative statement showing the falling-off in profits per mature acre of tea in a number of the Indian Tea Companies during the past nine years, We have added the third column, and totals showing the actual decrease :—

Companies.	Profits per acre. 1890.			1899.			Decrease.		
	£.	s.	d.	£.	s.	d.	£.	s.	d
Assam ..	2	12	8	1	15	9	0	16	11
Assam Frontier ..	10	3	4	5	13	9	4	9	7
Altareekhat ..	3	17	3	1	17	4	1	14	11
Borakai ..	3	12	6	1	7	0	2	5	6
Brahmapootra ..	11	11	6	4	8	0	7	3	6
British Indian ..	3	13	6	3	4	8	0	8	10
Darjeeling ..	3	8	2	2	13	9	0	14	5
Dejoo ..	4	4	1	3	9	0	0	15	1
Dooars ..	5	10	7	3	6	0	2	4	7
Doom Dooma ..	10	13	8	9	6	0	1	7	8
Indian of Cachar ..	9	18	3	4	1	0	5	17	3
Jhanzie ..	4	0	11	1	8	9	2	12	2
Jokai ..	6	16	1	3	7	4	3	8	9
Jorehaut ..	2	6	0	1	17	5	0	8	7
Lebong ..	4	6	3	3	18	3	0	8	0
Majuli ...	3	8	1	1	18	9	1	9	4
Moabund ..	9	13	2	2	3	6	7	9	8
Scottish Assam ..	6	2	11	1	8	7	4	14	4
Total ..	109	18	11	61	4	10	48	14	1

Or a total decrease of about 45 per cent!

THE MANTIS AT THE ZOO.—The multi-coloured locust, which was sent home from South Africa by one of the C.I.V.'s, has unfortunately succumbed in the Insect House of the Zoo, but its place has been taken by a specimen of that curious insect known as the Mantis, which has also been brought from the Transvaal. These insects, of which there are several varieties, have, in consequence of the grotesque attitudes which they adopt, given rise to no end of superstitious ideas, Mouffet stating, in regard to the Praying Mantis, so named from the prayerful position of the fore-legs, that "so divine a creature is this esteemed that, if a childe ask the way to such a place, she will stretch out one of her feet, and show him the right way, and seldom or never misses." Like the mole cricket, these insects are very voracious and cannibalistic, and if kept together will fight to the death. One variety, of a beautiful green colour, is held in much veneration by certain African tribes, and another resembles fragments of withered stalks.—*Daily Graphic*, Sept, 8.

ANTI-TANNIC TEA INFUSER.

An informal meeting of the shareholders of the Anti-Tannic Tea Infuser Syndicate, Ltd., was held yesterday at 98-99, High Holborn.—The Chairman (Mr. F S D Scott) explained that he had called the shareholders together on account of certain articles which had appeared in a London newspaper. He contended that the concern had been absolutely undermined by Mr. Marshall, who was the patentee and manager of the syndicate, and in support of his contention he read extracts from various letters written by that gentleman while he was in the employ of the syndicate.—Mr. Marshall admitted that he was the author of the letters, and stated amid much laughter that his suggestion that the correspondence should be burnt was made because he did not desire that the letters should be kept in existence. After a lengthy discussion it was resolved that an ordinary general meeting of the syndicate should be called at as early a date as possible for the presentation of the report and accounts, and for the appointment of directors.—Mr. Ashworth and Mr. Sampson were nominated as directors on the understanding that in the meantime they should investigate matters and report to the ordinary meeting.—*Financial Times.*

MR. JACKSON'S TEA MACHINERY.

A NEW PATENT CLIP-ACTION TEA BREAKER AND EQUALISER.

We noticed a short time since the catalogue of Mr. Jackson's tea-preparing machinery, manufactured by Messrs. Marshall and Co., Limited, of Gainsborough, who, by the way, at the Paris Exhibition have just been awarded the Grand Prix in Class 35 for portable, vertical, horizontal, and compound engines, steam road-rollers, and thrashing machines and the gold medal in Class 19 for coupled compound engine with Marshall's patent trip-gear. Since the publication of the catalogue of tea machinery, Mr. Jackson has introduced a patent clip-action tea breaking and equalising machines, for which he claims special excellence, the points of advantage being the following :—

Simplicity and low first cost for great amount of work performed. Small space occupied, and small power required. No discolouring of teas.

Evenness of samples produced and freedom from dust.

Safety device for stopping machine automatically when an obstruction gets in between cutting rollers. A very important feature.

It is also claimed that there are no sharp edges to get gulled, and no wire mesh to get torn or knocked out of pitch. Positive feeding action of rollers and no complicated feeding apparatus.

This machine is, we believe, the outcome of a series of careful experiments to ascertain the right class of cutting edges necessary for an all round apparatus *suitable* for treating *both unassorted tea* as it comes from the drier; also for reducing and equalising large Pekoe, Souchong and Congou.

We understand that recent reports from users confirm the suitability of the machine for a variety of work without in any way having to adjust or change the cutting rollers.

The machine is of high-class construction, Messrs. Marshall's name being a guarantee of this. The wearing parts are few, and the *wheel gearing* is *cut from the solid cast iron by special tools* so as to ensure smoothness of running, and *to avoid noise.*

The cutting rollers are made up of discs of special iron; the teeth can be sharpened as they wear, or turned round on the shafts, so as to present a fresh cutting edge to the material when necessary.

A safety trip device has been introduced of a very simple nature, which is arranged to stop the machine when any foreign substance gets between the cutting rollers, and in the interim *no unbroken tea can escape*; the *driving pulley* in the meantime *runs loose on its axis* until the obstruction is removed and the machine re-started. It is claimed for this machine, the cost of which is £31, that it is capable of breaking and equalising 1,200 lb. of tea per hour, if run at the standard speed given, making *a smaller percentage of dust than any machine in the market and without in the least giving the tea a grey or dull appearance.*

A machine doing one third less work than the above-mentioned can be mounted and worked in connection with Mr. Jackson's new balanced sifter to equalise the tea prior to sorting.

The power required is stated to be nominal.

The driving pulley is 9 in. diameter, with 2¼ in. face, and the speed is 280 revolutions per minute; the driving belt required is 2 in. wide, which can be supplied at the option of the purchaser.

We understand that the superintendent of the Dooars Tea Company, Limited, testifies to the excellent work done by this machine at the Bhogotpore factory.—*H. & C. Mail*, Sept. 21.

THE INDIAN TEA INDUSTRY.

DEFECTS AND HOW TO REMEDY THEM.

"Counsels of Perfection."

Mr. J. B. Leslie-Rogers is writing a series of papers in the *Pioneer*, a good idea of which can be obtained from the following extracts:—

To begin with directors and all such controlling agents—men in the above capacity should be chosen for purely business reasons and not because they happen to have a considerable number of shares in the concern, nor because they happen to be conveniently handy. Money and brains do not necessarily go together and shares in a concern by no means imply that the holder is *au fait* with the requirements of that particular industry. Two qualifications are absolutely necessary in all controlling agents, be they proprietors or members of a

BOARD OF DIRECTORS.

They must have a special business aptitude and training, and they must have a personal knowledge of tea generally; and if among the shareholders men can be found with a combination of the above qualities, they should be unhesitatingly elected to the Board, regardless of how many shares they possess. But as is very often the case, while purely businessmen are available, there is no one with the requisite knowledge of tea production. All experience goes to prove that in such cases it would be infinitely wiser not to elect the full complement of directors from among the shareholders, but to have at least one place on the Board filled by an outsider who is a tea expert: the latter to attend all meetings and have the full powers and usual fees of the ordinary shareholding directors. Some professional opinion is absolutely necessary on every Board, as it is the only way directors can logically presume to direct a professional planter. In cases where any great and exceptional changes are contemplated in the working of an estate,—first the manager's opinion should be invited and it should carry considerable weight with the Board. Too often the manager is altogether ignored, to the detriment of the investors' interests. If further opinions are desirable, they should be obtained from leading planters from the same district, and in extraordinary cases even from experts in other districts in India. All such information should be adequately remunerated on the same principle as opinions are paid for in the medical and legal professions. Every director should be required to visit his plantation at least once during the first year of his election, and make himself personally acquainted with the manager and assistants, and the conditions under which they have to work: the manager being granted sumptuary allowances for all such business visits. The failure of either of these essential duties should immediately disqualify a director from holding any further office on the Board.

Proprietors who have a penchant for directing and controlling their own estates, might, with considerable advantage to themselves, follow somewhat similar lines. It is the height of folly, if not presumption, for any one who is not himself a trained planter to dictate to one who is. In most cases it would be advisable for proprietors to leave the conduct of affairs to the discretion of their managers; and if further professional or technical information is required it should be obtained from duly qualified men, and paid for as above recommended. But in all cases it should be remembered that

THE MANAGER

is the real *deus ex machina*, and his opinions should carry the greatest weight in all matters appertaining to his estate. Directors and proprietors are often too prone to excessive interference: they forget that their duty is not to despatch dictatory and arbitrary orders on every little detail of work, but only to lay down broad guiding principles for each year, within which the manager should have every possible latitude to use his own discretion and professional knowledge. The less interference in actual executive work the better, as tea cultivation and manufacture cannot reasonably be carried on by fixed rules and regulations like an ink slinging Government department. The success of a plantation, or in fact any business, depends almost entirely on the personal ability, experience, and foresight of the man in actual charge: being on the spot he is the best individual to judge what should or should not be done in the ever-varying conditions on a plantation; and his work should be judged more by results than by methods. To reduce a manager to a mechanical non-entity who merely carries out orders, often emanating from incompetent sources, is to kill all initiative responsibility and desire for improvements. No tea estate can remain stationary: it must either progress or deteriorate according to the management it is subjected to. To enable it to go onwards and be up-to-date it must have at its head the best professional talent that money or other inducements can procure. Once such a man is secured, he should be given a stake in the shape of shares, commission, bonuses, etc., and his pay should be liberal, with a prospective pension at the end of a certain number of years. It cannot be doubted that it would be to the owners and shareholders' interest to make the manager feel by generous and sympathetic treatment, that he had in future a settled and comfortable home. No man can be expected to put forth his whole heart and energy into his work if he has the constant dread before him of being suddenly turned out of his post at the caprice or cussedness of his proprietors or directors. Therefore to put the matter in a few words, it is essential for efficient and profitable management,

that the manager should be a man ef ability and progressive tendeneies; that his appointment should be made congenial as well as permanent; and that in his executive work he should be made practically independent of all outside interference. To enable owners to assume this desirable attitude towards their manager, it is of course neeessary to presume that only capable men are appointed to such responsible posts. But unfortunately such is not always the case; and consequently retired business men and pensioned Government officials, who have no experience of tea, and are past all active work, besides

NE'ER-DO-WEELS OF ALL SORTS

and failures from every walk in life, are pitchforked promiscuously into tea, regardless of the fact that heterogeneous individuals who have proved themselves incompetent before are not likely to shine brilliantly in their newly adopted profession. By the above denunciation, I do not mean to imply that there are no good men in tea. There are many planters who would hold their own in any profession in the world, and for practical all-round men would be hard to beat anywhere But unfortunately this class is not sufficiently numerous to leaven the mass, and give it a tendency towards progress, while the inertia eaused by what may be designated the bad bargains is so great that it constitutes a very serious and tangible drag on the profession. It is no wonder then that after over half a century of tea eultivation the industry is still worked on wholly unscientific and hap-hazard principles. The craze for economy, based generally on false premises, has also done much towards deterring good men from joining the profession. A penny-wise and pound-foolish policy is nowadays much in vogue. Salaries are reduced, commissions and petty allowances cut down, and often totally abolished; and old hands dismissed and cheap substitutes appointed in positions of responsibility for which the absence of all personal and mental qualifications wholly unfit them. This false eeonomy has been carried to such lengths that instances are known where native garden clerks have actually been shoved into their former superior's appointments! A certain proportion of salary may thus be saved, and the clerieal offiee work may be done to perfection—but at what a cost to the estate in other respects! Who that has seen such an instance of purblind policy, can honestly say, that degeneration, disorganisation, discredit and ultimate pecuniary loss, are not the concomitants of such an irredeemably foolish system of management. There is a wise native proverb which aptly illustrates the position. The saying is that "a load carrying donkey cannot hope to vie with the fleet-footed Arab," and the inference is obvious in business matters as well as in the animal kingdom.

An ideal planter would be a very paragon of perfection, as he is expected to know almost anything under the sun: an agriculturist, an organiser of labour and commander of men, a doctor, a lawyer, a trader, a merchant, an engineer, and a eombination of half a dozen other learned professions. But without wasting our time seeking for such a compendium of knowledge, let me deseribe what are the qualifications absolutely necessary in a manager if a plantation is to be a real success. He must be a man of education and ability who can command obedience and general respect. He must possess great powers of organisation and be fearless of responsibility. He should have a thorough all-round knowledge, both theoretical and practical of his duties. And, lastly, what is perhaps most important of all, he must have progressive tendencies and seientific proclivities, and be well informed and up-to-date in all matters appertaining to his profession. Such a man is worth almost any salary for what goes towards his enhanced emoluments is recouped a dozen times over by increased efficiency and more profitable results. To enable such a manager to put forth his whole ability and energy in his work, he must be allowed a great deal of latitude and must not have arbitrary restrictions imposed on his time or methods of management. You must, for instance, necessarily reduce his compulsory office work to a minimum, so as to give him the greatest freedom of action in his far more important duties. To harass and worry him with petty correspondence and useless accounts is to deprive him of the faeulty of clear thought, without which no real improvements or consecutive progress ean be made. It would be sufficient, for instance, if he were required to submit his accounts but once a month, accompanied by a short explanatory report for that period. Then at the end of the year he would forward an epitome of the twelve months' accounts, with a general report for the whole season. All forwarding of daily and weekly reports and accounts should be unhesitatingly abolished, as such finikin clerical work has the inevitable tendency to reduce the head of an estate to the position of a mere mechanical automaton with atrophied mental faculties, unfit for responsibility or advancement of any kind.

A special allowance of one or two hundred rupees a year should be embodied in the annual budget of expenditure for subscriptions towards

TECHNICAL AND SCIENTIFIC PAPERS,

journals, books, etc., published in England, America and India; and a small library dealing with all professional subjects, connected however remotely with tea, should be maintained in every factory. Such adjuncts to self-improvement are at present conspicuous by their abseuce almost everywhere. Like the British officer of pre-Transvaal days, the average planter, it is to be regretted, is still inclined to think it derogatory to be seen studying his profession from an intellectual point of view. Besides the above teachnical literatnre, at least two daily Indian papers should be allowed, to enable the manager to keep himself informed of all political, commercial, and social movements which may have any bearing on the tea industry. I have known many instances of thousands being made by quick-witted planters, who have gleaned a bit of information from a daily paper, which has enabled them to secure large contracts, or important new markets, or otherwise change their working plans, before the non-reading individual was even aware that any new move was necessary. All local Planters' Associations should make it a point to have frequent general meetings for the discussion of any information that members may acquire from the above technical sources; and the Indian Planters' Association at Calcutta might be induced to offer an annual prize or medal for the best essay by a planter on some professional subject chosen each year. The same idea might also be followed with advantage by our various tea journals in their own interests, as well as

that of the industry generally. My purposes in making the above suggestions is to induce planters to read more, study more, and think a little more; and thus create a greater interchange of ideas, which would eventually bring about some cohesion and community of interest, and result in raising tea-planting into what it ought to be, viz, a thoroughly organised and up-to-date scientific profession.

There have been many suggestions of late about starting an

EXPERIMENTAL TEA GARDEN

somewhere near Calcutta. The idea is sound, and ought to be encouraged. It eminently claims the support of the Imperial Government, which should, in my opinion, start such a garden as an economic branch of the Calcutta Botanical Gardens. But besides the above, I would strongly urge some modified form of experimental garden in each planting district, maintained by the planters themselves. In large districts where funds are available, a whole garden, of, say, a couple of hundred acres or so, might be appropriated for this special purpose, with a selected man in charge, devoted entirely to experimental work alone. In smaller districts, where a whole garden could not be afforded, there should be no difficulty in setting aside a few acres in one or more gardens for such a purpose. I am sure enthusiastic managers would be found, who would freely give their services, provided they were guaranteed against actual loss, while working out the prescribed experiments for the community; and there is no reason why Government should not be expected to support such local experimental gardens with annual grants of money from Imperial or provincial funds. To get the greatest benefit from the above scheme, it would be necessary that the official experts in the Calcutta Central garden should not only be in constant communication with the experimental district gardens, but that they should also be at liberty to make personal tours through all these districts from time to time, for purposes of comparison and mutual consultations. The advantages that would accrue to the tea industry by a series of experiments under such varied conditions of soil, climate, and management, would be simply incalculable; and it is to be hoped therefore that planters throughout India will heartily support the scheme, which promises to be so fruitful of good results.

Another suggestion, which I trust will receive due consideration, is the growing of

AUXILIARY CROPS IN CONJUNCTION WITH TEA.

Every plantation has bits of waste land which though unsuited to tea, are quite capable of producing other profitable commodities. Here again the experimental gardens would prove extremely useful in ascertaining the best products to take up. For instance, fruits vegetables, medicinal plants, herbs, roots, fibres tobacco, nuts, seed crops, and even good timber might all be grown with advantage. There is also the well known fact that all leguminous plants such as peas, beans, etc., and all pod-bearing trees, are actually of direct benefit to the tea bush and should therefore be grown in among the bushes, for the green manure and nitrogen they supply the soil. Besides crops, why should not mule and pony breeding be carried out in suitable localities. There is a valuable and ready market for all such animals in the army and Government departments; and the Indian Government, I am informed, would very materially support any planter who aided them in this direction. Unfortunately planters as a body have not as yet educated themselves up to thoroughly realising the great agricultural and commercial advantages of these extra aids to tea cultivation. Inexperienced and unbusiness-like proprietors and directors are also much to blame in this matter, as without their active and sympathetic co-operation it cannot be expected that managers will break new ground, and risk their own interests. This short-sighted policy has gone so far that in many instances managers have received explicit injunctions not to attempt the cultivation or production of anything else but tea on their estates. Under such arbitrary restrictions, of course, it is impossible to expect experimental work or up-to-date go-aheadness of any kind. In every tea district there are peculiarities of climate and soil that lend themselves specially to some particular production. As soon as this suitable plant or animal is recognised it should be taken up without hesitation by planters as an "auxiliary," to supplement the financial "shortcomings of the standard tea crop." When tea seasons are bad and prices low such "auxiliaries" will often of themselves tide a garden over its financial and other difficulties. Relief and aid from this direction would be far more satisfactory than burdening the garden with further calls on shareholders and local banks. As a matter of sensible precaution we should not place all our eggs in one basket: when one lot comes to grief, we should still have others to fall back on; and he is a wise man who foresees this possibility before the crash comes.

A FARMER'S EVERY-DAY LIFE.
NO. III.

(*By Cosmopolite.*)

It does not often happen that old sayings, with regard to the weather, are verified, but, this year, we have had an instance thereof in connection with St. Swithin's day, about which the old saw has it that, if it rains on that day, it will do so for every day for the following six weeks. This year it did rain on St. Swithin's day, and it continued to do so every day until the six weeks had run their course, when it suddenly cleared up, fine, dry hard weather set in, allowing us to complete the hay harvest successfully, and maturing the crops so quickly that now, in every direction, oats and barley stooks are to be seen, whilst the whirr of the reapers and binders can be heard all over the land. This is the first time during the past twenty years that the prophecy with regard to St. Swithin's day has proved correct, so I consider it much more of a fluke than a moral certainty, and any one putting his trust in the old saying would be apt to find that he had backed the wrong horse. However, as things are going now, we farmers have forgotten already the weary troubles in connection with hay-making, and are cheered by the prospect of a dry season for harvesting the other crops. In this district the crop is

AN EXCEPTIONALLY GOOD ONE,

but, owing to the late wet weather and heavy down-pours of rain, a great quantity has been lodged and twisted, so that it will be quite impossible to reap much of it

with binders, and I hear of many instances in which the farmer has decided not to use his binder at all, but has engaged extra hands; and this he finds will be cheaper than purchasing twine for the binder, that commodity having gone up terribly in price owing to the war in Manilla. In Britain, binders have not yet proved themselves such an unqualified success as they have in our Colonies, and this is owing partly to the fact that our crops are heavier and longer in the straw than the colonial crops, and so the binder is unable to clear itself; another drawback to binders is the fact that great downpours of rain occur often during our harvesting which make the ground so soft that heavy machines sink deep and are a terrible drag on horses. When a farmer takes to a binder, he tries to work with fewer hands, and then when he commences leading his crop and a fine day comes, he regrets the absence of these few hands which would have enabled him to work more carts and get through the work more expeditiously. In the Colonies several weeks of perfect weather can be depended upon at harvest time, so the farmers there are not compelled to hurry themselves as we are, when a fine day comes to pass.

I have frequently mentioned my want of faith in

ARTIFICIAL MANURES,

especially when bulky manure can be obtained, and I had my views supported in a remarkable manner the other day. I was travelling by train, and in the carriage with me there were several farmers and their better halves. Two of these agriculturists started a heated argument on the qualities of several artificials that they had been using, and whilst pretending to read my newspaper, I listened with rapt attention to the discussion. At last, with a view to settling their difference of opinion, one of the farmers turning to a very old gentleman, who was sitting next to me, said :—"What is your opinion, Hilly, about these manures; you have been a long time farming and must know something about them?" The old man mumbled away for a little, and then delivered himself of this opinion : —"I am 91 years of age, and have lived on a farm all my life; and during that time I have known artificial manures do a great deal of good to the merchants who sold them, but I never knew a farmer, who bought any of them, who was benefited one scrap by them," and I softly said to myself, "encore," whilst the two disputants simply seemed to totter in their intellects when they heard the sage's opinion.

Referring to railway travelling reminds me that the animated

HOLIDAY SEASON

has been characterised by the usual breakdowns of the railway service in Aberdeenshire, and much inconvenience have the farmers been put to, when going to sales or markets, by the uncertainty of the hours of arrival of the trains. Platforms are given up to a crowd of excited excursionists, pushing, rushing and tumbling as if they were all in the physical training of all footballers. You pay for a first-class ticket and are becomingly grateful if you get accommodation in a third-class carriage of antique design, built in the days when these were made after the similitude of cattle trucks. You are bustled and hustled, and have your coat nearly torn off your back, and, when you appeal to any one of the railway people for protection. they reply that you should be thankful if they carry you without loss of life or limb. The poet sings about "every door being thronged with suitors," and I think he must have had the doors of the carriages on our local railway in his mind's eye, when he thus unburdened himself. So much annoyance and inconvenience has the bad management, on our lines, caused the farmers, that most of them have again taken to the family gig and *shult*, or learned to ride the fiery, untamed bicycle.

For some years back I have observed that females, born on any farm, are superior to males, whether these be the off-spring of the horse, the cow, the sheep or man himself. I have asked other farmers their views on the subject, but farmers are not very observant, and so, in no single case have I received any information. I have, however, taken the trouble to observe

THE STOCK ON OTHER FARMS,

and am quite convinced that there is something in it after all, one of my neighbours, for instance, having always been more successful in the breeding of males than females. If this is anything more than a coincidence, it must have some foundation in the soil of the farm, and the food grown thereon. In my own case it has been somewhat remarkable. Ewes, bred by me, have for long maintained their position at the top price of the sale ring; but rams, of identically the same breeding, have failed to make their mark. Mares, bred on the farm, have proved exceptionally good, whilst horses have run to leg and become weedy. Cows, bred by me, have been, without exception, dandies; but bulls I have never bred to please myself. Even my own laborers' families tend in the same direction, and having been long in my service their children have mostly all been born on the ground, and the girls are strong, robust, healthy lassies, whilst the boys run too much to weeds, have a sort of white-black-fellow look about them with no calves to their legs. The neighbour I have referred to must have had a similar experience, although he had never taken the trouble to think about it, for, although his steers for years were in the first flight at Smithfield cattle show, and his young bulls fetched the top prices at the county bull sales, he never yet bred a cow that was any thing of a credit to him. My readers may be inclined to fancy that I have discovered a mare's nest—well, perhaps I have. I only give facts and leave others to try to refute them. As another instance of my farm being more suitable for females than males, let me mention that I purchased, about three months ago, a number of cattle of both sexes; these have since been fattened and sold off the grass, the heifers having added

about 1 to 1½ cwt. to their weight when purchased, but the steers not having added an ounce, in spite of their improved condition and appearance. "Facts are things that winna ding."

POULTRY BREEDING IN BELGIUM.

The "poulet de Bruxelles" has a very wide-spread reputation not only among gourmets, but among all who have had the good fortune to travel upon the Continent and partake of it. The difference in quality between the fowl above mentioned and one of the same age and size of the ordinary variety is shown by the fact that the first is sold in nearly all the markets in Belgium at double the price of the other. For example, a young poulet de Bruxelles which would be considered about the size sufficient for a meal for two persons is sold for about 4s., whereas one of the ordinary variety can be purchased for between 1s 8d and 2s 6d. The excellence of the fowl seems to depend, as far as can be ascertained, on the careful manner in which the sitting hen is treated, the cleanliness observed about her, as well as the careful feeding of the young chicken until sufficiently developed for eating purposes. The United States Consul-General at Antwerp says that whether or not the methods pursued in Belgium differ from those followed by careful breeders in other countries it is impossible to say. The choice of eggs for setting purposes is considered a matter of great importance, and the freshest obtainable are almost invariably used. The best breeders seldom take eggs older than eight days for raising the best quality. Care is taken that the eggs given to one hen should be of the same age. The eggs when collected are kept at a very even and medium temperature until given to the hen, and are turned daily. This is done to prevent the yolk, which is lighter than the white of the eggs, from adhering to the top of the shell. The eggs chosen for the purpose above mentioned are also of an average size, those above medium being rejected, as they often contain double yolks. Eggs received from a distance, and consequently exposed to more or less shaking, are allowed to stand a day or two before being put under the hen. Great care is also taken that the eggs should be perfectly clean. The nest is prepared of straw or cut hay, perfectly clean, dry, and odourless. As a rule,

THE SITTING HENS

are placed in corners where the greatest quiet is obtainable, and are not exposed to great light. When so situated they are not disturbed for any other purpose than the placing before them of their daily supply of food and water. As the hen leaves the nest at least once a day to search for food to take exercise, etc., care is taken to place her food and water within reach of the nest, in order that the time that she is off the eggs may be materially shortened. When the young bird is hatched it retains in its body part of the yolk of the egg from which it was produced, which suffices to nourish it for the first twenty-four hours, during which period only warmth is required, which is furnished either by the mother hen or must be afforded by a warm cloth, in case of the necessity of awaiting the hatching of the rest of the brood. The food first given can be varied, but must be made up of ingredients containing large quantities of nitrogen, as this is required for the formation of the tissues. It is necessary, in fact, that the food should be composed of matter resembling in character an egg, together with milk. It is customary to mix with the food eggs, milk, and the blood of earth-worms, field-worms, and that of a commoner variety of fish; also to introduce, for the formation of bone, certain quantities of phosphate of lime, found in grain and flour. In the early days flour is generally given on account of the facility of its digestion, grain being substituted as the birds begin to gain strength. Wheat-flour is generally used. The grain given is wheat, rice, millet, buckwheat, and Indian corn, raw or cooked. Cooked potatoes are also often given as a change of diet. It is customary to vary the grain diet as much as possible, and to administer it mixed. The food ordinarily employed is made up as follows. Hard-boiled eggs and wheat flour are mixed in milk, a little water being added. To this paste is added a small onion finely cut up, together with lettuce when green food is scarce. The mixture is usually quite stiff, as food which is too moist is considered harmful for the young brood. After the first few days a small quantity of whole grain is mixed into the paste, but if rapid development is desired, the simple paste should be continued alone. Great care is taken to keep the young brood in a dry, warm locality, which precaution, together with the proper food, prevents inflammation of the intestines, and similar troubles. As a rule the birds are cooped up on wet days, and allowed to run about as much as possible only in fine sunny weather. In winter a more generous diet is given to enable them to withstand the cold. The daily ration of grain for the fowls is from 2½ to 4 ounces.—*Journal of the Society of Arts*, Sept. 14.

PLANTING IN HAWAII.

ONE OF THE NEW PLANTATIONS.

A recent ride through the Olaa and Puna districts of Hawaii shows rapid changes, which a few years ago would have been deemed impossible. The clearing off of stones, shrubbery and forest trees, which formerly gave the impression that the land was a swampy jungle of little value for farming or cane growing, is a task that cannot be accomplished in a day. Sugar cane will grow in almost any part of Olaa, without irrigation, and apparently with less labor expended on it during growth than in most other districts of Hawaii. The company has already cleared off a large area, some of which has been planted with cane, so that at this date perhaps 2,500 acres are growing, not in one tract, but in irregular fields. Some of this will be used for seed and for replanting, where fields require it. Cane grows here very rapidly and rank—both good qualities in a new plantation, where rapid progress meets many drawbacks. The company has a heavy task before it in putting the land in good shape and condition including roads, which are too often hard to keep in good repair. Still, with a powerful mill, abundance of labor, and the best varieties of cane adapted to the various elevations, which can only be learned by trial, Olaa will eventually prove a bonanza to those interested in it.—*Planters' Monthly* for August.

BRITISH CENTRAL AFRICA.

THE NEED FOR A RAILWAY.

The small community of Europeans who reside in the British Central Africa Protectorate, and to whose enterprise is due the remarkable prosperity of that outlying part of the Queen's dominions, have for several years been appealing to the Home Government (says a writer in the *Scotsman*) to help them with the construction of a railway. The railway has been surveyed some time ago. It is to connect the lower Shire River with Blantyre in the Shire Highlands, and then go on to Lake Nyasa. The traffic along this

great trade route has of recent years become very considerable, and as yet no better means has been found for its transport than the primitive one of human carriers—men and women. Last year the export of coffee alone amounted to one thousand tons, while the imports, at a very moderate estimate, exceeded 3,000 tons. All this material has been carried on the heads and shoulders of native men and women, with the exception of what is carried on ox or mule waggons—this being a very small proportion indeed. As the manager of the largest of the Transport Companies in the country (the African Lakes Corporation, Limited,) said at a meeting of the Central African Chamber of Agriculture and Commerce:—"In the present state of the country tenga-tenga (*i.e.*, carriers with loads on their heads) is the only method which is practicable. Bullock transport is twice as costly. Traction engines would cost double as much. . . . There were not the cattle in the country to perform the transport work, and from his corporation's past experience cattle brought from the south had always proved costly in the extreme by reason of deaths and other causes." It appears, then, that—though something might be done by improving the roads and using lighter traction engines than have yet been tried—for all practical purposes the alternative lies between human labour and the railway.

The arguments in favour of the railway have been frequently stated. The reasons advanced are briefly these:—(1) That the transport has become so enormous that the majority of the available labourers in the country are occupied carrying loads, while the coffee industry is suffering seriously for want of labour. Many plantations were nearly ruined last year for want of labourers to hoe them, and in consequence of this the output of coffee is expected this year to be only 700 tons, instead of advancing, as it should have done, on the 1,000 tons of last year. (2) That—large as the number of carriers employed is—there is during several months of each year an almost complete block in the transport. This year the block has continued beyond the usual time, and threatens to become a permanent condition of things. The inconvenience to the planters, missionaries, and others of having their goods lying at the river waiting, it may be, many months for carriers is evident. (3) That it is inhuman to load native carriers with such heavy transport. The road from the lower shire river. Blantyre rises 3,000 feet in less than thirty miles, and up this steep incline practically the whole of the 3,000 tons of imports, including such things as kitchen ranges, steamer's boilers and plates, and sections of iron barges, has to be carried by sheer human strength.

QUININE AUCTION IN BATAVIA.

The American Vice-Consul at Batavia reports as follows on the third Java quinine-auction of June 27th last, held at the Merchants' Exchange:—This sale has been considered fairly successful, and the limits were mostly all realised. Beginning with P. N. II., packed in cases of 22·68 kilos. (50 lb), limited in lots at 21fl. per kilo. some 4,173·12 kilos (9,200 lb) were sold at 21·05fl. per kilo, thus exceeding the limit. Offers were then made at 20·95fl., which were at first refused, upon which the limit was lowered, and seven lots were sold at 20·75fl. per kilo. This action brought forth a protest from the first purchasers, who had brought at the limit of 21fl. The limit of 21fl. was again asked, but lots 211 to 300 were not sold, as the bids did not reach the limit. P. N. II., packing at purchaser's option, 4 lots were sold at 21fl. per kilo, but there was very little demand for this unpacked article.

P. N. III., was all sold at fair prices. Two hundred and sixteen kilos (476 lb) were sold at 25·40fl and 25·45fl per kilo, and 24 kilos (52·9 lb) at 25fl per kilo; the limit for these lots being 25fl. The limit of 21fl for P. N. II. is equivalent to the unit price of 0·08⅗fl (3·5c) for the bark in Amsterdam.—*Chemist and Druggist*, Sept. 22.

PLANTING NOTES.

LOCAL PRODUCTS IN THE HOME MARKET.—Coffee futures look tired for the present, and no decided feature. Sugar and quinine should be purchased. Cotton (American crop) may be 9¾ to 11¼ millions. Coals are expected to be lower later on.—London *Cor.*, Sept. 14.

NEW TEA MACHINERY.—Mr. Jackson is again to the front as an inventor and on page 322 will be found a description of a patent clip-action tea breaker and equaliser which he has just brought out, and details of its advantages.

PRESERVATION OF THE NEW ZEALAND SNIPE. —It is urged by Sir James Hector that every efforts should be made to preserve the New Zealand snipe which was becoming very rare indeed. This bird, he says, is one of the smartest game birds that could be got. It retained all the characteristics of the English snipe, flew away in a zigzag manner, was difficult to shoot and afforded capital sport.—*Auckland News*, Sept. 7.

BANANA AND PLANTAIN.—Considerable confusion seems to exist regarding the identity of these two fruits, yet the case is quite clear. Musa sapientum gives us the banana, while the fruit of M. paradisaica (or as it is now generally regarded M. sapientum var. paradisaica) is known as the plantain. The majority of the large "bananas" which reach our markets from Cuba are, says *American Gardening*, the yield of this latter plant, and hence are really plantains. The true banana, which, by the bye, has a number of varietal forms differing in size, colour and quality, has been pushed out by the larger fruit of the plantation, though the quality of this is decidedly inferior to that of the best bananas. It is the old story of size *versus* quality. The plaintain is 7-14 inches in length, produced 40-80 to the bunch, in form cylindrical, acutish and of a yellow colour: the flesh is firm and not specially sweet, and writers of authority on tropical fruits say it is not very good unless cooked. The true type of banana is 3-4 inches in length, 1½-2-inches in diameter, about 50 fruits to a bunch. The fruit is rounded above, narrowed to a sessile base and bright yellow in colour. So far good, our distinctions are pretty well marked, but there arises a new complication in what is known as the Jamaica banana or Martinique variety, which is perhaps the one chiefly imported to this country. It is much like the plaintain, but smaller, 7-8 inches long and it has excellent shipping qualities. The plant is regarded as a sub-variety of paradisaica, hence we are confronted with this relationship: The plantain is a variety of banana, and a variety of the plantain again is a banana! [Banana and Plantain are, in our opinion, synonymous terms.—ED. *I.G.&P.*] [In the East, but not in the West, Indies.—ED. *T.A.*]

NOTES FROM THE SEYCHELLES.

ARRIVAL OF KING PREMPEH OF ASHANTI.

It was in the forenoon of 11th September that the B.I. ss. "Dwarka" arrived at Mahi with King Prempeh of Ashanti, and King Asibi of Cocofai. Prempeh was accompanied by three of his wives, his mother and one or two brothers and about 40 followers. All sent from the Gold Coast to be interned in Mahé, and I suppose kept from further mischief. The usual apathetic view of life which prevails among the Creole and native population of the island was somewhat exercised by this

ADVENT OF ROYALTY,

to dwell with them and they gathered to some extent on the pier to see them land, but it was decided to take them in boats to the house which the Government had assigned for their residence near the Coast about four miles from the township. The landing of their Majesties was therefore very unpretentious and it was nearly dusk before it was accomplished. The house rented by the Government for their accommodation is a plain, but rather nicely situated building having about ten acres of ground round it, with flower garden and fruit trees. The party was accompanied by a Wesleyan parson or teacher, also black, to act as interpreter. I had an opportunity of seeing Prempeh the day before I left, as he then, with the chiefs of his following, paid a visit to the Administrator at Government House. Owing to his arriving too soon, he was taken to the verandah of a little house where there was a a merry-go-round, the wooden horses of which appeared to excite his curiosity as something novel, He was sitting there, an attendant holding a large purple umbrella over him, whether he walks or whether he sits. I understand this umbrella is always held over him. Prempeh seems about 30 years' old and for an African is fairly good looking, although his features give one the impression of violent passions subdued by circumstances. His lips are not over thick, his teeth are fine, regular and very white, and he has good eyes and nose. His dress is similar to the toga of the old Roman-right-arm entirely bare with a loose white robe-striped with colors, one end of which is thrown over the left shoulder. A green ribbon circlet of an inch wide with patches of gold on it is his only head-gear. His walk is slow and not without a certain dignity. Two stools were borne by attendants, but I understand he sat on chairs at Government House, which he did not like. His Honor in uniform receiving him outside in the grounds.

As regards matters generally in the Seychelles the visit of

THE "ECLIPSE" AND "POMONE"

in July helped to make social life lively for a week or so. We had also a visit from an Italian man-of-war, and the English yacht "Victoria," chartered by the Prince de Broglie was there for some time, owing to the illness of the Prince.

The last four months have been very dry the rainfall for that period being only 10 in. as against an average for eight years of 21. However, it seems to have suited the

VANILLA VINES,

as rarely has there been seen such a promise of flowers as was everywhere apparent when I left. They were then commencing to come out abundantly and the total product of beans next year is variously estimated at from 50,000 to 70,000 kilos. Several good plantations have been purchased by Englishmen, new arrivals within the last year or two. Liberian coffee is flourishing abundantly, but as the price is so low,(20 to 25 cents alb,) that it does not pay for the cost of preparation, and several planters are not taking the trouble to gather the berries.

The B.I. Co. have, owing to the demand on their resources of steamers, thrown up their contract for the line between Bombay and Zanzibar calling at Seychelles. This does not suit the producers of coconut oil which will now have to find an outlet in and via Mauritius.

It is much to be regretted that while one can get from Colombo to Mahé in seven days, the only way of getting back thereto is by the long round via Mauritius.—*Cor.*

CEYLON TEA IN PARIS.

MR. R. V. WEBSTER TO THE FRONT.

Mr. Jas. Westland has returned with a very high opinion of the extremely good work done by Mr. R. Valentine Webster at the Paris Exhibition, in Paris generally, and indeed throughout the world, on behalf of Ceylon tea. Mr. Webster has not only two central depôts in Paris, but 20 Restaurants within and 52 outside the Exposition, besides 63 hotels and 256 Thè-Cafés in the French metropolis all taking Mr. Webster's Ceylon tea. In Switzerland he has also a large number of agencies and customers. Mr. Webster advertises freely in Paris by means of the motor cars, as well as in other novel and attractive forms. He has illustrated pamphlets and circulars in French and his sample packets now before us are got up with much taste and just in the way to attract French and other Continental customers. Mr Webster has sold as much as nearly 1,000 francs worth of tea in his Exposition stand in one day. Lipton's agent, although in a better position, did not seem to be doing so much.—Mr. and Miss Westland spent sixteen days in France on the way out.

INDIAN TEA ASSOCIATION.

FIRE INSURANCE—TEA PESTS—TEA IN TRAVANCORE.

Calcutta, 25th Sept. 1900.

The Nagaisuree Tea Company, Limited.—Considered file of replies to the Committee's Circular No. 45 of 13th August, in which the views of members of the Association were invited upon the rates fixed in the Fire Insurance Tariff on Tea Garden Buildings, which was introduced by the Calcutta Fire Insurance Agents' Association in 1896. The principal items in this Tariff respecting which complaints had formerly been made were; (1) The additional rate of 2 annas per cent charged if the engine and boiler are inside the building, or in any building communicating therewith, except by double fireproof doors. (2) The additional rate of 4 annas per cent charged if fans are used. (3) The excessive rates fixed for withering and fermenting houses. (4) The excessive rates fixed for carpenters' shops. From the replies received it appeared to the Committee that the general opinion of members was favourable to the reduction of these rates

being pressed for. But a number of other suggestions had also been made; and it was decided to submit the replies, for report, to a Sub-Committee consisting of Mr. A Tocher and Mr R Magor, who had been previously asked to take up the matter.

Considered file of papers regarding a proposed visit of Dr. Geo. Watt, C I E, the Reporter on Economic Products to the Government of India, to the Darjeeling Tea District. Dr Watt had informed the Committee that he was engaged on the preparation of a new edition of his book on "The Pests and Blights of the Tea Plant;" and as he had not hitherto visited the Darjeeling Tea District, he was desirous of seeing some of the chief estates there before republishing the book. He proposed to spend six weeks in the district, leaving Calcutta on the 8th October; and he asked that a tour extending over that period should be arranged for him. The Committee had been in communication with the President of the Darjeeling Planters' Association on the subject; and had been informed that arrangement were being made for Dr. Watt to visit a number of gardens, the names of which, and further particulars would be furnished as soon as possible. This information was to be conveyed to Dr Watt. It had been arranged that Mr. Mann should accompany Dr. Watt throughout at least a portion of the tour.

Considered letter, dated 17th September, from the Honorary Secretary, Central Travancore Planters' Association, regarding the figures of tea production for Travancore given in the return of the Director-General of Statistics entitled "Statistics of Tea production in India." It was suggested that Mr O'Conor be asked to give detailed figures from the various districts in Travancore, viz, Central Travancore, South Travancore, and Kanan Devan. By so doing it was thought it would be possible to ascertain from which of the three districts the returns had been received which made the statistics for the whole area appear in the statement as 13,657,103lb. of uncured leaf and 8,775,789lb. of manufactured tea. It was added in the letter that these figures were manifestly inaccurate; and the assistance of this Association was asked in the matter. The committee decided to draw the attention of the Director-General of Statistics to the figures which appeared to them to be clearly inaccurate.—*Indian Gardening and Planting,* Oct. 4.

INDIAN AND CEYLON TEA.

It is a fortunate circumstance that as the production of tea in our gardens in India Ceylon increases, so also does the demand grow—fortunate, that is, for the producer of the leaf. In Great Britain the "cup which cheers" is becoming ever more popular, while on the continent of Europe, in Australasia and elsewhere the demand is steadily increasing. China as a producer of tea is now very far behind, although it is noteworthy that during 1899-1900 the imports from China into this country were higher by more than 8½ million pounds than in 1898-9, when 34 million pounds were imported.

The continuous progress made by British tea is especially remarkable in countries which, a few years ago, did not know what the British grown tea was. A striking example of this is afforded by America, where in 1894 the consumption was 4,723,000 lb. In 1896 the quantity had more than doubled, and stood at 9,474,000 lb. while last year no less than 17,226,000 lb. of Indian and Ceylon tea were required.

British planters can fairly be proud of this fact. It is due to their activity and foresight that the American market has been established. An extensive system of advertising was adopted, and the praises of British tea sung loudly and incessantly in the years of our friends across the Herring Pond, and, as it was found that the tea fully bore out the good things which were said about it, a demand for it became felt, which is now growing in the manner indicated by the eloquent figures we have quoted. A circular issued early in the present year by a New York house drew an interesting parallel between the condition of the East Indian tea trade in Great Britain was thirty years ago and that in America at the present time. We reproduce the figures quoted:—

Gt. Britain.		Lb. used	America		Lb. used
1866	...	4,584,000	1894	...	4,723 000
1867	...	6,360,000	1895	...	7.792,000
1868	...	7,746,000	1896	...	9,474,000
1869	...	10,715,000	1897	...	11,362,000
1870	...	13,500.000	1898	...	13,609,000
1871		13,956 000	1899	...	17,226,000

From these figures one obvious deduction may be drawn. It is that if the teas are pushed in America as they have been of recent years, the parallel between the two countries' tea history will continue to exist, and all the leaf which is likely to be produced in India and Ceylon will find a ready market with Anglo-Saxon buyers. The advertisement expenses are met by a system of levying a "tax" upon tea growers, which in India is 4 annas per acre of cultivation, and ⅛ anna per maund of tea manufactured, but the Tea Associations of India and Ceylon, which work together amicably in their siege of the world's tea markets. While we are dealing with America, it is well that we should note the demand existing there for green tea, to which British planters are paying earnest attention. Experiments have not been altogether successful hitherto, but efforts in this direction are not being relaxed.

On the continent of Europe, British tea is also making headway. The opportunity afforded by the Paris Exhibition is being made the most of in the Tea Court, which is under the supervision of a gentleman experienced in exhibition work. British tea in cup is offered to all and sundry, while tastefully prepared samples are distributed gratis to visitors to the Court. Ceylon tea especially is making rapid headway in France, although it will have a hard and long fight to out China. The Frenchman has not yet learned to love tea as a beverage; he looks upon it more as a medicine. The Tea Court at the Exhibition will doubtless go far to disabuse his mind of this idea. China provides a very large proportion of the tea consumed in Russia, Germany, Austria and Belgium, but in these countries also, in spite of many difficulties and prejudice India and Ceylon are going ahead. Mr. J E M Harrington has been commissioned by the Indian Tea Association (London) to tour through Europe with a view to learning what steps can be taken to facilitate the supply and increase the consumption of the tea in which the Association is interested. Mr. Harrington's report will be awaited with much interest.

At home the consumption continues to increase, although not by any means in the same ratio as the production in India and Ceylon. It is with a view to the absorption of this surplus production that such strennous efforts are being made to foster the demand in other countries, the only alternative being much lower prices in London, to the delight of housekeepers and the dismay of producers. We reproduce a comparative statement of deliveries of tea in the United Kingdom for home consumption only. The table is taken from the report of the Indian Tea Association (London).

	1895-96 lb.	1896-97 lb.	1897-98 lb.	1898-99 lb.	1899-1900 lb.
Indian.	121,000,000	123,750,000	127,500,000	138,695,197	145,520,457
Ceylon.	76,000,000	83,500,000	87,000,000	80,108,167	92,105,165
	197,000,000	207,250,000	214,500,000	218,713,364	237,625,622
China and other teas	26,000,000	24,000,000	20,500,000	21,569,953	22,857,606
Total for Season.	223,000,000	231,250,000	235,000,000	240,283,317	260,483,228

The above totals do not, of course, represent im-

ports into the United Kingdom, which in 1899-1900 amounted in all to 309,895,353 lb. of which 39,325,590 lb. were re-exported.

A severe blow to the tea industry has been struck by the imposition of an extra tax of twopence per pound as a result of the operations against the Boers. The man in the street believes that he is paying the additional tax. He is certainly paying more for his tea, while the prices obtained by the producer are lower. The troubles in China have helped to keep the price up, it is true, but it is also true that tea is unduly taxed. Coffee, which is in strong competition with the fragrant leaf, and is of about equal value, if the impost be deducted in each case, bears a tax of only three-half pence per pound, and cocoa only one penny.

In spite of this, however, and in the face of high rates of freight and exchange, the one pound draft and heavy warehouse charges, the sale of tea goes on increasing, and the great bulk of the increase is supplied by our great dependency and its neighbour, Ceylon. The keen, active, pushing planter will not waste time in groaning over the hardness of his lot, but will go on seeking new continents to conquer, and by the excellence of his tea and the pushfulness of his agents, will find markets for his product which will take as much of the leaf as he is able to raise.—*Investors' Guardian*, Sept. 22.

THE COOL PROCESS OF TEA MANUFACTURE.

To the Editor, *Indian Planters' Gazette*.

Dear Sir,—My patent cool-oxidizer is the result of special study and practical experience, extending over some years, and although it might be considered by some a bold statement, I maintain that my cool-oxidiser will never be beaten by any other method. I have data of the proper speed the air should move over the Mal, so that it can take the necessary oxygen in just its proper quantities. I take it that the method of covering up the mal with cloths is still in vogue, and that this idea originated in the endeavour to keep out the light; *it is wrong* the Mal has no earthly chance of oxidising under cloths, and only undergoes *putrid fermentation*, as distinct a process from oxidation as chalk from cheese. I can prove that there are, as your planter correspondent says, *two distinct processes*—one oxidation, the right one, and the other what I have designated above as putrid fermentation.

Facilitate oxygenation, encourage it by giving the Mal oxygent through moving air; but move the air at the proper speed; have under control the moisture of the air supplying the Mal. Temperature 75° to 80°0 Fahr.; neither above nor below. Your readers may try "prolongation of the process by total absence of draught," and "refrigeration" if they choose, there is no invention or patent about this; but as sure as the sun rises each morning and sets each evening the liquors resulting from teas so manufactured will be as "soft" as castor oil.

I claim to be the engineer who first knocked into shape a machine for oxidising tea leaf. I hold the patent rights and shall take such steps as the law provides against anyone making, selling, or infringing my apparatus; but if any planter is wishing to turn his present so-called fermenting room into a cool-oxidiser I shall be pleased to help him in doing so, without charging any royalty, provided the necessary equipment is obtained from me, and my designs faithfully adhered to. It is more than probable that before 1901 is very old I shall be once more amongst your Indian readers, and although, as they say in the dramatic world, I have been "resting" since 1897, I have not yet ceased to interest myself in tea machinery.—Yours faithfully,

Nathan Sharpe.

HOW TO DEVELOPE TRADE.

MR. DE COURCY HAMILTON (FORMERLY OF CEYLON) TO THE FRONT.

ENGLISH TRADE WITH JAMAICA.

COMMERCIAL EXPEDITION.

A correspondent informs us that yesterday the commercial expedition organised by the Bristol Chamber of Commerce to visit the West Indies, for the purpose of promoting the home export trade to those islands, left Southampton in the Royal Mail steamer "Orinoco." The expedition, which is under the charge of Mr. de Courcy Hamilton, who has had a very extensive connection with the West Indies, is taking over one hundred cases of samples of all descriptions of merchandise, most of the chief manufacturers within a hundred miles of Bristol being represented. It is proposed to open an exhibition in Jamaica, to hold conferences, organise lectures, and in every possible way to bring under the notice of the population of the West Indies the merits of the English goods shown. The opening of the new fast mail and fruit service between Bristol and Jamaica, in January next, has stimulated the merchants of the West of England in the direction of improving the export trade to Jamaica and the neighbouring Colonies, and it is confidently hoped that a very large increase in this business will result from the present venture. Mr. A L Jones (of Messrs. Elder Dempster and Co., the contractors for the new service), together with many other gentlemen interested in the movement, journeyed down to Southampton, and gave the departing experts a hearty send-off.

In the course of the day the following telegram was dispatched to Mr. Chamberlain: "Just off to Southampton to bid farewell to expedition going to Jamaica to open exhibition of all the manufactures within a hundred miles of Bristol. Bristol is entering very heartily into this great enterprise to resuscitate the trade of Jamaica. This will be pleasant news to you, who have the interests of the Colony so much at heart. Shall do utmost to make venture a success.—A L Jones." To this the following reply was received by Mr. Jones from Mr. Chamberlain: "Thanks. I cordially wish success to expedition, and I anticipate great results from their inquiries and your energy.—Chamberlain."—*Daily News*, Sept. 20.

COVERING WOUNDS IN TREES.

Mr. Peter Van Metchen says that the wounds made in the stems of trees by pruning or otherwise should have the wood preserved to keep it from decay till the new bark and wood extends over it, but he thinks gum shellac dissolved in alcohol far better than paint. He advices to put the shellac into a wide-mouthed bottle, cover it with alcohol, and let it stand twenty-four hours, when it may be applied with a swab or a brush. It serves, as nearly as may be, as the substance of bark; is not affected by heat, or cold, or wet, or dry weather; and retains the sap up the cut, healing the wound without a scar. Any limbs cut of square on top will leave a dead end from 6in. to a foot, which will eventually dry and rot off. Limbs should be cut off slanting; never square on top, as is sometimes done, but this would be quite a task in 300 or 400 acre orchard.—*Auckland News*, Sept 14.

Correspondence.

To the Editor.

SCIENTIFIC MANURING AND TEA.

London, Sept. 20.

Sir,—The importance of the subject and the deep interest that is taken in the effects of manure by Ceylon Tea Growers must be my excuse for again addressing you, after a delay, owing to my absence from home.

A point has been made by those who disagree with me of the fact; that I quoted the injurious effect on permanent pastures of the continuous application of sulphate of ammonia by itself, it being argued that those who understand the subject would not apply it by itself, but only when balanced by a proper proportion of mineral manure. I described the condition of the plot treated with sulphate of ammonia by itself for the same reason that I presume it was applied, namely, that it is only when one manure is used without others that its effect can be determined.

But as regards the effect of sulphate of ammonia when balanced by other manures, on plot 9 of the Rothamsted experiments, since 1879 the following mixture has been applied per acre :—

500	lb.	Sulph. of potash
100	,,	Sulph. of soda
100	,,	Sulph. of magnesia
3½	cwt.	Superphosphate
400	lb.	Ammonia salts

which, it will be admitted, is a complete or "balanced" manure: the average yield has been 58 cwts. of hay an acre, against 24 cwts. from the unmanured. The grass is however rank and of extremely poor quality, almost valueless for feeding purposes; the finer grasses here are dying in patches, so much so that I feel sure that no one who saw the plot as it is now, would care to risk the health of any perennial plant by the use of a manure so exhausting to the soil.

I went over the Rothamstead experiments with Mr. Joseph Fraser and Mr. Forsyth and was glad of the opportunity of discussing the matter with two such good cultivators of tea and with one who understands manuring so thoroughly as Mr. Fraser.

I pointed out to them what I venture to say those who study the reports only and do not see the plots, do not find out and that is that though the yield of hay is good from the plot referred to, small patches are failing and that the hay is almost valueless, owing to its being so rank.

We went over, too, the Barley experiments which confirm the conclusion come to at Rothamsted against the use of sulphate of ammonia; now barley obviously requires a quickly acting manure, for it has to grow and mature between May and September and here the plot manured with rape cake and mineral manure was in better condition and shows a higher average yield than that treated with sulphate of ammonia and mineral manure, though the quantity of nitrogen supplied in both cases is the same.

You will have seen that since I last wrote to you on this subject, Sir John Lawes has died; in his death Agriculture has sustained a great loss and for myself I feel with deep regret that I shall no more be able to consult one who has always ready to give the result of his experience to anyone who showed an interest in scientific agriculture.—Yours truly. G. A. TALBOT.

ARTIFICIAL MANURING OF TEA.

REPLY TO MR. TALBOT.

Lake Bungalow, Kandy, Oct. 9.

Sir,—It is gratifying to see by Mr. Talbot's letter of 20th September to you that artificial manuring of tea has its importance admitted, though tardily, in a quarter where all such manuring used to be deprecated.

As regards the use of sulphate of ammonia, Mr. Talbot throws no further light on the question. Doubtless it was applied alone at Rothamsted for the purpose Mr. Talbot mentions; but its tendency to exhaust the lime in the soil must have been chemically known before the practical experiment, to which he refers, was made. In all probability, therefore, it was not applied for a series of years only to prove that tendency, already deduced, but to watch its general effects on permanent pasture. This can hardly be said to apply to tea cultivation.

Nor, I think, can any rational conclusion be drawn, of any use to the tea planter, from the results Mr. Talbot quotes of the application of a mixed manure over a series of years to a field of hay. The mixture is such as no prudent planter would apply to tea and there is not much similarity between a hay crop and a tea field, and a vast difference in the climates in which the two have to be grown.

That an immense amount of information and interest for the tea planter is attached to the Rothamsted experiments goes without saying, but Mr. Talbot has not given us the benefit of anything useful yet, though I understand he lived in the neighbourhood and paid frequent visits.

I have used sulphate of ammonia for ten years, but *never*, of course, alone, and I use it still; and it is within my knowledge that Mr. Joseph Fraser has done so for a year or two longer and still does so. No bad results of any kind have yet shown themselves, and that is all any one can say. It may, however, interest your readers to know that Mr. Fraser wrote me after his visit to Rothamsted as follows:—"The visit to Rothamsted disclosed no new fact, in regard to sulphate of ammonia and its distinct tendency to exhaust lime, that I was not aware of. As regards the appearance of the grass plots, it might quite reasonably have been expected," &c., &c. I need not take up more space by quoting from his letter, for doubtless you will hear from him direct. —I am, &c., A. MELVILLE WHITE.

Coffee in Dutch Guiana.—Owing to the very low prices obtained for the coffee grown in Dutch Guiana, which is almost entirely of the Liberian variety, it is on some estates being gradually replaced by cocoa. The crops for 1899 was 360,481 kilos.—*Planting Opinion*, Sept. 28.

THE SCIENTIFIC MANURING OF TEA.

With reference to the discussion started by Mr. Talbot in the Colombo papers as to the advisability of using sulphate of ammonia as a manure for tea, we learn that Dr. Koller, of Messrs. Freudenberg & Co., had already referred the matter to Professor Dr. Wagner, who is looked upon as one of the greatest authorities on scientific manuring. The following is a copy of the reply received:—

Darmstadt, 19th Sept., 1900.

Agricultural Research Station for the Grandduchy of Hesse, Director, Professor Dr. Paul Wagner, Privy Councillor to Dr. P. W. Koller, Colombo.

My Dear Doctor,—It is a moot point, whether preference should be given to Sulphate of Ammonia over Nitrate of Soda or preference to Nitrate of Soda over Sulphate of Ammonia. About a year ago at the instance of the "Deutsche Landwritschafts Gesellschaft"—a number of German Research Stations agreed upon thoroughly investigating this question by means of extensive experiments. At Darmstadt too this question has had our closest attention Our experience tends to prove that on the average—the efficacy of Saltpetre-Nitrogen is not quite equalled by a like amount of Ammonia-Nitrogen. There are however conditions in which preference is to be given to the Ammonia salts over Saltpetre; this is especially the case with a soil, light and permeable in which the Saltpetre-Nitrogen will be drained away very heavily during the rains. Also where no immediate return is looked for from the application of Ammonia salts should be given the preference.

Our experience is that if as you say there is a marked deficiency in lime (or if in spring the weather continues to be cold and consequently the Ammonia does not act quickly enough) the crop will be smaller than if Saltpetre-Nitrogen had been applied. However, if care is taken that the soil has a sufficient supply of lime there need be no fear of the Ammonia acting too slowly; for under the climate conditions prevailing in Ceylon a delay in the nitrification of the Ammonia is impossible to occur.

Experiments with tea plants we have been unable to make, but on the other hand we have no evidence to show that Sulphate of Ammonia should have a lesser effect on certain species of plants than on others. I cannot, therefore, concur with the view that there are positive reasons for deprecating the use of Sulphate of Ammonia as a manure for tea culture.—Yours faithfully,

Signed) WAGNER.

We learn further from Dr. Koller that to those manure mixtures, of which sulphate of ammonia forms a part, the necessary amount of lime is always added by basic slag, sulphate of lime or coral lime, to replace the quantity of lime in the soil used up by the sulphate of ammonia.—Since writing the above, Mr. Melville White's letter has come to hand confirming the use of lime in Ceylon along with sulphate of ammonia for tea, and also that twelve years' actual experience has shewn no bad results.

COCHIN COCONUT OIL TRADE.

The *Cochin Argus* of the 6th inst. says:—Both millers and speculators have been evincing a desire to sell forward, and a good business has thereupon resulted. We quote today R89/8 for prompt and R88/8 for one to four months' forward delivery per candy.

THE TEA INDUSTRY OF INDIA.

THE SERIOUS FALL IN PRICES which has been brought about by excessive production has checked the opening up of more ground in this and other countries for the cultivation of the commodity, but, as it is, India has about half a million of acres under tea (or 82 per cent more than in 1885), which yield about 160 millions of lb. in an average year (or 161 per cent more than in 1885). The totals of the production of tea in other supplying countries are not accurately known, but, as showing the great changes that have come over the sources of supply within a short period, the following table of importations into the United Kingdom, which appears in the Moral and Material Progress of India report, is instructive:—

Year.	From China.	From India.	From Ceylon.
1865	93 per cent.	2 per cent.	0 per cent.
1875	86 do	13 do	0 do
1885	66 do	30 do	2 do
1895	16 do	46 do	32 do
1898	10 do	52 do	36 do
1899	12 do	50 do	35 do

From this it appears that in the thirty-three years, 1865 to 1898, the imports from China fell off as much as 83 per cent; that in the thirty-four years, 1865 to 1899, the imports from India increased 48 per cent; and that in the fourteen years, 1885 to 1899, the imports from Ceylon increased 33 per cent. Had it not been for the great success that rewarded the tea industry in Ceylon it is probable that Indian tea would now be almost as paramount in the British market as China tea was in 1865. But Ceylon, urged by the failure of coffee, took a leaf out of India's book, and now seems determined to keep, and even improve upon it. For the present, China has practically retired from the field of competition in Western Europe and America,* but she still grows much tea for her own and for Russian consumption; and, given the opportunity, she is still capable of adding enormously to the supply of tea for the use of her former customers in foreign parts. She has not yet, apparently, discovered the method for placing in distant markets teas of delicate flavour, and careful manufacture, at comparatively moderate prices, and until she does this the coarser teas of India and Ceylon will continue to be preferred by the ordinary consumer of the cheering beverage.

This, however, is pretty certain, that as no one who was counted wise in regard to tea in 1865 could have had a ghost of an idea of the extraordinary changes in the course of the trade that would be brought about before the century came to an end, so no one who is prudent would venture on the prediction that the proportions of the sources of supply will remain as they now are for many years to come. Most sincerely do we hope that India will not only retain, but will tighten her grip upon the tea trade of the world. But India's hold of the trade is not so secure that she can afford to take it easy, or dare to be indifferent to the tastes and prejudices of consumers. If, as she may well be, she is ambitious in respect of tea to live to please, she must bear in mind that she must please to live. Her consumption of tea is small as compared with her population; but the taste for tea

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* No—not yet from America, to which 31¼ million lb. China tea have gone up to Sept. 28th, this season, against only 19⅓ million lb. to same date last season.—Ed. *T.A.*

grows with indulgence, and is stimulated by opportunity and low price. The inhabitants of India, unlike the inhabitants of China, cannot yet be included among the tea-drinking populations of the earth. But this may not always be the case, so that at no distant date a great demand for tea for consumption in all parts of this country may set in, and be difficult to meet. But for the present tea is cultivated primarily for export, and the growing of it gives profitable employment to 620,000 labourers in India, and adds some 5s millions sterling per annum to the value of India's exports. It also contributes considerably to the incomes of shareholders, mostly resident in the United Kingdom, in Indian Tea Companies.—*Mdras Mail*, Oct. 10.

THE CAMPHOR-MONOPOLY.

The British Consul for the district of North Formosa, in his annual report for 1899 (F. O. 2,525, 1d.) gives some interesting facts concerning the working of the camphor-monopoly, and as the bulk of his information has been received direct from tho Formosan Government, it may be taken as official. There is now no camphor-trade to be done in Formosa outside that of the monopoly, and as we have already reported, the foreign merchants had entirely withdrawn from the business before the monopoly was instituted owing to the difficulties connected with the working of the camphor still in the interior. We now learn that the Formosan Government are assiduously planting young trees to make up deficiencies caused by consumption, and that a new Government refinery is to be opened this year, which it is expected will have a capacity for a daily output of 8,000 lb. What has so far been refined is said to be of good quality, though it appears to be somewhat rich in oil. It will be remembered that Messrs. M Samuel & Co., of London, wrote to this journal on April 7, pointing out that the Japanese Government did not intend to compete with British refiners, by refining camphor; so we presume the Consul's remarks apply solely to "half-refined" or "pressed" camphor.

The report next traces the steps which were taken by the Government to establish the monopoly which occasioned much suffering to the natives and others interested in the factories, but by degrees other employment has been found for them. A significant remark in the report is that the Government maintains a staff of guards and rangers who supply funds for keeping up friendly relations with the savages, so that it would appear that the industry is not conducted without a certain amount of danger, which may diminish as time passes. The total amount of camphor purchased from the licensed producers or manufactured between August 5, 1899 and March 31, 1900, was 20,437 cwt., and 15,535 cwt. of camphor oil. The report goes on to say that hitherto Formosan camphor was losing its good name in foreign markets owing to crude methods of production, but that the monopoly has done away with all these disabilities, inferior qualities having been got rid of, and more attention paid to the superior grades. As a proof of this the following table is given showing the amount of camphor produced under three grades, month by month, from August, 1899 (when the monopoly came into force) to March, 1900:—

	1st Class. Catties	2nd Class. Catties.	3rd Class. Catties.
1899.			
August	16,364	29,686	3,374
September ...	38,404	50,892	15,635
October	95,075	116,638	21,829
November ..	156,722	103,856	21,807
December ..	147,597	100,223	14,934
1900.			
January	171,165	88,218	16,250
February ...	126,802	52,656	6,207
March ..	241,098	74,819	7,925
Total ...	993,227	616,988	106,464

INDIAN GOVERNMENT CINCHONA.

Mr. W. M. Standen, director of the Government Cinchona-plantations, Nilgiris, has submitted to the Indian Government his annual report on the working of the cinchona estates and quinine-factory, for the year ending March 31, 1900. We gather from this that the season was altogether abnormal owing to the failure of two monsoon, but the drought has had no deleterious effect on the trees. The report shows that Mr. Standen has lost no time in utilising for the improvement of the factory and the plantatious the valuable informatiou he gathered in Java last year, as he is now conducting experiments in connection with the shading of the stems of the trees from the direct rays of the sun in order to produce a higher precentage of alkaloid in the bark. Mr. Standen wishes particularly to ascertain whether it would pay to protect the stems of old trees for this purpose, and he has accordingly selected a plot of six acres in an exposed positiou, and closely covered the stems of the trees with grass. The trees being large, the cost of the work was high, amouuting to 58r. 2a. 10p. per acre; but the effect of the grassing on the appearance of the trees was most beneficial. The bark will be analysed when the trees have been under the protection of the covering for two years, and it will then be possible to show whether this mode of increasing the alkaloidal value of the bark is profitable or not. Another interesting experiment is being made to ascertain the yield of alkaloids from specially-manured plots. During the year 40,000 plants died, as against 47,600 in the previous year, nearly all the casualties taking place on the Hooker estate. Out of a total of 19,345 trees uprooted or coppiced on the estates for bark, 10.588 consisted of sickly and dying trees on this estate. It is observed that the land, originally poor grass-land and unfavourably situated, has been under cinchona for thirty years.

The total quantity of bark harvested on the Government estates during 1899-1900 amounted to 140,279 lb., or about 40.000 lb. more thau in the previous year, the increase being largely due to the heavy coppiciug that was necessitated. Iu addition to this, 223,811 lb, were purchased in the local market. Oue magnifolia tree, thirty-four years old, was coppiced, and yielded no less than 120 lb. of dry bark. The total quantity of bark worked up by the factory during the year was 344,312 lb., consisting of 318,881 lb. crown and hybrid barks, and 25,431 lb. red bark, and the alkaloids extraeted amouuted to 10,188 lb. (163,008 oz.) quinine sulphate, and 4,615 lb. (73,880 oz.) of febrifuge. The output was less by 38,640 oz. quinine sulphate than in 1898-99, but the idea was to make out 10,000 lb. of quinine sulphate, whereas during the previous year an effort was made to show how much quinine could be produced in the faetory in one year with the present machinery. The output in future is likely to be restricted to about 10,000 lb., as this is reckoned to be sufficient for all requirements, unless the demaud should largely increase. The amouut of quinine distributed during the year was the highest on reeord, being 7,378 lb. (118,048 oz.) compared with the previous year's 2,748 lb. (43.968 oz.). This increase was due partly to a considerable inerease in the requirements of the Madras medical stores and of Native States. The issue of febrifuge amounted to nearly 1,000 lb. more thau in the previous year, being 2,676 lb. Upwards of 561,000 5-gr. quinine-sulphate powders, at 3 pies per powder, were retailed to the public from the post-offices in the Presidency. The Government found itself able at the close of the year to reduce the price from 3 pies to 2 pies—a reduetion which it is hoped will encourage larger numbers of the poor to avail themselves of the benefit of the

medicine in this cheap and readily-obtainable form.

Coming to the financial part of the business, we find that the net profit on the operations of the estates amounted to R50,822, which is represented by stock valued at cost price; but, taking the stock of quinine at market value (1s. 7d. per oz.), the profit would have been R154,631. Mr. Standen estimates that the total cost of manufacturing the 10,188 lb. of quinine sulphate was R129,390 3a 9p., or R12 11a. 2p. per lb. and, taking the value of the rupee at nominally 1s. 3d., this works out at 15s. per lb., or about 11¼d. per oz. Since the commencement of the operations of the Madras Cinchona Department the charges have amounted to R33,19,101, and the receipts to R40,94,278, so that there has been an excess of revenue over expenditure of R7,75,177; while, after allowing for interest on receipts and charges, the net surplus to the end of last year was nearly 14 lakhs of rupees.—*Chemist and Druggist*, Sept. 22.

PLANTING NOTES.

JAVA QUININE.—The shipments from Java for June were five cases only. From July 1st to June 30th (twelve months) the shipment have been:—

	1899-1900	1898-99	1897-96
Cases ...	1,352	1,619	458

The following are the dates fixed for the remainder of the quinine-auctions to be held in Batavia this year.—Oct. 31 (4,000 kilos.), Nov. 28 (4,000 kilos.), and December 19th (3,200 kilos.).—*Planting Opinion*, Oct. 6.

THE CAUVERY SCHEME: AMERICAN TENDER ACCEPTED.—The Mysore Government have at length finally settled all the points that were at issue between themselves and the Government of Madras relative to the water of the Cauvery Falls, and they have accepted the tender (£140,941) of the General Electric Company of the United States, who have undertaken to complete within twenty months the installation of the plant required at Sivasamudram to generate 5,000 horse-power and to transmit it a distance of ninety miles to a central station on the Kolar Gold Fields. Arrangements are being made with the various gold-mining companies now at work on the Fields for the distribution of the electricity from the central station, and for the installation of motors to work the machines now driven by steam.—*Pioneer*, Oct. 1.

VANILLA IN THE SOCIETY ISLANDS.—The quantity of vanilla exported from the Society Islands during the past year has been greater than at any previous period in the history of this Island, the figures being 130,113 lb. in 1899, as against 75,740 lb. in 1897, and 92,137 lb. in 1898. Its price, however, has sensibly decreased since 1897, for, whilst in that year, it realised on the local market as much as an average of 9s. 4d. per lb., it fetched only part, to foreign markets being overstocked, but principally, to the indifferent manner in which a great portion of the Tahiti vanilla is prepared for shipment by the Chinese merchants who, in order to remit to San Francisco and other places against goods received or ordered, buy up the green beans (often immature) which they casually and imperfectly dry, cure, and pack, whereby much of the aroma is lost. It may be said, however, that Tahiti vanilla properly treated before shipment, generally finds a fair market, although it cannot compete in quality with that from Bourbon, Seychelles, Fiji, and the West Indies.—*Planting Opinion.*

RUBBER ON THE BURMO-CHINESE FRONTIER.—The enormous rise which has taken place in the price of Indian-rubber is stimulating the trade in this article on the North-East frontier of Burma. The Kachins, however, have to go even further afield to get it. The township officer at Kaming reports that they continue to cut the roots of the trees, but that the competition among the Chinese rubber merchants is so keen that none of them will risk their status among the Kachin sellers by reporting specific cases. The practice accounts, no doubt, for the fact that the output from the forests within British jurisdiction in this area has fallen off to some extent of late.—*Indian Witness.*

THE DATE PALM IN NORTH-WEST AUSTRALIA.—The Woods and Forests Department has sent to the resident magistrates along the North-West coast, and the wardens of the goldfields north of the Murchison, parcels of seeds of the date palm, for experimental sowing. Many of these officials are taking great interest in this effort to introduce the date palm, and have caused the seed supplied to be sown in various suitable spots throughout their districts. The warden of the Pilbarra goldfield, in particular, has paid close attention to this matter, and has promised to distribute a further supply of seed to travellers and others for sowing at pools, soaks, etc., all over his goldfield. The date palm commences to bear fruit in tropical and sub tropical Eastern Australia at the age of eight years, and survives through years of drought. It would, in time, prove a great boon to prospectors and others in the interior of the continent, and every effort should made not only to establish it in this colony, but to protect the plants as soon as they appear.—*Perth Morning Herald*, Sepe. 27.

INDIAN AND CEYLON TEA COMPANIES.—Says the latest *H. and C. Mail*:—

Mr. Seton's table, showing the results of the working of forty-five Indian tea companies during the season 1899 has been favourably commented upon by nearly all the financial papers. The average profit per pound was 1.74d, as compared with 1.43d in 1898; the average ratio of expenses to receipts, which have improved to 79 from 84 per cent, and the average profit on capital, viz., 6.59 against 5.56 per cent, are considered good evidence that the industry is now on a more steady financial basis, and not so liable as formerly to suffer from severe fluctuations.

This shows that 1899 was, on the whole, a better year than 1898 for Indian Tea Companies. From the tables given by our London contemporary we quote total results as follows:—

24 Ceylon Tea Companies.

Capital Total.	Acres Total.	Crop 1898 Total lb.	Crop 1899 Total lb.	Reserve Total £.
2,739,574	83,741	26,464,471	27,595,111	224,113

Working capital Total £.	Balance forward Total £.	Debns. amount Total £.
237.202	49,894	559,295

And again:—

45 INDIAN TEA COMPANIES.

Total Lands. Acres.	Total mature. Acres.	Total young Plants. Acres.
451,465	121,226	22,183

Average cost per acre R43; per lb. 6·60 pence; profit per lb. 1·74d. receipts per lb. 8·34 pence; ratio of expenses to receipts 79 per cent., profit on capital 6·59 per cent.; average dividend 5·64 p.c.; Total Reserve £569,153 or 7·14 p.c. on capital.

Fruit Culture for the North.—A useful article on this subject, which will grow more pressing as the Northern Line advances, will be found quoted on another page. We are glad to see the emphatic advocacy given to the practice of grafting, and prominence afforded to the orange and mango as two of the most suitable fruits for cultivation in the Northern Province.

Nuwara Eliya Tea Estates Company.—As will be seen from the letter with which the local agents, Messrs. Leechman & Co., have courteously favoured us an interim dividend has been declared of three per cent for the past half-year, being the same as on the previous occasion although the full dividend for 1899 was seven per cent—a rate which we trust will be realised if not exceeded this year.

Sugar Industry Commission in Behar.—Calcutta, Oct. 10.—The Government of Bengal has appointed a Commission consisting of Mr. J E O'Conor, Director of General Statistics, Mr. D M Hamilton, of Messrs. Mackinnon, Mackenzie and Co., and Mr. E A Hancock, Agricultural Chemist, to enqnire into the prospects of a profitable revival of the sugar industry in Bihar, including the question of erecting central factories.—*Times of India.*

"Days of Old in Ceylon."—It is seldom now-a-days we hear from an ex-planter like "R." (writing from Dublin) on another page, who carries us back to the "forties," almost to the very beginning of coffee; and who passed through a time when £35,000 was offered for a Kadugannawa estate to another season when a bushel of rice cost a bushel of plantation coffee—the one being so high and the other so low in price!

Minor Products.—The following from the *Friend of India* is of local interest; and perhaps some of our readers who have seen Mr. Mollison's paper will favour us with particulars:—An interesting description of the methods of cultivation of the betel palm, of cardamoms, and of pepper, in vogue in the Kanara district of the Bombay Presidency, written by Mr. J W Mollison, M.R.A.C., has been issued by the Government Central Press, Bombay. It is pointed out that the system of manuring with leaf-mould causes immense destruction to the forest growth, and Mr. Mollison recommends an enquiry into the efficacy of castor-cake or safflower cake as a substitute.

The Camphor Corner.—That the cornering of camphor for its own purposes by the Japan Government is now ancient history is proved by the fact that it is fully reported on in two consular reports which we deal with this week. Such reports are not regarded as the source of prompt information but sometimes they are useful in bringing together details of a course of events which reach trade journals in instalments, and in throwing a little official light on these particulars. It is in this way that what the British and American Consuls say on the camphor monopoly is useful. Our consular representative in Formosa has been furnished with a report from the government of the island, and extracts from this appear on a later page.

Peermaad, September.—Tea prospects here point to a shortness of crop, as we have had very abnormal rain in June, July and August. At the west end of the district we measured, in June, 58·50 inches, in July 86·30 inches in August 86·10 inches, against 60,39·50 and 18 inches, in the same months last year. The wind has been worse than I have ever known it.—*Indian Gardening and Planting.*

The Pistachio Tree, *Pistaciho vera*, the species which yields the eatable pistachio nuts of commerce is deciduous, growing about 20ft. high, and a native of Western Asia. It is largely cultivated throughout Southern Europe. Its fruits are oval-shaped, nearly an inch long, and contain a seed with bright green cotyledons. The nuts are largely eaten by the Turks and Greeks, and also by the people of southern Europe, either simply dried like almonds, or made into articles of confectionery. Baron Von Mueller, in his list of plants for industrial culture, refers to an ingenious method of inserting the pistachio seeds into dry figs, to secure their power of germination during transmission to remote places. Some of our horticulturists should try and grow the pistachio.—*The Planter*, Sept. 22.

Peaches in Georgia.—In many sections of the State the Peaches decayed badly, owing to the excessive amount of rain during the latter part of May and almost the entire month of June. Many of the early shipments were rushed into market in bad condition, consequently brought no returns to the growers others whose fruits was in good condition received remunerative prices. Some late consignments fetched handsome returns. The fruit industry in Georgia is rapidly growing. Heretofore, when we have had a large fruit crop, the market being glutted, enormous quantities of Peaches have been allowed to rot in the orchards. This in a measure is now obviated, as a nnmber of firms are running canneries, evaporators and distilleries. One cannery in this State has a capcity of ten thousand quart cans per day. Growers are also exercising better judgment in placing their consignments, thus avoiding glutting the markets.—*Journal of Horticulture and Cottage Gardener*, Sept. 6.

The Decadence of Coffee.—No one can accuse us of disloyalty to the old king. We stood by coffee in prosperity and adversity; but we must say we are compelled, albeit reluctantly, to abandon hope of its revival here. In India, too, its days would appear to be numbered, though it may hold on yet a while. An Indian contemporary thus summarises the situation:—The Halcyon days of the coffee-planter in India have apparently gone, not to return. At the end of 1899 there were 274,298 acres under coffee, all of it, with the exception of 450 acres, in Southern India. About 47 per cent of this area is in Mysore, where there were 128,010 acres under coffee last year, while 118,514 ocres are devoted to the plant in the British districts of Coorg, the Nilgiris, and Malabar. The yield has been very poor since 1896, that of last year being the worst of the series and representing only about 17⅝ million pounds—or about half the production of fifteen years ago. The poverty of the crop is due to adverse seasons, the fall in prices, and leaf-disease. The production during the past ten years, on an average, has been 30,092,413 lb. almost the whole of which was exported. The foreign coffee imported during the last ten years has averaged 1,581,171 lb. of which 735,862 lb. were re-exported, so that 845,309 lb. of foreigh coffee were left every year for consumption in India, as against only 74,733 pounds of Indian coffee

TO ALL PARTS OF ASIA, AFRICA, AMERICA, AND OCEANIA.

Seeds & Plants of Commercial Products.

Castilloa Elastica Cervantes.—Orders being booked for the coming crop of seeds available in June and July, selected seed from very old trees. R. N. Lyne, Esq., Director of Agriculture, Zanzibar, writes under date 24th August, 1899:—"Please send me 200 seeds of Castilloa Elastica for further trial; the seeds of Castilloa you sent me last August germinated very well." Price and particulars in our Circular No. 32; special quotations for large orders according to quantity; immediate booking necessary to avoid disappointment.

Hevea Brasiliensis (Para Rubber).—Orders being booked for the coming crop available in August and September, 1900. This is the only crop of seeds in the year. All orders should reach us before the end of July to avoid disappointment, as we have to make arrangements in time; guaranteed to arrive in good order at destination. We have already booked a large number of orders. A leading Sumatra Planter, who ordered 50,000 Hevea Brasiliensis seeds last year writes under date 27th February, 1900:—"I received your favor of the 12th instant, out of which I learn that you booked me for 100,000 Hevea Brasiliensis seeds for August and September on the same conditions as before, but at the price of—— per thousand." Plants can be forwarded all the year round in Wardian cases. Price and particulars as per our Circular No. 30. A Borneo planter writes dating, Sandakan, 17th August, 1899:—"The last lot of Para seeds turned out very well." Our shipments of Para plants last year has exceeded over 300,000 to different countries. Special terms for large orders on application.

Kickxia Africana (Lagos Rubber).—One of the staple articles of commerce in Lagos grow very vigorously, realizing over 3s. per lb. in the Liverpool market. Seeds and plants, price on application.

Hancornia Speciosa (Mangibeira Rubber).—Besides the value of rubber, it bears delicious fruits, which is a great favourite with the Brazilians, cultivated for both purposes. Seeds and plants, price on application.

Coffee Arabica Liberian Hybrid, Maragogopie Hybrid, C. Stanophylla and other varieties. Price of seeds on application.

Ficus Elastica (Assam and Java Rubber).—Seeds supplied with instructions; price according to quantity. This tree grows equally well in high and low land, in forest and grass land, its cultivation being extended largely by the Indian Government. For price of seeds with particulars as per our Circular No. 33.

Manihot Glaziovii (Ceara or Manicoba Rubber).—Fresh seeds available all the year round; price as per our Circular No. 31.

Urceola Esculenta (Burma Rubber) and **Landolphia Kirkii** (Mozambique Rubber).—Seeds and plants, both are creepers.

Cinchona Seeds.—Different varieties.

Sterculia Acuminata.—(Kolanut). Superior quality, seeds and plants; price on application, packed to stand the transit well for several months, a hardy tree, cultivation easy.

Erythrina Lithosperma.—Thornless variety, new crop of seeds ready in December, May and June. Price acccording to quantity on application.

Seeds and Plants of Cinnamon, Nutmeg, Clove, Sandlewood, Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign Countries for 1899-1900 are now being forwarded to applicants in different parts of the world. Also Descriptive Price Lists of Seeds and Plants of Fruit Trees, Bulbs, Tubers and Yams, and Orchids.

"SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms, &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons and Dracinas, now being prepared and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address: WILLIAM, VEYANGODA, CEYLON.

Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
HENARATGODA, CEYLON.

LIME AND MALARIA.

Everything that tends to add to our knowledge of malaria—whether as regards the conditions which increase its spread or virulence, or the agencies which help to reduce its evil influence—is of interest to us as inhabitants of an Island which, despite its general healthiness, yields more victims to malarial fever than to any other ailment or epidemic. Indeed, fevers account for more deaths, probably, than all other diseases combined; and malarial fever is more widely prevalent among us than any other; and if it is not directly fatal to the same extent as other fevers, it enfeebles and ultimately conquers in most cases in which prompt treatment is not followed by adequate nourishment and care. It is, therefore, encouraging after all the literature that has confronted us on the mosquito,—which is a troublesome enough customer without being reckoned as an active agent in inoculating one with malarial poison—to find that there is something to set against the mischievous mosquito. Though one may not be able to overpower the diminutive enemy directly with a coat of lime, lime has been found indirectly to be a potent agent against malaria. In France, Dr. Roche has discovered that the presence of lime in the soil or in the water, helps to exterminate malaria; and it is a curious illustration of the inter-dependence of widely different industries that this medico-scientific discovery was first made in connection with experiments in Manuring! This fact is particularly interesting to us as advocates, in season and out of season, of adding to the fertility of the soil by the judicious use of manures. The disappearance of marsh malaria from Puisaye, after lime had been used in the district as a fertiliser, led to investigations which are still being carried on, and which reasonably point to the probability that in lime a very effective agent has been found to neutralise the spread of malaria. Another medical man, Dr. Grellet, has taken up the suggestion, the credit of which is primarily due to Dr. Roche; and he has written to the *Revue D' Hygiene*, that the liming of the soil for agricultural purposes, in various provinces in France which were more or less affected by malaria, has resulted in the reduction of malarial cases, almost in proportion to the quantity of lime used. It is for experts to say whether his statement that, in many countries whose conditions favour the existence of malaria, the freedom or prevalence of malaria is the accompaniment of a calcareous soil is true. Lower Egypt is cited as an instance; while, in France, the district of Beaune on one side of the Loire is free from malaria, whereas the district on the opposite bank, with its sandy and clayey soils, is subject to it. So also the Channel coast of France is free; while at the mouth of the Loire, malarial fevers are prevalent; if the same observation applies to Algiers. Now this is a point which deserves special investigation in Ceylon, and we may add that there are peculiar facilities for observation in the compactness of our Island and in the free distribution of medical men throughout all the provinces.

PLANTING IN DOMINICA.

TO THE EDITOR OF *THE TIMES*.

Sir,—I venture to beg you to give publication to a few lines dealing with one of our West Indian Islands and claiming for it the attention of those who are interested in colonial enterprise. I refer to Dominica, one of the Leeward Islands, and of which I am administering the Government.

Those beautiful isles, that are strong like a necklace across the throat of the Caribbean Sea, have never been "boomed" by advertisements nor exploited by chartered Companies, and it is to be feared that in the case of Dominica, in particular, there are few of my readers who know much more about the island than that it is "somewhere in the West Indies," and consequently only vaguely connected in their minds with buccaneers, rum, and yellow fever. I am, therefore, addressing you in the hope that this may meet the eyes of young men possessed of energy and a moderate capital, who are inclined to become planters in a tropical island, and who may be induced to associate themselves with the progressive fortunes of one of our most beautiful and valuable colonies.

Dominica lies midway between the French islands of Martinique and Guadelope and, for administrative purposes, has been placed under the control of the Governor-in-Chief at Antigua. It is one of the most picturesque spots in the world, and its marvellous mountain scenery and tropical luxuriance evoked from Froude some of his finest pieces of word painting. Comprising nearly 300 square miles Dominica is one of the largest of our West Indian islands, and offers a great field for agricultural enterprise. The cultivation of sugar has been practically abandoned, and, after a long period of difficulty and depression, the island appears, at last, to be entering on a phase of prosperity that bids fair to be permanent. Thanks to Mr. Chamberlain's lively interest in our great "undeveloped estates," the Imperial Parliament was, last year, induced to vote a grant-in-aid to Dominica and, by its means, the magnificent highlands and valleys of the interior are now being made accessible. Over 100,000 acres of virgin soil are thus being rendered available for cultivation and the natural conditions for successful enterprise are present everywhere.

Unfortunately, the actual inhabitants of Dominica are possessed of but little capital, and their scanty resources have been heavily strained in their efforts to replace the unprofitable cultivation of the sugar cane by their present industries. Unassisted by extraneous capital and energy, the salvation of the island will be worked out but slowly, while, on the other hand, its great natural advantages ought, if made known, to attract to it an abundance of uninvested money and enterprise. The men who are wanted in Dominica are those of

THE CLASS THAT HAVE MADE CEYLON AND BURMA

what they are. They should be young, healthy, and energetic; supplied with not less than £1,000, willing to work hard, and to wait three or four years for a good return. In the course of the last two decades hundreds of Englishmen, attracted by judicious advertisements and "puffs," have been induced to sink their energy and capital in Florida and California, while our own colonies, far nearer home and presenting latent possibilities of much greater advantages, have remained unvisited and undeveloped. If those men had been induced to try Dominica, Grenada, Trinidad, or any of the other West Indian islands, where sugar is not the supreme fetish, they would probably have been rich today instead of bemoaning the struggles and losses caused by frosts, droughts, blights, and dear labour.

The climate of Dominica is excellent and particularly suited to those who are inclined to pulmonary complaints. Yellow fever has been unknown for 50 years, and there is very little malaria. White children thrive remarkably, and those who live in the hills are as rosy and fresh as any in England. The temperature

is never excessive. It varies from 53deg. to 90deg., according to altitude and season. The rainfall is abundant while a vast number of streams afford water power. There are no venomous serpents, and mosquitoes are not unduly obtrusive. The soil is remarkably fertile, and is admirably suited to the cultivation of all tropical products notably that of fruit. There is a fair supply of labour, and wages vary from 8d to 1s 3d a day. Taxation is light, and the cost of living moderate.

The sugar industry, upon which the island once largely depended, has now become a minor industry, and its place has been taken by the cultivation of cocoa, limes, coffee, spices, oranges, and other fruits. All these products yield very handsome returns, and large areas have of late years been planted with them. The value of cultivated land in Dominica has increased very largely during the last two or three years, and it is a significant fact that very few owners of estates that have come into bearing are willing to sell their properties.

The exports of the island during last year were worth nearly double those of five years ago. Very good incomes are being yielded by comparatively small estates, and the output of the island will, in a few years, attain a large volume. Over 1,500,000 lb. of cocoa are already exported annually, while Dominica has always been the chief producer of the lime juice which is nowadays so extensively advertised. The soil and climatic conditions of the island are specially adapted to the production of oranges, bananas, and pineapples, and a small experimental shipment of the last-named fruit proved recently to be the finest ever received from the West Indies.

A CEYLON PLANTER, OF GREAT EXPERIENCE,

has lately embarked in the cultivation of coffee in the higher altitudes, and the finest grades of the famous Jamaica "Blue Mountain" bean are found to thrive remarkably in lands over 2,000 feet above the sea. This industry is about to be very extensively developed. Vanilla of very high quality is also being produced and will soon become an important article of export. There is no reason why tobacco of the best grades should not be raised, and there are vast areas suitable for rubber.

The island possesses a valuable botanic station under the direction of Dr. Morris, C.M.G., Commissioner of Agriculture for the West Indies. Vast numbers of seedling plants of all the best varieties of economic products are kept on hand and may be purchased at much under cost price. An intending planter can thus save a considerable space of time in the cultivation of his product, and the returns are proportionately earlier. The officers of the Agricultural Department are ready to give valuable assistance and instruction to inexperienced planters, and many costly mistakes may thus be avoided.

CROWN LANDS MAY BE PURCHASED FOR 10s

per acre, at present and facilities are given for payment. A planter who proposes to cultivate virgin lands should be able to dispose of a capital of not less than £1,000. n Given this sum there is every reason to believe that a energeti oman would in a few years realise a handsome income from his plantation. Pineaples and bananas yield a crop in less than two years, coffee in less than three years, oranges and limes in four years. Cocoa requires five to six years to give large crops, and nutmegs give a valuable return in eight years. The clearing and cultivation of virgin lands are very interesting operations, and, owing to the cool and clear atmosphere of the mountain lands, a white man can work as well there as if he were a couple of thousand miles further north of the equator. The forests abound in valuable woods, and a bachelor planter could build a comfortable cottage out of native materials for less than a hundred pounds. The rivers are teeming with fish, and some shooting can be had.

Social life is very pleasant, and cricket, tennis and golf are played. There are good schools, an hotel, and several boarding houses. Dominica can be reached in 13 days from Southampton by Royal Mail steamers single fare, first class, £25. Numerous lines of steamships call at the island giving ample facilities for shipment of produce to the United Kingdom and to the States.

If the foregoing induce any of your readers to consider seriously the prospect of becoming planters in Dominica I would be very happy to afford any further particulars that may be desired. I shall be returning to Dominica on October 16 next; but in the meantime any communications addressed to me, care of Messrs. Grindlay and Co., Parliament-street, will receive my best attention.

With many thanks for the space you have been good enough to accord me,—I am, Sir, yours faithfully,

H. HESKETH BELL
(Administrator of Dominica).

GRAPHITE OR PLUMBAGO.

The least erudite laymen are aware at the present time that charcoal, graphite, and the diamond are primarily nothing else but carbon, and that each of the three bodies named represents an allotrophic modification of that element. Not long ago these substances were not properly distinguished from one another, and it was the common belief that graphite, lead sulphite, molybdenite, stibnite, and pyrolusite, on account of their similarity in appearance were identical, or at least belonged to the same family. To have cleared up this misunderstanding is the merit of Scheele, a Swedish chemist, originally an apothecary, who, imbued from youth with a spirit of investigation, developed into one of the most successful chemists of his time. To his exertions chemistry owes the discovery of some of the elementary gases then absolutely unknown, and the first distinctive features relating to the class of bodies enumerated above. Towards the year 1779 he found that graphite when warmed with nitric acid generated carbon dioxide; while molybdenite which was regarded as a kind of graphite owing to the fact that it produced a black streak on paper, changed under these conditions to a white oxide or earth, as these bodies were called at that time. From these observations he drew the conclusion that graphite must be a body related to carbon, a result which has since found ample confirmation.

The mineral graphite is of special interest to the mining fraterinity, for the reason that deposits of this mineral are found in various parts of the world. A short description of its occurrence and properties seems, therefore, to be in place, the more so as the mineral is not always found in such a state of purity as to warrant its immediate application, and foreign admixtures or gangue must be eliminated in certain cases.

Graphite received its name from the Greek term meaning "to write, an appellation which is quite appropriate and characteristic, so that other designations, like plumbago, blacklead, and even "carburet of iron," which have passed over into the present nomenclature from less enlightened times, must necessarily appear as quite superfluous and improper.

Almost every part of the civilised world having contributed its quota to the production of graphite to some extent, the enumeration of the most prominent mines of this kind only seems of importance. Thus the Borrowdale Mine, in Cumberland, which yielded during the sixteenth and seventeenth centuries an annual revenue of £40,000, and remained during that period the only producer, placed only 45 tons on the market in a recent year. The product from this mine was formerly considered as the best material for manufacturing pencils, and it was worked only for a few weeks in the year, for fear of exhausting the deposit. This diffidence in the capacity of the mine was only too well justified, for the Borrowdale Mine does not count any more with the producer of graphite at the present time.

The next graphite deposit of extraordinary size—having since its discovery become famous owing to the great quantity of material stored up in it—is the Ceylon mine, which, counting all the hands at work in mining and the manufacture of articles prepared from graphite, employs 24,000 men, women and children. A great deal of the Ceylon graphite finds, however, its way to Nuremberg, Germany, where the well-known Faber pencils are prepared, and 5,500 people find employment in their manufacture. Formerly the granular variety of graphite fonnd at Borrowdale was thought to be exclusively applicable to the manufacture of good pencils, but recently it has been found that pure material, when gronnd finely, then mixed with a cement, and the mass thus resulting subjected to heavy pressnre, prodnces a good grade of merchandise. By the addition of fine clay to the ground material, any degree of hardness can be imparted to the graphite stem enclosed in the wooden part of the pencil. The recently-opened graphite deposits of Southern India are becoming of increasing importance as producers, although not, as yet, threatening the premier position of their more southern neighbour, Ceylon.

Artificial graphite having been obtained in the laboratories of chemists as a casual by-product, it was expected that a closer study of the reactions involved might lead eventually to its manufactnre. This expectation, however, has not been realised until lately, for the reasons that the methods known till 1894 were almost exclusively of an expensive and impracticable nature. Of these the method of heating charcoal with molten iron, and dissolving the latter by means of acids from the mass resnlting, deserves mention, for the reason that it was followed persistently with the intention of producing an artificial graphite, and that it received an unusual impetns by the introduction of the electric furnace. Henri Moissan, a French chemist, has become prominent in this regard by his experiments performed in a reverberatory electric furnace of his own invention, the apparatus having movable electrodes and allowing of continuous operation. Moissan, having investigated the graphite formed in cast iron under varions conditions of temperature and pressure, found that soft iron, when mixed with an excess of carbon from sugar, and heated in a carbon crucible in the electric furnace with a current of 2,000 amperes and 60 volts for ten minutes, dissolves large quantities of carbon, and becomes so pasty that the crucible can be inverted without the contents running out. The graphite obtained from this iron ignites in oxygen at about 650°; it contains only 0·28 per cent of hydrogen, and is, therefore, much purer than graphite from ordinary cast iron. Large works are now established at Niagara Falls for the manufacture of artificial graphite by the Acheson process, the author of which is also the inventor of the artificial abrasive carborundnm.—*Mechanical World.*

BRITISH FORESTRY.

Upon the Chiltern Hills, where beech is extensively grown for the furniture-makers of Wycombe, well-managed beech woods are returning five times, and in many cases six times, the annual income that the adjoining agricultural land is yielding, Mr. John Nisbet tells us in a new book. In the case of the West Wycombe estate the account books show that for over a hundred years, the annual income from the woods has been thirty shillings an acre. These are, perhaps the best results that are now obtained in any part of England. In most cases the results are very different, partly owing to want of care, but more oftener to want of knowledge. Forestry is a science that must be studied, and an art that must be practised as much as medicine or surgery. Dr. Nisbet mentions a case of a landowner who, even under his present system of management, is getting more than £1,000 a year out of his woods and who pays his forester fifteen shillings a week. This means that a capital of over thirty thousand pounds in timber is being administered by a man of no education at a wage of £39 7s 6d a year; yet the scope for increasing the capital value and the annual yield must be enormous:—

"It can hardly be denied that British landowners as a class, are decidedly apathetic with regard to forestry. So far as game preservation is antagonistic to good management of the woodlands, that matter has been fully dealt with in the last chapter. Other three causes, perhaps in some cases equally powerful in this direction, are want of funds, want of encouragement offered by the State to induce landowners to plant waste land, and danger of fires along railway lines...... As most landowners have merely a life interest in their estates, and as the calls on their purse are many (beginning with the heavy demand on snccession), they have not, as a rule, much money to spare for forming plantations which are only likely to yield substantial returns after their individual tenure of the estate is at an end."

"As matters are, our woods and forests now only aggregate about three million acres, and are so inadequate for the supply of existing requirements in timber and other woodland produce, that our imports under these heads amounted to the enormous sum of over twenty-five and a third million pounds sterling during 1899. Of this, over five million pounds were for rough-hewn and over sixteen million pounds for sawn or dressed timber, practically all of it coniferous timber from the Baltic, Scandinavia, and Canada, which might quite well be grown in the British Isles. Making a liberal deduction for the value of labour included in these coniferous imports aggregating over twenty-one million pounds, the nndeniable fact is laid bare that Britain annually pays, and principally to foreign countries, no less than between eighteen and nineteen million pound sterling for pines and fir timber which conld quite well be grown in Great Britain and Ireland. There are some sixteen million acres, now practically unprodnctive, available for this purpose; and if our existing woods and forests were managed on business principles, and State encouragement were given for making large plantations under economical management, Britain might in the future be self-supporting as to all the coniferons wood required for building purposes........ If our present three million acres of woodlands were trebled in extent, and were well managed on business principles, in place of being under uneconomic management as game coverts and pleasure grounds as is now mostly the case with British forests, this would merely be able to supply existing requirements, and no more. Nay, even if we had twelve million acres under forest, and all under the best of management, they would probably be just abont able to supply the demand for timber likely to exist at the time plantations now formed may become mature. Past experience has shown that the demands for timber are constantly increasing, despite the more extensive use of substitutes like iron and stone for constructive purposes."

CINCHONA.—The N. V. Vriesseveem cinchona-bark department at Amsterdam report the shipments from Java from August 21 to September 24, 1900, at 1,249,000, Amst. lb., and the total from January 1 to September 24 at 6,450,408 Amsterdam lb. The exports from Ceylon for the week ending September 3 were 270 lb. only.—*Chemist and Druggist*, Sept. 29.

OUR PEARL FISHERIES.

We are specially gratified to find that His Excellency the Governor and Mr. Chamberlain have dealt so promptly with Sir Wm. Twynam's special Report on the Pearl Fisheries, and that the result is to secure so long and useful a Report from the Director of the Natural History Department of the British Museum. The whole Correspondence will be found elsewhere. Professor Ray Lankester, as is natural, rather magnifies the "mission" which he recommends should be taken up; and while we concede its importance, we cannot see why a Scientist who would be allowed to continue his four months' professorial work in England, each year, should, besides all expenses, have so handsome an allowance as £1,000 a year, considering the local staff that would inevitably be necessary. Still, if the desired work could be accomplished within three years, this amount should not be grudged to a first-class man, and we should suppose that Professor Herdman of Liverpool (whom we met in the Isle of Man four years ago when he was leading a section of the British Association) stands in the very first rank, having given special attention to oysters and oyster fisheries. We are a little disappointed that no reference is made to Professor Saville Kent, who has done so much valuable work around the Australian coasts on the fisheries, including those of oysters for pearl shells and pearls, and also has published (at three guineas a copy) a very elaborate, illustrated volume with the results of his labours. But, of course, Professor Herdman must be acquainted with all that has been attained in that direction. It is especially encouraging to learn from Professor Lankester that Mr. Holdsworth who came out for five years during the administration of Sir Hercules Robinson was *not* the right man in the right place, since he was not a trained Scientist, but only acquainted with sea-fishing as a sportsman! (Those were assuredly the days when "jobs" were freely perpetrated by the Colonial Office and Sir Hercules Robinson had his full share of them, e.g. when he wanted a trained expert to reform and supervise the Prisons of the Colony, a retired R. N. Captain, son of a peer, was sent out to him!) Dr. Lankester would have emphasised his opinion as to the utter failure of the "Holdsworth" Mission, had he recalled the fact that that gentleman never had the good fortune to witness a Pearl Fishery while in Ceylon! We therefore sincerely hope that the Council of the Royal Society may recommend, and the Government appoint, Professor Herdman, F.R.S., (or Professor Saville Kent) to come to Ceylon on a Three Years' Mission, and we only trust that the four months' Professorial duty at Liverpool may not clash with the best period of the year—February to May —for inspecting and working on our Pearl Oyster Banks. It is of special importance that the Scientist, whoever he may be, should have the practical help, and the benefit of all the vast experience, of Capt. Donnan, while Sir Wm. Twynman can also be referred to on moot points. Under these auspices we should certainly anticipate valuable practical results from such a Mission as Professor Ray Lankester recommends and we hope it may be arranged for in time for the approaching working season at the Pearl Banks:—February-May, 1901.

MALIGNED MOSQUITOS.

THEY WERE NOT MADE TO PREY ON HUMAN BEINGS.

Some interesting information about mosquitos has been recently issued by the United States Department of Agriculture. It is not much consolation to those who are subject to the irritating attacks of these insects to know that in the opinion of Dr. Howard, the entomologist, the mosquito was not made to prey on human beings or any other warm-blooded animal. The fact remains that he does it. Besides being a nuisance the mosquito delights in intoxicating beverages. A male mosquito has been observed sipping beer, and a number of them—again males, be it noted—placed under a bell jar with a single drop of port wine became hopelessly intoxicated staggering about in a ridiculous manner.

It is only fair to the mosquito to say that the latter was an experiment by Prof. A E Schwartz. There are bad mosquitos and those that are worse. But the worst of all seem to belong to a part of America (nnnamed) where some soldiers were forced to sleep with their heads thrust into holes in the earth and their necks wrapped round with their hammocks. It is comforting to know that mosquitos cannot fly long distances though they may be carried 15 miles by a strong wind. This at least keeps them to circumscribed areas.

Numerous methods of combating and destroying these pests are mentioned such as pouring kerosene over marshy districts where they breed, the placing of carp in these marshes to destroy their eggs. In New Jersey a primitive but effective system is in vogue. A baking-powder box is nailed on the top of a long stick and some kerosene poured in. The merry householder then scans the ceiling and pushes the cup under the resting mosquito into which it soon falls—a victim of the Standard Oil Trust.—*Morning Leader*, Sept. 21.

ELEPHANTS IN MADRAS.

Twenty-five elephants were captured in the Madras Presidency during the year ending the 30th June last, which is the largest catch on record. Of these, six died, and of the 25 captures, 18 were in North Malabar. All the five elephants captured in South Coimbatore died, owing, it is said, to the extreme heat and want of suitable fodder consequent on the prolonged drought on the Anamalais. Besides elephants, 23 bison, 1 pig, 1 bear, 19 sambhur, 1 tiger and 1 wild sheep also fell into the pits. Of these, 8 died or were shot, while the rest either escaped or were released. One of the men engaged in shooting the bear accidentally fell into the pit, and was so badly mauled that he died soon afterwards.—*Madras Mail*, Oct. 12.

PRODUCE AND PLANTING.

Regulating Supplies.—We regret to learn that owing to a want of unanimity the committee of the Indian Tea Association has resolved that it is not practicable this season to continue the arrangements for regulating the quantity of tea to be brought forward weekly, and therefore the responsibility will rest upon the brokers to advise their respective merchants as to selling or holding back supplies.

THE RUSSIAN TEA MARKET.—Accordingto the Customs returns, the remarkable features in the import trade of Odessa in 1899 are the increased demand for Ceylon and China teas, which attained the high figure of 7,500,000 lb.—a substantial advance of about 1,000,000 lb. over 1898—and for coal, of which the importation has been nearly quintupled; that is, from 32,480 tons in 1898 to 160,200 tons in 1899. Ceylon tea is consumed in increasing quantities, and is competing favourably with China teas. Japanese tea has been introduced, but does not suit Russian tastes, and cannot compete with Ceylon teas, either in quality or in price. The bulk of the tea imported into Odessa passes in transit to Moscow and other towns. The trouble in China will, it is feared, affect this trade, as the vessels of the Volunteer Fleet, which carry tea at preferential rates of freight, are at present engaged as Government transports, and in many instances have already declined cargo from merchants.

INDIAN TEA ASSOCIATION, (LONDON).

A meeting of the Committee was held on the 25th instant, when the following members were present :—Messrs. D Cruickshank (in the chair), G W Christison, J S Hulbert, F A Roberts, J N Stuart, and A G Stanton.

WORK IN AMERICA.—A proposal to divert a portion of the funds towards advertising green tea in Canada was not agreed to, no green tea being yet available.

WORK ON THE CONTINENT.—A letter from Mr. J M Harrington, dated 22nd instant, with reference to certain tea rooms in Rome, was read, and the Committee resolved, before granting a subsidy, to await further particulars regarding the same.

ERNEST TYE, Secretary.

—*Home and Colonial Mail*, Sept. 28.

COCONUT MILK.

The Colonial Museum at Haarlem, in its annual report recently published, has raised, at the request of an old planter, the question whether a market could be created for preserved coconut milk. As thousands of tons of dried coconut (coprah) are annually shipped, the milk of which is thrown away when collecting the kernels, hundreds of gallons of coconut milk are wasted for want of a proper method of preserving this refreshing beverage. It has been suggested that by adding a slight quantity of silicic acid the fresh milk in air-tight bottles would prove to retain its qualities, so much appreciated in Southern countries.—*Sells' Commercial Intelligence.*

THE WINTER RICE CROP IN BENGAL.

From the preliminary forecast of the winter rice crop of Bengal for the year 1900 which has been issued we extract as follows :—

The Provincial total of the normal area under winter rice now stands at 31,023,000 acres against 31,076,400 acres shown in the final forecast of the preceding year. The area sown with winter rice this year is estimated at 28,883,300 acres against 31,344,700 acres in 1899. On the whole, the season has not been altogether favourable for the winter rice crop.

According to the estimates made by the District Officers, the outturn of the winter rice crop this year for the Province, as a whole will amount to 87 per cent of a normal crop, as compared with 90 per cent as finally estimated last year.—*Pioneer*, Oct. 11.

THE CONSOLIDATED ESTATES COMPANY, LTD.

Ninth Annual Report of the General Managers submitted to the Shareholders at the General Meeting held at 34, Great St. Helens, E.C., on Wednesday, the 3rd October 1900, at 11-30 a.m.

The General Managers have the pleasure to submit their ninth annual report and balance sheet, together with statement of accounts for the crop year ending 30th June, 1900.

The profit and loss account shows a balance (including £671 6s. 6d. brought forward from last year) of £7,101 18s. 7d. after paying interest on the debentures, and an interim dividend of 4 per cent on the preferred shares.

Out of this sum the General Managers propose—

	£	s.	d.
To pay a balance dividend of 4 per cent on the preferred shares making 8 per cent for the whole year, which will absorb ..	£1,480	0	0
*To set aside for redemption of 5 per cent of the debentures at 103	2,575	0	0
To pay a dividend of 5 per cent on the ordinary shares, requiring ..	1,950	0	0
To place to Reserve Fund ..	500	0	0
Carrying forward the balance, viz.:	596	18	7
	£7,101	18	7

The following shows the result of the year's working, viz.:—

NET PROCEEDS OF CROP.

		£	s.	d.	£	s.	d.
1,651,410 lb. tea at an average net price of about 5 15-16d per lb. realised ..		40,742	11	1			
Cocoa, Cardamoms, Cinchona Bark, and Cinnamon		1,266	16	1			
Surplus on produce brought forward from 1898-9 ..		110	9	6			
Interest account ..		188	6	8			
					42,308	3	4
EXPENDITURE ON ESTATES.							
Messrs. George Steuart & Co.'s drafts—R449,584 at an average of 1/4 31-64 per rupee ..	£30,885 6 8						
Less—Balance of coast advances	423 16 4						
		30,461	10	4			
Bonus to Superintendents—R8,250 @ 1/4 1-32 ..		551	1	6			
					31,012	11	10
					£11,295	11	

The past season in Ceylon has been very favourable for the flushing of tea, and this fact combined with the good effects of liberal manuring, and a system of somewhat coarser pulcking on some of the Company's Estates, has resulted in a large increase in the intake of Tea: the total crops amounting to 1,651,410 lb. against an Estimate of 1,326,000 lb. Unfortunately however this increase of the crops has been more than counteracted by a further fall in the price of tea and the rise in Exchange, but owing to some economies in the cost of production, the net result of the season's working is about the same as that of last year.

Exchange has again been rather more unfavourable to the Company, the average cost of the Rupee having been 1s 4 31-64 (for drafts at three months' sight) against 1s 4-11-32 for similar drafts last year. The rate now currrent is, however, only 1s 4 5-16d.

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* By the Articles of Association it is provided that five per cent. of the Debentures must be redeemed before any Dividend can be paid on the Ordinary Shares.

No new properties have been acquired since the date of the last Annual Report, and the total acreage of the Company's Estates remains the same. The following statement shows how this acreage is distributed. A slight error in the acreage of the Sorana Estate in the last Annual Report is now corrected.

Name of Estate.	Ceylon District.	Tea Full Bear'g.	Tea partial bea'g.	Tea Recently Planted.	Reserve Suitable for Tea.	Other Products, Grass Waste, Water, &c.	Total Acreage.
Wattegodde	Dimbula	800	Nil	25	Nil	70	895
Hoonoocotua	Kotmale	560	25	15	45	117	762
Tallagalla	Kalutara	515	Nil	102	60	23	700
Ellagalla	Matale	223	8	9	38	167	445
Rutland	Hewaheta	443	6	70	85	59	663
Warriagalla	Nilambe	493	61	26	57	624	1,261
Sorana	Kalutara	263	158	125	81	131	758
		3,297	258	372	366*	1,191	5,484

The capital expenditure for the purposes indicated in the last annual report which was estimated at £3,000, actually amounted to £3,012 5s. 0d. thus bringing the total amount at debit of the Factory and extension account to £4,333 13s. 6d., while for next season the expenditure on this account is estimated at about £1,800 (chiefly for the extension of the factory at Warriagalla to provide for the increased intake of leaf on that estate) which would increase the debit balance to a little over £6,000. To provide for this, and further requirements of the same nature, it is proposed at the end of this year to make a small issue of shares and debentures, full particulars of which will be given in two or three months' time. The issue will in the first instance be offered on favourable terms to the shareholders then on the Register.

A tabulated statement accompanies this report showing the progress of the Company since its commencement, which it is hoped will be found interesting to the shareholders. They will see that notwithstanding the fall in the price of tea and the rise in exchange, the Company has been able to hold its own fairly well, chiefly owing to the gradual increase of crops arising from the extension of cultivation, and the General Managers recommend a continuation of the policy of such extension, provided the necessary additional capital is forthcoming.

The Estimates for the New Season have been carefully framed, and are as follows:—

	Expenditure. R.	Tea Crop. lb.
Wattegodde	107,916	400,000
Hoonoocotua	73,044	260,000
Ellagalla	32,723	110,000
Tallagalla	59,599	230.000
Warriagalla	63,653	230,000
Rutland	63,502	220,000
Sorana	57,486	230,000

Totals R457,923 @ 1/4⅝=£31,243 14s 0d 1,680,000

Also about 25,000 lb. of Cinchona from Rutland, 7,500 lb. Cardamoms, and 1,680 lb. Cocoa from Warriagalla, and 15,000 lb. Cinnamon from Sorana; the value of the whole of such products being estimated at about £1,500.

The Ceylon Agents report that the Company's Estates are in good order and appearance and that the Tea seems remarkably free from pests and blight, though the latter has given some trouble on Tallagalla. Samples of the soil from this Estate have been sent home and subjected to a careful chemical analysis with a view to ascertain the most suitable manures to strengthen the soil and thus enable the bushes to throw off the blight. The recommendations of an eminent Agricultural Chemist are being carefully carried out and there seems to be every hope of their proving successful.

The General Manager have pleasure in informing the Shareholders that as the result of continued agitation on the part of Importers, the Wharfingers have consented to reduce their charges on tea by an additional 10 per cent. all round to take effect on all shipments that arrived after 1st July. This concession will result in a saving to the Company of about £200 per annum.

ARBUTHNOT, LATHAM & Co.,
25th Sept. 1900. General Managers.

* Of which 299 acres are planted with Cardamoms, Cocoa and Cinnamon.

RATWATTA COCOA COMPANY (CEYLON).

The following is the report of the Directors submitted at the annual meeting held in the Queen's Hotel, Kandy, last month:—

THE DIRECTOR'S REPORT.

The Directors beg to submit their report and statement of accounts for the season ended 30th June, 1900.

The Directors regret to have to report that the original estimate of 300 cwts. cocoa has not been secured; this is attributable to the drought during the early months of the year.

The total cocoa crop secured amounted to 208 cwts. 2 qrs. 1 lb. which sold at an average of a little over R43 per cwt.

The tea crop including 1,520 lb. made from bought leaf amounted to 53,510 lb., against an estimate of 50,000 lb., which sold for an average of 30·57 cents per lb. against an average of a little over 33½ cents the previous year.

On the year's working the crop bearing portion of the estate shows a profit of R5,320·65, which has been carried to credit of profit and loss account.

The present appearance of the cocoa is very satisfactory; no sign of disease and the trees looking healthy and vigorous.

The prospects for the coming season for cocoa seem to be favourable, fine blossoms have for the most part set well.

Now that the young tea clearings are coming into bearing, the returns of leaf should show a marked increase annually for some time to come.

The estimate of cocoa for the coming year is 400 cwts., and that of tea 75000 lb. together with 6,000 lb. made from bought leaf against an expenditure of R33,807·50.

The following is a definition of the Company's property as at 30th June:—

			A.	R.	P.			
Cocoa planted	1893	...	72	1	2			
Do do	1894	..	85	0	29			
Do do	1895	...	65	2	07			
						223	0	19
Tea planted	1890	(and Cocoa)	118	3	27			
Do do	1896	do	4	0	00			
Do do	1897	do	99	3	27			
Do do	1898	do	75	0	00			
						317	3	14
Grass		... ..				3	0	00
		Total cultivated				543	3	33
Jungle		... ..				181	0	00
		Total acreage				724	3	33

During Mr. Gordon Pyper's temporary absence from the island Mr. T C Huxley is undertaking the duties of Managing Director.

Under the articles of association Messrs. T C Huxley and A Collingwood Smail retire from the Directorate by rotation, but are eligible for re-election.

An Auditor has to be appointed for the current year. The appointment rests with the meeting.

PLANTING NOTES.

"FIRE INSURANCE TARIFF ON TEA GARDENS BUILDINGS."—It will be observed from extracts in our daily that the Committee of the Indian Tea Association in Calcutta have been considering "excessive rates" fixed for various buildings; and a Sub-Committee is appointed to report. Should not the Ceylon Planters' Association co-operate and work in unison with the Calcutta body in this matter?

"INDIAN AND CEYLON TEA"—is the heading of an article in the *Investors' Review*, which we take over in our daily and *T.A.* It contains some interesting facts and figures and offers encouragement to persevere with the American and Continental campaigns. We see the Indian planters look to Mr. Harrington to tour through Europe and report on the best steps for pushing their teas. Home consumption keeps up; but the war tax is strongly condemned.

THE BANANA A MORAL EVIL.—According to the report of Sir H. Johnston, we may congratulate ourselves upon the fact that the banana does not grow in England. The idleness and vacuity of the lives of the natives in Uganda are, according to him, entirely due to this plant. It practically grows itself, and once it is planted no trouble need be taken about it whatever. The tree grows up, bears a couple of bunches of fruit, and dies down again in rather less than a year. However, it throws up shoot after shoot from an underground rhizome, and these in their turn grow up into trees and bear fruit. A banana tree planted seems to go on for ever, and the only thing its grower has to do is to pick the fruit. —*Mail paper.*

"FLIMSY MICA."—This is the name that has fallen to the thin films into which refuse mica plates are split—says an Indian contemporary—and which find a market, even though classed as "waste." The thin films of mica are used in the preparation of micanite, an American new patent, which serves as a cheap substitute for mica slabs of large sizes and is used largely in connection with electrical machinery. The films are laid out by hand with a special gum cement between each layer and when sufficiently thickly built up they are subjected to enormous pressure under heat and when cold retain the cohesion of natural slabs of mica. Mica is a great resistant of heat, and it has also been suggested that mica "waste" might be used to advantage for overlaying the roofs of houses in hot countries. The trade in "flimsy" mica is in its infancy and the prices realised seem to vary considerably with reference to colour, size and thickness, so that it is by no means easy to fix an average value for the purpose of calculating the Government royalty, which is 5 per cent. *ad valorem*, and an inquiry on the subject has been dealt with by the Board of Revenue. As a tentative measure the Board resolves to fix the valuation of "flimsy" mica, at the rate of 6 annas per lb. for spotted, cloudy and lined mica; and of 10 annas per lb. for clear mica. The rates now prescribed will be subject to revision at the end of a year in the light of the experience which may be gained during the interval.

INDIAN COOLIES FOR FIJI.—The ship Rhine arrived, from Calcutta, on Thursday, with 492 coolie immigrants, after a prolonged voyage of ninety days. This is the fourth and last vessel due to arrive from India, this year. The number of passengers brought by the four vessels total some 2,000, while the departures amount to about 400—an addition to the coolie population of 1,600 people.—*Fiji Times*, Sept. 1.

CLOVES AND SLAVERY.—As all the world knows, it receives its supply of Cloves from the islands of Zanzibar and Pemba; the yield last year was 570,600 frasilas, or, at 35 pounds to the frasila, equal to 19,971,000 pounds! This is the largest crop over reported, and was 8,061,259 in excess of that of the preceding year. Notwithstanding this produce, however, the plantations are not being cultivated as they ought to be—a falling-off in this respect having become noted over since the edict abolishing slavery was promulgated in 1897. Natnre has been very bountiful, but she mnst be assisted more by free labonr than appears likely to be given by those "coloured persons" who find laziness more congenial to their feelings than moderately hard work. Attempts are made by means of fair wages to get work out of the emancipated slave; he is also templated by free grants of land in exchange for a certain supply of labour, bnt the bait does not appear to take freely. Some effort has been made to raise crops other than Cloves, but the results are unsatisfactory. Only time and every judicious management of the native workers rescued from salvery can be trnsted to retain for the Sultanate that celebrity it so long enjoyed by the aid of slavery.—*Gardiners' Chronicle.*

RUBBER PLANTING IN TOBAGO.—We direct the notice of our planting readers to the letter of Mr. Short, a Tobago planter, on the growing of rubber in the West Indian island. The reports of Castilloa growth in Tobago are encouraging, and in reply to Mr. Short we may refer him—on the point of obtaining rubber from seedlings—to the process of a French rubber-planter in the Far East, which was recently recorded in our *Tropical Agriculturist.* In the case referred to the whole plant, bark and all, was taken and rubber extracted in paying bulk. We expect to hear more of the process, and how far it has been successful, before very long. The results will be duly published in our *Tropical Agriculturist.* If proved successful, we see no objection to the close planting, suggested by Mr. Short—except in so far as it is likely to hinder the rapid growth which would be the main object of such cultivation as our correspondent would then carry on.

SALE OF QUININE IN BURMA.—The Sanitary Commissioner of Burma says the scheme for the sale of quinine by post-offices in the interior of the province does not appear to have achieved much success. The Burman villager is said not to appreciate quinine, and though some are willing to use the drug if given to them, yet few wish to buy it and prefer their own remedies. In some instances deputy-commissioners report that the use of the drug is unpopular, and recommend that the scheme should be given up altogether. The sale of quinine-powders by post-office subordinates increased from 547 packets in 1896 to 1,527 issued in 1899, but the number issued to other offices decreased from 1,553 issued in 1897 to 998 issued in 1899. In Burma, where post-offices are so few, the dissemination of quinine among the outlying villages is dependent mainly on the district officers, who take little interest in the matter.—*Chemist and Druggist*

"HUNTING" AND PLANTING IN CEYLON BY THE LATE G. A. CRUWELL.

A LEAF FROM THE PAST.

Turning over old papers we have come across some manuscript in the handwriting of the late Mr. Cruwell, which is well worth giving to our readers even now. Mr. Cruwell was a great hunter in his day:—

Of course there are drawbacks to hunting as well as to billiards, card-playing, horse-racing, and other sports—and not only drawbacks, but dangers. Who does not recollect the fate of the unfortunate young German in Maskeliya, who was

KILLED BY A BUCK-ELK AT BAY

striking the hunter's knife into the heart of the inexperienced young hunter. Mr. F—— in Nuwara Eliya narrowly escaped a similar fate. Something of the same nature occurred in Haputale when a party of planters proceeded to Wellanwitte for a few days' hunting. They had to cross a swollen river over the log of a fallen tree. To enable their baggage coolies to do so, they had provided themselves with a rope to be stretched across for the coolies to hold on by. When clearing the brushwood on the opposite side one of the party fell into the river. The next moment the planter who was clearing the brushwood had him by the collar and tried to pull him out, but not being strong enough the poor fellow, who had fallen into the river, fell in a second time, and before any further assistance could be rendered he

FELL ON THE OTHER'S HUNTING KNIFE

which penetrated within a hundredth part of an inch of his liver. He had a very narrow squeak of it and a month's confinement to his couch. This happened not far from the K—— estate, and to show how fast news will travel in less than an hour, half the coolies of that estate came hurrying down to help their master, who was lying calmly under a huge tree, unable to move without experiencing agonies of pain. Dr. Moss was of the party and arrived on the scene just as W—— had sewn up the wound and successfully stanched the bleeding. He (the Doctor) took the more dead than alive hunter in hand. His coolies had in the meantime constructed a litter, covered with a mattress and pillow, and after being moved into this, he was carried back to his estate. In the night a fearful thunderstorm occurred, and the lightning shattered the big tree under which poor B—— had lain after the accident, all to atoms. The other members of the party wished to give up the hunt, but after consulting with the Doctor they continued their journey to Wellanwitte. The Doctor argued that the wounded man might be needlessly alarmed if the others did not proceed; and that he would be cheered to a certain extent if he saw his friends indifferent about him. The sequel proved the Doctor to have been right.

On a recent occasion another young fellow, also of the same estate, when out pig-hunting, had a finger of the left hand smashed and had to submit to an amputation. A few years ago there was

A YOUNG PLANTER KILLED BY HIS COMPANIO

who mistook him for a red-deer.

Hunting is especially an amusement to the man who cannot shoot and who cannot ride, and to whom his hunting-knife and spear are sufficient weapons. True there are some who combine all three accomplishments, but who that knew poor dear James MacDonald will not admit that he was about the *beau ideal* of a hunter and he never carried a gun? De Montenac was another hunter of this class.

This brings us to the "Circular" a great firm has issued to the Superintendents in its employ. Much, indeed, is to be said on both sides. The only individual planter who, rumour says, flung the "Circular" back at the sender's head, was an able, trusted Superintendent who, by his estate books and accounts, carried his employer's approval of his conduct, but who was given to a little *penchant* for hunting and could not resist the temptation, when

THE SNIPE WERE IN SEASON,

or when he heard a deer or an elk bark, to go hunting. No doubt he made up for it; but his conscience pricked him and he resigned at once. No one can blame him, nor can anybody blame the firm which, however, did not attach any particular weight to his

HUNTING AND SHOOTING PROCLIVITIES.

Submissiveness, humility, obedience are the attributes of slaves, and we all know that "Britons never never, will be slaves." And now since the *métier* of a coffee planter is to well understand and what coolies must and can do for a day's pay, when the cost of pruning, handling, and manuring is all laid down by estimates, and when the prices realised for the coffee are satisfactory, one cannot help thinking that the great and good firm issued the "Circular" more with the intention of putting their Superintendents generally on their guard, than for any other base or tyrannical motive. Certain it is the firm would never find fault with a Superintendent who would go at early dawn with his gun for a few dogs to hunt a hare or brace of hares or may-be a red-deer or go snipe-shooting after "muster" and running home to breakfast would require no leave-asking for that. If again the Superintendent were inclined to go for a week's hunting or shooting in the low-country, he ought to write to the firm that he intended doing so, and that the work in hand admitted of his doing so, and can it be doubted for a moment that the firm would grant him such a holiday? Quite another thing would be going to the Jymkhana in Nuwara Eliya, in crop time; or to the Races in Colombo, in September; or to the Badulla Sports in August. For such amusements leave should be asked, "circular" or no "circular."

In other respects, as has been previously stated, the nature of the country forbids travelling through the district as a source of pleasure, except on foot; and there are very few planters fond of climbing and descending. As a rule, therefore,

THE HAPUTALE PLANTER

may be regarded more in the light of a slow fellow than in that of a fast one, often victimised by loafers from other districts, but withal a kind-hearted and obliging creature. Almost the majority are married men and the minority would soon follow suit, if they had only the chance. Card-playing is, with the exception of a quiet whist party here and there, seldom indulged in. There is a billiard table at Haldummulla, which is chiefly monopolised by the few Europeans of that station and perhaps by a traveller passing through. There was often made an attempt at a Club; but it always sooner or later collapsed.

RICE-GROWING; A NEW COMPANY REGISTERED.

A new Company has been registered at the office of the Registar of Joint Stock Companies, under the name of the Walaway Estate Co., Ltd., for purchasing, leasing or acquiring Walaway Estate situated at Ambalantota, and for carrying on cultivation in paddy and tea, for manufacturing copra, coconut oil, &c., and to carry on business as bankers, storekeepers and shipping agents. The nominal capital of the Company

to be R125,000, consisting of 205 preference shares of R100 each carrying cumulative dividend of 8 per cent, 225 ordinary shares of R100 and 595 shares of R100 to be issued whenever found necessary. The profits, after paying cumulative dividend of 8 per cent for preference shares and 8 per cent dividend for ordinary shares, are to be divided as follows; two thirds to go to the shareholders, and one third to go to Mr. E Elliott, so long as he manages the business of the Company. The following have signed the articles of Association purchasing one share each:—Messrs. H Creasy, G H Alston, G W Carlyon, A Thomson, W H Figg, R E Shaw and Whittall and Co.

CHAULMOOGRA OIL AND ITS VIRTUES.

We have to acknowledge the receipt of an interesting and valuable monograph on Chaulmoogra Oil by Dr. G. Desprez of Paris.* The value of this oil, in the treatment of various skin diseases, but especially of Leprosy known to India and China for centuries, has been sufficiently recognised by its inclusion among the standard drugs of the Indian Pharmacopæia since 1868 and of the British Pharmacopæia since 1884. But what is not so well known is that the pure oil, from which alone the best therapeutic effects are obtainable, is hardly to be procured, unless it is specially extracted from the genuine seeds, which are themselves not easily distinguishable from allied species. It is in the original researches made in this direction, (for which he has been highly complimented by Dr. Prain, the Superintendent of Botanic Gardens, Calcutta) more perhaps even than in the valuable compilation of clinical cases from various sources illustrating the value of the oil in Leprosy, Syphilis, Tuberculosis, etc. that Dr. Desprez's pamphlet will be appreciated by medical men in the East. It is possible that a full translation of the monograph may be read before the local Medical Association shortly, and we may hope that some information will be given as to the cultivation of the plant yielding the genuine seeds.

RUBBER IN EQUATORIAL AMERICA.

M. Henri Jumelle, professor of the Faculty of Sciences at Marseilles, communicates to the *Rveue des Cultures Coloniales* a letter received from M. E. Ch. Van Isschot, an Engineer of Guyaquil, in which it is stated that the production of rubber in that country is diminishing daily. The forests situated near the coast do not contain any more rubber trees and it is found necessary to search up to the forests at the foot of the Cordilleras in order to find specimens of Castilloa, the destruction of which follows immediately on discovery. Rubber merchants have now commenced to search on the other side of the Cordilleras, but as it is necessary to descend again 1,000 metres (3,000 feet) into a country without roads or resources of any kind the exploitation is very different. All carriage is by porters.—*Indian Gardening and Planting*, October 11th.

* de Chaulmoogra—Etudes Botanique, Chimique, Pharmaceutique et Therapeutique par Georges Desprez, Docteur en-Pharmacie, Paris, J. B. Bailliere et Fils, 1900.

IMPROVEMENT OF COFFEE CULTURE IN S. INDIA.

"Fred. D M." writes:—At the meeting of the U.P.A., S.I. held at Bangalore in August last, Mr. Gompertz, Chairman of the Shevaroy Planters' Association, suggested the introduction of the Brazilian system of coffee cultivation, which he stated is to give the tree more space for growth than it is allowed in Southern India. In the Brazils the space allowed is 12 feet between the trees, and in some instances he said even that space is exceeded, the result being better growth and development of the trees, and an average crop of 5 lb, of coffee per tree, and he estimates that the number of trees to the acre planted at 12 feet apart would be 300, whereas planting trees at 6 feet apart, as is now done in Southern India, the number per acre is 1,210. This large difference shows at once the great saving there would be in the cost of planting an acre of land by the Brazilian system—a saving probably of three-fourths or two-thirds of the present cost of cultivation—which would amount to something considerable in planting 100 acres of land. The produce of 300 trees, according to Mr. Gompertz's estimate of 5 lb. per tree, would average 12 cwts. 36 lb. per acre, which is about double the average crop produced at present from an acre of 1,200 coffee bushes. He made mention of an interesting experiment that is now being carried on on the Shevaroys by Mr. Leeming, a member of the Association, to practically test the value of the Brazilian system—for which purpose he had removed from one of his estates every other coffee bush from a lime originally planted 6 feet apart, and by that means increased the space between the bushes left in the line to 12 feet from bush to bush. The trees or bushes in the line so treated, Mr. Gompertz told the Meeting, have made luxuriant growth and are at present bearing a heavy crop—what it would average per tree it was not possible to say then, but he expected that in time it would break the Brazilian record of 5 lb. per tree.

I fully agree with the theory propounded by Mr. Gompertz, but I differ with him on one point, and that is my doubt of the dwarfed coffee bushes of the South Indian estates being capable, notwithstanding the advantages of the improved system of cultivation suggested, of producing the estimated average crop of 5 lb. per tree, in these days of leaf disease and repeated unfavourable seasons caused by drought; and it is upon the realisation of the estimated Brazilian crop of 5 lb. per tree that the advantage of the proposed change in cultivation hinges. From Mr. Gompertz's silence on the height of Brazilian coffee trees that hears 5 lb. per tree, I am led to believe that although in his remarks he mentioned *tree*, he means the ordinary 4½ feet bush grown on South Indian coffee estates. My impression is that the stunted coffee bush may, under favourable circumstances and improved cultivation, bear an average crop of about 2½ lb. per bush. It is unfortunate that Mr. Gompertz did not, when remarking upon the Brazilian system of cultivating coffee, make some allusion to the height the tree tree is allowed to grow there, as the quantity of crop a coffee tree is capable of bearing depends as much upon its height as upon the space allowed it for development.

There is a German method of lining for tree planting by which 500 trees to the acre could be planted at exactly 12 feet apart. By the ordinary method of lining Mr. Gompertz gets only 300 trees *to the acre*; consequently, many a square yard of land that goes to make up the acre is wasted, not only by the coffee but also by the tea-planter. But by the German method of lining every square yard of land of the 4,840 that go to make the acre is utilised, and, as stated above, after allowing 12 feet of space between the trees, 500 acres instead of 300 could be planted on an acre of land.—*Madras Mail*, Oct. 16.

TEA MANUFACTURE IN BAD WITHERING WEATHER.

In reply to a reference we made to Mr. A Cooke of the Chota Nagpore Tea Company *re* certain experiments made by him in tea manufacture that gentleman sends in the following, which will be of interest to our tea planting readers:—The experiment you read in my note had nothing to do with green tea. The experiment referred to (I think) was rolling heated leaf after it had got the proper colour—this improves the twist, without spoiling the liquor much. In bad weather, when withering is impossible or imperfect, I have always rolled the leaf and allowed it to get the proper copper colour for black tea; then, instead of firing the leaf fully, I warm it and get it flaccid, and then give a final roll; after which it is fully fired and dried.

This improves the appearance wonderfully without doing any harm to the liquor. *Good* black tea cannot be made in this way, but the intermediate firing saves the appearance. Unwithered leaf makes awful looking tea, all chips and ragged bits, and the liquor cannot be really good, but the above plan will give a fairly good appearance and no worse liquor.

During the wet days of the late cyclone I had leaf three days old and still *kutcha*, and had to roll it anyhow, or it would be in to smell bad. I rolled twice, twenty minutes each time, very lightly within a period of three hours and the leaf got a good bright colour. It was then heated and rolled again. Comparing the wet leaf in the sample cup with some ordinary tea made from well withered leaf, I found that the coppery colour was brighter, and deeper in the withered leaf and the liquor was much darker. The plan I wrote of does not obviate withering, but it minimises the loss from under-withering.—*Indian Gardening and Planting*, Oct. 11.

"PLANT SANITATION."

MR. J. B. CARRUTHERS' LECTURE.

Mr. Carruthers was called upon by the Chairman, Mr. E Webb, at the commencement of the meeting of the Northern Districts Planters' Association on Saturday afternoon to deliver his lecture on "Plant Sanitation" with special reference to cacao canker.

The lecturer commenced by saying that sanitation was recognised in human medicine and with animals, but was not yet recognised with regard to plants. People recognised that dead bodies should not be left lying about and other such rules and he wished to impress on them the necessity of observing the same rules as applied to plants. Plant diseases, he said, could be grouped into three or four groups. First, diseases due to environment, *i.e.*, due to want of moisture, or excess of moisture and due to too high or too low a temperatue. These were neither contagious nor infectious. There were diseases caused by large animals as well as insects, such as the damage done by squirrels, *helopeltis*, red spider, etc. Those were subjects really looked after by his colleague, Mr. Green, and he thought he should not say anything about them. There was a more important disease in view of plant sanitation due to the tax of fungi and bacteria and it was in these they had to try and use sanitary measures as they were nearly all contagious or infectious to describe what fungus is. The lecturer took as the best instance the mushroom consisting of the spawn or *mycleium* below the ground and the portion above the gronnd known as the mushroom carrying the spores of the fungus which is the reproductive part. Spores may be considered as the seeds of the fungus. The mushroom was easy to see with the naked eye, but unfortunately the fungi which grow on cultivated plants were not so easy to recognise. The lecturer then went on to say that fungi were divided into two groups, viz, *Parasitic*, and *Suprophytic*. *Suprophytic* fungi grow only on dead organic matter and were not so interesting to the practical man as they did no damage to cultivated plants. The *Parasitic* fungi were most important to cultivators as they caused much damage and were fatal to cultivated plants. He then went on to say that of the *Parasitic fungi* one that interested them most was the cacao canker which he explained to the meeting by means of pictures. With cacao canker as in other fungi when the planter first observed it and wrote to him (the lecturer) or any other such worker saying that the disease had just broken out, it had probably been in the tissues of the plant for months or perhaps years. The way the planter generally noticed it was by the production of the fruits of the fungus, but that only meant that the fungus had been in the bark a long time before producing its spores just as a flowering plant grew some time before producing its fruit. It was very important for planters to learn to recognise this in their earliest stages. The cacao canker could be recognised in its earliest stages by the discoloration of the bark and *cambrium*. The colours were different, from a yellowish tint to dark claret colour. This discoloration was due to the presence in the tissues of the spawn or *mycelium* of the fungus *nectria*. His experience had shewn him that when this spawn had been in the tissues for some varying time from ten days to a year, the spores were produced and they were to be noticed as whitish with yellow or pink tint masses coming through the bark. The lecturer then shewed pictures of the canker. Inside those masses were found, if magnified with a microscope, spores of two kinds, and those spores, if they lighted on any other cacao tree, and in the presence of moisture, would cause a second patch of canker. The only thing necessary for the germination of those spores were heat and moisture. There was always sufficient heat in Ceylon, and during a good many months of the year there was sufficient moisture. The first spore was more or less egg-shaped and the size could best be understood by saying that a layer of five millions covered a ten-cent piece. Almost simultaneously, or a little later, there were formed a larger spore crescent-shaped, having five divisions.

He then explained how the spores began to grow in presence of moisture. After these white masses had been formed, a careful observer would see some minute red bodies forced through the white masses but that did not occur until the portion of the cacao tree was dead. Those red bodies, each about the size of a pin's head, were seen in clusters containing another form of the fungus. On opening one of the red bodies he said there would be found a number of transparent bags or sacks, each containing eight spores, technically called *asco spores*; while the spores previously mentioned were called *gonodia* spores. The *asco spores* were fitted to carry the fungus

over a period of drought and it was probable that they could remain without growing, yet retaining their vitality for months, probably years. The *gonodia spores* were fitted to quickly spread the fungus while damp conditions prevailed. Unfortunately this fungus did not live only in the bark of the tree, it was found and only too commonly on the pods and its life history on the pods was the same as previously described except that the time taken to produce all its spores was very much less. On the pod the whole life history could be gone through within under 10 days, whereas the same number of months only sufficed when it grew on the bark. The canker on the pods was very important as it reduced the crop and it was still more important as it was the chief means of spreading the disease because of the rapidity the funges could grow in the softer tissues on the pod. With regard to rules for combating this and other diseases, in the first place it was perfectly clear that all spore masses as far as possible should be destroyed by burning and it was impossible to too strongly insist upon the fundamental importance of that measure. The lecturer then mentioned an instance of a small native holding not far from Kandy, which he visited recently on his way to an estate. He went to the holding and on examination found over 100 dead trees covered from top to bottom with spores, many others dying and the whole place practically a spore farm. Unfortunately there was no Ordinance in Ceylon to compel owners to reduce danger of infection and it would be a matter of importance to planters to consider whether they could not arrange some means of getting such spore farms treated on sanitary principles.

At the conclusion of the lecture, Mr. CARRUTHERS, in answer to some strongly expressed views of Mr. Chas. Gibbon, deprecated the views widely held by planters that there was any special predisposition of the cacao tree to take the canker. The lecturer pointed out that all views of that kind should be rigidly tested by carefully conducted experiments. In his experience healthy cacao trees were quite as liable as sickly ones to take infection nor did manuring enable a plant to "throw-off" the disease. This opinion was very common among horticulturists and farmers, but in the majority of cases of fungal disease it had no foundation.

Mr. GIBBON referred to the reported remark of Mr. Arden that cacao would cease to be cultivated owing to the canker.

Mr. CARRUTHERS in reply said that Mr. Arden, who was undoubtedly competent in horticultural matters, had stated his views on insufficient evidence having visited one estate and that badly cankered but from his (the lecturer's) knowledge of large areas of cacao, if care was used and money spent, the effects of the disease could be reduced so that cacao might be grown to a profit and might go on and increase.

The CHAIRMAN, Mr. WEBB, proposed a vote of thanks to Mr. Carruthers for his able lecture which was carried with acclamation.—*Kandy Cor.*

HOME-MADE GUANO OF UNEQUALLED EXCELLENCE.

Save all your fowl manure from sun and rain. To prepare it for use, spread a layer of dry swamp muck (the blacker it is the better) on your barn floor, and dump on it the whole of your fowl manure; beat it into a fine powder with the back of your spade; this done, add hard wood ashes and plaster (gypsum), so that the compound shall be composed of the following portions:—

Dried muck 3 bushels
Fowl manure, 2 bushels
Ashes, 1 bushel
Plaster, 1½ bushel

Mix thoroughly and spare no labour; for in this matter the elbow-grease expended will be well paid for. A little before planting moisten the heap with water or, better still, with urine, cover well over with old mats, and let it lie till wanted for use. Apply it to beans, corn, or potatoes at the rate of a handful to a hill, and mix with the soil before dropping the seed. This will be found the best substitute for guano ever invented, and may be depended on for bringing great crops of turnips, corn, potatoes, etc.—*Queensland Country Life*, Sept. 22.

PLANTING IN DOMINICA.

(To the Editor of the *Times*.)

SIR,—The very interesting account given in the *Times* of today by Mr. H. Hesketh Bell as to the capabilities of Dominica applies to most of the West India islands. As head of the Jamaica Botanical Department for long period of years I cordially endorse Mr. Bell's sympathetic declarations as to the latent resources of these islands—resources which are unsurpassed with regard to most of the cultures to which he has directed attention.

I shall not trespass on your space further than to say that Dominica, with which I am acquainted, presents peculiarly attractive conditions to young English adventurers to embark upon most of the cultures indicated by Mr. Bell. It may be further stated that it would be impossible to render a great service to hundreds of young well-to-do Englishmen than to recommend them to turn their energies to this most interesting feature of colonial life.—Yours obedient servant, ROBERT THOMSON.

Grass Mount, Queen's-road, Forest-hill, Sept. 20.
—London *Times*, Sept. 25.

SULPHATE OF AMMONIA OR SALTPETRE AS TEA MANURE.

With reference to what has already appeared *re* Sulphate of Ammonia as a Manure for Tea, Messrs. Freudenberg & Co. have now placed at our disposal the letter of another German authority, Professor Stutzer of the Government Research Station at Königsberg, who has taken a great interest in Scientific Manuring in general and Manuring of Tropical Plants in particular. The following is a copy of the letter referred to:—

"I have to acknowledge receipt of your letter of 21st August. Sulphate of Ammonia is an excellent nitrogenous fertiliser and there is no reason why it should be discredited in the cultivation of Tea. In Europe Sulphate of Ammonia has, of late, gained considerably in favor compared to Saltpetre and rightly so; the unit Nitrogen in the form of Sulphate of Ammonia now commands a much higher figure than that in the form of Saltpetre. Whether this is, in every case correct I should not like to maintain, I only mention it to show that our farmers fully appreciate the value of Sulphate of Ammonia.

There is no reason why Sulphate of Ammonia as a fertiliser should be discontinued in a Tropical Climate; it can be applied to Tea as well as to any other perennial. That it ought not to be applied by itself, but along with others Manures, supplying Phosphoric Acid and Potash, goes without saying."

VANILLA IN CEYLON.

A NEW PRODUCT—AS AN ADJUNCT TO TEA.

We commend the following practical remarks to the attention of planters up to 2,000, 3,000 and in some climates even 3,500 feet above sea-level. To have two or three acres of vanilla netting R1,000 per acre is an addition to an estate's income, not to be despised:—

(*By an experienced Planter.*)

Given a favorable season, vanilla cultivation—at the present price of the staple—is a most lucrative one, but the plant is keenly susceptible to climatic influences in its cropping.

An acre of vanilla, properly planted, can easily give 200lb of prepared pods, its present market value in Mauritius is R19 per lb.

In Madagascar, Bourbon, Mauritius and Seychelles it is subject to a disease which sometimes completely wipes out the vanilleries; but the inhabitants are not disheartened—they open up and plant other land - to replant on diseased land is useless. The market value of vanilla depends on the latter being gathered at the proper stage—almost to a single day—and on its preparation. The latter appears easy, and many a crop has been spoiled through a novice imagining he 'knows all about it' after having seen a few hundred pods prepared. Only very careful observation and much practice will ensure satisfactory results in the preparation vanilla.

The plant is not jealous as to altitude. It grows and flowers freely from sea-level up to 2,000 ft. in the islands mentioned. It requires a moist heat and a fair amount of rain, but is intolerant of anything approaching swampy and ill-drained land.—E. H. E.

PRODUCE AND PLANTING.

The Apathy of Shareholders.—The letter on "Tea Companies and their Policy," which appeared in the *Financial Times* some two months ago, under the signature "Ex dividend," and was quoted in these columns, has drawn forth a note of sympathy from a correspondent serving with the Army in South Africa. This letter signed "Anglo-Indian," seems to be in harmony with the views of "Ex Dividend" about the apathy of shareholders in tea companies. "Anglo-Indian," who yearns after some kind of reform in the management of tea companies, says: "The general apathy of tea shareholders is a thing to be deplored, most general meetings of tea companies consisting of a gathering of directors and their friends. Being a shareholder in one of the largest tea companies registered in London, the working of the estates of which I was familiar with, I issued to the shareholders towards the end of the season 1897 a circular letter, in which I pointed out the reckless expenditure which was adopted by the company. Further, I particularised the meagre and cooflicting accounts invariably presented to the shareholders, and suggested certain reforms therein. In answer to that circular letter the directors issued a rejoinder which was generally acknowledged to be as feeble a production as ever was ventilated by a presumably intelligent body of officials. I then issued a seco d circular letter hopping to stir the shareholders to combined action, which I pointed out was the only hope of reform. Numerous were the apparently grateful replies I received to both my circular letters, and many were the congratulations I obtained for having displayed several defts in the management of the company's affairs, not a little prolonged correspondence occuring with some, a few of whom were tea planters of many years' experience. Not unnaturally, I expected to find a representative gathering of shareholders at the next annual general meeting. At that meeting there were not over half-a-dozen shareholders present, including myself. Two of us had only had any knowledge of the tea industry, consequently the directors, assisted by one or two shareholders who I was convinced knew little of what they were doing, and understood less of what they were told, simply transacted business as they wished, and they have continued to do so to date. The outcome of such absolute apathy on the part of the shareholders is shown in the results of the last two seasons' working, and by the continued meagre accounts presented to the shareholders, accounts which consist almost entirely of a series of bulked items, and are, therefore, unintelligible from want of detail. Never since the company was first formed have the shareholders been told what the estimates were for either crop or expenditure for the ensuing season, particulars which the directors are always in possesssion of and yet do not voluntarily disclose to the shareholders. The auditiog of the accounts is, so far as I can judge, a farce, for no accounts such as those rendered to the shareholders are capable of being properly vouched for. On the other hand, if the accounts have been properly audited, the individuals responsible have received full and detailed information which has been withheld from the shareholders. I fully agree with 'Ex Dividend' when he says that the auditor should be the servant of the shareholders."

INDIAN PATENTS.

APPLICATIONS FOR THE UNDER-SPECIFIED INVENTIONS HAVE BEEN MADE.

No. 330.—Samuel Molyneux Bailie, mechanical engineer, Suntok, Assam. A tea-packing machine.

No. 332.—C S Bivar, tea planter, at present of Seconee, Silghat, Assam. Instantaneous withering of leaf for the manufacture of tea, whether green or black, or for any other purpose for which such a system of withering may be suitable.

No. 347.—Francis Dillon Bellew, licensed branch pilot, residing at 22, Royd Street, Calcutta, British India. A new or improved blender for tea and the like.

No. 354.—David Miln Salmond, planter, Mariawatte tea estate, Gampola, Ceylon. Improvements in tea-rolling tables.—*Indian and Eastern Engineer*, October.

RUBBER IN BURMA ANE CEYLON.

We had a very interesting visitor today in Major Wyllie (I.S.C. in Civil employment) of Burma, who is returning from leave by the ss. "Shropshire." He has for many years been interested in Rubber and Gutta cultivation, partly in connection with his official duties in the Rangoon district and has been a student for a long time of our *Tropical Agriculturist* and "Planting Manuals," particularly that on Rubber (1st and 2nd editions). With this interest and his well-known botanical and practical tastes, it is no wonder that the Burma Government thought of Major Wyllie as the proper person to take charge of the new enterprise, sanctioned by the Viceroy, whereby 10,000 acres of land in Burma are to be devoted to rubber and perhaps gutta cultivation. Knowing this enterprise was coming off, Major Wyllie, while at home, tried

to get permisison to visit Brazil (for which mission his knowledge of the Portuguese language makes him peculiarly fit) to secure seed of different kinds of rubber—there is a species of castilloa which contributes largely to Brazil exports, of which little is known—and there are many other points which a good linguist and botanist (very different from an ordinary planter) could get cleared up. The India Office was at first favourable; but the China War breaking out with its call on the Indian Service, Major Wyllie was recalled and the trip to the West had for the time to be given up. We should think, however, with so large an investment as 10,000 acres in hand, that the Viceroy especially, will see the advantage of one so admirably suited as Major Wyllie being sent to Brazil and Central America, calling at Trinidad, as well as to Java, Sumatra and Ceylon to collate all useful information up to date and collect specimens. Here, in Colombo, Major Wyllie was only able to run to Heneratgoda Gardens where, however, he obtained some interesting specimens of different kinds of rubber and other plants to take away with him. He much regrets having no time to go to Peradeniya. He has been noting the "Hancornia" referred to in a recent circular from Haiti given in the *T.A.*, and he was interested in what we showed him of Mr. Godefroy-Lebeuf's experiments in Paris. He was able to guess at the correct name of the species of "Castilloa" mentioned in the last letter from this gentleman—"Castilloa Tunu" not "bunn" as printed the other day.—Altogether Major Wyllie reminds us much of Colonel Beddome of South Indian botanical fame—who used so often to visit Ceylon in days gone by, in his devotion to public advantage and single-minded attention to the special department he has made his own. We shall watch with interest the progress of the Burma enterprise and trust Lord Curzon will see the propriety of sending Major Wyllie to all important rubber-growing countries to enquire, collect and report. Such a Mission could not fail to redound to the credit—as well as material advantage—of the Indian Government which in times past did so much to introduce and promote cinchona cultivation, and to develope tea and other new industries.

EXPORT OF INDIARUBBER FROM INDO-CHINA.

The export of indiarubber from Indo-China has made considerable progress and is raised to 79,158 kilos for the first half of 1900, whilst in 1899 it was only 51,000 kilos for the whole year. Of this Saigon sent 9,676 kilos, while Tonquin was the larger exporter with 69,482 kilos. A great part of this came really from Laos and Annam and was transported to Tonquin.—*Tonkin paper*, Aug. 17.

The Seychelles.—We do not often hear from these out-of-the-way, vanilla-growing isles; but on our sixth page today will be found some chatty notes from a recent visitor, giving interesting first-hand information as to "Royalties" banished to the Seychelles; Men-of-war; and the Vanilla Crop.

CORAL REEFS OF THE INDIAN REGIONS.

Interim Report of the Committee, consisting of Mr. A Sedgwick (Chairman), Mr. J Graham Kerr, Professor J W Judd, Mr. J J Lister and Mr. S F Harmer, appointed to investigate the Structure, Formation, and Growth of the Coral Reefs of the Indian Region.

The Committee have received the following report from Mr. J Stanley Gardiner:—

The expedition under my charge has been carrying out work during the last eighteen months in the Laccadives, Maldives, and Ceylon.

During the month of May 1899 I toured through the raised coral-reef areas of Ceylon and round the coast In the north of the island these form a succession of higher and higher raised reefs down to Dambulla, broken only by isolated flat-topped peaks of older rocks, on the sides of which the successive elevations are sometimes clearly visible in horizontal lines of wave action. It is only in the topography of the older, often much dolomitised country that the previous existence of either barrier or isolated reefs is indicated. The greater part is formed of a mixed reef sand, and appears before elevation to have borne a considerable resemblance to the large mudflats round the islands of Viti Levu and Vanna Levu, in the Fiji group.

Round the coast of Ceylon, especially to the south, a recent elevation of five to twenty feet was found in broad flats by the sea. These are now invariably being washed away down to the low tide level, at which they persist, to a certain extent, as fringing reefs of varying breadth. The greater part of the west and south coasts is devoid, however, of any reef-growths, the shore being rocky or formed of fine siliceous sand. In May 1899 the rocky shore near Bentota was seen to be covered with small coral colonies, which were evidently a growth of the previous north-east monsoon. In September these had completely disappeared, having been washed away in the south-west monsoon. At Galle, Talpe and Weligama numerous recently living colonies of corals, particularly of the genera *Porites* and *Pocillopora*, of four to eight months' growth, were found completely silted up with sand and dirt of all sorts.

A noticeable point about the reefs immediately round Ceylon is the comparative absence of reef-building nullipores, which are a marked feature of all isolated oceanic reefs. In connection with this an attempt was made to examine the shoals two to six miles off the south and south-west coasts of the island, which indicate with the soundings the possible upgrowth of a barrier reef. The weather, however, at that season was so unfavourable that I was unable to dredge, land, or anchor on any.

Subsequent visits to south India and north Ceylon indicated clearly a former land connection between the two. The so-called Adam's Bridge and the islands of Manaar and Ramasserim, which the former joins, appeared indubitably to be the remains of a formerly elevated limestone flat, which has been more or less cut down by the sea to the low-tide level. The coast lines, too, of Ramasserim and to the north of the Jaffna peninsula were also probably at one time continuous.

The months of June, July, and August 1899 were spent in Minikoi, an isolated atoll, the most southern of the Laccadive group. Here I was accompanied by Mr. L A Borrodaile, who proposed to study various points connected with the Crustacea and Chætopoda. Unfortunately Mr. Borrodaile, who had been collecting these forms in Ceylon, almost at once succumbed to the climate, and after five weeks returned to Ceylon, whence he was at once ordered home. Every part of the island was visited: a survey was made and numerous cross-sections were run. From these it was clear that there had been an elevation of the original reefs to a height of at least twenty-five feet above low-tide level. Numerous observations were made on the currents at different

depths within the lagoon in reference to its shoals, &c. Work on this point could seldom be carried on outside the reefs, as originally intended, owing to the heavy north-westerly winds which prevailed. The lagoon was dredged to ascertain the distribntion of its corals, and a few water samples and temperature observations were taken.

Considerable attention was paid at Minikoi to the sand-feeding organisms, especially Holothuriæ, Enteropneusta, and Sipuncolida. These forms appear to be largely instrumental in finely triturating the sand, the small particles being subsequently carried out of the lagoon in a state of suspension. The boring organisms, too, are very important in causing the decay of dead coral and rock, especially in the lagoon. These, accordingly, do not form points of attachment for fresh reef-growths to arise, and owing to the larger surface exposed are the more readily dissolved by the water. Indeed all evidence collected showed that the lagoons of atolls may be, and are, very generally formed by the solution of the central rock of originally more or less flat reefs.

In October 1899 I left for the Maldive group, to which I was accompanied by Mr. Forster Cooper, who assisted me in all the work and very largely took charge of the dredging. The Soltan lent us a schooner of about eighteen tons, which we at once fitted out in Male, subsequently cruising through the northern atolls during the months of November, December, and part of January. About a hundred islands in the atolls of Goifurfehendu (Horsburgh), S Mahlos, N Mahlos, N Miladommadolu, S Miladummadulu, Fadiffolu, and Male were visited, Numerous soundings were made and dredgings everywhere taken. Horsburgh Atoll and the two atolls of Mahlos Madulu in particular were thoroughly worked over.

Parts of January and February 1900 were spent at Hulule, a small island at the south-east corner of Male Atoll, this being the month of Ramazan. A thorough survey of this island and its reefs was made, the whole forming an atoll of the second order, an atollon on the rim of an atoll, Large collections were obtained of the fauna of this atollon from all depths, together with observations on many special points. A set of corals of known period of growth was collected from an artificial passage through the reef to the landing-place of the island.

In February Mr Forster Cooper took the schooner off for a short dredging cruise in Male Atoll, while I remained in Male making special observations on the water temperature, currents, food, &c.

In March I was unfortunately obliged owing to illness, to return to Ceylon, where I spent some time in hospital. Mr Forster Cooper meantime continued the work, taking the schooner and dredging the attolls of S Male, Felidu, Molaku, Kolumadulu, and Haddumati.

In April I returned with the s.s. "Ileafaee," a vessel of about 350 tons which I had chartered. Mr Froster Cooper was relieved in Haddumati Atoll and joined the steamer, the schooner being sent back to Male. We then proceeded to Huvadu (Suvadiva) Atoll, which we entered by a northern passage. The lagoon to the east was dredged and sounded, the positions of islands and reefs observed and four islands visited. A move was then made to Addu Atoll, the outer slopes of which and also the lagoon were dredged and sounded. The islands were charted in with the assistance of Captain Molony, and the majority were visited by some member of the party. On returning to Suvadiva the south and west sides of that atoll were dredged. On account of the heavy weather we were prevented from seeing Mulaku, which we had especially desired to visit.

Proceeding north to Male we skirted Haddumati Atoll and crossed Kolumadulu, then visited and dredged S and N Nilandu Atolls, subsequently anchoring in Felidu and Ari. The passages were sounded between the following atolls: Kolumadulu and S Nilandu, S and N Niladdu, Mulaku and Wattaru, Wattaru and Felidu, N Niladu and Ari, S and N Male. Three further lines of soundings were run across the central basin between the east and west lines of atolls.

More than three hundred dredgings were taken, and in addition large and, we believe, very complete collections were made of the reef-fauna at Mioikoi and Hulule four natives at least always accompanying and assisting us in this work. The collections of land-fauna we believe to be equally complete from these islands. Collections of the plants of five separate Maldivian islands are now in the hands of Mr J C Wills, Peradeniya Gardens, Ceylon.

A large number of anthropological measurements and considerable enthnological colections were procured, of which we hope to give the Association an account at some subsequent meeting.

PLANTING NOTES.

Camphor.—The market in Japan is very firm, crude being quoted at from 182s 6d to 185s per cwt., c.i.f. Inquiries on the spot show there is practically nothing to be had, although 192s 6d is quoted. In the drug-auctions 100 cases of pressed Formosa camphor in cases of 133 lb. net each were held at 205s. per cwt. Today, German refiners have reduced their price by 1d., per lb., and now quote 2s 1½d per ton, c.i.f., for prompt delivery. English refiners, however, are very firm, and the tendency is towards an advance, fi anything.—*Chemist and Druggist*, Sept. 29.

The Triumphs of Electricity.—Surely this is one of the most notable experiments with electricity in the East. An Indian contemporary writes, "the Mysore Government have at length finally settled all the points that were at issue between themselves and the Government of Madras relative to the water of the Cauvery Falls, and they have accepted the tender (£140,941) of the General Electric Company of the United States, who have undertaken to complete, within twenty months, the installation of the plant required at Sivasamudram to generate 5,000 horse-power and to transmit it a distance of ninety miles to a central station on the Kolar Gold Felds. Arrangements are being made with the various Gold-mining Companies now at work on the Fields for the distribution of the electricity from the central station and for the installation of motors to work the machine now driven by steam."

The Consolidated Estates Company, Ld.—We give the very full Report of the Managers, Messrs. Arbuthnot Latham & Co., in our daily and *T.A.* In a separate table, the progress of the Company from the beginning is shewn and we notice the figures for 1899-1900 Besides the preference capital of £37,000 and ordinary £39,000, the Company has £46,700 of debentures (or £2,500 less than in the previous year). The total capital £122,700 represents 3,929 acres in cultivation so the rate per acre is not high, without counting 366 acres reserve fit for tea and over 800 acres besides. The last crop of tea was 1,651,410 lb. realising 5 15-16d average; the rupee averaged 1s 4 31-64d: total proceeds of crop £42,197 13s 10d and the profit £11,295 11s 6d. The dividends (8 per cent on preferences and 5 per cent ordinary) are the same as last year; but besides the reduction on debentures, the Reserve Fund now at £2,097 is £426 above last year. Altogether, therefore, the Company has done well during 1899-1900.

Hunting and Haputale Planters in Days of Old.—On another page will be found some reminiscences by the late G. A. Cruwell which have never been in print before. They afford a peep of a Haputale planter's life in the hey-day of coffee, before there was any railway and only a few roads in Uva. G.A.C. gives some true incidents of injuries (some fatal) to hunters; but we never heard that he or MacLellan, Duff, Hood, Corbet or Rose suffered for all their gatherings in the "merrie greenwood" in the days when all was forest between Radella and Adam's Peak.

"Ostrich-farming: Would it do in Uva?"—It is suggested to us that one or more of our enforced visitors at the Diyatalawa Camp may have had experience in South Africa of Ostrich Farming, and may be able to say whether the uplands of Uva would at all offer a suitable region for the establishment of a farm? Of course the pursuit is usually associated with expanses of flat country; but we do not know that undulating patanas would be objectionable. Sand, and lime, or shells however, are said to be necessary for the birds for the development of bone. Water supply and fresh vegetable food could be managed in Uva. The food of ostriches in Egypt is said to cost 2d a day. Each adult bird, five years old, is estimated as worth £40. The annual crop of feathers, after three years old, equals about £4 10s in value on an average, and there are the young ostriches hatched each year, to count on against the general expenses. But perhaps there are enough of ostrich farms already in Africa?

How to Free a Town from Mosquitoes.—In view of the now established connection between mosquitos and malaria, the following extract from the *British Medical Journal* is likely to be read with interest by many of our readers, especially in Calcutta. Expert opinion is pretty well unanimous that the mosquito pest can be controlled. All that is wanted is united action. It is a fair field for village improvement societies. At a meeting of the Societa Medico-Fisica Universitaria of Sassari, on 23rd March, Dr. C Fermi gave an account of certain experiments made in Sassari, in conjunction with Dr. Lumbau and Dr. Cossu-Rocca, with the object of freeing the town from mosquitos. He was able to discover all their breeding places in different parts of the city, in drains, cisterns, puddles, etc. The method adopted was the destruction of the larvæ by means of petroleum placed in the breeding grounds twice a month. The mosquitos were destroyed in shops by means of chlorine, and in houses by means of ulicides, such as a mixture of pyrethrum, chryanthemum flowers, valerian, and Calamus aromaticus, or the "zanjoline" of Celli and Casagrandi. The results obtained were so satisfactory that Dr. Fermi concludes from them that it is always possible to free a town from mosquitos unless the conditions are exceptionally unfavourable—as, if it be situated in the midst of a swamp. He estimates the expense of freeing a town of fifty thousand inhabitants at 1,000 to 1,500 lire (about R1,000 to R2,000) a year. This includes the wages of the staff required to carry out the measures prescribed.—*Indian Gardening and Planting*, Oct. 11.

The Phylloxera in Switzerland.—This pest made considerable progress last year in Switzerland, and in Waadtlande (Vaud) the Vines were attacked with great virulence. Of the 6,568 hectares planted with Vines, thirty four hectares were devastated by Phylloxera. Although the percentage of ½ per cent., may appear small, the seriousness of the case lies in the fact that sixty-eight out of a total of 183 wine-growers, *i.e.*, roughly about one-third, had their vineyards affected. The owners hesitate to introduce the American Grape vines as stocks on which to graft, fearing a deterioration of the good quality of the wine, although nothing else can be done.—*Gardeners' Chronicle*, Oct. 6.

Californian Vegetables for London Market.—In so excellent condition do all kinds of fruit arrive from California, that it was determined to try the experiment of introducing Asparagus to the English market. As we are told the experiment has been tried but the cool chamber of the steamer was a trifle too cool: the "grass" was frozen and so rendered unfit for marketing. Next season every effort will be made to furnish supplies of Asparagus in good condition to consumers here at a reasonable charge. It is a "long order" from the Pacific to Covent Garden. By-and-by it may be found possible to make it a paying concern to place orders for the same vegetable at the Cape.—*Gardeners' Chronicle*, Oct. 6.

The Shan States.—The resolution of the Government of Burma on the reports of the administration of the Shan States during the past official year has lately been issued in Rangoon. In the Southern Shan States the year was barren of incident; the people were prosperous, crime light, and the harvest good. Relations between the different chiefs were good, and those between Ken-tung and the adjacent French and Siamese territories were also good. Slavery was abolished in Ken-tung during the year by the chief himself after a visit that he made to Burma and Ceylon. Dacoity has disappeared, old roads have been improved, new ones opened, bridges constructed, and much other work of the same kind has been carried out. In the Northern Shan States also tranquility has been maintained, except in one frontier State, where the operations of the Boundary Commission between China and Burma were resisted by a petty local chief. Otherwise crime has decreased and many works of public utility are being carried out by the chiefs. Another memorandum describes the trade of the Shan States as nearly three-fifths of the total trans-frontier trade of Burma. It amounted to 178 lakhs of rupees last year, and when communications with Burma are in a better state a large growth in this trade must take place. The States send down to Burma cattle, ponies, provisions, such as potatoes, tea, and other articles not grown in Burma, as well as pigs, geese, and fowls. A considerable quantity of teak also finds its way down to the coast from the States. Of all the regions adjacent to Burma the Shan States appear to be the one in which land trade with that province is most prosperous and most likely to increase. The reports, in the words of the resolution, "afford striking proof of the benefits which have accrued to the Shan States from the settled government of the last 12 years.'—London *Times*, Oct. 6.

Correspondence.

To the Editor.

IGNORANCE OF CACAO:—THIS PICTURE AND THAT.

Oct. 22.

DEAR SIR,—With reference to your remarks on cacao in Saturday's *Observer*, one might regard the word of a botanist, according to the vehement criticism by Mr. Chas. Gibbon in the local "Times," as something akin to the wand of a conjuror. The young botanist from Kew, Mr. Arden, could not be expected to give an opinion from personal experience on cacao cultivation in Ceylon, nor do I see how his general remarks as reported by the "Times" can have materially influenced any person of larger experience.* Is it not a fact, however, that at Kew there may be seen growing on a small scale practically all tropical products, the uses, value and cultivation of which the students at that institution are regularly taught? Is it not through Kew that our best varieties of cacao have been introduced to Ceylon?†

Mr. Carruthers, the Cryptogamist, in his report last year on the cacao disease, stated that "some estates are practically wiped out by the disease," whilst leading cacao planters declared that there were prospects of the cacao enterprise being doomed. It is not surprising therefore that a new-comer, taught in European principles of agriculture, should be led to the opinion that cacao "in the course of time" should have a bad time of it unless the present methods of cultivation were altered. "In the course of time" is an indefinite period. Mr. Chas. Gibbon, however, calls this "crass ignorance," and makes a direct libel when he says that Mr. Arden "goes on to describe a very exceptional instance of tapping trees to promote thick growth." Mr. Gibbon, for some reason of his own, interprets "topping" (which term in England meaning "coppicing," he apparently is not acquainted with) into "tapping" and he takes pains to show that this is not applied to cacao, which is ridiculous. It is amusing to see Mr. Chas. Gibbon use such big words to make a "contradiction" which he afterwards contradicts himself by stating that "the cacao has many enemies to combat." That cacao can, however, luxuriate in many parts of Ceylon, with careful cultivation, is amply testified.—I am, yours faithfully,

ONE INTERESTED.

* How are people absent from Ceylon to know of Mr. Arden's experience? We scarcely think he could have meant his words to be printed as they stand: he was very cautious in his conversation with ourselves.—ED. *T.A.*

† But what does Kew know of cultivation on at large scale.—ED. *T.A.*

LIME AND MALARIAL MOSQUITOES.

Matale, Oct. 22.

SIR,—Last week you had an editorial, wishing to know the local experience of using lime as a preventive of mosquitoes. As you know there are several places in Ceylon that have lime in the soil. The Matale district (notoriously malarious) is full of lime; and yet mosquitoes and their larvæ are plentiful in every swamp. The only effective germicides are Jeyes' Fluid or Kerosine; and as neither of these is expensive they should be used for every swamp or pool in malarious localities.

By the way, can any of your readers explain why new clearings, digging up of soil, etc., should cause fever?

I am a believer in the mosquito malaria theory; but the theory does not cover the cases where a deadly outbreak of malaria follow the disturbance of the soil; as for instance, the outbreak of fever when the railway to Galle was being opened.

ENQUIRER.

[The mosquitoes to give an attack of malarial fever have first to feed on an afflicted patient: but turning up the soil in a malarious district releases germs which, imbibed, result in fever.—ED. *T.A.*]

VARIETIES OF CASTILLOA RUBBER IN CEYLON.

ss. "Shropshire," Oct. 23.

DEAR SIR,—I enclose a note of the references bearing on the dispute as to the identity of *tunu* or *ule* with castilloa elastica, and of C Markhamiana with C elastica, also of C elastica with the tree yielding the *caucho* rubber of the Amazon valley. The matter is, I am afraid rather, obscure still. But it would appear probable that you have *not* got the true Castilloa elastica in Ceylon. Perhaps your Paris correspondent might be asked to tell us what he knows about *tunu*.

Besides the references I have quoted, I remember reading an article (I think in the New York "India Rubber World," two or three years ago) on the prospects of trade in Honduras in *tunu*, but to the best of my recollection the writer claimed it to be the source of *chicle* or chewing gum, which would make it out to be the *achras sapota*. This rather adds to the confusion than otherwise, but my memory may be at fault. I am sorry I cannot find this reference in my file My reference I. (b) seems to point to the possibility of *tunu* being a *balata*.—Truly yours,

J. A. WYLLIE.

I.—*Ceylon Manual* "All about India rubber" 1899—p. cxvii.

(a) Plants sent out from Kew 1876 differ from *ule* of Mexico as described by Cervantes.

(b) *Castilloa* from Honduras three species. Two=*ule*, the third is *tunu*—said to yield a gutta percha.

(c) p. cxix—item IV., description of *tunu*.

II.—*Ceylon Manual*, p. cxx., Cross says there is only one species—difference is due to growth in sun or under shade.

III.—Ibid p. cxlviii. Clements Markham thinks there are two species—(1) C elastica (ii.) Markhamiana.

IV.—*Tropical Agriculturist* Sept. 1st, 1899, p. 206. Name *ule* or *tunu*=Castilloa in Central America.

V.—*Ibid, March 1st ,1899.* p. 602, C Markhamiana turns out to be a *perebea* species, so Seeligmann says.

VI.—*India-rubber World*, Oct. 1st, 1899, p. 4, Dr. Huber (Curator, Para Museum), says *caucho* of Amazon valley is a Castilloa—identifies it with C elastica or ule.

RUBBER EXPERIMENTS.

Paris, Sept. 26.

DEAR SIR,—Can any of your readers procure me sample of the plant you call Castilloa elastica in Ceylon? I believe the plant grown there is Castilloa bunn. Castilloa elastica is less injured by the temperature and there is an interest to know exactly what is the species grown.

About rubber barks, the results obtained vary. If the bark has been quickly dried by exposure to full sun, the rubber is more abundant than in barks slowly dried; fermentation in that case has destroyed parts of the gum. The bark quickly dried can after be exposed to moisture with less inconvenience than bark slowly dried. It is easily proved by bags of bark partly musty: if well dried first, the damage is not great; but fermented barks affected after by moisture, are quite unfit for any use. So, it is important if any of your readers sent me samples—to dry these quickly. Our Company for Extraction of Rubber is founded, and will buy on analysis any bark offered. The price will vary like for barks of cinchona.—Believe me, yours most truly, A. GODEFROY-LEBEUF.

P.S.—I have introduced this year several new rubber products,—such as, Forsteronia gracilis, Hancornia speciosa, Euphorbia speciosa—a new sort from Guinea, producing gum of inferior quality, but in very great quantity.

[We have just sent Mr. Godefroy-Lebeuf a parcel of Para rubber from a Ceylon planter who wants a report after analysis of the same. Can any one spare a sample of Castilloa bar —ED. *T.A.*]

IMPORTANCE OF LOWCOUNTRY GREEN TEAS; AND THE GLAZING OF TEAS.

Stagbrook, Peermaad, S. India.

SIR,—I was interested to see by your issue of the 12th October, that Arapolakanda had obtained such an encourging average for low-grown green teas, though of course, it would have been more satisfactory had the sales been made direct in America, Canada or Russia. However we may take it for granted that Colombo buyers, as a rule, are on the safe side. This being so, I would remind you that lowcountry green teas has been a hobby of mine for some years, and you will find, that while on June 20th, Mr. F. F. Street, in an interview, says:—"I certainly do not recommend the lowcountry planter to make green tea, etc., etc." that I not having seen his remarks, writing to the Press on 2nd July, 1900, said:—"I am of opinion *that low grown teas* will make the best green teas, and have *made experiments* which tended to prove my theory." If this opinion prove correct, or at any rate if "lowcountry" green teas can get as favourable prices as high-grown green teas, it will be of great benefit to all interested in the tea industry, for I take it that it is much more to the interest of the Planting Community to get low-grown black teas off the market.

I hope experiments are being made in "glazing" the teas as per my directions issued by Messrs. Brown & Co., Ld. as I am certain it protects the teas and enables them to be kept longer.—I am, dear sir, yours faithfully,

H. DRUMMOND DEANE.

THE MATURATA TEA COMPANY, LTD.

DIRECTOR'S REPORT

submitted to the Shareholders at the Third Annual Ordinary General Meeting, held at the Offices of the Company, 16, Philpot Lane, London, E. C., on Wednesday, 3rd day of October, 1900, at 12 noon:—

The Directors herewith beg to submit their third annual report and balance sheet for the year ending 3rd June, 1900. After bringing forward £678 16s 3d from last year's account, and after payment of Debenture Interest and London Charges (Directors' fees, &c.), the net amount of Profit and Loss Account is £2,464 14s 7d. A dividend of 3 per cent. has been paid on the Preference Shares for the half-year amounting to £120. A further 3 per cent. was paid on the Preference Shares on July 1st, making 6 per cent. for the year, amounting to £120. It is proposed to pay a dividend of 10 per cent., less income tax, on the Ordinary Share Capital which will absorb, £800. Thus leaving to be carried forward to next year a balance of £1,424 14s 7d. Total £2,464 14s 7d. The past year has again showed very satisfactory results, and the yearly earnings of the Company have been substantially increased. The Directors therefore feel justified in recommending a dividend of 10 per cent on the Ordinary Share Capital of the Company, as, after payment of this, there still remains a considerable sum to carry forward. £1,000 of the debenture debt has been paid off during the past year thus enhancing the value of the Preferred and Ordinary Capital. The thanks of the Company are due to the Superintendent for the excellent way in which he has worked the estate and more than maintained the quality of our tea notwithstanding that the factory during the greater part of the year, was in course reconstruction which made his work considerably more difficult. The last report from the Visiting Agent in Ceylon as to the condition of the estate is highly satisfactory. The crop for the past year amounted to 159,054 lb., which sold at a nett average of 8·88d. For the current year the crop is estimated at 140,000 lb. Mr. G. Alderson Smith retires in accordance with the Articles of Association, but offers himself for re-election as a Director.

FERNLANDS TEA COMPANY, LTD

ANNUAL REPORT.

Acreage

FERNLANDS.

Tea in full bearing	...	212	acres
Tea in partial bearing	..	7	,,
Grass and Jungle	..	52	,,
Total Estate	..	271	acres.

ETON.

Tea in full bearing	..	150	acres.
Tea in partial bearing	..	9	,,
Tea not in bearing	..	5	,,
Coffee in bearing	...	47	,,
Cardamoms	...	14	,,
Grass, Jungle and Scrub	..	25	,,
Total Estate	...	250	acres.

Grand Total 521 acres.

The directors submit to the shareholders the accounts for the season ending 30th June last.

The tea crop of 150,067 lb. realised a net average of 48·35 cents per lb. after making a safe estimate for proceeds of tea for which closed accounts have not yet been received from London. Coffee crop was as foreshadowed in last year's report larger than that of 1898-99 though short of the estimate.

After writing off 10 per cent depreciation on buildings and Machinery, the balance at credit of profit and loss account is R19,256·16. In March last an interim dividend of 2 per cent was declared and paid,

which absorbed R5,500, and the directors now recommend the payment of a final dividend of 4 per cent, making 6 per cent for the year, and that the balance of R2,756·16 be carried forward to this season's working.

The estimated crops for the current season are 155,000 lb. tea, 25 bushels coffee and 1,200 lb. cardamoms, on an expenditure on the estate of R52,235·33.

On the resignation of Mr. G H Alston the remaining directors appointed the Hon. W H Figg to the vacant seat on the board.

The appointment of a director and an auditor will rest with the meeting.

THE NEW DUMBULA COMPANY LTD.

REPORT, SEASON 1899-1900.

The Directors have the pleasure of submitting the accounts for the financial year ending June 30th, 1900.

The season generally has been a favourable one for flushing, the yield has exceeded the estimated quantity, and is considerably in excess of that of the previous year. The fields affected by the frost last season have recovered.

The net average yield per acre was 539 lb., compared with 456 lb. last season, and the net average price 8·76d as against 8·28d in 1898-99.

The acreage of the Estate is—

Tea in bearing	...	2,200 acres.
Young Tea	...	150
Timber Trees	..	108
Grass Ravines	...	45
Buildings	..	22
Forest and Swamp		600
Total	...	3,125 acres.

The Estate is reported on as being in first class order, and the Tea very vigorous; the Buildings and Machinery are kept in excellent condition; an extension of the Factory has been sanctioned, so as to render the treatment of leaf as satisfactory as possible, a portion of the cost of this extension is provided for in the accompanying accounts.

The accounts now presented show a surplus of £23,222 6s. 4d., after writing off the amount of Tea extension, viz., £309 12s. 6d., and the amount of the Factory and Machinery account, viz., £206 4s. 8d., and providing £1,000 towards extension of Factory. The Directors propose a dividend of 20 per cent. per annum for the year ended June 30th last, 5 per cent. of which was paid in March, together with a bonus of 3 per cent., and the placing of £3,000 to the Reserve Fund.

The Board wish to express their satisfaction with the management of the Estate while under the charge of Mr. S. Payne Gallwey. Mr. Dick Lauder resumed charge on January 1st, and the Directors feel that the continued good working of the Company's property by the Resident Manager and Staff in Ceylon must commend itself to the Shareholders. By order of the Board. A. CRABBE, Secretary.

THE DUCKWARI (CEYLON) TEA PLANTATION COMPANY, LTD.

REPORT BY THE DIRECTORS TO THE TENTH ORDINARY GENERAL MEETING OF THE COY.

The Directors have pleasure in submitting the Accounts for the year ending June 30th, 1900. Profit and Loss account, after writing off 10 per cent. depreciation on value of machinery and buildings, shews a credit balance of £1,313 10s 2d for the year to which has to be added £1,514 8s 4d, the balance brought forward from last season, making a total of £2,827 18 6

which the Directors propose should be applied as follows:—

(1) In payment of seven per cent. Dividend of Preference Shares ..	£840 0 0			
(2) In payment of seven per cent Dividend on Ordinary Shares ...	560 0 0			
(3) In increasing Reserve Fund by ..	500 0 0			
		1,900 0 0		
Leaving		£927 18 6		

to be carried forward to next year.

The returns of crop have been 321,026 lb. Tea and 8,779 lb. Cardamoms, against 277,408 lb. Tea and 10,012 lb. Cardamoms last season.

The estimates for the coming year are 300,000 lb Tea and 12,000 lb. Cardamoms.

The increased crops coming off the Company's estates have necessitated the purchase of more machinery. The outlay on this, amounting to £412 16s 5d, has been debited to capital account.

Mr. Troutbeck retires from the Direction by rotation, and being eligible, offers himself for re-election.

The Auditors, Messrs. Brown, Fleming and Murray, also retire, and offer themselves for re-appointment.

P. G. SPENCE, Chairman, and R. CROSS AITKEN, Secretary.

17, Philpot Lane, London, E. C., Oct. 1900.

THE HORNSEY TEA ESTATES COMPANY, LIMITED.

THE FOURTH ANNUAL REPORT, 1899-1900.

The Directors beg to submit to the shareholders the report and audited Accounts for the year closing the 30th of June last.

The crop has weighed out 191,844 lb., against last year 172,139 lb., giving an increase of 19,705 lb. of made tea.

The Directors regret that although the crop is larger, the profit earned is somewhat smaller than last year. This result, however, is entirely due to a fall in prices, which has affected the whole industry. The teas have been carefully made, and the quality has been quite as good as in former years. The markets, however, have been rather over-supplied with tea, owing to a season of very favourable weather in Ceylon, resulting in large crops and lower prices.

The cost of production, with manufacture, has been 29·30 cents, against last year 31·12 cents, or, in sterling, 4⅝d per lb. Colombo, against 5d per lb.

The sales in London have totalled 28,435 lb. of tea, selling at an average of 9·87d per lb., and the balance of the crop has been sold in Colombo, and realised an average of 38·90 cents, equivalent to a London price of 7½d per lb., against last year 45·40 cents, or 8½d per lb. The average sale price for the whole crop has been equivalent to a London price of 7·94d per lb., or nearly 8d per lb., against last year 8·72d per lb.

During the 12 months the Coast Advance Account has been reduced by £97 13s 8d, leaving only £81 3s 3d outstanding.

The audited accounts show that, after paying all fixed charges and Preference Dividend for the 12 months, there is a balance at credit of Profit and Loss of £412 9s 7d. The Directors propose to write off £224 6s from preliminary expenses account, and to pay a dividend of 1½ per cent on the ordinary shares, absorbing £180, and leaving a small balance to carry forward. The Directors, in again writing off so large a proportion of profit to preliminary expenses account, are acting on the determination to close this account during five years, and next

year being the fifth year of the Company's existence the balance of £158 11s 8d outstanding should dis-, appear from the balance sheet.

It is well known to shareholders that this Company does not possess a factory, and that the Battalgalla Company is manufacturing Hornsey leaf. This arrangement has worked satisfactorily up to the present time, but next year the agreement to manufacture between the two companies expires, and owing to increasing crops, Mr. Saunders, the Managing Director in Ceylon, strongly urges that the time has now arrived when this company should build a factory and manufacture its own tea. Mr. Saunders also claims that he can manufaoture much more cheaply than at present. To meet the cost of a factory the Directors purpose issuing a further £3,000 in six per cent preference shares.

The Directors desire to express their best thanks to Mr. W S Saunders and to Messrs. E Benham & Co., the Colombo Agents, for the attention given to the Company's interest during the year.

In accordance with the articles of Association, Mr. W S Sichel retires from the Board, and being eligible, offers himself for re-election.

The Auditors, Messrs. Singleton, Fabian & Co., also offer themselves for re election.

CHARLES A. REISS W. S. SICHEL, Directors; ALBIN B. TOMKINS, Secretary.

51, Lime Street, E.C., London, 1st Oct., 1900.

PUBLIC SALES OF TEA IN COLOMBO.

DURING THE NINE MONTHS ENDED SEPT. 30TH, 1900.

		Offered	Sold	Avg.	Exchange Demand Drafts. 1900.	1899
		lb.	lb.	c.	s. d.	s. d.
Jan.	10	1,831,280	1,614,158	35	1 4 1-8	1 4 1-8
,,	17	1,364,973	1,185,022	36	1 4 5-16	1 4 1-8
,,	24	1,139,005	827,628	34	1 4 3-16	1 4 3-32
,,	31	737,556	688,927	34	1 4 3-16	1 4 3-32
Feb.	7	599,791	516,696	35	1 4 5-32	1 4 3-32
,,	14	782,790	653,888	34	1 4 5-32	1 4 1-32
,,	21	1,185,369	973,956	35	1 4 1-8	1 4 1-16
,,	28	740,953	566,329	34	1 4 3-32	1 4 1-32
Mar.	7	891,630	653,715	32	1 4 1-8	1 4
,,	14	819,391	681,953	34	1 4 3-32	1 4
,,	21	951,391	807,324	35	1 4 1-32	1 4
,,	28	902,110	744,408	35	1 4	1 4
Apr.	4	887,021	813,242	36	1 3 15-16	1 4
,,	10	1,006,717	782,748	36	1 4	1 4
,,	18	—	—	—	—	—
,,	25	1,640,060	1,447,035	35	1 4	1 4
May	2	842,428	722,417	36	1 3 31-32	1 4
,,	9	912,161	765,843	36	1 3 31-32	1 4
,,	16	1,038,550	792,090	35	1 3 31-32	1 3 31-32
,,	23	1,305,127	954,197	31	1 3 31-32	1 3 31-32
,,	30	1,115,133	947,564	31	1 4	1 3 31-32
June	6	1,005,763	803,025	30	1 4	1 3 31-32
,,	13	938,853	800,258	32	1 4	1 4
,,	20	926,783	772,084	32	1 4	1 4
,,	27	1,173,115	952,675	30	1 4	1 4 1-32
July	4	971,589	831,096	31	1 4	1 4 1-32
,,	11	1,011,171	914,153	34	1 4	1 4 1 32
,,	18	1,224,480	1,135,262	33	1 3 31-32	1 4 1-32
,,	25	992,287	921,723	36	1 3 15 16	1 4
Aug.	1	874,782	728,817	37	1 3 15-16	1 3 31 32
,,	8	909,992	691,142	35	1 4	1 4
,,	15	776 353	688,447	36	1 3 15-16	1 4
,,	22	952,063	785,871	35	1 3 15-16	1 4
,,	29	658,559	580,731	37	1 3 31-32	1 4
Sept.	5	668,701	600,818	36	1 3 31 32	1 4
,,	12	623,281	507,424	37	1 3 15-16	1 4 3-32
,,	19	897,018	778,004	40	1 3 15-16	1 4 3-32
,,	26	—	—	—	—	—
Total for 1900		35,298,997	29,530,670	34¼	1 4 1-16	1 4 1-32
Same period 1899		28,255,604	24,229,544	38½		

PUBLIC SALES OF TEA IN LONDON.

DURING THE NINE MONTHS ENDED SEPT. 30TH, 1900.

		Packages Offered.	Packages Sold.	Reuter's Average. 1900	Gow. Wilsons and Stanton's Average. 1900.	1899.
Jan.	11	24,000	23,000	8	8	8
,,	18	31,000	29,000	7¾	7¾	8
,,	25	38,000	29,000	7½	7½	8
Feb.	1	25,000	21,000	7¼	7¼	8
,,	8	24,000	22,000	7½	7½	8¼
,,	15	25,000	23,000	7½	7½	8
,,	22	23,000	21,000	7¾	7⅝	8
Mar.	1	32,000	29,000	7⅝	7⅝	8¾
,,	8	—	—	—	—	—
,,	15	27,000	22,000	7½	7½	8¾
,,	22	28,000	26,000	7½	7⅝	8½
,,	29	26,000	25,000	7⅜	7⅜	8¾
Apr.	5	28,000	26,000	7½	7½	8¾
,,	11	27,000	24,000	7½	7½	8¾
,,	19	—	—	—	—	—
,,	26	31,000	31,000	7⅜	7⅜	8½
May	3	32,000	30,000	7¼	7⅛	8½
,,	10	39,000	37,000	7⅛	7⅛	8¼
,,	17	27,000	24,000	7⅛	7⅛	8¼
,,	24	31,000	28,000	7	7	8¼
,,	31	34,000	32,000	6¾	6¾	8
June.	7	—	—	—	—	—
,,	15	32,000	31,000	6¾	6¾	7½
,,	21	35,000	32,000	6½	6½	7½
,,	28	27,000	25,000	6⅝	6⅝	7½
July.	5	21,000	20,006	6¾	6⅝	—
,,	12	27,000	26,000	6⅞	6⅞	—
,,	19	21,000	20,000	7⅛	7⅛	7⅛
,,	26	27,000	27,000	7¼	7¼	7⅜
Aug.	2	43,000	39,000	7¼	7¼	—
,,	9	—	—	—	—	—
,,	16	45,000	42,000	7⅛	7	7⅛
,,	23	41,000	38,000	6⅞	6⅞	6¾
,,	30	31,000	28,000	6¾	6⅞	7
Sept.	6	23,000	20,000	7	6⅞	7⅜
,,	13	27,000	25,000	7	6¾	7⅝
,,	20	31,000	26,000	6⅞	6⅞	8⅛
,,	27	20,000	18,000	7	7	8¼
Total for 1900		1,003,000	919,000	7¼	7¼	8
same period 1899		832,000	740,000			

[The figures for local sales are compiled from the weekly circular of Messrs. Forbes & Walker, while those for London sales are from the telegrams received weekly.]

PLANTING NOTES.

THE OLD, OLD STORY.—The scheme for starting a trust to control tobacco planting in Deli, Sumatra), has fallen through from the impossibility of getting the planters to combine in the desired direction.—*The Planter*, Oct. 20.

SURVEYORS FOR NEW GUINEA.—Brisbane, Oct. 9.—The Surveyor-General was recently requested by the Lieutenant-Governor of New Guinea to select several surveyors for service in the island possession. All but one of these selections were made today. The appointments are:—Messrs. D Rutherford, Licensed Survey Department, Brisbane; H B Matthews, New South Wales; and W J Callendar, Queensland. Mr. John Richmond, of New South Wales, has been appointed draftsman at a salary of £300 per annum. The surveyors will each receive £400 a year, and be allowed an assistant at £200 a year. They are to provide their own instruments, but the New Guinea Government will supply camp gear, boats, and native crews.—*S. A. Register*, Oct. 9.

PROPOSED INDIAN TEA CESS.

We publish below a letter from the Hon. Mr. G L Acworth, to the Secretary of the U. P. A. S. I., which has been circulated among the various District Planting Associations in Southern India. There is no reason to believe (says the *M. Mail*) that Calcutta and London brokers would refuse to collect a cess in the manner Mr. Acworth suggests. Where there might be trouble, however, is in respect to teas shipped direct to foreign ports and passed through the hands of brokers there, and teas bought without the intervention of a broker for shipment to foreign markets. Little difficulties of this kind will no doubt be taken into consideration by District Planting Associations. Mr. Acworth shows that a very important sum could be collected annually, and if this were prudently employed in advertising and pushing Indian teas, there would probably soon be an end to the cry of over-production.

The following is Mr. Acworth's letter:—"As it is possible that the Government of Bengal may still decline to impose a tax on tea for the benefit of the Foreign Market Fund, it is as well to be prepared with some alternative scheme, which will be acceptable to the great majority of Indian tea planters, and at the same time result in a Fund which will compare favourably with that raised by our brethren across the water. Such a scheme has been evolved by Mr. A F Bruce, of Calcutta, and, having received his permission to make it public, I laid it before the Central Travancore Planters' Association at our last General Meeting. With slight modification Mr. Bruce's idea has been accepted by the C T P A and I now write to ask you to place the matter before other Tea Associations in South India. Should they accept the proposal, it would be as well to pass it on to the Indian Tea Association in Calcutta and London at as early a date as possible. The scheme as accepted by the C T P A is as follows:—'That a charge of half a pie per lb. be levied on all tea sold in India, and of 1-24 of a penny per lb. on all teas sold in London. That tea brokers be requested to enter this charge in their account sales, and to forward the proceeds when collected to the Indian Tea Association in Calcutta and London respectively.' This charge would amount roughly to a sum of R4 lakhs per annum, against the present pittance of barely one lakh collected by India. Every concern, whether a public Company or a private garden, would contribute in equal ratio. The levy is so small that it would be felt by nobody. There would be no expenses of collection, for I feel sure that the brokers, if approached, would keep the money and forward it to the right quarter free of charge."

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1895.	1896.	1897.	1898.	1899.	Av of 30yrs.	1900.
	Inch.	Inch	Inch	Inch	Inch.	Inch.	Inch.
January ..	5·00	2·92	3·81	2·32	6·98	3·22	3·72
February ..	0·81	0·35	1·68	1·98	2·78	1·93	0·63
March ..	1·84	5·64	3·66	4·21	0·88	4·78	3·71
April ..	9·34	5·93	10·97	22·81	6·66	11·31	15·12
May ..	10·09	9·31	8·30	5·80	17·73	12·09	10·63
June ..	13·99	8·37	10·14	10·94	9·23	8·37	7·83
July	0·52	2·85	5·24	6·15	1·11	4·38	6·77
August ..	0·92	6·35	9·09	0·97	0·62	3·67	7·35
September	4·09	10·99	4·58	6·90	1·48	5·01	4·00
October ..	30·36	16·78	4·71	20·60	12 99	14·52	9·47
November..	5·83	19.81	11·66	17·38	8·58	12·66	0 04*
December..	9·44	11·76	8·89	3·05	4·44	6·39	
Total..	92·23	101·06	82·73	103·11	73·48	88·33	69·27

[* From 1st to 2nd Nov. 0·04 inches, that is up to 9-30 a.m on the 2nd Nov.—Ed. *C.O.*]

Ceylon Rainfall.

The P. W. D. Meteorological Observations for Sept 1900.—We append the Monthly Return of rain from which it will be seen that the highest fall in Sept. was at Padupola in the Central Province, 38·45 inches, and the lowest at Murungan in the Northern Province, 0·09 inches.

Western Province

Negombo, Mr. Bucknall (6) ... 2 93
Kalutara Mr. Gregson (36) .. 7 23
Labugama, Mr. Bond (369) ... 18·01
Henaratgoda, Mr. Silva (33) .. 11·43

Central Province.

Katugastota, Mr. Morgan (1,500) ... 5·59
New Valley, (Dikoya) Mr. Ward (3,700) .. 16·21
Helboda (Pussellawa) Mr. Gosset (3,200) .. 14·81
Yarrow Estate. .. Mr. Padwick (3,400) 8·98
Peradeniya Mr. ... MacMillan (1,540) ... 11 30
Duckwari, Not received (3,300) ... —
Caledonia, Not received (4,273) .. —
Pussellawa, Mr. .. Powell (3,000) .. 14 25
Hakgala, Mr. .. Nock (5,581) .. 8·44
S. Wanarajah Estate, Mr. Tatham (3,700) .. 16·72
Padupola, Mr. Ward .. (1,636) ... 38 45
Mylapitiya, Mr. Fletcher (1,707) ... 0·65

Northern Province.

Mullaittivu, Mr. Ondatje (12) .. 1·46
Jaffna Mr. Macdonnel (8) 1·06
Mankulam, (N. Road) Mr. Ebert (167) ... 0 80
Elephant Pass, Mr .. Silva (7) .. 2·25
Vangalachettykulam, Mr. Oorloff (179) .. 0·85
Point Pedro Mr. Chitambalam (24) ... 3·10
Jaffna College, Mr. Cooke (9) ... 0 96
Kayts, Mr. Kretser (8) .. 0·61
Kankesanturai, Mr. Pararachasinghe (10) .. 2·48
Pallai, Mr. Silva (24) .. 4·86
Murikandy, (North-Central Road) Mr. Silva (7) 1·90
Nedunkeni, Mr. Ebert (122) .. 8·37
Chavakachcheri, Mr. Silva (16) ... 2·00
Udupiddi, Mr. Brown (35) .. 1 67
Marichchukaddi, Mr. Thampue (14) 0·51
Murungan, Mr. Walker (52) 0·09
Vavuniya Mr. Ebert (318) 2·

Southern Province.

Ella Vella Mr. Caldicott (262) 10·69
Kekanadura, do (150) 17·90
Denagama, do (286) 11·69
Udakiriwila Mr. Lourensz (235) .. 8·21
Kirama, Mr Vanderstraaten (260) 10·73
Hali-ela Mr. Caldicott (200) 10·40
Tissa Mr. Silva (75) 1·02
Matara Mr. Caldicott (15) 8·85
Dandeniya, do (157) 12·29
Urubokka, Mr. Caldicott (890) 13·90
Tangalla Mr. Russell (94) 1·89
Mamadola, Mr. Doole (56) .. 4·99

Eastern Province

Irrakkamam, Mr. Bower (42) ... 2·64
Devilana, Mr. Vanderstraaten (136) 2·89
Sagamata, Mr. Bower (40) ... 2·46
Ambare, do (65) 2·67
Kanthalai, Mr. Carte (150) 1·18
Allai, Mr. Carte (95) 13·63
Rukam, Mr. Vanderstraaten (120) ... 1 60
Periyakulam, Mr. Carte (20) ... 2·17
Chadaiyantalawa, Mr. Edge (57) 3·49
Kalmunai, do (12) 2·87
Rotewewa, Mr Bower (30) 2 90
Lahugala, do (70) 4·91
Naulla, do (33) 2·39
Andankulam, Mr. Carte (41) ... 2·57
Manaipuddy, Mr. Vanderstraaten (21) 1·58
Maha-Oya-Tank, Mr. Vanderstraaten (190) 1·40
Potuvil, Mr. Sinnayah (10) 1·90

N.-W. Province.

Magalawewa, Mr. Soopenayan (176) .. 0·60
Maha Uswewa tank, Mr. Adams (160) ... Nil
Tenepitiya, Mr. Churchill (8) ... 0·45
Batalagoda, Mr. Madahapola — 4 94

N.-C. Province.

Kalawewa, Mr. Chellappah (268) 2·20
Maradankadawala, Mr. Emerson (443) ... 2·72
Mihintale, Not received (354) .. —
Horowapotana, Mr. Ondaatje (217) . 5·60
Madawachchiya, Mr. Ondaatje (285) .. 0·80
Topare, Mr. Jayewardane (200) .. 1·06
Minneriya Mr. Eves — 1·37

Uva Province.

Bandarawela, Mr. Tocke (400) 2·20
Haldummulla, Mr. Vinamuttoo (3,160) 3·21
Kumbukan, Not received (446) ...
Koslanda, Mr. Rowland (2,258) ... 3·41
Tanamalwila, Not received (550) .. —
Bibile, Mr. Silva (680) 5·16
Taldena, Mr. Fernando (1,100) .. 1 57
Alutnuwara—Mr. Leembruggen (300) 1·57

Sabaragamuwa.

Ambanpitiya, Mr. Weerasinghe (729) 12·55
Pelmadulla, Mr. Robertson (480) 19·24
Kolonna Korale (Hulandaoya) Mr Dabre (203) 1·17
Avisawella, Mr. Clarke (105) .. 15·64

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION,

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	1000	—	—
Ceylon Tea and Coconut Estates	500	—	—	—
Castlereagh Tea Co., Ltd.	100	...	95	95
Ceylon Hills Estates Co. Ltd.,	100	—	—	—
Ceylon Provincial Estates Co. Ltd.	600	...	510	500
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	75	—	—
Clyde Estates Co., Ltd.	100	50	—	—
Doomoo Tea Co., Ltd.	100	60	65	—
Drayton Estate Co., Ltd.	100	140	150	—
Eila Tea Co., of Ceylon, Ltd.	100	55	—	—
Estates Co., of Uva, Ltd.	500	225	—	
Gangawatta	500	—	—	—
Glasgow Esttate Co., Ltd.	500	975	—	—
Great Western Tea Co.,	500	625	—	—
Hapugabalande Tea Estate Co.	200	—	—	—
High Forests Estates Co., Ltd	500	...	600	587·50
Do part paid	350	—	—	..
Horekelly Estates Co., Ltd.	100	—	70	—
Kalutara Co., Ltd.	500	—	325	—
Kandyan Hills Co., Ltd.	100	—	70	—
Kanapediwatte Ltd.	100	—	90	—
Kelani Tea Garden Co., Ltd.	100	—	—	—
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	65	—
Maha Uva Estates Co., Ltd	500	387·50	—	—
Mocba Tea Co., of Ceylon, Ltd.	500	—	—	—
Nahavilla Estate Co., Ltd.	500	—	375	—
Neboda Tea., Co. Ltd	500	450	500	450
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estate Co., Ltd.	100	—	—	—
Palmerston Tea Co., Ltd.	500	—	500	—
Penrbos Estates Co., Ltd.	100	—	100	—
Pine Hill Estate Co., Ltd.	60	—	5150	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	—	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co. Ltd.	100	—	...	55
Roeberry Tea Co., Ltd.	100	60	—	60
Ruanwella Tea Co., Ltd.	100	—	40	—
St. Heliers Tea Co., Ltd.	500	510	..	—
Talgaswela Tea Co., Ltd.	100	..	35	—
Do 7 per cent Prefs.	100	..	—	...
Tonacombe Estate Co., Ltd.	500	..	450	...
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	200	...	..
Upper Maskeliya Estate Co. Ltd.	500	—	450 .	..
Uvakellie Tea Co., of Ceylon, Ltd.	100	65	...	...
Vogan Tea Co., Ltd.	100	..	75	—
WanarajabTea Co.,Ltd.	500	..	1060	..
Yataderiya Tea Co., Ltd.	100	350	360	..

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	25	50	..
Bristol Hotel Co., Ltd.	100	120	125	121·50
Do 7 per cent Debts	100	107·50	...	..
Ceylon Gen. Steam Navg'n. Co., Ltd.	100	...	215	...
Colombo Apothecaries' Co. Ltd.	100	...	142·50	142·50
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	..	97·50	—
Colombo Hotels Company	100	..	...	295
Galle Face Hotel Co., Ltd.	100	147·50	..	150
Kandy Hotels Co., Ltd.	100	...	127·50	...
Kandy Stations Hotels Co.	100	.	25	...
Mount Lavinia Hotels Co., Ltd.	500	175	200	...
New Colombo Ice Co., Ltd.	100	185	..	..
Nuwara Eliya Hotels Co., Ltd.	100	30	...	32·50
Do 7 per cent prefs.	100	..	..	..
Public Hall Co., Ltd.	20	15	16	..

LONDON COMPANIES *

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon,	10	8½	9—10	.
Anglo Ceylon General Estates Co.	100	..	45—50	..
Associated Estates Co., of Ceylon	10	—	2—3	...
Do. 6 per cent prefs.	10	..	6½—7½	..
Ceylon Proprietary Co.	1	...	½—¾	..
Ceylon Tea Plantation Co., Ltd.	10	..	25—26	..
Dimbula Valley Co., Ltd.	5	..	5½—6	..
Do prefs.	5	..	..	...
Eastern Produce & Estates Co.	5	...	5—5½	...
Ederapolla Tea Co.,	10	...	8—10	...
Imperial Tea Estates Co., Ltd.	10	...	5—5½	..
Kelani Valley Tea Asscn., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	7—8	..
Lanka Plantation Co., Ltd.	10	4½	4—5	..
Nahalma Estates Co ,Ltd.	1	—	¼—¾	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	...	...
Ouvah Coffee Co., Ltd.	10	..	6—7	...
Ragalla Tea Estates Co., Ltd.	10	..	10	..
Scottish Ceylon Tea Co.,Ltd.	10	.	13—15	...
Spring Valley Tea Co., Ltd.	10	3	4—5	..
Standard Tea Co., Ltd.	6	..	11—11½	..
The Shell Transport and Trading Company, Ltd.	100	..	..	..
Yatiyantota Ceylon Tea Co., Ltd.	10	...	7⅛—8	...
Do. pref. 6 o/o	10	...	9¾—10¼	..

BY ORDER OF THE COMMITTEE.

Colombo, November 2nd, 1900.

* Latest London Prices.

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)
Colombo, Nov. 1st, 1900.

COFFEE:—	
Estate Parchment per bushel	none
Chetty do do	Nil.
Native Coffee do F. O. B } per cwt.	Nil.
Liberian coffee:—per bushel	Nil.
do cleaned coffee:—per cwt	Nil.
Cocoa unpicked:—per cwt	Nil
do cleaned do	Nil
Cardamoms Malabar per lb	R1·00 to 1·10
do Mysore do	R1·40 to 1·60
RICE:—	
Soolai per bag of 164 lb. nett	R9·37 to 9·50
1st quality:—per bushel	R3·65 to 3·70
Soolai 2 & 3rd. do do	R3·58 to 3·65
Coast Calunda	R4·25 to 4·50
Coast Kara	R4·00 to 4·12
Kazala	R3·55 to 3·58
Muttusamba Ordinary	R5·25 to 5·75
Cinnamon per lb No 1 to 4	52c to 54c
do do 1 and 2	62c to 64c
do Chips per candy	R90·00 to 95·00
Coconuts Ordinary per thousand	R35·00 to 38·00
do Selected do	R36·00 to 39·00
Coconut Oil per cwt	R14·00 to 14·25 } business at the lower figure.
do do F. O. B. per ton	R280·00 to 285·00 } business at the lower figure.
POONAC:—	
Gingelly per ton	R100·00 to 102·50
Coconut Chekku do	R82·50 to 85·00
do Mill (retail) do	R85·00
Cotton Seed per ton	R90·00
Copra per candy	
Kalpitiya do	R43·00 to 44·50
Marawilla do (Boat)	R42·00 to 45·00
Cart Copra do	R36·00 to 40·00
Satinwood per cubic feet	R2·00 to 2·25
do Flowered do	R5·00 to 6·00
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R75·00 to 175·00
Kitul fibre per cwt	R30·00 to 32·00
Palmyra do do	R5·00 to 13·00
Jaffna Black Cleaned per cwt	R 2·0 to 13·00
do mixed do	R10·00 to 11·50
Indian do	R7·00 to 10·50
do Cleaned do	R8·00 to 13·00
Sapanwood per ton	R47·50 to 50·00
Kerosene oil American per cases,	R7·00 to 7·25
do bulk Russian, per tin	R3·12 to 3·15
do Russian per cases	R[illegible]·50 to 6·75
Nux Vomica per cwt	R2·00 to [illegible]·50
Croton Seed per cwt	R2 ·00 to 22·00
Kapok cleaned f o b per cwt	R24·00
do uncleaned do	R5·[illegible]
Plumbago per ton, according to grade: Large lumps	R300·00 to 700·00
Ordinary size lumps	R250·00 to 650·00
Chips	R150·00 to 450·00
Dust	R60·00 to 300·00

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 29th Oct. 1900.

Cardamoms:—

All round parcel, well bleached	per lb.	R1·70
Do. dull medium	do.	1·35
Special assortment, 0 and 1 only	do.	1·85
Seeds	do.	1·60

Cinchona Bark:—
Per unit of Sulphate of Quinine 11c—For 1½ to 3 o/o

Cinnamon :—

Ordinary assortment	per lb.	59c.
Nos. 1 and 2 only	per lb.	64c,
Nos. 3 and 4 only	per lb.	54c.

Cinnamon Chips :—
Per candy of 560 lb R95·00

Cocoa :—

Finest estate red; unpicked per cwt	R60	Very scarce.
Medium do do	R54	
Bright native, unpicked and undried	R52	
Ordinary do do do.	R15	

Coconuts—(husked).

Selected per thousand	R48·00
Ordinary ,,	R38·00
Smalle ,,	R29·00

Coconut Cake—
Poonac in robins f. o b. per ton R82·50
Do in bags R60·00

Coconut (Desiccated).
Assorted all grades per lb. 14½c

Coconut Oil—
Dealers' Oil per cwt. R14·25
Coconut Oil in ordinary packages, f. o. b. per ton R322·50

Coffee.—
Plantation Estate Parchment on the spot per bus.—None.
Plantation Estate Coffee f.o.b. (ready) per cwt - None.
Native Coffee, f.o.b per cwt.—None.

Citronella Oil—
Ready do per lb. 65c.

Copra—

Boat Copra per candy of 560 lb.				R45 00
Calpentyn Copra	do	do		R45 00
Cart	do	do	do	R41·00
Estate	do	do	do	R45·50

Croton Seed per cwt none

Ebony—
Sound per ton at Govt. depot—R205.
Inferior R155. Next Govt. sales on Dec 3rd.

Fibres—

Coconut Bristle No 1 per cwt		R10·50
Do ,, 2 ,,		none
Do mattress ,, 1 ,,		4·00
Do ,, 2 ,,		3·00
Coir Yarn, Kogalla ,, 1 to 8		18 00
Do Colombo ,, 1 to 8		16 00
Kitool all sizes		38·00
Palmyrah		16·00

Pepper—Black per lb 28c.

Plumbago—

Large lumps	per ton	R700	Business passing.
Ordinary lumps	do	650	
Chips	do	450	
Dust	do	300	
Do (Flying)		150	

Sapanwood— per ton None

Satinwood (ordinary) per cubic ft. None

Tea—

	High Grown Average.	Medium Average.	Low Grown Average.
	cts	cts	cts
Broken Pekoe and Broken Orange Pekoe per lb	57	48	34
Orange Pekoe do	60	39	35
Pekoe do	45	37	32
Pekoe Souchong do	36	32	28
Pekoe Fannings do	37	24	20
Broken mixed—dust, &c. per lb	26	20	20

CEYLON EXPORTS AND DISTRIBUTION, FOR SEASONS 1899 AND 1900.

COUNTRIES	Tea. 1900 lbs.	Tea. 1899 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon. Bales lbs.	Cinnamon. Chips. lbs.
To U K. ..	90754577	83857219	6568	..	6568	18591	278258	720464	197754
,, Austria ..	11·07	7491	..	..	..	..	..	150	8080
,, Belgium ..	12855	13099	76	..	76	434	...	72·69	107462
,, France ..	249952	80470	68	...	68	78	3407	889·8	41780
,, Germany ..	28·448	301129	350	..	350	380	6297	5 9877	463641
,, Holland ..	2000	30211	..	..	..	...	...	750	1093·8
,, Italy ..	5032	1·471	..	..	..	...	519	147·00	136080
,, Russia ..	6927566	2719244	128	..	128	..	..	...	...
,, Spain ..	15130	14300	..	...	..	...	..	177500	53200
,, Sweden ..	56285	57·62	9	..	9	..	4051	2400	..
,, Turkey ..	22202	15674	..	..	..	..	212	...	10
,, India ..	67·693	442995	169	4	173	...	56712	5·0	.
,, Australia ..	137417·4	13210163	2344	..	2344	29	336	8840	19596
,, America ..	3581117	26·7·30	135	..	135	615	2641	229600	120400
,, Africa ..	161743	236·75	19	..	19	..	2315	10100	2408
,, China ..	1004367	1174743	24	...	24	82	1800	67400	...
,, Singapore ..	99029	57946	1	..	1	675	1340	..	..
,, Mauritius ..	700	80566	..	..	..	..	....	...	..
,, Malta ..	365923	226767	..	...	..	..	..	..	.
Total export from 1st Jan. to 29th Oct, 1900	117967635	105198952	9891	4	9895	20894	416469	2054038	1282475

COUNTRIES	Coconut Oil. 1900 cwt	Coconut Oil. 1899 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts No.	Plumbago. 1900 cwts.	Plumbago. 1899 cwts.	Fibre.	Ebony cwts.
To U K. ..	187221	1·6128	17470	7103402	2001	8728839	104647	155382	44614	280
,, Austria ..	7281	6173	25742	8·970	...	..	2	14	..	..
,, Belgium ..	13·6	1602	632·6	4·53·9	69985	50075	27456	34·43	15486	...
,, France ..			22140	17962	201	..	102	814	400	220
,, Germany ..	10373	6542	56651	962·61	61241	623259	42357	64181	11872	2045
,, Holland ..	..	..	..	130030	.	25050	912	5776	440	...
,, Italy ..	..	404	1500	..	..	7002	.	..	..	45
,, Russia ..	..	..	59135	..	...	1590	1004	1188	...	..
,, Spain ..	..	..	..	...	...	...	..	...	..	..
,, Sweden ..	...	206	4403	...	..	..	303	307	...	...
,, Turkey ..		..	1	...	..	2000	...	..	..	...
,, India ..	68669	53896	437	..	..	601750	1047	435	120	..
,, Australia ..	634	720	..	588057	42	...	1999	962	3539	27
,, America ..	48129	81695	..	1380850	...	..	116525	265557	6378	..
,, Africa ..	42	..	..	46115	...	1682538	..	..	2067	..
,, China ..	953	3184	20	84003	...	1503	144	127	...	..
,, Singapore ..	4059	22333	..	...	..	..	...	..	127	...
,, Mauritius ..	..	..	...	...	..	--	..	...	..	..
,, Malta ..	...	...	...	..	..	...	..	..	..	..
Total export from 1st Jan. to 29th Oct, 1900	328647	312884	250705	10810509	133470	11722606	296496	528986	84043	2617

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, October 3rd, 1900.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt.		
Zanzibar & Bombay White ,,	Good to fine	£6 a £7 10s
Zanzibar & Bombay Yellow ,,	Fair ,,	£5 15s a £6 2s 6d
Madagascar ,,	Dark to good palish	£6 a £6 5s
CAMPHOR, China ,,	Fair average quality	187s 6d
Japan ,,	,, ,, ,,	19(s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 3d a 2s 4d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s d a 3s 9d
	Seeds .	1s 6d a 2s
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish .	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	1s 10d a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4d a 4½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	37s 6d a 47s 6d
CINCHONA BARK.— lb. Ceylon	Ledgeriana Orig. Stem	3¾d a 6¾d
	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅝d a 5⅝d
	Renewed	5¾d a 7½d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	11d a 1s 8d
2nds	,, ,,	10d a 1s 7d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	3½d a 9d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar and Pemba	Good and fine bright	3½d a 3¾d
	Common dull to fair	3¼d a 3⅜d
Stems ..	Fair	1¼d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	100s a 118s
	Middling to fine mid .	85s a 97s 6d
	Low mid. and low grown	75s a 82s 6d
	Smalls	55s a 75s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	37s a 45s
COCOA, Ceylon ,,	Bold to fine bold	90s a 105s
	Medium and fair	8 's a 90s
	Native	7?s a 80s
COLOMBO ROOT ,,	Middling to good	12s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£18 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	30s a 40s
CUTCH ,, ,,	Fair to fine dry	28s a 35s
GINGER, Bengal, rough ,,	Fair	28s 6d
Calicut, Cut A ,,	Good to fine bold	80s a 100s
B & C ,,	Small and medium	35s a 72s 6d
Cochin Rough ,,	Common to fine bold	25s a 33s
	Small and D's	25s a 28s
Japan ,,	Unsplit	27s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red ...	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		67s 6d a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ..	23s a 35s
ASSAFŒTIDA ,,	Clean fr to gd. almonds	40s a 85s
	Ord. stony and blocky	s a 25s
KINO ,,	Fine bright	1s a 1s 3d
MYRRH, picked ,,	Fair to fine pale	65s a 75s
Aden sorts ,,	Middling to good	50s a 60s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 0¼d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS
INDIARUBBER, (Contd).		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s 3d
Mozambique ,,	Good to fine Ball ...	2s 8d a 3s 6d
	Ordinary to fair Ball..	2s a 2s 10¾d
	Low sandy Ball ..	1s 3d a 1s 7d
	Sausage, fair to good .	2s 6d a 3s 3d
	Liver and livery Ball	2s 4d a 2s 1½d
Nyassaland ..	Fair to fine ball	3s 1d a 3s 1¾d
Madagascar ,,	Fr to fine pinky & white	3s a 3s 3d
	Fair to good black .	2s a 2s 10d
	Niggers, low to fine ..	11d a 2s 4d
INDIGO, E.I. ,,	Bengal--	
	Shipping mid to gd violet	3s 7d a 4s 6d
	Consuming mid. to gd.	3s a 3s 6d
	Ordinary to mid.	2s 9d a 3s 3d
	Mid. to good Kurpah	2s 4d a 3s
	Low to ordinary	2s a 2s 3d
	Mid. to good Madras	1s 7d a 2s 6d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 4d a 2s 6d
Bombay & Penang ,,	110's to 65's	11½d a 2s 3d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable	6s
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	3d
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1/0½d
ORCHELLA WEED—cwt.		
Ceylon ,,	Mid. to fine not woody	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER - (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	6¼d a 6⅜d
Singapore	Fair	6¼d a 6⅜d
Acheen & W. C. Penang	Dull to fine	5¾d a 6¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	3.s a 40s
	Middling to good small	2 s a 32s
chips ,,	Dull to fine bright ..	10s a 20s
dust ,,	Ordinary to fine bright	s a 0s
SAFFLOWER ,,	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... .	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ..	4 a £8
SAPANWOOD Ceylon ,,	Fair to good .	£5 a £5 10s
Manila ,,	Rough & rooty to good	4 10s a £5 15s
Siam ,,	bold smooth	7
SEEDLAC cwt.	Ord. dusty to gd. soluble	51s 6d a 59s 6d
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair middling medium	4d a 5¼d
	Common dark and small	¼d a 5½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	
	D's and B's	£4 a £5 2s 6d
	Small ...	
Mergui ,,	Small to bold ..	£5 12/6 a £7 10s
Mussel ,,	Small to bold ..	8s a £2 10s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	15s a 16s
per cwt Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 24s
TURMERIC, Bengal cwt.	Fair	28s nom.
Madras ,,	Finger fair to fine bold bright	25s a 27s 6d
Do. ,,	Bulbs ..	20s a 21s
Cochin ,,	Finger .	24s
	Bulbs ..	7s 6d
VANILLOES— lb.		
Mauritius ... 1sts	Gd. crysallized 3½ a 9 in	17s 6d a 27s
Bourbon ... 2nds	Foxy & reddish 4½ a 8 ,,	15s a 2 's
Seychelles 3rds	Lean and inferior ...	10s a 13s 6d
VERMILION lb.	Fine, pure, bright ...	3s 3d
WAX, Japan, squares cwt	Good white hard ...	33s 6d

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

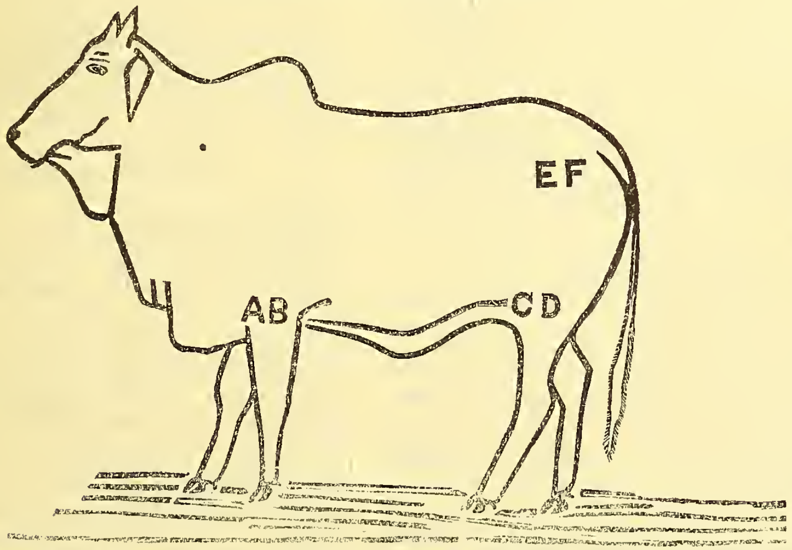
Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for November :—

Vol. XII.] NOVEMBER, 1900. [No. 5.

THE BRANDING OF CATTLE.

(Continued from last number.)



SPEAKING of the deterioration of hides, some years ago a letter was addressed by the London Chamber of Commerce drawing the attentio[n] of cattle owners to the reduction in the price of hides caused by carelessness in branding cattle, and suggested the possibility of a distinctive mark being made on the horns and hoofs of animals. This latter suggestion I consider unsatisfactory, for obvious reasons, in a country where the technicalities involved in the art of cattle stealing are so well understood. An Australian leather merchant went the length of inserting an illustration showing brands placed on inferior parts of the hide, with an announcement headed

important to stock owners, offering to give three shillings in advance of the market rates for hides not branded on the prime parts, the parts recommended being the thigh, upper arm, neck and cheek.* If cruelty is to be avoided and at the same time the commercial value of the hides is not to be depreciated, I consider the thigh and the upper arm the most suitable places, but I cannot give my support to branding on the cheek or neck. I have already given it as my opinion that the thigh and croop are the best places for branding and as a compromise with those who are anxious for the value of the hide I am so far prepared to modify my recommendation and join issues with them, as to consent to substitute the upper arm for the croop. Let these two places then—the thigh and the upper arm—be fixed upon as the most suitable on all grounds for branding for identification. The branding might commence at the upper arm, and if the space available is not sufficient it might be continued on to the thigh, and provided even these two places do not suffice, the croop might be included as a *dernier ressort.*

I have yet another suggestion to make, and that is that owners of stock should possess a branding instrument in which the initials of the owner, or any other selected letters or marks, should be designed in iron, so that the letters &c. might be of uniform size and conveniently impressed on the body by means of a handle to which the connected letters should be attached. That native blacksmiths are quite able to work out any design or initials in iron is evidenced by the fact that the Government Dairy branding iron representing the royal crown, and other irons representing initials, have been made by ordinary blacksmiths with no special qualification for the work. Such irons as I have referred to should not cost on an average more than R1. If owners of cattle are compelled to produce their branding irons, the design of which should be registered with an appointed village authority, who should perform the duties of an inspector of brands (an office which exists in some countries) it would be a great deterrent to cattle stealing.

III. Branding for Artistic Effect.

Branding with this object in view is cruelty pure and simple, without any shread of commonsense or humanity to recommend it. The man whose eye is pleased by artistic brandmarks must be put down as the product by a low state of civilization. The representations for artistic effect vary in design and magnificence. They are sometimes geometrical, sometimes floral, and sometimes representative of mythological deities, or symbolize supernatural influences. There should be no half measures in dealing with this inhuman form of the decorative art, and summary punishment should be meted out to those who practise it.

IV. Branding for Concealment of Theft.

It is by no means uncommon to hear of the brandmarks on stolen cattle being altered with the object of defying detection of the theft. These alterations are generally done under the plea of therapeutic or artistic branding, and in some instances are very skillfully carried out. Let us, for purposes of illustration, suppose that a particular bull bears three branded letters which are disposed of as follows: මු for Mullegama on the thigh, ක for Kalu on the abdomen, බ for Banda on the shoulder, and that the owner Mullegama Kalu Banda loses the animal. When the bull is found in the possession of the cattle lifter (by name Kiri Banda) the letter මු standing for Mullegama is entirely disguised by a highly ornamentative mythological design, and the necessary addition is made above the letter ක to alter it into කි, so that the initial of Kalu Banda becomes that of Kiri Banda. It requires expert knowledge to trace the difference between an old and recent brandmark, and very often it is quite impossible to make the distinction for there are ways and means of making new marks appear old. But if my recommendation that the possession of a branding iron with a specific design of letters or figures or marks be made compulsory, and the additional precaution enforced of having these brandmarks registered, two objects will be served, for both the pain of branding and the possibility of cattle thieving will be minimised. When the unlettered villager starts practising writing his initials with a hot iron, like a school boy at his first copy-book, one can imagime the slow torture that many of our dumb friends are put to. Now this torture would be practically absent and at the same time there will be no latitude for increasing the dimensions in length, breadth, height and thickness, or the artistic effect of the lettering.

In view of the fact that both therapeutic (so-called) branding and branding for artistic effect are used as a blind for the concealment of theft, there is all the more necessity for prohibiting cruelty to animals practised on these excuses.

* [I am informed by a local authority that the loss on Ceylon hides due to depreciation on account of branding may be put down at two pence per pound.]

OCCASIONAL NOTES.

The following are the references to agricultural matters in the Governor's speech at the opening of the new Session of the Legislative Council on the 18th October:—The Commission which I appointed in January, 1899, under the presidency of Mr. Justice Lawrie, to inquire into and report on the advisability of establishing a Department of Agriculture, reported on 31st October, 1899. A majority of the Commission recommended the appointment of a Director of Agriculture to be assisted by an advisory board, and that there should be attached to the Department of the Director of the Royal Botanic Gardens, a Mycologist, Agricultural Chemist, Entomologist, and Veterinary Surgeon. A majority also recommended that the Irrigation Department should be combined with the new Department. After careful consideration in Executive Council of this report, and also of the views expressed by Messrs. Willis and Ferguson and others, I decided that the time had not yet come when the appointment of a Director of Agriculture would be justified, but that the formation of an unpaid Central Board on the same lines as the Central Irrigation Board, and of Provincial Boards under the Government Agents

would be desirable. The suggestion that a Mycologist, Entomologist, and Agricultural Chemist should be attached to the staff of the Royal Botanic Gardens was approved, and has been carried out. In December last a Committee composed of the Hon. Messrs. Taylor and Ellis, the Director of the Royal Botanic Gardens, and the Director of Public Instruction were appointed to consider the suggestion that the Agricultural School should be transferred to Kandy and placed under the direction of the Director of the Royal Botanic Gardens. The Committee recommended that the existing school be closed at the earliest possible date, and the buildings for the present be left in the charge of the Director of Public Instruction, and that the land be sold for building sites. They also recommended that if Government contemplated the addition to the Royal Botanic Gardens of an experimental farm or garden, the Agricultural School should be transferred to Peradeniya and be established there as a part of the experimental garden. This proposal has been accepted by Government, and Mr. Willis has submitted a scheme, now under consideration, for acquiring land suitable for the purpose at a cost which it is hoped will be largely covered by the sale of the land adjoining the existing school at Colombo.

There has been a good deal of correspondence, in the local press, as to the advisability of manuring tea with Sulphate of Ammonia. We are not much in favour of using the more soluble artificial manures in perennial cultivation especially in the wetter districts and steep hillsides, mainly owing to the fact that the practice is not to be recommended from an economical point of view; but we are far from saying that there is any positive harm to be feared—as some would make out—by the use of this fertilizer, if a due proportion of manures supplying the other important ingredients of plant food is also given to the plant. There is much harm done by the indiscrimmate use of special manures without seeing that at the same time that the other concomitants of plant food are also placed at the disposal of the plant. The reason of so doing is obvious enough and needs no further elucidation.

We are again growing lucerne from seed kindly supplied by Mr. J. W. Mollison, Deputy Director of Agriculture, Bombay Presidency. Two varieties were sent us, viz., English seed and Poona seed. Lucerne is grown as a profitable crop in India where it is used as hay for horses. Its ash contains six times as much lime as ordinary grass and the plant therefore requires a good deal of lime in the soil. It is thus particularly useful for feeding young growing stock. The following is the composition of lucerne hay: Moisture, 14·3; ash, 6·3; Albuminoids, 14·7; Fibre, 33·7; Starch, Sugar, &c., 28·5; Fat, 2·6. Of these the following proportions are put down as "digestible":—Albuminoids, 9·6; Fibre, Starch, Sugar, &c., 28·9; and Fat, 1·0. Lucerne hay contains twice as much flesh formers as wheat and oat hay do, bout the same amount of fat, but two-thirds the mount of digestible Starch, Sugar, and Fibre.

"Coffee Tea" would appear to be "queer mixture," but it is really a "tea" (*i.e.*, an infusion) of prepared coffee leaves. It is said to be used by the Sumatrans, who practically live on boiled rice and coffee tea, doing an immense amount of work and undergoing much exposure to the weather. It is reported to give "immediate relief to hunger and fatigue." The leaves and twigs are "roasted" over a smokeless fire, then rubbed by hand into a coarse powder in which form it is ready for use. The *Chemist* is quoted to prove that coffee tea contains all the characteristics of the bean while richer in theine. The Editor of the *Queensland Agricultural Journal* pronounces coffee tea as "a pleasant refreshing beverage." For ourselves we confess a partiality for "tea tea" (not that we have tasted any other) particularly when prepared from Ceylon leaf.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF OCTOBER, 1900.

1	Monday	·57	19	Friday	·94
2	Tuesday	Nil	20	Saturday	·61
3	Wednesday	Nil	21	Sunday	1·35
4	Thursday	·03	22	Monday	Nil
5	Friday	·01	33	Tuesday	Nil
6	Saturday	Nil	24	Wednesday	Nil
7	Sunday	·01	25	Thursday	Nil
8	Monday	Nil	26	Friday	Nil
9	Tuesday	·03	27	Saturday	Nil
10	Wednesday	·04	28	Sunday	·32
11	Thursday	Nil	29	Monday	·85
12	Friday	·61	30	Tuesday	·11
13	Saturday	3·50	31	Wednesday	·15
14	Sunday	·50	1	ursday	Nil
15	Monday	·49			
16	Tuesday	·41			
17	Wednesday	·87		Total	11·85
18	Thursday	1·02		Mean	·38

Greatest amount of rainfall in any 24 hours on the 13th Oct., 3·50 inches.

Recorded by Mr. C. Drieberg.

GRAFTING THE MANGO.

(*Concluded.*)

When the young shoots which have sprung from the grafts have ripened, the old wood projecting beyond the graft should be sawn off close at the base of the new growth. As the new wood continues to grow, it will cover up the entire end where it was sawn off.

To remove a section of the bark for grafting, first make a cut through the bark with a small saw at the two ends, then take a broad chisel, the level side being set towards the piece to come out, and give it a smart blow. Now turn the chisel over to the opposite side, repeat the blow, and the piece will fly out if the sap is at all active. Should the piece fail to come off, put the chisel into the saw cuts and raise gently. If it still sticks cut further into the original saw cuts, split out the wood with the bark adhering, and whittle the wood out of the section

that has been removed, by means of a sharp chisel, without injuring the bark. Do not be afraid of injuring your good tree by removal of pieces of bark; the wound will heal in twelve months' time, and instead of hurting, the process may make the tree more fruitful.

Apropos of this subject of making the mango fruitful, the writer of the paper from which we are making these notes, (Mr. Horace Knight) is led to conclude from his experience that root pruning rather than branch pruning is to be preferred. The object is obtained by checking the flow of sap underground, instead of mutilating the trunk and limbs. Of course root pruning would not apply to trees which have become barren through neglected cultivation, impoverished soil, or through any foreign agencies affecting the tree above ground.

The object of grafting a number of good (different) varieties on one stock, is to get a good "blend" by cross-fertilization, as the flower spikes of the different varieties being in close proximity to each other, the chances of getting a new type of fruit, combining the good qualities of the different varieties, are much more favorable than if the individual varieties grew at some distance apart as separate trees. When the seedling from the tree bearing the grafts fruited, this new fruit tree will be available for future grafting or budding.

We now possess fibreless fruits, which, while extremely handsome are almost tasteless, while others are full flavoured but uninviting while some have size though not flavour in their favour. Here is where skill and judgment are required, viz., to unite all the described qualities in one fruit.

SIR JOHN LAWES—HIS LIFE AND WORK.*

By the death of Sir John Lawes on the last day of July, 1900, Agriculture loses one of the greatest benefactors it has ever had.

Born in December 28th, 1814, in the old Manor-house at Rothamsted, Herts, where nearly 86 years later he died, the deceased baronet was the son of the late Mr. John Bennet Lawes, whom he succeeded in the paternal estates in 1822, at the early age of eight. After leaving Eton he proceeded to Oxford, and passed some time at Brasenose College. His inclinations, however, were not much in the direction of classical study, and he shortly found himself in more congenial surroundings in the chemical laboratory of Dr. Anthony Todd Thompson, at University College, London. On entering into possession of his hereditary property at Rothamsted in 1834, he at once began experiments upon plants growing in pots, the investigations being subsequently extended to the field. One of the most striking results observed in these early days was the excellent effect produced upon the turnip crop by dressing it with mineral phosphates that had been treated with sulphuric acid. At once grasping the importance of this discovery, Mr. Lawes, as he was then, obtained in 1842 a patent for the manufacture of superphosphate, and thus laid the foundation of a great industry.

In the following year was taken the decisive step of establishing at Rothamsted a properly equipped agricultural experimental station.

Simultaneously, Mr. Lawes secured the co-operation of a young chemist, Dr. (now Sir) J. Henry Gilbert, and the association which was thus commenced fifty-seven years ago has been attended by the happiest results, as the numerous scientific memoirs that have issued year after year from Rothamsted amply testify.

Two main lines of inquiry have been followed, the one relating to plants, the other to animals. In the former case the method of procedure has been to grow some of the most important crops of rotation, each separately, year after year, for many years in succession on the same land, without manure, with farmyard manure, and with a great variety of chemical manures; the same description of manure being, as a rule, applied year after year on the same plot. Experiments on an actual course of rotation, without manure, and with different manures, have also been made. Wheat, barley, oats, beans, clover and other leguminous plants, turnips, sugar beet, mangels, potatoes, and grass crops have thus been experimented upon. Incidentally there have been extensive sampling and analysing of soils, investigations into rainfall and the composition of drainage waters, inquiries into the amount of water transpired by plants, and experiments on the assimilation of free nitrogen. Lest any misunderstanding should arise as to the attitude taken up concerning the last-named subject, it may be useful to quote the following from the Memoranda of the Rothamsted Experiments, 1900 (p 7):—Experiments were commenced in 1857, and conducted for several years in succession, to determine whether plants assimilate free on uncombined nitrogen, and also various collateral points. Plants of the gramineous, the leguminous, and of other families, were operated upon. The late Dr. Pugh took a prominent part in this inquiry. The conclusion arrived at was that our agricultural plants do not themselves directly assimilate the free nitrogen of the air by their leaves.

In recent years, however, the question has assumed quite a new aspect. It now is—whether the free nitrogen of the atmosphere is brought into combination under the influence of micro-organisms, or other low forms, either within the soil, or in symbiosis with a higher plant, thus serving indirectly as a source of nitrogen to plants of a higher order. Considering that the results of Hellriegel and Wilfarth on this point were, if confirmed, of great significance and importance, it was decided to make experiments at Rothamsted on somewhat similar lines. Accordingly, a preliminary series was undertaken in 1888; more extended series were conducted in 1889 and in 1890; and the investigation was continued up to the commencement of the year 1895. Further experiments relating to certain aspects of the subject were commenced in 1898, and are still in progress. The results have shown that, when a soil-growing leguminous plant is

*Abridged from a paper by Dr. Fream in the R.A.S.E. Journal.—Ed. *A.M.*

infected with appropriate organisms, there is a development of the so-called leguminous nodules on the roots of the plants, and, coincidently, increased growth and gain of nitrogen.

The experiments with farm animals began in 1847, and have been continued at intervals nearly to the present time. Amongst the points that have been investigated are the following:—

1. The amount of food, and of its several constituents, consumed (*a*) in relation to a given live-weight of animal within a given time, (*b*) to produce a given amount of increase in live-weight.

2. The proportion and relative development of the different organs, or parts of different animals.

(3.) The proximate and ultimate composition of the animals in different conditions as to age and fatness, and probable composition of their increase in live weight during the fattening process.

4. The composition of the solid and liquid excreta (the manure) in relation to that of the food consumed.

5. The loss or expenditure of constituents by respiration and the cutaneous exhalations—that is, in the mere sustenance of the living meat—and manure-making machine.

6. The yield of milk in relation to the food consumed to produce it; and the influence of different descriptions of food on the quantity, and on the composition of the milk. Incidentally, the results obtained from the inquiries just enumerated have furnished data essential to the consideration of such problems as (*a*) the sources in the food of the fat produced in the animal body; (*b*) the characteristic demands of the annimal —for nitrogenous or non-nitrogenous constituents of food—in the exercise of muscular power, (*c*) the comparative characters of animal and vegetable food in human dietaries.

Amongst the field experiments there is, perhaps, nothing of more universal interest than the field —known as Broadbalk Field—in which wheat has been grown for fifty-seven years in succession, without manure, with farmyard manure, and with various artificial manures. The results show that, unlike leguminous crops such as beans or clover, wheat may be successfully grown for many years in succession on ordinary arable land, provided suitable manures be applied, and the land be kept clean. Even without manure, the average produce over forty-six years, 1852-1897, was nearly thirteen bushels per acre, or more than the average yield of the whole of the United States of America, including their rich prairie lands—in fact, about the average yield per acre of the wheat lands of the whole world. Mineral manures alone give very little increase, nitrogenous manures alone considerably more than mineral manures alone, but the mixture of the two considerably more than either separately. In one case, indeed, the average produce by mixed mineral and nitrogenous manure was more than that by the annual application of farmyard manure; and in seven out of the ten cases in which such mixtures were used the average yield per acre was from over to two to over eight bushels more than the average yield of the United Kingdom (which is rather less than twenty-eight bushels of 60 lbs. per bushel) under ordinary rotation. It is estimated that the reduction in yield of the unmanured plot over the forty years 1852—1891, after the growth of the crops without manure during the eight preceding years, was, provided it had been uniform throughout, equivalent to a decline of one-sixth of a bushel from year to year due to exhaustion—that is, irrespectively of fluctuations due to season. It is related that a visitor from beyond the Atlantic, talking to Sir John Lawes in Broadbalk Field, said, "Americans have learnt more from this field than from any other Agricultural experiment in the world."

Another field experiment of singular interest is that relating to the mixed herbage of permanent meadow, for which seven acres of old grass land were set apart in Rothamsted Park in 1856. Of the twenty plots into which this land is divided, two have been left without manure from the commencement, two have received ordinary farmyard manure continuously, whilst the remainder have each received a different description of artificial or chemical manure, the same being, except in special cases, applied year after year on the same plot. No one can inspect this field during the growing season without being impressed by the striking evidence it affords of the influence of different manurial dressings. So much, indeed, does the character of the herbage vary from plot to plot that the effect may fairly be described as kaleidoscopic. Repeated analyses have shown how greatly both the botanical constitution and the chemical composition of the mixed herbage vary according to the description of manure applied. They have further shown how dominant is the influence of season. To such an extent, it may be added, is this the case that a given quantity of gross produce of the mixed herbage may be one thing in one season, and quite another in another season, both as to the proportion of the different species composing it, and as to their condition of development and maturity.

(*To be concluded.*)

SOME BIBLE PLANTS OF CEYLON.

Another tree familiar enough in Ceylon gardens is the Pomegranate (*Punica granatum*). Its fruit is mentioned in Scripture under the name of *Rimmon.* The tree itself corresponds with the *Rhoa* of Dioscordus and the *Side* of Homer. The pomegranate is a native of Asia and was common in Palestine. Moses, speaking of the Promised Land, calls it "a land of wheat and barley and vines, and fig-trees and pomegranates" (Deut. viii. 8), while the spies who searched the land are said to have "brought of the pomegranates and figs" (Num, iii. 23), Several towns and villages bore the name of Rimmon or pomegranate (see. Josh. xv. 32; 1. Chrou. iv. 32; vi. 77; Zech. xiv. 10). Saul tarried under a pomegranate tree (1 Sam. xiv. 2) [illegible] the prophets Joel and Haggai refer to the po[illegible]granate (Joel. i, 12 Haggai ii. 19). The tree must have grown in Egypt during the time of the Israelites' sojourn there, for when in the wildness of Zin, they lamented the loss of the pomegranate (Num. xx. 5).

The pomegranate (the *Pomum granatum* or grained apple of the Romans) belongs to the natural order Myrtaceae or the myrtle family.

The fruit is made frequent mention of in the Songs of Solomon, iv. 3, 13; vi. 7, 11; vii. 12 and viii. 2).

The fact that it was a favourite fruit in past times is evidenced by the fact that models of the fruits were used to adorn the capitals of pillars (see 1 Kings vii. 18, 20, 42; 2 Kings xxv. 17; 2 Chron. iii. 16, and iv. 13; Jer. lii. 22), while the common pattern of embroidery work for the border of the high priests' blue robe and ephod consisted of pomegranates with golden bells between them. (See. Exod. xxviii. 33, 34; xxxix. 24-26.)

Besides the use of the fruit for its refreshing pulpy seeds, various parts of the tree are used medicinally, especially the root bark and rind of the fruit for tape worm. The latter is also used for tanning the finer kinds of leather.

MULCHING.

Mulching is done with more than one object. It is done to protect the roots of plants from injury caused by freezing and thawing and to keep the soil at as even a temperature as possible, and, secondly, it is carried on in hot weather to prevent evaporation of moisture from the surface of the soil.

All fruit trees, says the *Fruit Grower*, in an interesting article on Mulches and Mulching, are the better if properly mulched, as also newly-transplanted trees. Old straw and forest leaves will do for the purpose, or any coarse litter may be used, even to fresh straw and coarse manure, and if nothing else is available, fine soil or ashes can be applied. In the case of small crops grown over any extent, the whole surface of the soil should be protected, while in the case of trees a circle of at least 3 feet in diameter around the stem should on an average be covered—the size of the tree of course determining the extent of the mulching. In some soils mulching is of greater benefit than others, but as a rule it will be found profitable to mulch all small trees and newly-transplanted fruit trees.

But if mulching is not properly performed it might also do harm, and we would, therefore, quote the following passage from the *Fruit Grower* for the benefit of our readers, in order that errors might be avoided in carrying out this very useful operation of practical agriculture:—

It is as well to point out one or two things with regard to the operation of mulching in dry weather, as there is no doubt that its influence and efficiency are greatly misunderstood. The one great reason why mulches are applied in the summer months of the year is to prevent evaporation of moisture, as it is taken for granted pretty generally that in hot spells the damp nature of the surface soil is changed to dryness by the action of the sun. It is argued, as a rule, that the sun dries out the top layer of earth, and as the result the growing crops suffer. Therefore, these reasoners continue, we must keep the soil damp by the use of a damp or moisture-laden material, such as stable manure, and it is piled on thickly around the stems and over the roots of fruit trees and bushes. Now, the argument does not meet our views, and we shall show that it is not the damp material that is needed, for a layer of any dry material will secure the desired end in a far more efficient manner. Have you not noticed that when the old stable manure mulch has been applied close up to the stems of the ordinary pea plants in rows, that mildew generally results from the application? We have again and again, and there can be no doubt that the hot, moist condition brought about by its use at the time referred to is generally attended with these results. This being so, the application must be taken to be a wrong one. We remember testing this method once on twice with sweet peas, treated as ordinary garden peas. We read that "the flowering period of sweet peas will be considerably prolonged by the application of a thick mulch of stable manure during the hot weather," and we followed out this suggestion just to prove that it was unsound. Within a few days of the mulch being given we found the mildew running up the stems, and it was worse where the manure rested against them. Peas of any kind are not likely to be improved by mildew, however slight the attack may be. Now what we want to point out is that if the grower wants to prevent evaporation, he can do so by using a supply of dry ashes of any kind, and that dampness in this respect is not a consideration. By the use of a dry material we not only prevent evaporation, but do so in a manner which prevents any injury whatever to the plants or trees treated. The layer of dry material coming, as it will when distributed, between the air and the earth prevents evaporation and is a clean and natural process compared to the use of manure as some advise. It is an error to suppose that wet damp grass, manure, cut vegetable growth, or wet leaves, are better than a dry material for retarding moisture evaporation from the soil. If it is put to the test it will be seen that the dry material is the best and most effective of all, and though at first sight it appears strange to argue thus, yet it is true. A dry mulch will do wonders in this respect, and the more it is used in hot spells the better, particularly when it replaces the old stable manure mulch.

TOMATOES.

The following notes are culled from an article on "The Tomato and its Culture" in *Garden and Field*:—

Raising Plants.—Procure a small shallow box, such as a blacking box, or the top four inches of a kerosene tin, or half a kerosene tin cut on the flat, or a six inch flower pot, according to the number of plants you want to raise. If the box be four inches deep put quite one inch of drainage. Broken brick, gravel or sifted cinders do well. Over these put a thin layer of coconut fibre, fine dry grass, or such material, and fill the box with a mixture consisting half and half of rotten leaves and sand, or half sand, quarter old rotted cowdung and quarter fine free soil. Moisten this thoroughly without

soaking it, with warm water, and sow the seeds one inch apart. See that the soil does not get dry. When the plants are two inches high, or have four leaves besides the seed leaves, they should be pricked out and transplanted into three inch pots (for a limited number) or put three inches apart in boxes or in a bed.

From here they are finally planted out as soon as they are found to have developed into sturdy plants, even up to the time they are 12 or 15 in. high with shortly stalks as thick as one's finger, and with crown blossoms and side branches.

The tomato does not require a very great supply of water, but it must have enough to sustain its health and vigour of vegetation. For preference, rich, warm, mellow, loamy soil is best, but with care the plant could be grown in almost any soil. For early crops a warm, well-drained soil and a sunny aspect, sheltered from the south, south-west and south-east are necessary. The land should be worked deeply and manured well, preferably with both cattle manure and artificial fertilizers. The Americans find that too rich a soil, or one which is highly fertilized is not desirable, such soils tending to produce a too rapid and too large growth of the vine, thus partially defeating the object in view, viz., a quick growth of the plant and a rapid developement of fruit. The active fertilizing matter should be concentrated within the reach of the roots. A soil not naturally very poor, in which the added fertility may be provided both as to place and time, as will best serve the purpose, is most desirable. A light sandy loam high and well drained is perhaps the ideal for tomatoes, provided the proper nourishment is given from artificial sources.

The plants are best set four feet each way. A well-proved American practice is to apply 400 lbs. of Superphosphate and 200 lbs. of Potassium chloride per acre and thoroughly harrow it in when the plants are being set out, from 100 to 150 lbs. of nitrate of soda per acre are applied to the places where the plants are to stand. Three or four weeks later another dose of 100 to 150 lbs. nitrate of soda is given, the nitrate being mixed with very fine soil to ensure proper distribution. In this way the plants are in a position to readily make use of the nitrogenous manure and respond splendidly to the treatment. The soil should be well worked till the plants begin to cover the ground.

Local growers seem to fight shy of artificial manures, and appear to think that they will harm tomatoes, but it is time they took the hint as to the use of artificials from American cultivators who are such successful cultivators of the plant. In New Jersey, the average yield for 2,500 acres under tomatoes is given as six tons per acre, though 12 and 15 tons per acre have been gathered from large tracts in some parts. With such experience surely credit should be given to the Americans for a knowledge of how to manure the tomato. At the rate given per acre, the proportion of artificial manures required for the small plots generally found in vegetable gardens should not cost more than a trifle.

In getting out long stemmed plants it is best to bend down the length of the stem and bury it also, leaving the crown of the plant to come out perpendicularly from the ground.

CULTIVATION OF THE ARECANUT IN BOMBAY PRESIDENCY.

[A note by Mr. J. W. Mollison, Deputy Director of Agriculture, Poona.]

(*Concluded.*)

The bunches on a tree ripen unequally. the lowest bunch first, the uppermost last. Moreover, in the same bunch some nuts may be ripe and yellow and others unripe and more or less green. The ripe nuts are much the same size and shape as small apples. The outer skin is yellow, smooth, and shining. The inner husk is very fibrous and not easily removed. The first process in preparing for market is to remove the husk. This is done very deftly by means of the *hattigatti*. It is an implement like a sickle. It is fixed at the heel end of its blade securely into a hole near one end of a plank somewhat in the same way as if it were fixed in a handle. The back of the blade at the bent part rests in order to steady it in a notch in the plank. The blade of the sickle is presented in an upward position opposite to the workman. He sits on the other end of the plank. The plank is about 3 feet long, 1 foot wide and 1½ inches thick. The husk from each nut is cut out in sections. A nut is grasped in the palm of the hand and pressed against the point and blades. The husk is thus cut through to the nut, then by leverage a section of husk is jerked off. The nut with remnant of husk is turned in the hand so quickly that to an onlooker the action appears involuntary, and another section of the husk is removed like the first. With four or five movements of this sort the whole husk is removed. A clever workman can husk 5,000 nuts per day, but 3,000 is nearer the average. The contract rate for the work is one anna per 1,000 with two or three meals per day. The husked nuts are scraped free of fibre also by the *matti-gatti*. The process is essentially a scraping process and costs at contract rates 1½ to 2 annas per 1,000. The scraped nuts are next boiled for about two hours in fairly large copper pots. A handful of lime or of the ash of the bark of matti (*Terminalia tomentosa*) is added to the water. The presence of lime causes the water to become red or red-brown in colour as the boiling proceeds. The water also becomes thick with a resinous extract from the nuts. The boiling is continued until the eye-bud or germ of growth from each nut comes out or becomes absorbed in the extract. The nuts are removed by a long-handled ladle (zrāa). The ladle has perforations in its bowl which allow the extract to drain from the nuts back into the pot. The extract is again and again used for boiling fresh supplies of nuts, pure water as required being added from time to time to prevent the decoction becoming too thick

and concentrated. The extract after being used for boiling repeatedly becomes deep red-brown and thick. It is then emptied into another broad-mouthed vessel which is placed under full exposure to the sun. The mass by evaporation thickens and areca catechu or *kossa* is the product. The nuts after boiling are dried in the sun and sorted into three kinds, *chikni*, *betta*, and *gotu*. *Chikni.*—These are unripe fruits got mostly from the upper unripe bunches of the tree. They become flat when boiled, and when cut are light coloured and agreeably flavoured. They sell by retail at a high price, but by the growers are uuually mixed with other sorts to ensure a satisfactory sale of the produce. These nuts after exposure to the sun are again soaked in the red extract, a basketful being immersed at a time. They are again exposed daily to the sun for four or five days, but are gathered up at night, otherwise they get dark coloured. The nuts are exposed to the sun in cane matting spread on a *mandap*. Sometimes bamboos or other means of support are placed over the inner court of the household, and the matting spread over this framework. The nuts when dry are ready for market and should be shining and bright-red brown in colour.

Betta.—These are ripe nuts. They are dried after the first boiling and then hand-rubbed with fairly thick extracts to which 3 or 4 per cent of lime has been added. This tends to deeper the colour. The process may have to be repeated two or three times. The colour becomes fixed by drying in the sun after hand-rubbing. When ready for market they are somewhat lighter coloured than *Chikni* and not so glossy or shining. They are rounder and larger.

Gotu.—These are fully ripe or overripe nuts. They are usually fairly well coloured by the first boiling and after exposure to the sun for several days are ready for market. The colour may be deepened and improved by the same means as described for betta. The three varieties are usually packed together by the cultivators in sacks. Sirisi and Kumta are the chief markets.

Ordinary prices for three varieties are:—

Chikni	R6 to R7	per maund of 48 seers	of 20 tolas
Betta	3 to 4	ditto	ditto
Gotu	2 to 2½	ditto	ditto

Betel palms are not much affected with disease. A borer does considerable damage. The borers cut a tunnel from the root upwards and in time reach to the growing top. The damage there done is so considerable that the top withers and wheu wind blows breaks off and falls to the ground.

ARTIFICIAL CHANGES OF PHYSICAL PROPERTIES OF SOIL.

(*Concluded.*)

We thus see that not only the structure of the soil but also its temperature may be affected by mechanical means. Change from separate grain structure to crumbly structure generally improves, though to a small degree, the heat conditions of a soil, principally by reducing evaporation. Rolling the soil is more effective because it increases the conductivity of the soil for heat, and therefore, under normal conditions of weather, raises the temperature of the soil. Loosening the surface of the soil by harrowing, hoeing, &c., results, on the contrary, in a decrease in the temperature of the soil. By covering the ground with dead matter (mulching) the temperature of the soil is increased or decreased according to the behaviour of the covering toward heat. If, for example, a thin layor of black material (coal dust, black clay slate, &c.,) is spread over the soil, the temperature of the soil rises to a considerable degree, and crops on soils so treated are accordingly benefitted. Although this process, for evident reasons, is not applicable to cultivation on a large scale, still with delicate plants, especially in horticulture, it may be used to advantage. Spreading a layer of sand or gravel over humus soils causes a rise in the temperature of the latter, and wholly or partially prevents the frequent night frosts which occur during spring in such soils. Mulching with dead organic matter (stable manure, straw, &c.,) may be used to lower the temperature of the soil during the warm portion of the year. By the same means, the influence of the temperature of the air is diminished, and the soil protected from all excessive changes in temperature. This is due to the fact that all the materials mentioned are poor conductors of heat. Allowing stable manure to remain spread out during the warm months on the surface of the soil for some time before it is worked into the soil may unfavourably affect the moisture of the soil. In the colder portion of the year, however, it may be beneficial on account of its influence in raising the temperature of the soil. Under such conditions, however, the covering of manure may exercise a harmful influence on fine-grained clay soils rich in humus by preventing the loosening effect of frosts, which is so important for such soils. Beneficial results may be obtained by thinly spreading a mulch in the late fall over fields occupied by perennial forage plants, thus protecting the plants against low, and especially changeable winter temperatures. As, however, such a covering retards warming of the soil, the undecomposed remains of the mulch should be removed as soon as the temperature begins to rise in the spring. Keeping in mind the fact that covering the soil in this manner retards warming in spriug, this practice may also be utilised to retard the blossoming of fruit trees, thus diminishing or preventing damage from late frost. If the ground surrounding the trunk is covered in spring with a heady layer of straw the temperature is kept low, and in consequence the amount of water received through the roots is small, so that the development of the leaves and especially the blossom is retarded for several weeks, or until the organs of reproduction are then in little danger of freezing. Finally, the practice of keeping fields fallow (*i.e.*, without crops) is a means of increasing the temperature of the soil during the warm season. When the rise in the temperature is accompained by an increase in the water content of the soil decomposition of organic materials is promoted,

and a greater or less quantity of plant food may be leached beyond the reach of the plants by heady rains.

CHILLIES.

In discussing the possibilities of Chili cultivation in North-East Australia, the *Queensland Agricultural Journal* furnishes a good deal of useful information on the subject :—

Why should not Queensland enter upon the production of chilies on a commercial scale? The capsicums grow luxuriantly in all parts of the coast country, and bear fruit almost all the year round. Their cultivation affords far less labour than the cultivation of cereals, sugar-cane, or, indeed, of any other farm crop except Sisal hemp. The plants should be set at a distance of 4 feet in the rows, and from 5 to 6 feet between the rows. They will grow on almost any kind of soil, but prefer a dry, rocky soil with sandy loam, containing some lime. It is difficult to arrive at a correct estimate of the yield of the dried capsicums from a well-grown shrub during the year. Some estimate the annual return at 2 lbs., others say that 3 lbs. and even 4 lbs. may be reckoned on. The selling price of dried chillies in the London market varies from £18 to £34 per ton according to quality—for instance, in April, 1899, fair red Zanzibar sold at 29s. 9d.; good red Japan at 33s, 6d. to 34s. per cwt. The present wholesale price in Brisbane for dried chillies is 1s. per lb., equal to £112 per ton. A sample of capsicums grown in the West Indies, dull and uneven in colour, was valued at 20s. per cwt. What is evidently required is an article bright in colour, even in quality, and possessing great pungency.

The Government Botanist has received a sample of large red, sweet capsicum dried in such a manner that the skin is perfectly transparent and the seeds inside are quite dry, and can be shaken like the dried peas in a "rattle-pod." We have no information as to how the specimen was dried, whether naturally or artificially, but the pod was certainly not opened previous to drying.

A consignment of capsicums prepared in this manner would, no doubt, bring a good price in the English market. Another enticing method of preparing chillies for export is to bottle the long red variety in a solution of salt and water. This preserves the shape and colour of the fruit, and gives it a very attractive appearance.

The Bulletin of the Botanical Department, Jamacia, says on the subject of chillies :—

"Pod peppers or capsicums, the fruits of *Capsicum annuum* and allied species, are a well-known spice and condiment. They are an indispensable ingredient in curries, and are largely consumed in the fresh and dried state and in pickles. Some forms of capsicum known as Bell peppers are entirely free from the acrid and burning pungency so characteristic of these fruits, and may be eaten cooked as a vegetable or in salads.

Chillies, Bird or Guinea Peppers, the fruit of the shrubby *Capsicum minimum* (usually much smaller than the preceding) grow generally in tropical countries. These are in chief demand in commerce. When thoroughly dried and pounded, and afterwards passed through a hand-mill and sifted, they are the principal source of the well-known Cayenne pepper.

It is estimated that about 100 tons of dried chillies are annually received into England from the West Indies and the East and West Coasts of Africa.

In the *Kew Bulletin* (1892, p. 88) the following information respecting chillies was given in an article on the Agricultural resources of Zanzibar, contributed by Sir John Kirk :—

"The small red peppers, or chillies, are largely grown in the more dry and rocky part of the Island, where the upheaved coal presents a honeycombed surface that favours the accumulation of rich soil in the crevices. The pods are picked when ripe, sun-dried, and packed in neat bags made of the split fronds of the *Hyphœne* palm for shipment. This is an industry that has sprung up within the last thirty years."

Zanzibar chillies, as they appear in the market in a dry state, are small, red, thin, carrot-shaped fruits about 1 inch in length.

The following further particulars are contained in a report on the spice and other cultivation of Zanzibar and Pemba (F. O. Report, 1892, Misc. Series, No. 226) :—

"The pepper plant growing in the island is *Capsicum minimum*, usually termed the 'shrubby capsicum,' and producing the bird's-eye chillies forming the basis of cayenne pepper. This is to be found in a small degree in every shamba, but the principal source from which the annual exports are derived is the eastern side of Zanzibar, and the cultivation here is chiefly in the hands of the Wahadinu people.

"Judging from observations made during my brief visit to this portion of the Island, east of Dunga, the chillie cultivation struck me as being of a very scattered nature, generally small isolated patches from half to 1 or 2 acres in extent, and combined with tobacco, tomato, pumpkins, &c. I regret my inability to quote the annual total exports, but I believe they are large, and an undoubted source of revenue. As the chillie is, as yet, the only product of any value grown in this less favoured portion of the island, I consider that this cultivation could be extended and that a little fostering care must be productive of much advantage, It is a cultivation easily carried on, and calling for no special trouble or skill, and the returns are certain and profitable. At present the people are so blind to their own interests as to purposely depreciate the value of this product. I understand, through fear of possible shortage by theft on the way down, owners actually damp the chillies before despatching, and it is often necessary, on their reaching the Government Customs godowns, to dry them as quickly as is possible as the only chance of saving them.

"Another variety of pepper (? *Capsicum annuum*) bearing a larger red and yellow pod is

also cultivated, but the produce from this is all consumed locally."

The latest account of Zanzibar chillies is contained in the report of Mr. Consul Cave, on the trade and commerce of Zanzibar, for the year 1897 (Foreign Office, 1898, No. 2129 Annual Series):—"The production of chillies has risen from 16,336 frasilas in 1896 to 17,698 frasilas in 1897, an increase of 77,670 lb. The average price was 2 dollars 37 cents per frasila, as against 2 dollars 57 cents per frasila during the previous year.* A better price than this could doubtless be obtained for Zanzibar produce if a little more care and attention were devoted to its cultivation and harvesting, but up to the present time it has been allowed to grow almost wild on the coral outcrop which covers the eastern portion of the island, and the slight personal discomfort which attends the handling of pods prevents the native from exercising any care in its picking and subsequent preparation for market. Attempts have lately been made to obtain a better sample on ground which has been specially cleared and prepared for the purpose, but the results are not yet to hand."

JAPANESE CHILLIES.

In a note on Recent Additions to the Museum of the Pharmaceutical Society (*Pharm. Journal*, 11th December, 1897), Mr. E. M. Holmes, F.L S., furnished the following interesting particulars, at an evening meeting of the Society, respecting Japanese and other chillies:—

"During the last three or four years there has been in commerce a very bright red variety of *Capsicum minimum*, Roxb. (*C. fastigiatum*, Bl.), said to be imported from Japan. In consequence of its clean, bright and attractive appearance. it has commanded a higher price than other varieties. Mr. J. C. Umney has recently directed my attention to the fact that this variety is less pungent than the Sierra Leone and Zanzibar varieties, although far superior to them in colour. On further inquiry I find that this fact is well known to drug and spice brokers. Mr. Umney points out that when an alcoholic tincture of either the Japanese or Zanzibar varieties is diluted with about 14 parts of water, the former gives a much clearer solution than the latter, indicating less oily matter. All the bright red Cayenne pepper until recently in commerce is said to have been imported from Natal in that state. The entire pod pepper imported from Natal is a variety of *Capsicum annuum*, much larger than the chillies, and of a dark red colour and very pungent, whereas the powdered Japanese and Natal Cayenne peppers, placed side by side, are indistinguishable in point of colour. The other principal varieties of chillies, at present in English commerce are, I am informed, those of Sierra Leone and Zanzibar, the former being of a yellowish-red tint, and the letter of a dull, dark red, and often of inferior quality, containing badly dried fruits, stalks, and foreign matter, but both are more pungent than the Japanese kind. The latter is, however, quite pungent enough for most people, although perhaps unsuitable, by reason of its lesser pungency, for medicinal purposes, as an outward application, &c. I am indebted to Mr. Young, of the firm of Messrs. Dalton and Young, for information concerning the different commercial varieties and for specimens illustrating them. My object in directing attention to these commercial varieties is to point out to students and to retail chemists that there are often differences in the qualities and appearance of the same drug, which are worthy of careful observation, not only from a scientific, but from a commercial point of view. Nepal Cayenne pepper is made from a small variety of *Capsicnm annuum*, and is remarkable for its violet odour. Neither this kind nor the Zanzibar gives a red, but a brownish, powder.

The following comments on Mr. Holmes' paper were made at the meeting by Mr. MacEwan:—

"The subject of cayenne pepper was interesting to many chemists quite apart from medicinal purposes, probably more capsicum being sold for feeding birds than for any other purpose. The pepper used in that way was tasteless, and seemed to contain a large amount of fatty matter. It was dark in colour, and the object was to highten the colour of the feathers. It was supposed to come from *Capsicum aunuum*, and he should much like to know where it came from. It was only supplied by two or three houses, and attempts by others to obtain it had not been very successful. There was no doubt that the pepper as used was an untreated product. The late Dr. Brady, on his return from Japan, passing through Vienna, came across a comparatively tasteless pepper, which caused considerable discussion at the time, as there was a large amount of it on the market, but the substance had been pretty much lost sight of since. He thought it would well repay inquiry, as very little had been done on the subject of peppers since Dr. Thresh dealt with it about eighteen years ago."

According to a writer in Spons' "Encyclopædia," Div. V., p. 1803:—

"Several varieties of *C. annuum* have little or no pungency; one of these is abundantly grown in Hungary, forming the paprika of the Magyars. Another variety, cutivated in Spain, is imported into this country in powder for giving to canaries, to improve the colour of their feathers. The Nepal capsicums, which have an odour and flavour resembling orris-root, are the most esteemed as a condiment."

* A frasila=35 lb. avoirdupois.

The TROPICAL AGRICULTURIST MONTHLY.

XX. COLOMBO, DECEMBER 1ST, 1900. No. 6.

SOME CATERPILLAR PESTS OF THE TEA PLANT.

TOWARDS the end of last year (1899) there were numerous complaints, more particularly from the Dikoya district, of serious and repeated injury by the small leaf-twisting caterpillar known as the Tea Tortrix. It was suggested, by the then Chairman of the Planters' Association, that a circular on the subject would be of assistance to he planters. Having insufficient data for the purpose, I asked for further particulars and dates of recent visitations of the pest, together with memoranda of the total monthly rainfall in the districts concerned. In response to my request a circular letter was sent to the various branches of the Planters' Association asking for the required information. In due course a large packet of correspondence, the result of this circular letter, was submitted to me by the Secretary of the Planters' Association. It appears, however, that in the letter in question the pest was referred to as "The Caterpillar Pest;" and it was at once evident, from the nature of the replies, that each observer had applied the term to the particular pest that had been the most notorious in his district; and that the correspondence referred to some five or six distinct species of caterpillar. Under these circumstances I have thought it advisable to draw up a circular on Tea Caterpillars in general, giving detailed particulars of those species that rank as really serious pests. This plan will be quite convenient, as the general treatment suggested will be practically the same for all the different species.

As a rule, caterpillar pests are of less real importance, and much more readily controlled, than are many less conspicuous plagues, but there are some notable exceptions.

It will be well to briefly outline the life-history of insects of the Order *Lepidoptera* (Butterflies and Moths), of which the caterpillar, is but one of the earlier stages. The series consists of (1) Ovum, or Egg; (2) Larva, or Caterpillar; (3) Pupa, or Chrysalis (often enclosed in a cocoon); and (4) Imago, the Butterfly or Moth. This constitutes the single generation. A thorough knowledge of all these different stages is of great importance in the study of any injurious caterpillar. Such knowledge enables us to determine which may be the most vulnerable stage in the life of our enemy.

The destructive time is in all cases the caterpillar period, and to this stage, therefore, the chief attention must be paid.

With most of our caterpillar plagues in Ceylon a definite rise and fall is noticeable, commencing with a small brood, limited very possibly to three or four tea bushes only. Unfortunately this initial brood is almost invariably over-looked. Prompt measures at this time would prevent all further trouble. But these pioneer caterpillars are allowed to go through their transformations and eventually emerge as moths capable of reproducing their kind perhaps a hundred-fold. They distribute themselves throughout the surrounding tea, and pregnant individuals may be carried to distant quarters of the estate by the wind. They deposit their burden of eggs and die. In due course—varying according to the individual species from three or four weeks to as many months—a second and larger brood appears, very probably starting from several distinct centres. Even this more extensive brood may possibly not attract very much attention. The coolies observe a number of caterpillars about, but do not consider it their business to bring it to the notice of the superintendent. The consequence of this inattention is that a few weeks later the caterpillars appear in such countless numbers and effect such serious damage that it is impossible to overlook their presence. The superintendent becomes alarmed, collects and destroys as many of the caterpillars as he can, and probably prunes down the affected field

and burns the prunings, which is certainly the best thing to be done under the circumstances. But a large proportion of the insects is sure to escape, and a fourth or even fifth extensive plague of the caterpillars may appear at regular intervals. But a period is sure to arrive—varying usually from the third to the fifth brood—when the pest appears to reach its climax and to disappear as suddenly as it came, giving no further trouble perhaps for several years. This relief may be brought about by several circumstances. The natural enemies of the caterpillar (Ichneumon wasps and Tachinid flies) discover the plentiful supply of food and increase proportionately until they obtain the upper hand once more. A peculiar epidemic, allied to or identical with the disease that is sometimes so destructive to silkworms, often kills them wholesale, and is usually the principal agent in reducing the pest. This disease appears to be very infectious. Caterpillars killed by it become rotten and have a very offensive smell. The spores of the disease are distributed over the leaves of the plant and are eaten by the other caterpillars, which die in their turn. Fortunately the disease does not—as far as we know—affect the higher animals, but the process of tea manufacture would in any case purify the leaf. Weather is also probahly an important factor in the rise and fall of these caterpillar pests. Though it may not directly affect the caterpillar itself it may have a very appreciable effect upon the enemies of the oaterpillar. Thus, the damp warm atmosphere following copious showers of rain is particularly favourable to the growth and spread of the fungal epidemic mentioned above.

Remedial Measures.

In the case of leaf-feeding caterpillars considerable success has been obtained in other countries by spraying with mineral (usually arsenical) poisons. The Americans have paid great attention to these preparations, such as arsenate of lead and "green arsenoid," and are manufacturing them at rates that permit of their being freely employed. I have hitherto never recommended the use of mineral poisons for spraying tea plants, fearing the (possibly very remote) danger of the mineral accumulating in portions of the manufactured tea in poisonous quantities. But I now consider that all risk might be obviated by a simple precaution, namely, to stop plucking for a sufficient time after the application—10 days would be enough —to make sure that the plucked leaf shall have developed since the date of the application. Spraying could therefore be done immediately after a field had been plucked. The actual leaves that will be taken at the next round will be still in bud at the time of this application, and will unfold in the usual interval. These leaves will be quite free from any trace of the poison.

The most convenient form of sprayer is the knapsack type, which can be easily worked by one man with a second man to feed it. If arsenate of lead is to be employed as a spraying mixture, it may be used at the rate of 1 lb. to 100 gallons of water. The poison should be first made into a thin paste, and the rest of the water added subsequently. The addition of powdered lime (in equal weight to amount of the arsenate) is said to prevent any injury to delicate foliage.

Moth traps of the following description will often destroy a large number of the winged insects. A small coconut oil lamp is placed in the middle of a large tin tray or basin containing water with a film of kerosine floating on the top. The moths are attracted by the light and fall into the water, where they are killed by the film of oil. This trap will be of use only when the moths are on the wing. It will be fonnd more effective on dark still nights, and should be placed well away from any counter attraction in the shape of bungalow lights. It will be useless during moonlight, it being a well-established fact that few moths are on the wing at such times.

But the good old rule that "Prevention is better than cure" is particularly applicable in the treatment of insect pests. As has been shown above, plagues of caterpillars are subject to more or less regular fluctuation, increasing until a certain climax has been reached, and then practically disappearing for a term. This disappearance is not complete. There must always be a few individuals carrying on the breed; their increase checked for a time by causes that are only partly understood, such as climatic conditions, natural enemies, and parasitic diseases, &c. It should be our aim to assist these natural checks by keeping a look-out for and destroying any caterpillars that may be seen during what we may call the "off season." The pluckers should be instructed to always remove and crush any twisted or folded leaves observed on the trees, and if any of the larger species of caterpillars are seen the tree should be marked and the fact reported to the superintendent, who should most carefully search that and the immediately surrounding trees and destroy every individual caterpillar found there. With plucking continued throughout the year, every single tea bush must pass under the hands of a cooly at intervals of about ten days, and if this system of observation is properly carried out it would seem almost impossible for any caterpillar pest of the tea plant to get out of hand. I cannot lay too much stress upon the importance of great attention throughout this off season or resting period, when the tea seems to be most free from attack. It is at such times that the planter is apt to be off his guard.

When caterpillars have to be collected by hand, they may be conveniently destroyed by placing them in a mixture of phenyle and water (1 to 20).

The following species have at different times come under observation as serious caterpillar pests:—

*1. The "Pale Tea Tortrix," *Capua menciana* Wlk.

*2. The "Variegated Tea Tortrix," *Capua* (undetermined species).

3. The "Leaf Rollor," *Gracilaria theivora*, Wlsm.

4. The "Blue-striped Nettle grub," *Parasa leqida*, Cram.

5. The "Morowak korale Nettle-grub," *Thosea recta*, Hampson.

6. The "Green Nettle-grub," *Thosea cana* Wlk.

7. The "Fringed Nettle-grub," *Natada nararia*, Moore.

8. The "Red Slug," *Heterusia cingala*, Moore.

9. The "Small Bagworm," *Manatha albiqes*, Moore.

10. The "Large Bagworm," *Clania variegata*, Snell.

11. The "Twig Caterpillar," *Boarmia bhurmitra*, Wlk.

No. 1.—The "Pale Tea Tortrix," *Capua menciana*, Wlk.

Eggs: not known. They are probably concealed at the base of the buds of the plant.

Caterpillar: dull green or greenish white, with a shining black head and a black horny patch on the back of the second segment. There are about 12 minute tubercles on each division of the body, from each of which springs a fine bristle. When full-grown the caterpillar is about ¾ inch long.

The larval stage occupies about a fortnight, after which the caterpillar fastens two leaves firmly together and turns to a dark mahogany-coloured chrysalis.

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* Since the above was written and set up in print, specimens of Tea Tortrix have been kindly examined by Mr. J. Hartley Durrant, F.E.S., who reports that the supposed new species is not really distinct from No. 1: and that both these species should be referred to an earlier name,—*Capua coffearia* Nietner.

The moth usually appears in from seven to ten days' time, though one of my correspondents tells me that he has known twenty days to elapse before its emergence. It is an inconspicuous insect. The fore-wings of a pale reddish-ochraous colour, with some indefinite diagonal lines The hindwings straw-coloured, without markings. The expanded wings of the female measure nearly one inch. The male is somewhat smaller and of a darker tint. When at rest the wings are folded so that their outline is like that of the section of a bell.

The caterpillar of the Tea Tortrix makes itself obnoxious by its habit of spinning two or three tea leaves together and feeding upon the enclosed parts. When the pest is at its worst, the leaf may be destroyed over whole fields of tea, resulting in a very serious loss of flush. This species attracted notice ten years ago, and was reported, at intervals, from different parts of Dikoya and Dimbula.

More recently a distinct species has come into prominence in the same districts.* It may be called—

No. 2—The "Variegated Tea Tortrix," *Capua* sp.

The carterpillar is scarcely distinguishable from that of No. 1. It is of the same pale-green colour, but the dark horny patch on the second segment is larger extending over the sides as well as the back of that segment.

The difference is more apparent in the moth, which is considerably smaller than that of *Capua menicana* being little more than half the size of the latter. It is of a brownish colour, with a blackish spot at the middle of the front (costal) edge of the wing, a curved reddish-brown patch across the middle of the wing, and a similarly coloured patch across the extreme tip. There is a very prominent tuft of scales which projects on each side from the base of the wings when they are folded.

From correspondence received, the pest seems to be most in evidence during the period from October to the following April. It is noticeable that the worst attacks are reported in alternate months, viz., October December, February, and April. I do not find that the amount of rainfall has any very marked effect upon the prevalence of the pest. Returns from an estate in Dikoya show that there was a very bad attack in October, a wet month, during which 23.73 inches of rain fell on 24 days. The previous month had also been wet, 13·78 inches falling on 19 days. The next bad attack was in the first half of December, with only 5 wet days, after a comparatively dry November.

A report from Pundalu-oya notices a severe attack in February-March, both dry months, following a dry January. On this occasion the pest was said to disappear with the April showers.

It would appear that the caterpillars are not directly affected by the weather, though they may be indirectly so. For when—as often occurs at the climax of the plague—an epidemic attacks them, the moist atmosphere during rainy weather will be most favourable to the rapid growth of the disease. And this I have repeatedly found to be the case.

The districts chiefly affected by this particular pest are Dikoya, Dimbula, Pundalu-oya, and Ambagamuwa. The following quotations from correspondence will give a good idea of the destructive habits of the insect:—

"Dikoya, 17th December, 1899.—The fields attacked are generally three to six months after pruning, just when the very best flushes are coming on......... I collected in cooty sacks the eaten leaves and burnt and buried them, often burning 400 to 500 lb. a round ....On Friday last I had 80 pluckers, and we did 20 to 25 acres, and collected and buried 500 lb of this leaf. It is a great loss and delays all the work, besides the extra expense in collecting and burying. We have had these visitations before, but I have never seen it so bad as it has been this year, and it materially reduces the yield. I pluck regularly so as to try to keep ahead of the caterpillar, but so far have not succeeded in keeping it under."

* See foot-note on page 372.

"Hatton, 3rd February, 1900.—Period from brood to brood of the carterpillar pest: three months. Duration of chrysalis stage: 20 to 21 days. [This is an unusual length of time; in my breeding cages moths appeared after 8 days,—E.E.G.]......... The pest does not seem to be much affected by weather, as the caterpillar glues leaves together with silk, and so is not much washed by rain. It prefers a sunny slope, and is not so marked where tea is exposed."

"Pundalu-oya; 7th May.—I always notice that after the first spell of wet weather the caterpillars seem to die off. This season the attack began in December, earlier than usual, owing to failure of north-east monsoon rains, I had the caterpillars on surface of bushes thoroughly removed every 8 days when field was plucked, but it was impossible to get all those in centre destroyed: coolies could not see them, nor could I. The effects, however, were manifested later on by the riddled appearance of bushes.........Here the Tortrix only attacks tea 9 to 12 months after pruning, just when it should be flushing its hardest, I calculate I have lost from 30 to 50 lb. made tea per acre on the 50-acre field attacked this season."

It is evident, from the above correspondence, that when once the pest has reached the destructive stage, it is practically impossible to keep it under by hand-picking alone. It will run its course and die off from natural causes after reaching its climax. But I must again repeat that by proper attention during the off-season the pest may be prevented from getting ahead. When it has become widely established the most likely means of checking its course would be to spray the trees—as suggested above—with arseuate of lead, Paris green, or some similar poison, immediately after a round of plucking, the bushes being then allowed to run for from 10 to 12 days before next plucking. The leaf then plucked will have developed since the application and will be quite free from the poison. In the meantime—if the work has been thorough—most of the caterpillars should have died from eating the poisoned foliage.

No. 3.—The "Leaf Roller," *Gracilaria theivora* Wlsm.

Egg: deposited singly on the under surface of the leaf.

Caterpillar: pale yellow or greenish, with an indistinct darker line along the middle of the back. A few short colourless bristles scattered over the body. Length about three-eighths of an inch.

Moth: fore-wings dark purple-brown, shining with iridescent tints and crossed by a triangular yellow patch; hind-wings dull black; front of head bright yellow; thorax purple brown; abdomen black above yellow beneath.

The life-history of the insect is interesting. The following description is extracted from my early work on "Insect Pests of the Tea plant" (p. 62):—

"The egg is deposited by the parent moth on the under side of the leaf. As soon as it is hatched the young caterpillar burrows into the tissue of the leaf and passes its early life as a leaf-miner. Its track is visible on the under side only, and always terminates on a small pocket formed by folding over a portion of the edge of the leaf. In this recess the caterpillar sheds its skin, after which it deserts the burrow and takes to the leaf-rolling business. If the leaf in which it has been mining is still tender enough for its purpose, it sets to work on the spot; but should this leaf be too old and hard the caterpillar will travel along the shoot to the nearest soft one and roll it up from the tip to about the middle, fastening the sides together with silk. Within this shelter the insect passes the remainder of its larval period, feeding upon the inner folds of the leaf. Sometimes two or more of the larvæ live together, but usually each roll is occupied by a single tenant. When about to change into a chrysalis, the caterpillar spins a flat silken cocoon in a shallow depression on the leaf. After about two

weeks the moth appears. In this stage it may be observed running about upon the tea leaves, or resting with the head and anterior parts erected and the body supported by the first two pairs of legs only, the other legs and the antennæ being closely folded along the body. Several species of Ichneumon wasps prey upon the caterpillar. In wet weather many of the caterpillars are drowned by the water that accumulates in the cavities of the rolled-up leaves."

This insect does not often assume the importance of a pest, though it is always present in moderate quantities. But I have on more than one occasion received notice of rather serious attacks from the Badulla, Bandarawela, and Udapussellawa Districts. I quote from a recent letter giving particulars of one of these attacks:—

"Bandarawela, 6th January, 1900.—The leaf-roller was prevalent here last season to a marked degree. It seems to appear on the arrival of the north-east monsoon. The injury became very noticeable about January. Every affected leaf was plucked off—as advised—and I found by about the end of February that the pest had disappeared, partly owing to my having pulled off the rolled leaf and partly owing to the grub being drowned by the rain. On the setting in of the last north-east monsoon I noticed the caterpillar again starting work. I immediately gave to each of the pluckers a cooty sack to contain all the rolled leaves, which they were instructed to take off. I am pleased to say the estate is now practically free. I notice that the grub makes specially for young leaf on young tea. Into the older tea it has made very little incursion."

For this pest hand-plucking is the only practical remedy. The caterpillar is too well protected to be reached by any insecticide. The fact that in rainy weather it becomes drowned in its retreat suggests that a plentiful spraying with plain water might bring about the same happy result, but such spraying would have to be repeated many times to produce anything approaching the conditions of a rainy season.

"Nettle-grub" is a popular term applied to a certain family of caterpillars provided with tufts of stinging hairs. When the caterpillars are accidentally or carelessly handled the sharp points of these hairs enter the skin, break off, and at the same time some of the highly irritant fluid that occupies the swollen base of the hair is expressed into the wound. This action has its advantages as well as its disadvantages from our point of view. The coolies, when plucking the tea bushes, will become quickly apprised of the presence of the caterpillars: the spot can be marked, a careful search made at once, and the brood exterminated before it spreads. Four separate species of these "Nettle-grubs," have attracted attention as pests within recent years.

No. 4.—The "Blue-striped Nettle-grub," *Parasa lepida*, Cram.

Eggs: laid in clusters of from 15 to 20, closely overlapping each other like the scales of a fish, which they resemble also in their flattened oval shape. They are almost transparent; the embryo can be seen through the shell.

Caterpillar, broad and comparatively short; rounded in front and behind: bright yellow-green, with a rich lilac stripe along the middle of the back and a bright blue stripe on each side, each stripe bordered by a darker line of the same tint. The poisonous spines are arranged in tufts along the body; they are pale green, four tufts near the head and another pair near the tail tipped with scarlet; there are four large black spots at the hinder end of the body. Specimens that have been feeding upon tea are much more brightly coloured than those that have been reared upon coffee leaves. The latter are ornamented with green stripes and spines upon a pale greenish ground. They might easily be mistaken for a distinct species. The legs of these caterpillars are rudimentary.

Cocoon, hemispherical, dark brown, closely resembling the tea stems upon which it is usually placed; thin, but very compact. The chrysalis is contained in this cocoon.

In from four to five weeks the moth makes its appearence, escaping from the cocoon by a lid-like opening at one end. It is a pretty insect; the fore-wings chocolate brown with a broad emerald green band stretching obliquely across them; the hind-wings buff, tinged with chocolate at the margins; front and sides of the thorax emerald green: and a small spot of the same colour at the base of the two front legs.

The caterpillars are gregarious, and are sometimes present in such large numbers as to completely defoliate the trees upon which they are feeding. A neighbour who sent me specimens told me that more than fifty of them had been removed from two adjacent tea bushes. In another instance, a group of four or five trees were left quite bare, and the superintendent, searching for the cause of the mischief, received practical demonstration of the stinging properties of the caterpillars.

I have had no recent complaints of damage from this species. It usually confines its attacks to a few trees only. The grubs when found should be removed and destroyed, but under the circumstances some other method than handpicking will be found advisable.—*Royal Botanic Gardens.*

(To be concluded.)

GREEN TEA—HOW TO MAKE IT.

I have read with interest the various letters that have appeared in your columns lately on the above subject, and, being an old green-tea maker myself, a few words of advice from me might be of use to those intending to try their hands at it. In my opinion, there is no necessity to make the slightest alteration in existing machinery, or in any way add to it; nothing could be better than a sirocco at a rather high temperature for withering the leaf. Treated in this way the leaf is in a far better condition for rolling than steamed leaf, and will keep for hours in the wet state without showing the least sign of fermenting.

There is no reason why every planter, when he finds himself blocked with leaf in very wet weather, as often happens (and, *is one of the chief causes of poor quality owing to an imperfect wither leaf being kept too long)*, should not turn some of the leaf into green tea, and thus get rid of the excess and make better black teas of the balance. But, though this would be very convenient and useful to many during the worst months of the monsoon, it would never do to depend on it entirely for all the green tea we want to make.

We wish to capture a market already occupied by China and Japan, and to do this we must make tea that will equal theirs in appearence, as well as beat it in purity and strengh, and, to do this, we must alter our system of plucking and pruning. Anyone wishing to make green tea should set apart a portion of his estate to be treated exclusively for green tea and in doing this it is well to remember that the large leaf indigenous is not so well suited for green tea as the China or (so called) low-class hybrid jat. Most of the older estates in Ceylon have fields of this class, and these are the fields that should be chiefly devoted to green tea.

In plucking for green tea, the Chinese never pluck the shoot with the stalk, as we do for black tea. They take the tip and then the leaves, the stems being left on the bushes. *They do this even for their finest quality black teas, and, if we did the same, we should doubtless get better prices and there would be no need to make green tea at all, as this system of plucking would in itself reduce the yield fully 20 per cent.*

But, though this would be a very simple way out of the difficulty of over-production, planters are not likely to adopt it on a large scale, yet for green

tea it is *necessary*, as it is practically impossible to get a twist on such wet leaf. If the leaves are attached to the stem, many of these shoots will be found to have rolled into a big ball without separating at all; but the system of plucking as described ab ve renders more frequent pruning necessary, though of course, not so heavy as is usually done in Ceylon. This reminds me to say that I firmly believe this heavy pruning is at the bottom of all our troubles. We hack our bushes down in a most unmerciful manner, in order to make them run 18 or 20 months (*hacking is the only word for it—we can't call it pruning*); and the result is we have to wait 6 or 7 weeks before we can begin plucking; and then, for the next two months or more, we get leaf that is *utterly useless* for making tea, and if shipped by itself, would barely realise enough to cover costs. This is the leaf that should be destroyed if any, but what I say is DON'T GROW IT.

By pruning lightly every year, we should avoid all this useless rubbish, and I don't think we should lose anything in quantity, as a lightly pruned bush is ready for plucking in about a month, and begins at once to give big and regular flushes, whereas a heavily pruned bush not only takes longer, but after all the pruning shoots have been gathered, it takes a rest for another month or so before it begins to yield big and regular flushes: so that, in the one case there is a loss of two-and-half to three months as compared with a loss of only one month. Heavy pruning is necessary only once in five or six years.

I am glad to see that the Indian planters have at last made up their minds to do something to relieve the London market; but, even now they don't seem to have hit upon the right way—which is to capture the local market. I had some experience of that years ago, when I was myself an Indian planter, and I am positive, from what I saw and heard then, that, if the planters would set about in the right way to introduce their tea to the native community, 50,000,000 lbs. would not suffice to supply the demand that would soon spring up. Can't we manage to persuade them to do this?—OLD CHA. in *The Times of Ceylon.*

TROPICAL PRODUCTS.

A Demerara paper of recent date contains the following relative to cultivation of tropical products as pertinent here in these islands as there.

Persons unacquainted with the past history of the colony are continually asking "Why don't you grow coffee?" or why not cultivate fifty other things? They hand you a long list, including cotton, cacao, rice, spices, and even ground nuts, without thinking of the local conditions of the countries in which these articles are already grown, and of the possibility of overstocking the market. Calculations are often made showing that a certain product will pay at the present price, but no thought is given to the probable effect of increased production.

Sugar is a food, and as such its possibilities of consumption are greater than perhaps any other food products, except the different kinds of grain or corn. Rice may be put down as the best grain for this colony, but no one who has thought over the difficulty of turning a sugar estate into a rice plantation, and then of putting the product into competition with that from the East Indies, can come to any but an adverse conclusion. With other foods there will always be the possibility of over-production, and that very quickly. Indian corn and cassava can be grown here to advantage, but in the case of the first we should have to compete with the United States, and the second with Brazil. There is no probability of any very great increase in the consumption of cassava starch, farina or tapioca, and maize is so cheap that it is out of the question. Plantain flour might be useful, but unfortunately there is no market for it in quantity at present.

The story of sugar cultivation in the colony is an interesting one. It was commenced by the West India Company about two centuries ago in the neighbourhood of Kyk-over-al, from where it gradually extended down the Essequebo and into the Demerara But, although commenced in the upper districts, it was never anything of a success until the coast lands were taken up. The experience of the early settlers agreed with the late deductions of the Government analyst, that the river banks beyond the alluvium were barren, and hardly worth cultivating after two or three crops had been taken off. Only the high price of sugar once made it possible to carry on the cultivation by clearing new land as the old gave out. When it was discovered that on the lower banks and coasts this was unnecessary, the die was virtually cast which made British Guiana a sugar colony. Nevertheless the final decision was not come to all at once. Even then a sugar plantation required a large supply of labor, and many a poor man with but a few slaves found it suited his pocket to grow cotton and coffee, which then fetched what we should now consider magnificent prices.

Coffee was introduced into Essequebo in 1725 but at first it was a failure. The comparatively barren soil in the neighborhood of Kyk-over-al did not suit it, and then again the trouble of picking and preparing the berries was against it. So great was the failure that, although 24 bags were shipped in 1728, a few years after the Commandeur had to get a supply for his own table from Surinam or Berbice. In the last colony coffee cultivation was more successful. It was introduced from Surinam in 1720, and soon became of so much importance that Berbice coffee was well known in the markets of Europe down to the emancipation. After Demerara had become settled coffee came to the front and took its place besides sugar. In the year 1745, when the first land grants in the Demerara river were made, only one bag of coffee was shipped from Essequebo, but from that time the export increased until it reached in the early years of this century about ten million pounds annually from Demerara, besides nearly seven millions from Berbice. Java, in No. 1 Canal, seems to have been the principal coffee estate in Demerara, and Anna Clementia the most important in Berbice, the latter producing 530,525 pounds in 1811.

Besides the high prices of coffee and cotton, there were other factors which helped to prevent losses on their cultivation. Slave labor was reliable—there could be no strikes, nor was Saint Monday observed anywhere. Then again the estate owners worked together. "You scratch my back, and I'll scratch your back" was in effect their motto. One lent his gang for picking, and in return similar help was given when required. Coffee picking was no doubt tiresome, although by no means laborious, still it had to be done, and done at the right time. It is generally considered that coffee came to grief on account of the emancipation, but this was not altogether the case. A time came when sugar and coffee were equal in price, or when advantages of the the former were so great that, with a small labor supply, it would be foolish to keep up a plantation of of the lower priced product.

Although cotton was one of the articles brought from Guiana by the first traders, who brought it from the Indians, it was not cultivated to any extent until the middle of the last century. In 1762 the produce of Demerara and Essequebo amounted to only ten bales, and it was not until the surrender to Great Britain in 1796 that anything like a "boom" took place. Then the three rivers were really opened, free grants of land were made, with the result that the whole coast from the Essequebo to the Corentyne, and even across to Nickerie, was a succession of cotton fields. Virgin soil, impregnated with salt, produced good crops, which sold at what would now be considered fabulous prices. The exports soon reached to over seven million pounds, and there seem to have been

prospects before the cotton planters. But very soon after the abolition of the slave trade, the Southern States increased their cultivation, and not being hampered by so many obstructions to their labor supply, the staple came down to a price which did not pay. Ruin was almost universal in Berbice, and Demerara was little better.

Only sugar was left when coffee and cotton fell; it was the survival of the fitt st. Can we say today that there is the least chance of success with any other product? But, if there is hope, will it not be for a new body of men in new districts? Such being the indications, what a sad thing it would be for the colony if the coast plantations were ruined. When cotton fell, coffee and sugar were left. When coffee fell, sugar was left. If sugar falls, what then?

SOIL AND NATURAL FERTILITY.

A Rock is never a very simple agglomeration of chemical combinations, but the overlying soil—the dark, humus-stained, bacteria- riddled, worm-gathered, semi organic mass—is a much more highly complex problem alike for the scientist and practical farmer. The former has to say how rocks can best be rendered into fertile soils, and the latter has to carry the work into practice. The soils of rocks may be roughly classed.

1.—The granitic soils are generally poor in phosphoric acid and destitute of lime.

2.—Clay soils are compact and tenacious, poor in phosphoric acid, but rich in potash.

3.—The liassic soils are remarkably rich in phosphoric acid and potash.

4.—The calcareous soils are very fertile, but less tenacious than the preceding.

5.—Ferruginous clays and sands are very poor soils, extremely deficient in lime and phosphoric acid.

When fertility is merely considered, and the most practical way of gaining it in a given time, the soil problems go far beyond any geological or chemical formulæ we can express our thoughts in as yet. They cannot take into account the vital action of millions of bacteria, or of the ground borers from the mole to the smallest grub. Every borer great or small, opens the ground and lets in the air, and the oxygen and nitrogen in their freely mixed state in the atmosphere have each a work to do in soil fertility. It is little use telling the practical agriculturist that nitrogen is not taken into combination directly in a bare fallow. What is going on below the ground while the soil is kept free from vegetation above? he demands, and is ready with a score of pointed questions at once. Why does soil grow richer and richer in proportion as it lies unused? Why does nitrogen gradually accumulate under permanent grass? Why does earth taken from a rich pea-growing soil, and lightly dusted over field sown with peas, produce a much heavier crop on the dressed portion? If the peas themselves are steeped for some time in a solution made by a rich pea soil and water, why do the plants grow more vigorously than those that have been sown undressed?

The nitrogen-fixing bacteria are everywhere, but in grass land more than in tilth, and where yard manure or cattle droppings are plentiful they are soon doing their beneficent work, aided by a free flow of moisture and air. Strange though it may seen to the ordinary agriculturist, the soil which seems to him such a solid thing is little more than an open sieve for admitting air and water. Grass, and good grass, too, can grow in "living water," it is the stagnant pool of cold water choked with carbonic acid gas and marsh gas, which prevents vegetation by excluding oxygen. Fresh water flows away into the earth drawing air after it, no small portion being entangled in it mechanically as well as absorbed. There cannot be a flow of water without a corresponding flow and inrush of air, and the soil requires both equally to reach the highest fertility. The nitrates, which gradually accumulating in the ground would destroy the activity of bacterial life, are washed away, while carbonic acid gas is forced downwards to escape by the under-drains, which are epecially valuable in carrying it off, and therefore should only be sunk at a reasonable depth in retentive clay land. Few men, indeed, even when geologists and chemists, appreciate fully the action of rain and air together as makers of fertility. Bacteria cannot work without moisture, and the all-important nitrifying bacteria cannot work without a changing inflow of moisture and air. The soil, from its open state and sieve-like capacity, provides both conditions in ordinary seasons. The finding of good flows of water when wells are sunk, speaks with the clearest voice to those who can understand about the double aeration of the soil, caused by every shower, from the air it drives before it and draws after in its train. No wonder, then, that a heavy thunderstorm will make the burnt-up pastures a lovely emerald green in the driest seasons. The bacteria had been working in the warm soil till the want of moisture and accumulation of nitrates prevented further vital action. Then came the time of short brown grass, which "burned" more and more each day of brilliant sunshine. Broken weather and heavy rains dissolve the poisoning nitrates, feed plants with their rich store of food, and set the bacteria free to work by soaking everything with fecundating moisture and pure, cool air, which it brought entangled with it or in its train. The plants feed on the waste products of bacterial life, and the bacteria are busy purifying the soil by consuming all dead animal and plant substances, bringing them slowly into suspension and solution, ready for nitrification; fitting them for beginning the round of the life cycle once again. It is not much the presence of air in the soil as the presence of pure water and air together that makes a soil naturally fertile; and when the water is from the clouds it comes in the best shape, whether it be fluid or snow. Let those who find artificial manures cheap and paying use them as long as they will, or the soil will allow of it; but a good supply of organic matter in the soil seems to be nature's way of obtaining a growing fertility. The best manure yet made is that which the farm supplies through the bodies of its stock when fed on rich food. It is a good substitute for the work of the forest in making constant additions of organic matter to the soil. If a uniform and steady growth in quality is the thing aimed at, there seems no other way in obtaining it, when the soil is a sufficiently rich loam to retain a store of plant food. There are sands so sieve-like and clays so stiff, that in one case the water washes everything away, and in the other it cannot enter to do its work at all. A stiff clay may grow good grass in time with care, but a barren sand is past praying for; if you add clay and lime in the right proportions to make it fairly good, you are buying your land a second time over for self or landlord, and can never hope for a return in on the outlay. "It never pays to make land where it can be bought ready in the neighbourhood. Give me a clay, or loam lying on the clay, the richer the better, and I will try to make the thing go; but a barren sand will hold nothing." It would be impossible for most of us in Jamaica to get enough animal manure of this kind. In the north where there are large cities where fat stock is in great and constant demand for the butcher, it pays farmers to stable or yard their stock and feed them by hand on highly concentrated nitrogenous food, such as cotton seed meal, mixed with more bulky foods like hay, and save the manure, which is very rich in fertilizing elements, to apply to their fields; thus a double object is gained and there is no waste; the added weight of the cattle by the consumption of rich food pays the feeder, and the refuse saves the purchase of fertilizers. What we must do, is to add potassic and phosphatic artificial fertilizers to our

soils (for neither is it possible to get a sufficiency of wood ashes to serve the same purpose) and grow leguminous crops, even if it should only be cowitch; when such crops of peas and beans are so fertilized with potash and phosphates the bulk vegetation and the crop of seeds are both very large; enough seeds may be saved for future crops, and if chosen, some may be marketed if it is found to pay well enough to pick, shell, and cure; and the decaying leaves, stems and roots should then be broken up and mixed with the soil with fork or plough. This is copying nature's methods of conserving the fertility of the soil. The grass sod is constantly withering away and new grass springs up and the old; when this goes on for many years there is a continuous addition of decaying vegetation forming a deeper and deeper layer of loam. In the forest the leaves and twigs drop season after season; then trees get old, rot and crumble away, so that there is a constant addition of decaying vegetation covering the soil below where the roots are, and while the rain washes the fertilizing gases down, the rootlets strike upward eager to seize and absorb them. But nature works slowly, if surely, while man is impatient. So by planting peas and beans, which grow quickly and feed partly on the air, absorbing the atmospheric nitrogen through their leaves, pumping it down into the soil through their roots and developing profuse vegetation, the roots at the same time searching out and drawing up from the subsoil stores of potash which otherwise would have been locked up and unavailable to the princinal crops, bananas or sugar cane, or whatever the crop may be, we can in three or four months, or at any rate twice a year, turn as much decaying vegetable matter rich in nitrogen and potash into the soil as nature might not do in many years in a forest. —*The Journal of the Jamaica Agricultural Society.*

IRRIGATED COFFEE.

Mr. C. Meenacshayya writes:—Will you kindly permit me to supplement by a few words the letter which you published about irrigated coffee. Most planters might have heard of the enormously large operations carried on by Messrs. Finlay, Muir and Co. in Travancore, in planting tea and coffee. One of their Chief Superintendents, Mr. William Milne, under telegraphic instructions from Calcutta, paid a visit to my plantation here on the 31st December, 1897, when my oldest plants were only two years old, plants which are now giving me about 7 cwts. crop. He was highly pleased, and told me that he was going to report very favourably. Under the impression that that Company might go in for irrigation coffee on a large scale in this Province. I mentioned the matter to the Dewan, Sir Seshadri Iyer, and he was so delighted with the prospect of that wealthy Company starting operations in this State, that he asked me to write to Mr. Milne giving assurance of every encouragement from the Durbar. I wrote to him accordingly, but I ascertained that the object of the visit was to see how far, if considered desirable, they might adapt their coffee-growing to a system of irrigation in Travancore. Mr. Brown, of the Cubbon, Bangalore, has a small plantation near Kengeri and he pumps up water from a perennial rivulet that runs below. I am not in a position to say what margin of profit can be attained if a small plantation is so expensively irrigated. There is a very large estate near Lavarakeri, about 15 miles from Bangalore, where arrangements are made for pumping water, also from a perennial stream, to fill up tanks; but I understand that the object is to grow mostly paddy and sugar-cane, though there is some coffee. A never-failing tank such as Berankenave or Marikanave will be the cheapest source of water-supply. I would recommend the formation of a Joint Stock Company amongst the planters, to raise a plantation on a large scale, say 500 or 1,000 acres under one of these tanks; the Durbar might be appealed to for granting land under special concessions. That acquired, the rest is plain sailing for which a small outlay will be adequate. Famine-years, as a rule, need not affect irrigated coffee. Famines occur, generally, not by a total failure of or a great deficiency in the rainfall of the year, but by unseasonable rains, when the dry crops, which are the staple food of the ryots, die out for want of seasonable rains; no amount of deluging afterwards could resuscitate them. A big deep tank, with a large catchment area, when once filled (it matters not in what particular month from June to January) will serve your plantation during the dry months.—*M. Mail.*

PLANTING NOTES.

CANADIAN FRUIT EXPORT.—We learn from the *Canadian Horticulturist* for October that a cold storage car for use on the Grand Trunk Railway, and special cold storage compartments of the same kind on board the steamers, have been prepared in place of the unsatisfactory appliances hitherto in use. Manchester will be the port to which the first shipments will be made, and should the results prove equal to ezpectations, other lines will be fitted up.—*Gardeners Chronicle*

SERVIAN PLUMS.—From Belgrade we learn that during the present year, dried Plums to the value of 6,000,000 francs have been exported from Servia, and Plum jam to the value of 2,400,000 francs. In the year 1890, dried Plums were exported to the value of 7,300,000 francs, and jam to the extent of 1,300,000 francs. In addition to all this, considerable quantities of fresh Plums for use as table fruit, or for the manufacture of spirits, are exported each year. A considerable trade at one time existed with this country in dried Plums, but that has been swept away by exports from France and California of fruits which have undergone a double drying process.—*Gardeners' Chronicle.*

CONIFERS AS RAIN GAUGES.—According to a recent number of the *Revue Horticole*, M. Felix Sahut has lately communicated to the Congres des Societes Savantes observations respecting certain plants that act as registering rain gauges. "Mention has already been made of the influence of certain more or less severe droughts in the French Mediterranean upon Pinus Laricio of Corsica, and Cephalonian Fir. The lengthening of the branches of these two species is always proportionate to the quantity of rain falling during those months of the year when it is most profitable to them. Co-efficients have been established indicating what the degree is for each month of the year. These co-efficients enable the relationship that exists between the amount of rain fallen, and the greater or less intensity of the vegetation which it has encouraged to be determined. It is shown that, under these conditions, it is possible to judge approximately the quantity of rain which has fallen by measuring exactly the length of the leader, or of the branch produced yearly on these species of Pine, and if the estimate is not absolutely proportionate to the quantity of rain registered by the rain-gauge, it closely approaches to it; and a still closer estimation may be made by taking into account the relative value of the results produced by rain in the several months of the year. It is, therefore, possible, to a certain extent, to use plants specially selected for this purpose as actual registering rain-gauges."—*Revue Horticole.*

NEW COFFEE SEED FOR B. C. AFRICA.

Mr. Balfour Blair moved a resolution regarding the necessity of getting new Coffee seed for the country. Seconded and carried. The resolution was on the following lines:—

This General Meeting of the B. C. A. Chamber of Agriculture and Commerce is unanimously of opinion that the Coffee seed should be imported into the Protectorate by H. M. Administration for the following reasons:

(1 The present seed has manifestly deteriorated owing to continuous in breeding. Since the first Coffee plant was brought to the Protectorate from the Royal Botanic Gardens, Edinburgh, there have been very few importations of fresh seed and most of the importations which were made were not greatly successful so that nearly all the plants in the Protectorate are from one plant and, as must infallibly happen in such cases, the stamina is steadily deteriorating and cannot be improved without the introduction of a new vigorous strain.

(2) In consequence of this large amount of in-breeding and the failure of stamina there is very grave risk of new fungoid and scale diseases breaking out the poorer fields, or, should any disease be accidentally imported the recent plants would have no strong existing power and would succumb readily to any pest which, in the present circumstances, would mean the ruin of the Coffee industry.

(3) The deterioration of the present seed is noticeable in the number of weak seedlings which are produced from the seed; in the failure to throw sound berry even in maiden crops; and in the failure of whole districts and estates to produce good and sound crops. These failures are attributed by many experienced planters to the deterioration of the seed.

(4) Owing to the very strict Regulations against the introduction of seed from countries invested with *Hemileia vastatrix*, it has been impossible for Planters to import seed from nine-tenths of the Coffee producing countries of the world and those countries which from their proximity to this Protectorate would be most suitable for seed purposes, such as India, Natal, etc., are absolutely debarred. This Chamber has always loyally supported H. M. Administration in the Leaf Disease Regulations, but they cannot fail to point out that these Regulations, act as a practical bar to the importation of new seed by private planters and hence our request that H. M. Administration should undertake this work. The few private importations which have taken place have mostly been from Jamaica and owing to the long distance and the delays incidental to private importation (owing to the Leaf Disease Regulations) these efforts have in many cases ended in failure as Coffee seed loses its vitality in less than six months. This Chamber is therefore of opinion that the importation could be undertaken most successfully by Government and they pledge themselves to bear any expense which might be incurred in introducing new seed.

(5) This Chamber would recommend that seed be imported by the Government direct from Jamaica (Blue Mountain Coffee), Trinidad, Brazil, Queensland, and any other places where H. M. Government find that there is no risk from Leaf Disease, such as the South Sea Islands some of which grow Coffee. They would suggest that such seed should be sent direct to Zomba by the quickest possible route and distributed to Planters in conformity with their indents for which the necessary deposit money has been paid.

(6) The Chamber recommend the above to the earnest consideration of H. M. Acting Commissioner as they are convinced that the matter is one of great importance and vital to the progress of the Coffee Planting industry of the Protectorate which is in danger of extinction unless new and vigorous seed is introduced at an early date as is done in other Coffee growing countries of the world.

PLANTING NOTES.

JAM FOR SOUTH AFRICA.—The Imperial Government has arranged to obtain from New South Wales, for the use of troops in South Africa, 300,000 lb. of Jam—peach and plum.—*Agricultural Gazette N. S. Wales.*

LIQUID MANURE FOR TOMATOES.—The following method of preparing liquid manure for tomatoes is recommended by a correspondent:—One peck of horse-droppings and half-peck of soot should be placed together in a bag, which should be sunk in any ordinary barrel with the head out. The barrel is then to be filled up with clean water, and the mixture may be used in the proportion of one to four of clear water until the soil about the plants is moist. This manure is suitable, not only for tomatoes, but for most other plants. In the case of tomatoes it would be an advantage to sprinkle a little of one of the cheaper forms of potash about the roots previously. Tomatoes do not require feeding with liquid or any other manure until the fruit is set and swelling freely. As the liquid is used, the barrel may be filled up with clear water, and after this has been done once or twice the bag may be stirred round with a stick or spade. In a small garden the manure will last for three or four months, but when it is evident that the liquid is getting weaker, the manure and soot must be renewed.—*Ibid.*

DRESSING FOR TENDER-SKINNED HORSES.—Horses with delicate skins are specially subject to saddle galls and sore shoulders, when worked to any extent in harness. Much may be done to render such animals less liable to injuries of this kind by the regular use of astringent applications calculated to harden the skin over their backs and shoulders. As dressings for this purpose, quite a number are employed by horse-owners in different parts of the country. One of the most popular, and also one of the most effective when properly prepared, is a home made decoction of oak bark. A brine made of common salt is also very extensively used, and usually with good results. Another excellent dressing, and one which is much easier to prepare than the oak-bark decoction, is a lotion consisting of 2 drachms each of alum and sulphuric acid in a quart of water. The parts which are liable to chafe should be freely sponged over with one of these dressings two or three times a day. After a time, skins so treated will harden, or toughen to such an extent as to give no further trouble.—Wattle bark broken up fine and stewed for several hours will make a good substitute for the oak-bark concoction. —*Exchange.*

CACAO INDUSTRY IN GRENADA.

Cacao growing is the staple industry in the interesting island of Grenada. Its prosperity for many years when other portions of the West Indies were in a depressed condition was entirely due to the successful cultivation of cacao trees. With the view of drawing attention to the desirability of making every effort to maintain the productiveness of cacao estates in Grenada, the following interesting notes, written by Mr. George Whitfield Smith in 1892, are reproduced :—

"It is pleasant to notice one of the few instances in Grenada of a Cacao estate where, as the result of a careful system of manuring and draining, the proprietor gets from only twelve acres of Cacao a return equal to what many others receive from three times that area. I refer to Good Hope Estate in this island, owned by the Rev. G. W. Branch. On the advice of His Excellency Sir Walter Hely-Hutchinson, I called one morning on the proprietor, and was most courteously shewn over the whole plantation. Both Mr. Branch and his son, Mr. George Branch, most willingly afforded me all the information in their power. Wishing to be as clear as possible, I shall endeavour to adhere as closely as I can to Mr. Mr. Branch's replies to my questions concerning the working of his estate.

' 'I have been the owner of the property for over twenty years. Good Hope contains 22 acres—eight acres of this are in canes and pasture. I estimate that the buildings, yard, and entrance occupy another two acres, so that my extent of Cacao cultivation cannot be much over 12 acres. I purchased the place for about £100; at that time it had a few neglected Cacao trees here and there. Many people ridiculed my attempt to grow Cacao there, as the land was considered by most persons as almost valnless for that purpose. However, be that as it may, I could easily borrow £2,000 to-day on its security if I wished to do so. My soil is rather poor for Cacao when compared with many other places; as you will see, in many places there is a bed of "tuff" not far from the surface, and you know, when the tap root of a Cacao tree touches this, there is an end of the whole matter.

'How, then, do you account for the flourishing state of your trees, when, to judge from their size the tap roots must long since have come into contact with this layer of "tuff"?'

'My Cacao trees have no need so drive their tap roots very deep, as I will shew you when we are going through the orchard The Cacao tree is naturally a deep rooter, but if it can meet with its nourishment near the surface it will undoubtedly develop its feeding spongioles wherever that nourishment is, and that is what happens in the case of my trees.

'Please explain how you do this?'

'Willingly. My cacao orchards are, as you observe, on the slope of a hill, skirting the sides; therefore, among the trees, I have roads cut by simply digging down the slope to a level. These roads are sufficiently wide to admit the passage of a light donkey cart, and as they wind along the hillside in a corkscrew fashion you will understand how they serve a two-fold capacity. First, they act as roads proper, and, secondly they act as drains, since a small canal always skirts the upper edge for the whole of their length. Thus I have my Cacao field drained at regular intervals, and, in addition, my donkey cart can carry manure to any part of my estate.'

'How do you apply your manure?'

'Very simply: I just have the cart filled, and the driver upsets it at regular distances over the lower edge of these roads. I then go round as I can find time and bury this in. I likewise collect all leaves and bush from time to time, and bury these also. You will now see the effects of my system. Look down on the ground what you are walking on is not pure earth. Take up a handful of it. You will notice that it is a dense mass of fine rootlets or spongioles! These have been called into being from the amount of nourishing material which they find here ready for them, and have no need to go deep in search of food,

My system has converted the trees into surface feeders, and provided I keep them supplied with food I can fairly be said to have them well under control. Now, without manure the case is different; the tree has to push its tap-root deeper and deeper every year, in search of food, often it strikes "tuff" or "clay" then death ensues. Even when this does not happen, it stands to reason that a tree with a single tap-root supplied with a few scanty and half-starved rootlets, is in a poor way when compared with my healthy and vigorous trees which have an abundance of young roots, all eagerly sucking up the plant food around them. The good effect of this is easily seen when comparing the returns I get with those of neighbouring planters.'

'What do you average as a return from your 12 acres of Cacao cultivation?'

'About 87 bags per annum. This would represent a trifle over seven bags to the acre.'

'The old trees which you found on the place 22 years ago must be very old by this time: do they still bear vigorously?'

'Yes' quite as well as the young ones, and they seem good for many years yet, thanks to my manure system.'

'What do you consider to be a good yield per tree in pods per annum?'

It would be difficult for me to answer this and indeed I have never kept a record. My trees practically never stop bearing, but my son counted 205 ripe pods on one of the trees besides green fruit and flowers. As you can see most of them have each several dozen ripe fruit, green fruit, and flowers on them at the same time, so that my crop may be said to be continuous.'

'Do you purpose extending your cultivation?'

'No; the remaining portion of my land is too muc swept by prevailing winds to be of any value for Cacao; besides, I find that it pays me better to keep a portion in cane cultivation or some other fodder, not from the profit to be derived from sugar, but because it enables me to feed my stock; without this I could get no manure, and without manure I could get no Cacao. look upon my stock, therefore, as part of my working capital. People here seem entirely to forget this. I very often hear them speaking of the hard work they are having to get their plantation "covered in" as they call it, but if they knew what I know, they would find it more to their interest to keep one-fifth of their plantation in pasture lands and fields of fodder plants, and to keep several heads of stock to fertilize the other four-fifths.'

'What system do you adopt in storing your manure?'

'The old Barbados system, which I have found to work so well. I have all my animals kept in a pen, a portion of which is covered to afford protection in heavy weather. In this pen they stay nearly all the time that they are not in use. Their excrement is consequently collected in one place. I regularly cover this over with cut bush and litter, and at intervals I spread a layer of mould over it, and recover with litter. The result is, that at the end of a few months I have a mass five feet thick of the richest fertilizing material that I know of, and one that for our generous soil needs little assistance from chemical manures. In addition to this I use a large quantity of sheep manure, which I collect in a similar manner from my sheep farm at Point Saline.?

'Do you ever transplant your trees?'

'Often: and here, again, the beneficial effects of my system become apparent. I take up large trees with pods on them. There is no danger. not being deep feeders, they give little trouble. When a gap occurs through the death of a tree I fill it up as soon as possible.'

'What do you do in the way of pruning?

'I go through regularly and often, and break off all young shoots, and cnt out any dead wood. You will see that my trees are perfectly clean of vines and lichens. A tree can't be healthy that has the pores of its bark stopped with roots of parasiticial plants.'

'What is your opinion about shade?'

'I find in my locality that shade is beneficial in the growing stage, bnt is inimical when the tree commences bearing, at least heavy shade is. This holds good with even the "Criollo" Cacao, of which, as you see, I have a large number. With me this is one of the hardiest varieties, and bears profusely. My trees have crossed with each other and now I have a great number of varieties shading off one into the other.'

'Do you use any care in selecting seed?'

'At first I was anxious to get my land planted up, so raised whatever seed I could get. Now, I select and replace a bad variety with a good one whenever opportunity offers.'

Do you grow other products with your young Cacao?

Always; such crops as yams, tannias, cassava, and canes come well with yonng Cacao, and, in my opinion rather do it good than otherwise, besides yielding catch crops of considerable value.'

What processs do you adopt in picking and curing? Do you separate the different varieties before sweating?

'With a small cultivation like mine it would be difficult to get a sufficient quantity of Criollo or any other variety at any one time to set up separate sweating boxes. I see the advantages of it, and regret that I cannot do so. My last account sales, however, are very satisfactory, and shew a receipt of 72 shilling per cwt., which, taking all things into consideration, is very fair indeed. The process of curing is that generally pursued in Grenada, and needs no special explanation."

More recently the following snggestions have been prepared by this Department with the view of assisting local efforts to maintain and improve the cultivation of cacao trees in grenada:

Commissioner of Agriculture—to Governor of Windwar Islands.

BARBADOS, 26th May, 1899

Sir,—I have the honour to forward for Your Excellency's information a Memorandnm in duplicate prepared by this Department containing suggestion for renovating old and neglected oacao trees on the npper lands of Grenada.

2. During my recent visit to the island it was very forcibly impressed on my mind that, although the cultivation of cacao is steadily extending in the lowlands, the original areas planted in the mountains are gradually becoming nnproductive. Hence it is that the exports of Grenada cacao have not increased in proportion to the area actually planted.

3. In the general welfare of the island it is desirable that the old cacao areas should receive speoial attention. Now prioes are good is a favonrable opportunity for doing so, and I would suggest that the subject be brought before the Grenada Agricultural Society with the view of eliciting the opinion of the members in regard to so important a matter.

4. It is possible that the Agricnltural Society migbt assist small cultivators by affording information in regard to the best means for obtaining suitable manures at the lowest possible cost. It is desirable that all artificial manures snpplied in the island should be sold under a guarantee that they contain the percentage of ingredients and the composition stated in the invoice. I would add that certified samples of imported manures forwarded to this office by the Government with a copy of the invoice would be analysed free of charge.

I have, etc.,

(Sgd.) D. MORRIS.

Commissioner of Agricultnre
for the West Indies.

MEMORANDUM on methods to restore old and neglected cacao trees on the upper lands of Grenada.

1. *Pruning.* All neglected and badly formed trees should in the first place be carefully pruned. This operation might be undertaken after the crop, possibly the months of February, March or April would snit for this work. Cut out all dead wood and nnhealthy branches. The utmost care should be taken to make all cnts perfectly clean, and as close to the main limb as possible. Too much importance cannot be attached to this point, especially as it is a practice in the West Indies to leave a small stump, of an inch or two in length. Whenever this happens it will be noticed the stump dies and decay spreads into the heart of the tree. Always trim the edges of a cut with a sharp knife The ensures a more rapid healing of the wound.

In the case of specially old cacao trees, it would be a good plan to make use of a sucker, preferably one springing from a point near the root, and allow it to grow up in the place of a parent tree. The old stem should then be gradually removed. By adopting this method and by paying proper attention to tillage and draining it is quite possible to transform, in a short time, an apparently hopeless field of old cacao stems into a healthy bearing one.

In very extreme cases it may be necessary to remove the parent stem altogether. This should be done about 2 feet from the ground, and one of the suckers allowed to grow np as described above. Where the main stem is entirely taken away the cut should not be made horizontally across the grain of the wood, but in a sloping direction, say at an angle of 450. The former method is strongly to be condemned as it allows the accumulation of rain water in the wood, tending to rot the stem and destrcy the suckers.

Lastly, it is advisable to dress all cuts with a mixture of coal tar and whale oil, in equal proportions. This not only encourages the formation of new tissues, but safeguards the wounds from the effects of rain and the attacks of the borer and other enemies of the cacao tree.

2. *Cleaning the trees.* By this is meant the removal of moss, "Capitaine du bois" (*Loranthus*), "Love vine" (*Cuscuta*), and any other of the numerous parasitical plants which infest neglected cacao trees on the upper lands. The best season for this operation is during March and April. Showery weather should be selected if possible, as at that time moss is easily removed, without the least injnry to the bark of the tree. Blunt knives made of bamboo or preferably stiff fibre brushes shonld be used for the purpose. For removing "Capitaine du bois" all that is required is an ordinary cacao picking knife attached to a long stick of bamboo. Care must however be taken to completely remove the plant, as any portion of it left on the branch of a tree rapidly grows again. The removal of the "Love Vine" (*Cuscuta*) is a more tedious operation. The only way in which it can be dealt with is to employ boys to climb the trees and to remove every particle of the plant by hand. The smallest portion left on a tree rapidly grows again. When this pest once becomes thoroughly established in a cacao field, it is then a most expensive matter to eradicate it. Apparently the plant is spreading in Grenada and every effort should therefore be made to keep it in check.

3. *Forking.* With regard to the amount of forking required for a cacao tree, the opinions of planters vary considerably. While some planters claim to have obtained the best results from a system of deep forking and liberal root-pruning, others maintain that they prefer a light turning over or loosening of the soil with as little disturbance to the roots as possible. It is quite probable in the case of a perfectly healthy cacao tree with a well balanced head and a full supply of leafy branches, that any great disturbance of the root surface would not be beneficial. These conditions however do not apply to neglected cacao trees on the mountain slopes. Such trees, as a rule, have few branches; this indicates that they also have a correspondingly limited amount of roots. Deep forking and draining will be of immense value wherever this occurs. Care must be taken not to mutilate or break the large roots, as these serve to secure the upright

position of the tree in the soil. Any of the smaller roots which are unavoidably broken, during the operation of forking, should be cleanly cut back. New roots will spring from this point and continue to nourish the the tree.

Forking, by turning up soil, exposes it to the action of the sun and air. By this means the soil is loosened, the capacity for retaining air and moisture much increased, while at the same time the removal of excess of moisture is greatly facilitated. As a rule it will be noticed that the soil around the roots of old and neglected cacao trees is water-logged and unwholesome. No air can penetrate into it, and, as the roots can only develop when air is present, it follows therefore that the growth of healthy rootlets in such a soil is completely checked. It is also well known that chemical change can only take place in the presence of air. Such a change therefore is not only arrested, but injurious combinations arise which discourage or destroy the roots of plants. It is therefore evident that judicious forking increases the porosity of the soil. Its effect is further strengthened if all leaves and vegetable refuse are dug in at the same time. Vegetable refuse or humus performs a most necessary function in damp clay. It serves to keep the small particles of the soil farther apart, and it thereby permits the free admission of air, on which so many important changes and combinations depend. It is doubtful whether it would be found advisable to bury vegetable refuse in a green condition in damp mountain lands. A better plan would be to allow it to become withered for a few days before digging it in.

4. *Draining.* This naturally follows the operation of forking. When heavy rains fall on clay lands a certain quantity of the water is absorbed by the soil and the remainder either lies on the surface or is carried away by drains and streams. Some soils are extremely porous and rapidly part with their moisture after heavy rains. Clay soils, on the other hand, retain water for too long a time, and thus become old and sour. The only remedy for this is drainage.

It being established therefore that land is drained with the two-fold object of removing superfluous moisture and of promoting a free circulation of air, it is important to remember that, unless the water in a soil is kept in circulation, no air can enter between the particles of it. On damp mountain lands drainage has also another important office. It prevents landslips and washes. The rainfall is usually abundant in such localities and the soil cannot absorb the water as fast as it falls. Hence landslips occur. This never happens in forest land, because the soil is bound together with a network of roots. When however the forest is destroyed, and the land tilled and planted with cacao, the loose soil is then easily swept away by heavy rains. After a shower each stream and watercourse demonstrates most clearly that a large quantity of surface soil has been carried away, until finally, unless care is taken to prevent this by a proper system of drainage, there is nothing left but the bare sub-soil from which cacao trees cease to obtain any nourishment.

Surface drainage is the only method practicable in cacao fields. All such drains should be carefully laid out with a view to prevent washes. No drain should be made straight up and down the face of a hillside. Advantage should be taken of ravines and natural water courses wherever they occur and "contour" drains, 18 inches wide and 2 feet deep, should be regularly led into them at a distance of 40 to 50 feet apart. These drains should be made at an incline of 1 foot in 15, according to to the steepness of the land. By having a system of drains made at any easy gradient, such as that above described, it is possible to recover a large quantity of the soil washed out of the land. It might be found beneficial to have all contour drains cleaned out at regular intervals during the rainy season and the ould spread between the trees.

5. *Manuring* is the next step necessary to restore old cacao trees. Manures supply the soil with the food required by the plants. This food may be either deficient in the land itself or taken out of it by cultivation. To the small grower pen manure would probably prove of the greatest value. Pen or farmyard manure is what is known as a general manure, and can be applied with safety to all soils and to all plants. It is of the greatest value, not only on account of its manurial action, but also on account of the mechanical action, which the burying of large quantities of trash and other refuse exercises on the particles of the soil. Pen manure should always be applied about 4 feet from the stem of the tree, in a shallow trench, and should be lightly covered with soil. In cases where the soil has been long neglected and contains a large amount of sour organic matter, it may be found necessary to apply a top dressing of lime, a few months before using farmyard manure. Lime acts beneficially in many ways. It decomposes all kinds of vegetable matter in the soil and corrects any acidity due to the presence of organic acids. It also has a good effect on the mechanical condition of soils. On stiff and retentive clays it pulverizes and lightens the particles, thereby improving the drainage and reducing any undue excess of organic matter. On soils deficient in available lime a top dressing of about 4 tons per acre would probobly be required. When applying calcareous manures they should be kept near the surface and not deeply buried in, as lime quickly sinks into the soil and has a tendency therefore to run away from the roots of the plants.

Artificial Manures. Professor Harrison after an exhaustive examination of the soils of Grenada recommends generally Basic Slag or Thomas Phosphate powder. This should be applied broad cast in quantities of about 2 lbs. per tree on the forked surface. It should afterwards be lightly worked in and a top dressing of about ½ lb. of nitrate of soda or sulphate of ammonia per tree may subsequently be given.

Governor of Windward Islands—to Commissioner of Agriculture.

Windward Islands.
Miscellaneous.
No. 72. Grenada, 31st May, 1899

Sir,—I beg to acknowledge and thank you for your interesting and useful letter G. 1439 of the 26th instant embodying suggestions for dealing with old and neglected cacao trees.

2. I have directed the publication of your letter in the Official Gazette. It will also be laid before the Grenada Agricultural Society as you desire.

3. Too much importance cannot be attached to the question of the suitability and composition of artificial manures locally imported for use in the island. I had intended to have earlier written to ask you what quantity of each kind you required, and would suffice for purposes of analysis. Would it not help the question to have also specimens of soil from exhausted cacao areas? Kindly let me know.—I have, &c.,

(Sigd,) ALFRED MOLONEY, *Governor*

SOME FUNGI OF THE CACAO TREE.

(With Plate.)

BY J. H. HART F.L.S.,

Superintendent, Royal Botanic Gardens, Trinidad.

One of the earliest records of disease among cacao trees is that given by Long in his history of Jamaica. In 1671 Long states that there were as many as sixty-five "walks" in bearing, while in 1882, only small patches, of no great extent remained. Long also records that the Plantation were destroyed by a "blast."

What this blast was there is little evidence to prove, but taking one interpretation of the word, "to strike with some sudden plague," it may possibly have been occasioned by the rapid spread of some indigenous parasitic fungus. The time of

the occurrence has been fixed by a 19th. century writer as "sometime during the last century."

The late Sir L. A. A. De Verteuil, K.C.M.G., M.D., in his book on Trinidad, page 431, states:—"The prosperity of the Colony had now reached its culminating point, Cacao selling at a high price. But in the year 1727 according to Guimilla, not a disease exactly, but a blight attacking the pods under certain atmospheric influences, destroyed the crop." Later, he records that the *Forastero* variety was introduced and succeeded beyond expectation, and writes. "It is this quality which is cultivated in our days."

In 1898 attention was specially called to a disease which attacked the pods of cacao destroying a large percentage of the crops in many districts in Trinidad.

The matter was taken in hand by the Botanic Department and close investigation showed that the pods were destroyed by a parasitic fungus which could be speedily propagated by inoculation with spores taken from diseased fruit. Several cultures of the fungus were made, and these, with other living materials, were sent to Kew for examination and report.

The results of this examination were published in the "*Kew Bulletin*" for January and February 1899, as follows:—

"Microscopic examination revealed the presence of two distinct fungus parasites; one being the well-known *Phytophthora omnivora*, De Bary, a species closely allied to *Phytophthora infestans*, De Bary, the cause of the potato disease; the other a *Nectria*, which proves to be new to science, and will be known as *Nectria Bainii*. The *Phytophthora* was present on all the pods sent and may be considered as the cause of the present epidemic in Trinidad.

The same, or a closely allied species, appears to be the cause of the cacao-pod disease in Ceylon.

PHYTOPHTHORA OMNIVORA. *De Bary*.

"This fungus, as indicated by its specific name, is not fastidious in its choice of a victim, and has been recorded as attacking various species of plants belonging to the following genera:—

Acer, *Alonsoa*, *Abies*, *Cleome*, *Clarkia*, *Cereus*, *Epilobium*, *Fagus*, *Gilia*, *Larix*, *Lepidium*, *Melocactus*, *Œnothera*, *Picea*, *Pinus*, *Solanum*, *Semvervivum*, *Salpiglossis*.

If the fungus is confined to the fruit of the cacao tree it is obvious that infection each season must necessarily be derived from some outside source, the spores for this purpose being in all probability often produced on diseased fruit or "shells" lying on the ground under the trees; nevertheless, being able to leave on such a variety of host-plants, infection of a plantation for the first time might every possibly be attributed to wind-borne spores produced on some other kind of host-plant. This may appear to be poor consolation. However, it is well to be in possession of all known facts and possibilities in connection with the subject under consideration. The life-history of the fungus is well known, having been carefully studied by De Bary, Hartig, and others.

The conidial form of fruit appears as a very delicate white mould on the surface of the part attacked. The conidia or reproductive bodies are ovate or egg-shaped, being attached at the broad end to a very slender stalk, which shrivels and liberates the conidium when mature. This condition of the fungus flourishes for a few weeks during the period of active growth of the host-plant; and as the conidia are produced in immense numbers and in quick succession, and are dispersed by wind, insects, or rain, being washed from diseased parts of a tree to healthy parts, it can readily be understood why the pest spreads so quickly when once established. Conidia that happen to alight on young pods germinate at once, penetrate the tissues, and quickly produce a new centre of disease which furnishes more conidia in due time.

During the period occupied in the production of the external form of fruit described above, the mycelium of the fungus spreads rapidly in the substance of the pod and gives origin to a second form of fruit imbedded in the tissue of the pod. These reproductive bodies, known as resting-spores, remain for some months in a passive condition, and are eventually liberated by the decay of the pod: when they germinate, the bodies produced on germination being conveyed by wind to the young pods, germination in their turn, enter the tissue, and in a few days' time produce the conidial form of the fungus on the surface of the pod.

Preventive Measures.—If it is ascertained that the fungus is not harboured by the other plants growing in the neighbourhood of the plantation, but is confined to the cacao trees, then prevention becomes an easy matter. It depends on having every diseased fruit collected and burned; for the only possible cause of infection in the first instance must arise from the germination of resting spores developed in diseased pods, and so long as these are allowed to remain on the ground under the trees the disease will continue to spread. But the fungus may also attack other wild plants, and thus become firmly established and defy extermination.

The following measures should be taken to combat the disease:—

(1) Spray with Bordeaux mixture, commencing when the pods are quite young, and continuing at intervals of ten days.

A dilute solution should first be used until its effect on the fruit and foliage is ascertained. A small quantity of dried blood should be dissolved and added to the mixture; its adhesive property is much increased and fewer sprayings are required.

(2) Remove all diseased fruit from the tree, if practicable, otherwise a continuous supply of conidia will be furnished until the fruit decays. Do not allow diseased fruit or "shells" to remain on the ground. All such should be collected and burned.

(3) Endeavour to ascertain, by careful examination, whether the fungus may not be also parasitic on other hosts; it very frequently attacks seedlings, and would be recognised by the wilting of the attacked parts, and by the delicate white mould-like conidial form of reproduction."

The disease had some years previously been observed in Trinidad, but no special study was made of it. It was detected by Professor Harrison in Surinam, and in Grenada by Mr. G. Whitfield Smith, but little notice however was taken of it until the end of the year 1898, when its rapid spread caused some alarm.

The disease was observed to be most prevalent in places where the atmosphere was humid and where the pods had been allowed to rot beneath the trees.

NECTRIA BAINII, *Massee*.

"This parasite causes semi-circular dark blotches to appear on the pods, the diseased portion becoming soft and watery. At a later stage the blotches become covered with a lovely interwoven layer of yellowish-rust coloured or orange mycelium which is studded over with the minute red perithecia or fruiting organs of the fungus.

This parasite may possibly be quite rare, but great care should be taken to arrest any attempt on the part of the fungus to attack the trunk of the cacao tree, for as already stated the destructive canker disease of Ceylon is caused by a *Nectria*."

"*Nectria Bainii*, Massee—*Perithecia* gregaria. mycelio maculiformi flavo—ferrugineo vel aurantiaco insidentia, sphaeroidea. rubra, lanosa, denum supra calvescentia, 300-350 *Microns* diam. *Asci* cylindraceo-clavati, breviter pedicellati, octospori, 80—90×7—9 *Microns Sporæ* distichæ, oblongo-ellipticæ, utrinque subacutæ, 1 septatæ, 10—12 + 5 *Microns* hyalinæ.' —Geo. Massee.

"The *Nectria* appeared on two pods, and this again possesses many points in common with the *Nectria*, which has caused such destruction to cacao trees in Ceylon by attacking the bark of the trunk and branches, as described by Mr. J. B. Carruthers,

At present, no mention is made of other other than the pod disease in Trinidad, but the fact of a parasitic *Nectria* being present, necessitates the prompt execution of measures calculated to prevent the parasite from extending its ravages."

It will be seen therefore that the Kew authorities were of opinion that the *Phytophthora* was the cause of the destruction of the pods, and later evidence appears to confirm this view.

There is however considerable danger to be apprehended from the spread of *Nectria*, or second species discovered.

Subsequently another, and yet un-named, species of *Nectria* has been found destroying the bark of cacao trees in Trinidad. Thus there are three distinct fungi, which are known to attack cacao trees in Trinidad.

It has been found that *Phytophthora* attacks pods at all stages of their development and frequently when partly ripe, and experiment proves that, owing to the attack of the fungus, there is a loss of weight of 25 per cent. in the beans produced, and, at the same time, a very considerable fall in their quality.

In the old authorities quoted, there is some evidence that a disease existed which was very destructive to cacao, but the exact nature of which was undetermined. It is further reported that it was impossible to grow the indigenous varieties and an imported strain was introduced which proved to be more hardy.

From the results of the attacks recently experienced coinciding in some points with the old records it is probably to be inferred that the diseases of the 18th. century were similar visitations to those of recent years.

There is distinct evidence, however, that the older kinds of cacao were not wholly obliterated, and that the introduced variety has since intercrossed with the original. It does not appear, however, so far as present imformation goes, that those strains bearing greater relation to the indigenous types, are more susceptible to disease than *Forastero*, for the latter appears to suffer equally with others from the attack of *Phytophthora*.

The evidence in support of the view that the older "blasts" and "blight," attacking the pods a century ago, are the same as those of to-day, is incomplete and wanting. The probability, however, that they are identical is an impression which is widespread.

It would be no little satisfaction to the planter if they could be proved identical, as it would show the intermittent character of the pest, and relieve growers of the fear of constant attack. A fact, which favours their being identical, is their partial disappearance during the dry season of 1899 and 1900. This may however be due partly to the adoption of the measures of prevention which were recommended. So far as can be gathered from the evidence at present to hand, it would appear that although these fungi have only recently been discovered, and their life history and destructive character made known, it is probable that they have always been present, and, if sufficient care is exercised, may be kept within due bounds, and will not succeed in seriously damaging the crops. The character of the organisms and their mode of reproduction teaches that the careless and untidy planter will be the greatest sufferer, when a succession of seasons are experienced favour able to their growth, while he who keeps his cultivation clean, and in good order may expect to escape with minor injuries.

ANIMAL MANURES.

A MALODOROUS subject is the dung-hill, withal it is one of great and growing importance to the agriculturist and planter, I am afraid the best of us have more or less lamentably failed in grasping its full import in the economy of Agriculture. As usual in matters of agricultnre the Americans and Canadians are greatly to the fore in entering deeply into the subject.

I should suppose there is nothing more distressing to read than a lot of laboured satistics yet some statistics are really eloquent and interesting of such a kind I conceive those in connection with manures of animal origin. For example the U. S A. Department of Agriculture calculates there are in the States 16,000,000 horses, 53,000,000 cattle, 45,000,000 hogs and 45,000,000 sheep and if these animals were kept in stalls the year round the fertilising properties of the manure produced would amount to 2,071,400,000 dollars. This enormons total is derived from a consideration of the value of nitrogen, phosphoric acid, and potash as commercial fertilisers.

I suggest very seriously to the Indian Agriculturist that while we keep the mere phrase manure, we at the same time come to a serious consideration of the three great ingredients of soil fertility, namely, nitrogen, phosphoric acid, and potash; and look into the matter in the same emiuently practical business-like way the Americans do. A man sells 2,000 pounds of wheat, in that 2,000 lbs. of wheat, he has also sold approximately R21·8 worth of nitrogen, phosphoric acid, and potash; that much of the fertility of his soil is gone in other words that much of his capital account is for the time being absolutely depreciated. And consequently unless such an one means to deduct so much from cash acconut clearly he steadily works to nought, in other words he comes to a time when the sum total of the fertility of his soil is gone, save the indestructable residue, which will merely give the amount of crop derived from the fertilising properties of rain: and some consideration from rotation of crops, particularily legumes. This state of things may satisfy the Indian ryot, who apparently labours to merely live or rather exist, and who would not labour at all if by any means he could exist without it: but the European planter, the intelligent zemindar, and the agriculturist who see some thing in life more than mere existence should bestir himself to a much fuller appreciation of the commanding importance of animal mannres in agriculture. Elaborate and conclusive investigation into the character of animal manures reveal a whole set of facts of great importance to the agriculturist; and many of which are sadly neglected, resulting in great loss to the soil and considerable revenue to the producer. First, it is important to note that very quickly after being voided animal manures commence to ferment: horse and sheep manure very rapidly, and pig and cow manure more slowly. This ferment is due to minute organisms belonging to two great classes those which demand an abundant supply of air and die without it, and those which grow without oxygen and die when exposed to it: known to science as aerobic and anaerobic ferments. In this matter of fermentation lay a great deal, indeed all the possibilities of a rich fertilising manure, or a blackened mass of comparatively worthless material largely depleted of its nitrogen, and phosphoric acid and potash.

Dr. Voelcker's experiments show that manure preserved in heaps under cover after a year had lost 14 per cent of its nitrogen, the same exposed 30 per cent, and in thin layers exposed 60 per cent at the end of one year. Elaborate experiments by the Canadian Department of Agriculture show that after three months about, no advantage accrues from keeping mannre, on the contrary a steady depreciation sets in. It would appear that by this time the micro-organisms of the manure and which, by the way are largely excreted with the manure have done their work of breaking up and simplifying the organic portions of the manure quite sufficiently and that after this period further decomposition ont of the soil is more likely to represent a loss than gain of soluble fertilising matter, particularly nitrogen. This apart the case is made out most abundantly for a system of preparing manure, so that it shall retain all or nearly all its fertilising properties, *i.e.* its nitrogen, potash, and phosphoric acid, and this can only be done to the

best advantage under cover where it is not exposed directly to the sun, but most of all to heavy rains. Manures allowed to ferment their own way, and exposed to all weathers are very far from being what they look to be; indeed they may be likened to the glitter without the gold, the form without the substance and since a worthless manure costs just as much to put on the field as a good one, the very serious loss is inexcusable. A simple and effective, and cheap arrangement is that of the French agriculturist who make up two flats with cemented inclined bottoms and between the two is a pit or small well, and into this is inserted a cheap manure pump for the purpose of systematically pumping out the drainings on to the manure heaps; if the draining is insufficient then water is added in droughtly weather. The cardinal principle is to prevent a violent ferment which sufficient moisture does, but the manure should also be compactly and firmly built up, so as to exclude excess of air which would give the aerobic ferment too much scope for action to the detriment of the manure. This is especially applicable to horse manure which ferments rapidly and violently, unless thoroughly wetted and well compacted. All sorts of odd places may do for the purpose of preparing manure where it exists in only reasonable quantities, but it should be nnder cover of some kind. The manure must be uniformly mixed, and if need be wetted and kept from start to finish thoroughly moist and all drainings regularly returned to the manure: then when the manure is ready it should be promptly put on the field and ploughed in, or if this is not convenient I suggest the covering of it up with a layer of soil until required. Experiments and analyses go to show that manure merely tossed into a pit or heap and exposed to the elements lose half its fertilising matter in six months, while on the contrary carefully preserved and made manure under cover makes a difference of ten bushels of wheat and four tons of potatoes per acre.

People in this country seems to hold a high opinion of cow manure, but the U. S. A. Department of Agriculture gives the relative fertilisiug value of manures as follows:—Poultry, sheep, pigs, horse, cows thus it will be seen cow manure comes last, but the sum total of manures from a cow is more than double that from a horse in the course of a year and, moreover, the fertilising value of a manure does not exhaust its value by any means least of all in a tropical country like India: a good dressing of cow manure will last much longer and show its effects long after a similiar dressing of horse manure has disappeared.

Numerous analyses show that the value of all animal manures bears a direct relation to the kind of food they receive. For example, linseed and cotton seed meal abstract from the soil per ton 105 and 135 lbs- of nitrogen respectively. Turning to a table sbowing the amount of nitrogen in manure from many kinds of feeling stuff, linseed meal figures at 16 dollars worth of nitrogen per ton of manure. Cotton seed meal at 20 dollars ditto whereas turnips figure at 0·48 and Indian corn meal at merely 453 per ton and so on.

Analyses show that all manures contain from 50 to 95 per cent of the fertilising matter contained in the food stuffs consumed, so it necesarily follows that the value of manure can be gauged roughly from the nature of the food given.

Animals which have reached maturity and do not grow, more or less, excrete practically all the fertilising matter of the food stuffs consumed. On the other hand milch cows and young growing animals excrete from fifty per cent of the fertilising matter consumed.

The urine of animals varies considerably, but it is highly important to note the urine is even more available than tha manure of some animals, containing as it does a large percentage of perfectly soluble fertilising matter, especially so in the case of horses, and sheep, but analyses show that urine is nearly wholly deficient in phosphoric acid and that by far the best plan to obtain an uniformaly high fertilising manure is to use the urine with the solid manure

The following table shows the immense importance of securing the nrine of all animals, and represents the amount of nitrogen in solid and liquid after complete removal of water from both:—

	Nitrogen, Solid Per cent.	Liquid. Per cent.
Horses ...	2·08	10·9
Cows ...	1·87	10·0
Swine ...	3·00	12·0
Sheep ...	1·78	10·4

Generally one-half and sometimes much more of the nitrogen excreted will be found in the urine and a large portion of the potash, but little or no lime or phosphoric acid. Nearly, all the potash and phosphoric acid in food stuffs is excreted by animals; and the urine is much richer in nitrogen than the solid matter, hence combination of both is the best of all.

But since nrines are especially rapid and effective in setting up ferments, care at all times is required never to allow the heaps to over ferment or become dry, otherwise the loss of nitrogen in the shape mainly of ammonia becomes very great.

CONCLUSION.

(1) It is a matter of first class paying importance for the agriculturist to give the strictest attention to his manure heap; (*a*) for the high rate of fertilising matter properly managed it may contain: (*b*) for the additional value in aerating and keeping the soil in good physical condition.

(2) Animal manures should be systematically kept moist and in this country well compacted into firm heaps under cover out of the way of the fierce sun-heat and rains.

(3) No good purpose is served in keeping manure after three months out of the soil, but if unavoidable a good plan would be to cover over the heap with a good layer of soil.

(4) Cow and pig manures being of a slow, steady fermenting character should be mixed with rapid highly fermenting manures such as horse and sheep.

(5) It is highly important to secure all urine and incorporate it with the manure.

(6) The fertilising value of all animal manures bears a direct relation to the quality of the food stuff the animals receive, highly fed animals giving rich manures and poorly fed ones light manure.

(7) The following substances are good for fixing the nitrogen of manures and generally preserving them —superphosphate, gypsum, and kainit (a manufactured form of potash) for cow and horse manure at the rate of about a lb. per 1,000 lbs. of manure and for sheep and pig manure about 4 ounces per 1,000 lbs.

CAMELLIA.

Banana Caltivation in Fiji.—The exportation of fruits, and especially of Bananas, continues to rise, and according to the report of the German Consul, the value of the exports rose from £25,477 in 1898, to £30,606 in 1899. Nevertheless this crop is considerably less than could be obtained. The plants are subject to a disease, the canse of which is not as yet ascertained. During the first year no injurious appearances are remarked, and the plants bear handsome bunches of fruit, but suddenly they become unhealthy and must be grubbed up. With the aim of overcoming the disease, new plantations are laid down, but under the disadvantage of getting always further from the seaports. Some of the planters are importing varieties of Bananas from other countries, in the hope of obtaining one or more which may resist the disease.—*Gardeners' Chronicle.*

COFFEE IN DISTANT LANDS:

GUATEMALA.

In a short notice issued by one of the principal London commission houses, in March of this year (1900), we find the following words :—

"The quality of coffee from Guatemala up to date leaves much to be desired this year, and the great defect is frequently noticed that it has not been sufficiently dried, a fault which causes the fruit to suffer much both in colour and quality. Once more we advise our friends the planters to see that their coffee is perfectly dried, otherwise they expose themselves to inevitable losses."

Such remarks call for no comment, only reasonable carefulness is needed to avoid such criticism as this.

The political disturbances of the autumn of 1897 were the cause of the planters losing a great part of their crops that year, owing to the Indians, who contract to come down for the picking season, remaining away through fear of being forcibly enlisted for the army. The most productive coffee district was also for some time in the hands of the revolutionists. These circumstances combined with the serious fall in prices that took place in the marks of the world had as a result, that the small quantity shipped, which was mostly of an inferior quality hardly paid the shipping expenses, to say nothing of the working expenses of the plantations. As a rule, also, the planters were left without any funds to keep their lands in good order free from weeds, which grows very rapidly here, greatly prejudice the bearing powers of the trees so that the foreign houses very reluctantly had again to provide funds to their customers in order that the following crop should not be lost. That crop (1898) again turned out very small, the planters had been properly cared for, for the owners only being able to do the most necessary work on them, and being deeply in debt they began to get disheartened. The prices of the coffee continued to fall heavily, and coffee-planting seemed, in this country at least, to leave a serious loss on the year's working.

As a consequence very little re-planting was done, and as this was also omitted to a great extent during the preceding two years, and old trees are continually going out of production, the next crop will also be likely to suffer somewhat as regards quantity, and perhaps quality, as the young trees give the best beans.

As regards the crop of 1899, now being shipped, it is again found to be below the average, but all is not yet shipped and statistics are not to hand.

The quality is also said not to be as good as in former years. The weather last year was not favourable to the growing berries, and the product has suffered both in colour and in size.

On the other hand the prices realised in Europe have been so far highly satisfactory, owing to an improvement in the position of the coffee market in general and probably owing also to the falling-off in the shipments from Brazil.

If this rise in prices continues, it is quite possible that many planters who appeared some months ago to be hopelessly involved may, by hard work and devotion to their duties, come well out of their financial difficulties. In order that they may so extricate themselves, however, it will be necessary not only that prices of coffee remain high, but also that internal tranquillity should reign in the country, so that labour can be obtained, and also that the tax on the export of coffee should not be raised again immediately, now that it appears that coffee-planting is once more a profitable form the industry.

The high rate of exchange has of course, immensely benefited planters as the expenses of production, shipping, etc., are paid by them in the depreciated currency of the country.

The cost of production varies considerably in every district, but, putting it roughly, including shipping and forwarding expenses at 20 dol. per quintal, and the net result after sale of the coffee at 40s. per quintal, it will be seen that if the exchange were at 100 per cent. as it was a few years ago, before the commencement of the present economic crisis, there would be no profit at all. Consequently the present momentary prosperity of the coffee-planters depends almost entirely on the high rate of exchange, for it is certain that wages, etc., would not be correspondingly reduced should the natural currency again fall to par or to within 100 per cent.

The planters who owe no money abroad, but who in times of prosperity borrowed money of the banks here and thus only have to pay in the depreciated currency are, of course, very favourably placed. For instance, local buyers of coffee, at one time a month or two ago, paid freely the price of 65 dol. a quintal of parchment coffee, and as it probably did not cost more than 15 dol. a quintal (actual cost of labour, without interest on debts or capital) the planter is in a position to credit his bankers a fair proportion of his debt including over-due interest, and retain a sufficient sum for working expenses during the year. Those (the great majority) who borrowed gold in Europe are unfortunately not in such a happy position, for although they are also slightly better off for the rise in prices their profits when converted into gold do not leave them much with which to pay their debts and carry on the work of their plantations.

The Director-General of Agriculture, a Department of Government only founded in the middle of the year, has issued an interesting report to the Minister of Public Works, in which he explains the efforts the new department are making to encourage and improve agriculture throughout the country. To this effect a circular was addressed to each departmental political chief calling on him to forward a yearly report of the agricultural and other works and statistics of his department. This being quite an innovation, the reports returned at the end of the past year leave something to be desired in the way of detail, especially with regard to agriculture, but, on the whole, a decided impetus seems to have been given to the great national industry, and fuller and more trustworthy statistics are forthcoming than have ever before been obtainable.

The Director-General says :—

"The programme traced out for this department by the laws under which it is established is very wide, and if the circumstances of the Treasury were other than they are something would already have been done to encourage the various branches of industry under its care, by means of spreading widely a knowledge of the modern system of cultivation by the distribution of pamphlets and paper on agriculture, seeds, plants, etc., all of which, however, would have necessitated outlay, which, for the present, Government is unable to make.

"The department has every confidence in the good results which agricultural experiments will yield in countries which, like Guatemala, may be said to be beginning to learn the art of cultivation, because the conviction of the truths spread in print is not grasped by the minds of the majority of agriculturists except when impressed by practical results."

The Director points out that a coffee planter may learn many useful lessons by watching the results of the methods employed by his neighbours, engaged in the same pursuit, and that as he studies the methods of others who grow various diffierent products, his general knowledge of agriculture will be greatly increased. In view of these opinions, the Director proposed to the Minister of Public Works the establishment of a model farm on the National lands as soon as the financial difficulties in the way should have been overcome.

Various examples of the efforts of the department to encourage agriculture and implant confidence as to its impartiality were given, as for example labourers who had been sent by the local authorities in different departments to work on the plantations near the coast at the very moment when they were commencing to sow wheat and maize were upheld in their complaints, while, at other times, labourers ordered to work on the roards at the time of the coffee harvest, thus depriving the planters of labour at the most important period, were sent back to the harvest.

On the future of coffee production, the Director writes :—

"This department under my care considers that the almost prohibitive duties which exist on coffee in foreign countries will always be an obstacle to any scheme having for its aim the generalisation of coffee in the world is enormous, and as this increases, the consumption does not seem to increase at the same rate. The instability of the market for this fruit commenced about two years ago, and we can judge of the results by the compromised condition in which these countries find themselves which have devoted themselves entirely to its cultivation.

"If for reason extraordinary we are still permitted to keep our place in the markets of the world, we must seize the opportunity to think for the future.

"Long is the list of vegetable products which we can export, with greater advantage than coffee perhaps, and certainly without running the risks to which is exposed a fruit produce by all the continents of the world with the exception of Europe. We have a multitude of plants whose utility we scarcely suspect, but which are well-known and valued abroad, plants which grow wild in our fields and which are continually destroyed as their value is unknown.

"Such for example is the plant which the Indians use for thatching their houses, and whose long, flexible and strong roots are used abroad in the manufacture of brushes, brooms, &c.

"This product is well-known in Europe, and Mexico exports this plant alone to the annual value of 3,000,000 dol., the preparation being of the most simple nature and consisting only in pulling out the roots with care not to break it, washing it and drying it in the sun.

"The value of this product in New York varies from 7 to 17c. gold per lb., and the cost of production and transport does not amount to 5c. We must also remember that this plant is obtained in districts so arid as not to permit the cultivation of other planters and that the severity of the climate does not affect it, which has fruites, recommendation."—*Planting Opinion.*

PLANTING NOTES.

"West Indian Bulletin."—The fourth number of the first volume of the *West Indian Bulletin* includes paper on: Moth Borer in Sugar Cane, by H. Maxwell Lefroy; Sugar Cane Experiments at Barbados, by Prof. J. P. d'Albuquerque, and J. R. Bovell; Experiences with Seedling Canes in British Guiana, by F. J. Sgard; Sugar Cane Experiments in Louisiana, Fixation of Atmospheric Nitrogen by Leguminous Plants; Tree Planting in Antigua, and Care of Pasture in Antigua, by the Hon. Francis Watts; Cacao Industry in Grenada Fungi on the Cacao Tree, by J. H. Hart; Agricultural Education in English and in French Rural Schools; and Fumigation of Seeds and Plants. The article mentioned above on the Caca disease is accompanied with an illustrative plate.—*Gardeners' Chronicle.*

Timber 1,000 Years Old.—Experts seem to be divided as to which of the two hard woods—Jarrah and Karri—of Western Australia is the most durable. Jarrah wood piles 2 feet 2 inches square, driven thirty-three years ago at the Largs Bay pier, were found on examination to be as sound as the day they were put in. Some specimens of Karri wood taken from a fence were examined in London, and though the wood had been underground for twenty-five years it was perfectly sound. A specimen of Jarrah wood under similar circumstances showed serious decay. Timber of the Tamarisk or Shittem wood has been found perfectly sound in the ancient temples of Egypt in connection with the stonework which is known to be at least 4000 years old.—*Journal of Hoticulture.*

Lavender Farming.—Why not earn a living by scent farming? That is the latest hint to the unemployed woman with a certain amount of capital. At Mitcham, Willington, Sutton, Banstead, and through the neighbouring districts vast quantities of scent-producing crops are grown. A contemporary describes a recent visit to one of these scent farms, occupying an area of over 600 acres, covered with broad breadths of Lavender, Peppermint, Rosemary, Camomile, and Pennyroyal. In the centre of one field of Lavender, comprising some 70 acres, the owner has erected a two-storied chalet, from which commanding views are obtained of all the neighbouring fields. It was delightful in such a breezy atmosphere to breathe the delicious odours given off under the influence of a July sun, the power of which puts strength and merit into the oily organs of the purple blue spikes which wave in every direction. As there must always be a world-wide demand for these sweet commodities, it would seem to be an undertaking eminently adapted for ladies. Firstly, the right kind of land must be acquired, a deep sandy loam, preferably overlying chalk. A plantation of Lavender stands four years, and it costs about £40 per acre to prepare and put out the young plants, so that there is but trifling return the first year; after this they commence to be productive, and in favourable times the crop will give from 20 to 30 lbs. weight of oil per acre, which in good quality is worth about 40s. per lb. The fine odour and strength of the British product makes it worth from four to six times that of continental growth. August is the month for cutting and distilling. As the season approaches all is bustle and activity. Lavender is cut with a sickle, laid with regularity in mats, carried to the great vats, and after a boiling process of about two hours' duration the rich oil comes out through its proper channel, and is soon prepared for the wholesale druggist to handle.—*Journal of Horticulture.*

PEARL OYSTERS AND PEARL FISHERIES:

MEETING OF THE CEYLON BRANCH ROYAL ASIATIC SOCIETY ON OCTOBER 27.

The meeting on Oct. 27th at the Colombo Museum, was one of the most successful and interesting to the general public of those which have been held for a long time past by the Royal Asiatic Society. The presidency of His Excellency the Governor added distinction to the occasion and assisted towards attracting a larger audience than even the great interest of the subject might have secured. The number present would doubtless have been increased but for the heavy rain which was falling sometime before the meeting began. His Excellency, in the speech of the evening, was in one of his inimitably happy moods, drawing together the threads of the discussion in dexterous fashion, lluminating all with abundance of humour and adding just so much official encouragement as regards the development of our pearl fisheries as was generally to be desired. The discussion elicited by Mr. Collett's excellent paper and Captain Donnan's practical remarks was valuable as well as full of interest.

H.E. the Governor, Sir West Ridgeway, presided, and was supported by the Bishop of Colombo, Mr Oliver Collett (the reader of the paper), Mr John Harward, Mr R Ponsonby, P.S. to the Governor, and Mr Gerard A Joseph; while among those present were:—The Hon. H H Cameron and Mrs Cameron, Mrs Collett, Mr S M Burrows, Capt. J Donnan, Mrs and the Misses Donnan, Mr and Mrs Ferguson, the Misses Ferguson, Mr R H Ferguson, Mrs Collett, Mr S J C More and Mrs More, Mr A Haly and Miss Haly, Mr F Crosbie Roles, Mr C Harward, the Rev. W R and Mrs Peacock, Mr and Mrs Frederick Lewis, Miss Halliley, Mr H J C Prior, Mr E E Green, Mr C M Fernando, Dr. W G VanDort, Miss VanDort, Mr H VanDort, Mr A F Mahn, Dr. W H de Silva, Mr W E de Silva, Mr P E Morgappah, and a number of others.

After the minutes had been confirmed, the following new members were elected:—Messrs. J W Robertson, W.A.D., J Perera, and A F Mahu.

His Excellency then introduced Mr. Collett, who proceeded to read his paper:—

MR. COLLETT'S PAPER.

The Pearl Oyster Question, which has always had a special interest for the Members of this Society, has of recent years become one of growing general importance; for, in proportion as diamonds are becoming more plentiful, the demand for pearls, as ornaments, is likely to increase.

It might be said that there is little that is new to be discussed before this Society regarding pearl fisheries, seeing that the subject has already found able mention in two valuable contributions to our Journals.* But, hitherto, no attempt has been made to treat the matter from a zoological standpoint, or to go over the field of research systematically, with a view to show in what special particulars the methods employed in conducting the various pearling industries of the world chiefly differ.

I now propose, therefore, to lay these aspects of the matter before you, and at the same time to endeavour to bring to a focus all information that is up to the present on the subject of pearl fisheries.

And first let me remark, in regard to the term "fisheries," that its employment here is, in a strictly scientific sense, incorrect, since the animals by which pearls are produced properly belong to the class *Mollusca*, and not to that of *Pisces*. However, in this connection we chance to have the opinion of an eminent zoological authority.

Lecturing, in 1895, at the Royal Colonial Institute* upon "Whales and Whale Fisheries," the late Sir William Flower, then Director of the British Museum (Natural History), remarked:—

"It happened to me a few years ago to receive a semi-official inquiry from the Colonial Office as to whether a lobster was a fish, because an important point in the dispute between the French and English about the Newfoundland Fisheries depended upon the interpretation of an old treaty in which the word 'fish' occurs. After giving the modern naturalist's definition of a fish, by which a lobster is clearly excluded from the class, of course, I found it necessary to remind my correspondents that in such a case the real answer to the question lay in the sense in which the word was used at the time of the treaty, and by those who were parties in drawing it up, and if that could be ascertained it would be more to the point than the strictest of scientific definitions. Now on turning to what was in the beginning of the present century, our greatest authority on the meaning of words, I find in *Johnson's Dictionary* (I now quote from Todd's edition, 1818) 'fish' defined as 'an animal that inhabits the water.' Without doubt this was the general and popular view, as the universally used expressions *shell-fish* lobster and oyster *fisheries*, *whale fisheries*, and even seal *fisheries* abundantly testify. I therefore cannot say that in a certain vague and antiquated sense of the word, 'fish' may not be applied to the animals of which I propose to speak to you."

The seeker after detailed information concerning pearl oysters does not find an abundance of material at his command. On the contrary, the literature dealing with these animals is extremely poor and deficient. It is a remarkable fact that although countless references to pearls occur throughout history, and although the many published accounts of the pearling trade form quite a literature in themselves, there exists at the present time but one work in the English language devoted to pearls, their history, peculiarities, and various uses,† and no single work (so far as I am aware), in any language, which gives an account of the natural history, habits, and instincts of the animals by which pearls are produced.

At the present time information upon these points is only to be obtained by laboriously searching over the many scattered statistical reports issued from different pearling stations. As a rule, these reports are drawn up for purely commercial purposes, or with the object of laying down rules and regulations for the conduct of the fisheries. Yet, here and there, valuable zoological observations occur, by means of which it is possible to form some idea of

* (1) Vane, "Pearl Fisheries of Ceylon," Journal, R.A.S. (C.B.), 1887, vol. X., No. 34; (2) A. M. Ferguson, C.M.G., Address on the "Jubilee Pearl Fishery" at the Conversazione of the R.A.S. (C.B.), November 26, 1887.

* Proc. Roy. Col. Institute, 1895.

† "Pearls and Pearling Life."—E. W. Streeter, London, 1886.

Note.—"Gold, Gems, and Pearls in Ceylon and Southern India"—published by the *Observer* Press in 1888—contains much valuable information on the Ceylon fisheries.

the biological conditions which exist at different pearling centres. And from such sources as these a great part of the material here dealt with has been derived.*

VARIETIES OF PEARL OYSTERS.

Pearls are produced by quite a number of different molluscs, and some of these are very widely distributed. Among the bivalves, the great *Tridacna*, the common oyster (*Ostra edulis*), and many species of *Pinna* produce pearls.

They are also found in certain species of *Unis* and *Anodonta*—fresh-water shells—which furnish the river pearls of Europe and North America. Certain univalve shells also produce pearls, for example :—*Strombus gigas*, the giant "conch-shell," and several species of *Turbinella*. These produce the pink pearls of the Bahamas and of the West Indies generally.

The ordinary pearls of commerce may be divided, roughly, into two classes, viz., false or "seed" pearls, and true or "Oriental" pearls. The two kinds differ greatly both in beauty and value, and are produced by two very distinct genera of shells. These are (1) *Placuna*, with a single pearl-bearing species, which belongs to the family of *Anomiidæ*; and (2) *Meleagrina*, which includes several pearl-bearing species, and which belongs to the family of *Aviculidæ*.

Placuna placenta, commonly known as the "window-shell" of the Chinese (because its semi-transparent valves are frequently used in China for illuminating dwelling-houses), is the "pearl oyster" of the Red Sea, the Persian Gulf, Karachi, the Bay of Tamblegam near Trincomalee, and the Eastern Archipelago generally as far as Hongkong. Although it produces only "seed" pearls, an immense number of people are annually employed in its collection. The pearls themselves are seldom of much value, though there is generally a demand for them in the markets of the East. They are, however, of little importance in the present inquiry; and so we need not further consider them here.

TRUE PEARL OYSTERS.

All of the species of true pearl oysters belong, as I have just said, to the family of *Aviculidæ*—or "wing-shells—and with this family it will now be necessary for us to form some acquaintance. In the first place, it is one of most respectable antiquity. No less than three hundred species have been recorded in the fossil state, some even from the lower Silurian strata. As a large number of these fossil forms have been discovered in northern latitudes, it is probable that at one time in the earth's history the family was very widely distributed, though it is now almost entirely restricted to tropical and temperate seas. At present only twenty-five recent species are known. Of this number, five, which belongs to the genus *Meleagrina*, are now fished for pearls. These constitute the pearl oysters of Madagascar, Ceylon, Japan, the South Sea Islands, Panama, California, and the northern and western Coasts of Australia. Zoologically speaking, they do not belong to the true oysters (*Ostreidæ*), but are much more nearly allied to the mussels, being furnished with a *byssus*, or "cable," by which they are in the habit of mooring themselves to rocks and other substances at the bottom of the sea.

The classification of the different species (and varieties) of *Meleagrina* has not yet been systematically worked out; consequently, their correct identification is a matter of considerable difficulty. We find, for instance, quite a number of shells—bearing both pearls and mother-of-pearl—designated by the common name of *M. margaritifera*; whereas, in all probability, they belong to very distinct species. True, *M. margaritifera* (the mother-of-pearl oyster) does frequently produce pearls, but it differs in many important particulars from the other pearl-bearing species of *Meleagrina*—the shells of which are not, as a rule, of any value as mother-of-pearl.

The geographical distribution of the pearl-bearing species of *Aviculidæ* appears to be as follows:—

1. *Avicula (Meleagrina) margaritifera*, Lin.—The large tropical pearl oyster of Northern Australia, the Pacific, and the South Seas generally. It is the mother-of-pearl shell of commerce, and although it often contains pearls it is chiefly fished for the sake of its shell alone.

2. *A. (M.) imbricata*, Rve.—The pearl shell of the northern coast of Western Australia. It is said to be closely allied to the Panama species. It produces pearls, but its shell is of little value.

3. *A. (M.) fimbriata*, Dkr.—The pearl oyster of the Gulf of California and the Bay of Panama.

4. *A. (M.) Martensii*. Dkr.—The pearl oyster of the Japanese Seas.

5. *A. (M.) fucata*, Gould.—The pearl oyster of the Gulf of Mannar. It also occurs in the Torres Straits and (probably) in the Arabian Seas.*

The pearls produced by the above five species are of every shade of colour, from the pale golden pearl of Northern Australia to the lustrous black gem of the Bay of Panama. Those most generally admired however, and which command the highest prices, are of almost transparent whiteness, with a slightly azure reflection. They are known as the "pearls of the Orient," and are produced by the pearl oyster (*M. fucata*) of the Gulf of Mannar.

NATURE AND FORMATION OF PEARLS.

It will be necessary for us to pause here for a moment to consider what is up to the present time known of the nature and formation of pearls, in order that this discussion may have a sound basis.

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* I take this opportunity of expressing my thanks to Mr. R Etheridge, the Director of the Australian Museum, Sydney, N.S.W., and to Mr. Charles Hedley, the Conchologist of that Institution, for valuable reports and statistics. Also to Professor H A Pillsbury, of the Academy of Sciences, Philadelphia, U.S.A., and Mr. T Nishigawa, of the Imperial Fisheries Bureau, Tokyo, Japan, for information kindly supplied. Further, I am under a special obligation to Mr. John Ferguson, of Colombo, who has most kindly placed at my disposal a valuable collection of Papers relating to various pearl fisheries.

* Mr. Holdsworth, the Naturalist engaged by the Ceylon Government in 1867 to investigate the pearl oyster question (but who unfortunately never had an opportunity of seeing a fishery, and, according to Sir William Twynam, never saw a pearl bank with oysters on it), was the first to point out the distinction between the Gulf of Mannar oyster and that of the Persian and Arabian Seas (*Placuna placenta*). Some shells from the Persian Gulf shown to Captain Donnan appeared to him to exhibit no differences from the Mannar species ["Gold, Gems, and Pearls," p. 374]—from which I conclude, having regard to his (Captain Donnan's) great experience, that the Mannar oyster also occurs, though perhaps sparingly, in the Arabian Seas; and this may account for the occasional discovery of fine "Oriental" pearls in that region.

Pearls are an excretion of super-imposed concentric *laminæ* of a peculiarly fine and dense nacreous substance consisting of membrane and carbonate of lime. The question of their origin has a special attraction for the zoologist, since it still forms one of the unsolved problems of science. Pliny held the belief that they were drops of dew or rain which fell into the shells when opened by the animals and were then altered by some power of the mollusc into pearls. This view obtained all over the East, and—strange to say—Columbus found the same belief popular among the natives of Mexico. Moore thus alludes to it in his poem "Peri and the Pearl":—

"And precious the tear as that rain from the sky
Which turns into pearls as it falls in the sea."

At the present day it is popularly supposed that all pearls have for a nucleus a grain of sand which has become coated with nacre by the animal; but this is simply a conjecture which has gradually become regarded as a fact. As a general rule, it is some organic substance, which behaves in the same way as epidermis when treated with certain chemical re agents. In some districts one kind of nucleus seems to be more common than another, and this is how the different results obtained by observers in different localities may be explained The most generally prevalent nuclei appear to be the bodies or eggs of minute internal parasites—such as *Filaria Distoma, Bucephalus*, &c. This was pointed out by the late Dr. Kelaart, in his Report to the Ceylon Government on the Pearl Oyster of Aripo;* and his observations were supported by Humbert, the Swiss Naturalist, who accompanied him to the pearl banks in 1895. More recently, similar observations have been made by Mr. Edgar Thurston, of the Madras Museum;† and the latest conclusions of Science appear to be entirely favourable to the "parasite" theory.

The fact that pearls may be artificially produced by inserting small shot or grains of sand between the mantle and the shell of the animal has long been known. The Chinese have been specially successful in producing pearls in this way; but the best of them are of inferior colour and brightness, and their value is comparatively insignificant. Linnæus, who was aware of the possibility of producing pearls artificially, suggested the collection of a number of mussels, piercing holes in their shells with a fine auger to produce a wound, and afterwards "parking" them for five or six years to give the pearls time to grow. The Swedish Government consented to try the experiment, and long did so. Pearls were produced, but were of little value, and the enterprise was finally abandoned as unsuccessful.

The distinction between fine pearls and these intrusive bodies coated with nacre was recently demonstrated in an important Paper read before the Académie des Sçiences, Paris, by M Léon Diguet. He alleges that the latter have only the iridescence of mother-of-pearl, and are in origin analogous to the deposits which increase the shell. The true pearl, he contends, has no connection with the shell itself, but is a pathological calcification or "stone," and seems to arise from parasites. It begins with a small sac of humour, which becomes gelatinous and calcifies in a series of concentric layers, while at its centre may be found a cavity holding organic matter, the remains of the parasites which gave it birth.*

"Pearl," says Saville-Kent, "is, unfortunately, one of the substances impermeable to the recently discovered Röntgen rays; otherwise the solution of this mystery . . . might be easily achieved. May be, however, in the near future a new xx., xxx., or other occult luminant will be evolved which shall possess the property of laying bare and naked the nuclei of pearls.†

THE PEARL FISHERIES OF AUSTRALIA.

The pearl fisheries of Australia have of late years developed considerable proportions; they are conducted in the Torres Straits, on the coast of Queensland, and on the northern coast of Western Australia. Here the large pearl oyster *M. margaritifera* is fished, primarily for the sake of its shell, which furnishes the mother-of-pearl of commerce. Pearl themselves, when discovered, are regarded as more or less of a chance product, and are frequently appropriated by the hired diver and boats' crew—and this may be said to be commonly the custom in all the pearl fisheries of the South Seas. The total value of the pearl-shell fishery of Queensland alone amounted in 1898 to £109,401 sterling

On the northern shores of Australia, in addition to the mother-of-pearl shell (from which almost all Southern pearls are derived), there occur two other species, viz., *M. imbricata*, Rve., and *M. fucata*, Gould, which produce pearls. The latter is identical with the pearl oyster of the Gulf of Mannar; but is, curiously enough, regarded with disfavour in the Australian region, where it is known as the "bastard" shell,—probably because its shell is of little value as mother-of pearl, and also, perhaps, because it does not produce fine "Oriental" pearls in the Southern Seas.

The pearling grounds of Australia are leased out to various companies and individuals by the Government. These leases are granted only to approved persons. and are subject to certain important conditions and stipulations. No shell below a certain standard of growth is allowed to be removed from the banks; and all shell shipped for exportation must be submitted to the inspection of a Government official specially appointed to guard the industry. Pearls may only be purchased by licensed dealers, and the Government reserves to themselves the right to prohibit at any time the collecting of pearls and pearl-shell on any particular part of the coast. A constant guard is maintained over the banks, and certain areas are prescribed by the Inspectors when they have reason to apprehend any danger to the oysters from the results of over-fishing.

In the Australian fisheries modern diving apparatus is largely employed, the same being periodically inspected by Government in order to prevent the use of defective gear. Diving for pearls by native divers without diving dress seems likely to be discontinued in this region—especially as it is now found that, as a rule, the best pearl oysters flourish at depths beyond the reach of unprotected divers.

On the whole, these fisheries appear to be conducted upon a more up-to-date and advanced method than elsewhere. Some interesting experiments in

* "Report on the Natural History of the Pearl Oyster, Trincomalee," 1859.
† "Pearl and Chank Fisheries of the Gulf of Mannar." 1894 p, 18,

* "Comptes Rendus," cxxviii., 1899, p. 1589-91.
† "The Naturalist in Austraiia," p. 201.

cultivating pearl oysters were made by Mr. W Saville Kent, F.L.S., late Commissioner of Fisheries to the Government of Queensland and Western Australia; but the very short period over which his investigations extended, and the limited facilities which he enjoyed for the conduct of his research, rendered it impossible for him to achieve results of any value. He however showed that artificial fertilisation and incubation are quite possible, though the questions of conservation and protection from enemies still remain to be dealt with.*

THE PEARL FISHERY OF JAPAN.

In the Bay of Agu, in the Province of Shima, Japan, an extensive pearl fishery exists. The pearl oyster of this region (*M. Martensii*) appears to be the most northerly situated of the pearl-bearing species of *Meleagrina*, and it lives under conditions which more nearly resemble those which obtain on the oyster banks of Europe—where the true oyster (*Ostrea edulis*) is cultivated—than those which surround its own congeners in tropical seas. The Japanese pearl oyster lives in quite shallow water, and is left exposed upon the banks at low tide. This condition of things would seem to present special facilities for artificial cultivation; but unfortunately, on this very account large numbers of the shells perish of the cold in winter. Professor Mitsukuri, of the Imperial University, Tokyo, has inaugurated an elaborate system of cultivation, which gives promise of good results. One of the principal features of the scheme is the collection of the "spat" in shallow water, and its transference to comparatively deep water—6 to 7 fathoms—where the temperature is more equable. Here the young oysters are constantly watched and protected against the attacks of predacious foes. I hope to be able to obtain further particulars of this interesting experiment as the work proceeds. At present fuller information is not available.

Artificial cultivation after the Chinese method has also been attempted in Japan; but, so far, only hemispherical pearls, whose bulbs are attached to the shell, have been produced. Japanese pearls are not commonly seen in the markets of London and Paris, probably because there is always a demand for these at home.

THE PEARL FISHERIES OF CALIFORNIA AND PANAMA.

In the time of the Jesuit Missionaries the Central American pearl fisheries were actively carried on, and produced great wealth to those engaged in the industry. But they afterwards fell into decay, and for many years the banks were thought to have been exhausted. More recently, however, the industry has been revived—chiefly owing to the introduction of modern diving apparatus, which has proved of great utility.

Mr. Townsend, of the U.S.A. Fish Commission, says: "It is not unlikely that the adoption of the submarine engineer's suit by the pearl fishers of La Paz must have been the step which led to the continuance of the pearl fishing industry, for the search for shells can now be pursued into deeper waters than in the days of the naked divers, the best of whom could not descend a dozen fathoms. Half that is rather more than a practical working depth." And again in the same report, Mr. Townsend says "Whatever of romance has hitherto enshrouded the naked diver for pearls in the sea, he is now practically a submarine labourer who uses all the modern diving paraphernalia available. No longer plunging for sixty seconds into the sunlit green water that covers a coral bank, he puts on a rubber suit with glass-fronted helmet, and, suitably weighted with lead, descends for hours to gather pearl oysters, which are hoisted in a wire basket by his companions in the boat above, who also supply him through a rubber tube with the air he breathes." *

M fimbriata is the pearl oyster of this region, but *M margaritifera* is also fished here as elsewhere in the Pacific. Here again, mother-of-pearl shell is the principal object of the search, its value being sufficient to pay the expense of the fishing, leaving any pearls which may be obtained a clear gain. In America also, as in Australia, the banks are rented out for fixed periods to different pearling traders.

In the Pacific the oysters are usually opened with a knife. This, if properly performed, is said to be the best plan, for pearls are considered liable to become discoloured if the animal is allowed to decompose before the shell is opened.

THE PEARL FISHERIES OF THE GULF OF MANNAR.

The principal fishery in this region is that conducted on the eastern side of the Gulf, in the neighbourhood of Aripo, Ceylon—the pearl banks on the Indian coast having now almost ceased to be remunerative.

At the Conference Meeting of the Colonial and Indian Exhibition in 1886, Sir James Longden (formerly Governor of the Island) remarked that the pearl fishery of Ceylon was "one of the most ancient—perhaps the most ancient industry of the world; that it was carried on today as it had been for two thousand to three thousand years; and that it owed little or nothing to modern civilization in the manner of getting from the depths of the sea that wonderful beautiful product of Nature,—the pearl. †

The Ceylon fishery, besides being entirely carried on by unprotected native divers, is further distinguished from those which we have just been considering in being the only fishery in the Tropics where pearls alone are sought for, irrespective of the shells, the nacreous lining of the valves of the Gulf of Mannar oyster (*M fucata*) being of little or no commercial value.‡

It will not be necessary for me to enter into details here regarding the methods employed in the conduct of the Ceylon fishery. They have already been fully described by Capt. Steuart, Sir Emerson Tennent, Mr. Vane, Mr. Edgar Thurston, and, quite recently, by Sir William Twynam in his very complete and elaborate report just published. § Let it suffice to say that the industry is now a Government monopoly, carried on

* See Appendix to the Report of the Government Resident of Thursday Island for 1898, by S. Pace, F.Z.S.

* Bulletin, U S Fish Commission, vol. IX, 1889, pp. 91-94.

† Proc. Roy. Col., Institute, 1886.

‡ The mother-of-pearl oyster (*M margaritifera*) also occurs, though very rarely, in the Gulf of Mannar. See Thurston, "Pearl and Chank Fisheries of the Gulf of Mannar," 1894.

§ (1) Tennent, "Nat. Hist. of Ceylon," p. 373; (2) Capt. Steuart, "Account of the Pearl Fisheries," 1843; (3) Vane, "Pearl Fisheries of Ceylon," R A S Journal, vol. X., 1887; (4) Thurston, "Pearl and Chank Fisheries of the Gulf of Mannar" 1894; (5) Twynam, "Report on Ceylon Pearl Fisheries," 1900. See also the many valuable "Inspection Reports" by Capt. Donnan, Inspector of the Pearl Banks, for the last thirty-seven years.

under the inspection and control of specially appointed officers, the system which was formerly in vogue of renting the pearl banks having been entirely discontinued since the year 1837.

There appears to have always been a considerable amount of uncertainty in respect of the amount of revenue derivable from this industry. Writing in 1697 for the instruction of the Political Council of Jaffnapatam, the then Commandant of that town justly remarked that "the pearl fishery is an extraordinary source of revenue on which no reliance can be placed as it depends on various contingencies which may ruin the banks or spoil the oysters." This statement holds good after a lapse of more than two centuries—indeed, the periodical disappearance of oysters from certain of the banks sometimes for many years at a time, may be said to form one of the peculiar characteristics of the Ceylon fishery.

Nevertheless, since the British occupation of the Island a sum equal to more than one million sterling has been derived from the fishery ; and the matter is therefore one of immense importance to to the Government of the Colony.

CONSERVATION OF PEARL OYSTERS.

The question as to whether any means can be adopted to conserve the oysters upon the beds and thus to place the industry upon a more stable and permanent footing, must in the first instance depend upon a knowledge of the physical and biological conditions ruling upon the different banks. There are reasons for supposing that these conditions undergo frequent change ; but the cause, or causes, thereof have yet to be definitely ascertained. It is well-known that the northern and western coasts of Ceylon are being gradually uplifted from the sea. On this account* it is possible that an increasing amount of sand—which is very injurious to all bivalve molluscs—is finding its way from the northern rivers into the waters of the gulf.† It may also be that changes in the temperature, and in the degree of salinity of the water, have the effect of rendering certain of the banks untenable to the oysters for more or less prolonged periods. Further, it is stated upon good authority that the strong ocean currents from the Bay of Bengal, which sweep round the coasts of Ceylon and Southern India, contribute largely to the causes which denude the oyster banks. Altogether, it will be seen that this question is one of some difficulty, and that it must involve the solution of quite a number of local marine problems.

On the western coast of South America, which is likewise at present being upraised from the sea, ‡ pearl fisheries formerly existed which gave rise to wealthy and populous cities—"whose very ruins have now perished." Yet, doubtless some day Science will provide means for the revival of these industries possibly—as in the case of the fisheries of California—by the introduction of special diving apparatus ; for after all it may be found that the oysters have merely migrated seawards into deeper and more sheltered waters.

* Mr. Boake, in his *Monograph of Mannar* (1888), tells us that a pearl bank at one time existed on the north of that island ; and according to ancient Sinhalese records, there were formerly pearl banks in the vicinity of Mount Lavinia. It is significant that of the 85 pearl banks in the Gulf of Mannar, viz., 19 on the Ceylon coast and 66 on the Indian, only two the Cheval and Modragam banks, are now profitable.

† "Man-ar" is Tamil for "sandy river."

‡ Darwin, "Naturalist's Voyage in the 'Beagle.' "

In regard to the question of artificial cultivation and conservation it is important to observe that the pearl oyster—like the Strassburg goose—only becomes of special commercial value when it has developed certain conditions of organic disease. We have already seen that pearls must be regarded as a pathological product, and we find this conclusion well supported in the records of the fisheries. These contain frequent references to the number of pearls found in diseased and dying Oysters ; and experienced divers are apparently agreed that the probability of finding pearls is always greater when the oysters are crowded together, and become humped and distorted in shape ;* and at the same time afford cover for all kinds of marine worms and parasitic creatures. Thus unhealthy conditions of living must presumably be encouraged in order to promote the diseases which lead to the formation of pearls. In the course of an address to the Malacological Society of London, in 1896, Professor Howes, referring to the peculiar characteristics of certain marine mollusca (chitons) remarked : "In its bearings on the conditions of local distribution in shallow water, on bathymetric extension, and specific variation as related to these influences, the experimental method appears to me to give promise of most important results in Malacology. Just as the physiological graduates off into the pathological, the full significance of many a healthy or a diseased state becoming intelligible only on a knowledge of its opposite, so, in the hands of the experimentalist, the normal phenomena of animal life will most assuredly in course of time become illumined by prolonged and careful study of the organism under changed conditions. And from all that is now going forward it is plain that the pathologist holds the key to many a life problem."

THE CHAIRMAN then called upon Capt. Donnan to offer remarks on the subject. Capt. Donnan spoke as follows:—

CAPT. DONNAN'S REMARKS.

In regard to the remarks upon the similarity of the Gulf of Manaar Pearl Oysters to those of the Persian Gulf, and the suggestion that the former is comparatively rare in the Arabian Seas, I will relate how I came to ascertain that the Gulf of Mannar oyster is found in great abundance in the Persian Gulf. When I went to England in 1875 I took with me a small sample of Ceylon Pearl Oyster shells to ascertain if they were of any commercial value, and during my visit to London, I went into the office in Mincing Lane of Messrs. Brooks & Faith, Produce Brokers, saw the head of the firm, and asked him if my sample of oyster shells was of any commercial value. He looked at them and said "these are what we call Lingas from the Persian Gulf." I replied, "that they came from Ceylon." He said, "don't tell me that, I know better," and pointing to a shelf on which there were a large number of oyster shells, said, "there are your shells, they have come from the Persian Gulf, and large quantities of them are sent to us regularly from Bombay." He then examined my sample and said, "You have been polishing them up, and if you had not done so, they would have been worth thirty shillings per cwt." I replied that the only polishing they had was that of being exposed to the sun and rain on the beach at Sillavaturai for twelve months.

* These small thick oysters are called by the people "Koddai-pakku," viz. "arecanut oysters" (Twynam's Report, p. 59).

The Lingas on the shelf were similar in every respect to the Gulf of Mannar oysters.

I have recently seen in print that the annual value of the Persian Gulf Pearl Fishery is £300,000.

On my return to Ceylon I obtained the sanction of Government to send home a trial shipment of pearl oyster shells, and in December, 1876, the shells of 12,000 oysters that had been lifted for a sample of pearls for the fishery of the following years were sent to the Crown Agents to dispose of, in communication with Messrs. Brooks & Faith, but subsequently they reported that the shells were of no value.

However, the Gulf of Mannar Pearl Oyster shell must now be of some value, as during the recent fisheries men were sent by mercantile firms in Colombo to collect shells for shipment to Europ

MIGRATION OF OYSTERS AND EMPLOYMENT OF DIVERS WITH DIVING DRESS.

It has frequently been surmised when oysters were reported to have disappeared from a bed and no traces left of them, that they had probably migrated to some other more suitable locality, into depths beyond the capacity of native divers to reach; and that the employment of European divers with diving dress might be the means of tracing them, or of finding new beds of oysters.

My experience of pearl oysters is that they only move about in their young stage, say up to one year old, and after that age they remain on the bed they settle down upon, if a rocky bed, until they come to ripe old age, unless they are forcibly removed; but if they happen to come on a sandy bed, they would have no means of holding on, and would most probably be drifted away and destroyed.

I am led to this conclusion, by observing that it is only during their young stage that I find, when at anchor on a bed of oysters, that they attach themselves to the vessel's cable. The fact of the oysters mooring themselves by such a strong cable as they do, would also bear out this conclusion, for if they were in the habit of moving about always, it would be unnatural for them to moor with many threads of their byssus, when one or two threads would be sufficient for a temporary resting-place. But supposing they were in the habit of migrating and got into depths beyond the capacity of the native diver, say 10 fathoms as his greatest working depth, the configuration of the bed of the ocean, in the neighbourhood of the Pearl Banks is such, that a short distance would take them into depths beyond the capacity of even the diver with diving dress, as the edge of the bank of soundings is very precipitous.

It has often been suggested also, that better results would be obtained on the pearl banks by the employment of divers with diving dress, both at inspections of banks, and at fisheries; but as a matter of fact, I have had experience of the diver with diving dress in both these cases.

Some years ago a European diver was employed regularly at inspections of the banks, and in April, 1884, I had four European divers along with native divers, employed in the fishing of a bank of oysters off Chilaw; when I found the native divers brought up in a day's work as many oysters per diver as the European divers.

At inspections of the banks, it is necessary to get over the ground quickly, as there are very large areas to be examined, and the native diver, who can be taken about in a handy rowing boat, making a dive when wanted, during which he goes over a space of about 20 square yards, and brings up a sample of what is on the bottom, over that area, all in about one minute, is just the man required. I have never known any of the native divers employed at inspections to give a false report of the state of the bottom, and I have found that I could form a far better idea of the state of a bank from their reports, than I could from that of the European diver, who could not move about as quickly as the native.

In this connection I will relate an amusing incident that occurred during the fishery off Chilaw in April, 1884. One morning the European divers reported to me that there were no oysters where the vessel was anchored, and ked for it to be moved to another part of the bank. I knew from the native diver's report that the vessel was anchored on the best part of the bank, so I called up four native boats, and told the tindals to work close round the ships, which they did, and their native divers sent up oysters, 50 to a dive. On seeing this the European divers began work again, and found oysters. Some time after they had been working, I was looking over the vessel's side, and observing the life line of one of the European divers being violently jerked, I called out to his attendants to haul him up quickly, believing that some accident had happened, and that the poor man might be hauled in unconscious or even dead, but when landed on the stage, he was very much alive, for when the front piece of his helmet was removed, he bawled out in a stentorian voice "Where's the man who stole my oysters." He then explained that he had kept a basket at the foot of his ladder to hold the oysters as he gathered them up, and that when he returned to the basket with the last handful of oysters required to fill it, he found the basket empty and oysters gone, and that his rage at this mishap caused him to tug so violently at the life line. The oysters had been commandeered by one of the native divers (belonging to one of the boats working close by), while the European diver was away from his basket.

This I found out some time afterwards, but as there was no evidence available at the time, the thief escaped punishment, much to the annoyance of the European diver.

PHYSICAL CHANGES IN THE BED OF THE SEA ON THE PEARL BANKS.

As far back as my experience goes, there have been no material changes of this nature. It is true the divers have at times reported small portions of the rocky part of a pearl oyster bed to be covered with a layer of sand a few inches deep, and on one occasion during a small fishery off Chilaw, the divers reported, the oysters were being covered up with sand; and that they had a difficulty in getting at the oysters as they were swayed to and fro by the sea, although they were at a depth of 9 fathoms. This was evidently caused by a heavy ground swell rolling in at the time, and if it swayed the divers about, was also probably causing the silting up of sand on the oysters. These occurrences are, however, rare, or have been rarely noticed. The bed of the Cheval and Modrigam Paars seem to remain undisturbed by physical changes, as the area and configuration of their rocky portions have been fairly maintained during my time. No silting up or upheaval in their neighbourhood can be detected by the soundings, which have not decreased during the last seventy years. Changes, however, are taking place on the shore in that

neighbourhood. The cliff opposite the "Doric" is gradually washing away, and much of the island of Karraittivu has disappeared since I first knew it. On the other hand the spit forming the western side of Dutch Bay has been extended into the sea in a N.E. direction about one mile during the last 40 years.

ENEMIES OF THE PEARL OYSTER AND CURRENTS.

The enemies of the Pearl Oyster are no doubt many, as it seems to be the nature of all animal life in the sea, to prey upon each other; but the chief ones to be feared and destroyed, if possible, are the various species of fish that feed on the bottom, and for that reason are commonly called rock fish. These, with the exception of skate are, however, only destructive to the pearl oysters when they are young and their shells tender ;say up to the age of 18 months or 2 years, after which age the smaller kinds of rock fish, which appear to be most numerous do not do much harm.

Generally speaking, when I have been at anchor on a bed of young oysters, the crew of the vessel have caught many rock fish, the stomachs of which were found to contain many fragments of the young oyster shells, thus proving the source of their food.

A bed of young oysters no doubt attracts these rock fish, which appear to come on it in great swarms, and although the young oysters are very numerous, and are generally very thickly spread over large areas, I have counted as many as 40 attached to the fragment of an old oyster shell, yet their enemies are numerous also, and are capable of causing much destruction, often completely annihilating the whole bed, leaving not a vestige behind when I visit the bank a year later; so that if some means could be devised of destroying or keeping these rock fish away from a bank of young oysters for a couple of years, there would undoubtedly be more Pearl Fisheries. If, for instance, fishermen could be induced to take say 200 canoes to one of these beds of young oysters, and fish on it daily for 2 or 3 months, it would have a very good effect, and might possibly cause the dispersion of the fish which readily take bait, and the numbers likely to be caught would well reward the fishermen.

Currents must also be classified amongst the enemies of the pearl oyster, for although they bring the spat on to the oyster beds, they also occasionally sweep mature oysters away from the be s.

The most noteworthy current on record is that which in December, 1887 swept away a very valuable bed of oysters, estimated at 155 millions, from the Cheval Paar. Ten millions of them were found during the fishery in the following March, from two to three miles in a S.-easterly direction from their original position. Attributing this to a current I enquired of the man in charge of the steam tug "Active" doing guard duty on the Cheval Paar at the time, and he reported that in the middle of December there was a strong current lasting a week, running in a southerly direction, and was so strong, about 4 knots, that he had to drop a second anchor to prevent the vessel being dragged away by it. The fishermen on Karraittivu island subsequently confirmed the existence of a strong southerly current running in December.

The loss of that bed of oysters was a loss to Government of at least 20 lakhs of rupees.

On this occasion I was able to make an interesting experiment as to the ability of pearl oysters to resist a current. The divers had brought up a large Pinna shell with several oysters attached to it by their byssus. The "Active" was got underway and the Pinna shell towed in the sea alongside. The oysters held on for an hour, while the "Active" was going at a speed of 4 knots, but when the speed was increased to 5 knots they shortly began to drop off one by one. Although the oysters resisted a 4-knot current for one hour, they evidently had to give way when the strain of a current of that velocity was prolonged for a week. I doubt very much their ability to resist even a 3-knot current for that length of time.

Young oysters have a much stronger hold than oysters advancing to maturity. The divers often remark when on young oysters, that they could not bring up many, as they were holding on fast; but when they come away easily the divers say they are fit for fishing.

There is no record of a current similar to that of December, 1887, having occurred previously and I look upon that one as very exceptional, particularly as to its course which was in a S.-easterly direction.

I am of opinion that it was caused by an unusually large volume of the N.E. Monsoon ocean current flowing into the Gulf of Mannar, and seeking an outlet by sweeping round the head of the Gulf, and down its eastern shore, until it joined the main stream, on its course from the coast of Ceylon towards Cape Comorin. It is well-known that the current from the Bay of Bengal in November and December, runs south along the east coast of Ceylon at the rate of 2 to 3 knots an hour. It curves round the south coast, and after rounding Galle, takes a N.-westerly course past Cape Comorin. Some times it follows the west coast of Ceylon to the north of Negombo, and then branches off towards Cape Comorin. A larger volume than usual coming this way would probably advance further up the coast than Negombo, say to Chilaw and then branch off towards Cape Comorin, and in that case some portion of the stream might before reaching Cape Comorin be deflected along the Tuticorin shore and then follow the course I have described. I cannot account for a S.E. current on the Cheval Paar in December in any other way.

There are also unknown enemies of the pearl oyster. For instance when oysters too young for fishing are found dying off in large numbers, it has not yet been discovered what causes them occasionally to be in that condition.

The question of discovering means of successfully securing pearl oysters against their enemies is a most difficult one to solve. Currents are uncontrollable, and as regards living and unknown enemies, success against their predations appears to me to be very doubtful. Yet in these wonderful progressive times there is no knowing what the employment of scientific skill to deal with these questions might be able to accomplish.

ARTIFICAL CULTIVATION OF PEARL OYSTERS.

I have tried a small experiment in cultivating Pearl Oysters, by depositing a quantity of young oysters in an excavation which I had made for them in the Sillavaturai coral reef, three miles from the shore; but it was not successful.

In March, 1885, I had 12,000 oysters 18 months old lifted from the Cheval Paar, and placed in the tank on the reef, three hours after they were lifted; having been kept in the meantime in a boat half filled with seawater. But, when I returned to Sillavaturai the following year they had disappeared. I then constructed a new tank on a more sheltered part of the reef, 12 feet square and 4 feet deep at low water, much mud was found between the branches of the coral, but it was all well cleared out, and a quantity of coral stone was placed in the bottom of the tank and around the side on top of reef to protect the tank from wash of sea at high water.

When this new tank was completed it seemed an ideal place for such an experiment, beautiful clear water in it, and not a sign of mud. 5,000 oysters 2½ years old taken from the Cheval Paar were placed in it; and 1,000 in a large wooden cage, made for the purpose, which was weighted with stone and sunk in 9 feet of water half a mile rom the beach.

I left Sillavaturai on that occasion in hope of my experiment being successful; but alas! on my return a year afterwards I found the oysters in the beautiful tank on the reef—all dead—having been smothered in 18 inches of mud, at the bottom of it, which had been washed into it from adjoining parts of the reef by the S.W. Monsoon sea, and the cage was found broken up, and the few oysters left in it were dead: and thus ended my experiments in artificial cultivation. I subsequently thought of making a preserve on some part of the eastern shore of the island of Karraittivu, but had to give up that idea, as I found on searching for a suitable spot, that it was all muddy bottom, which would have been fatal to young oysters. There appears to be no sheltered spot on the west coast of Ceylon suitable for pearl oyster cultivation. Some of the bays in Trincomalee harbour might prove suitable, and if so, they would be, I believe, the only places likely to be found for this experiment in Ceylon. The late Dr. Kelaart succeeded in taking pearl oysters from Sillavaturai in chatties round to Trincomalee, and in keeping them alive for some time after.

In connection with this subject the question arises whether or not, in the event of pearl oysters being successfully reared in shallow water, it would be necessary to lay them out in their natural beds to produce pearl. During a visit I made in 1867 to the edible oyster preserves on Hayling Island near Portsmouth, I was informed that it was necessary, when the young oysters had attained an age of one year or more in the preserves, to lay them out on their natural beds to fatten, and this might be found necessary also in the case of pearl oysters for the purpose of producing pearls. The native headmen who were employed at fisheries and inspections of the pearl banks years ago, declared that oysters found in shallow water never contained pearls, and that only those found in deep water were of any value. I have not had an opportunity of testing this theory; but if it is correct, then any scheme of pearl oyster culture attempted hereafter would have to contend with the risk of young oysters, after transference to their natural beds, being at the mercy of their enemies, almost as much as they are now; and in that case, Trincomalee would be too far away from the beds in the Gulf of Manaar, as the cost of transference of the large number of young oysters required to produce a fishery would be prohibitive, even if found feasible. There are no known pearl oyster beds on the east coast of Ceylon. The headmen's theory is, however, supported by the fact of a bed of pearl oysters on the Kondatche Paar being abandoned in 1855, owing to the oysters being unremunerative in pearls. This bank lies in 3 to 3½ fathoms water, three miles from the shore.

The following quotation from Mr. Edgar Thurston's Bulletin No. 1 on Pearl and Chank Fisheries of the Gulf of Manaar, 1894, is significant:—

"The artificial cultivation of the pearl oyster was attempted some years ago in a nursery made in the shallow muddy water of the Tuticorin harbour without success; and in his final report to the Ceylon Government, Mr. Holdsworth expresses his opinion, with which I thoroughly concur, that there is no ground for thinking that artificial cultivation of the pearl oyster can be profitably carried out on the Ceylon coast, as the conditions necessary for the healthy growth of the oysters are not to be found in the very few places where they could be at all protected or watched."

Discussion.

Mr. Haly on being called upon to speak, remarked, that he knew nothing more about the Pearl Oyster—nor did he take any special interest in it more—than any other invertebrate of the great Indo-Pacific Fauna. As to its migrations it shares that habit with numerous species of widely different classes. Last year, he accompanied Professor Gooderich to Trincomalee in hopes of obtaining certain species abundant there in 1887 and 1890; but although the whole coast and harbour were carefully searched not an individual was procured. In the same way a very large and handsome *Aplysia* or sea-hare and a species of *Melibe* (a most strange and remarkable mollusc) appeared in August and September in Weligama bay; this year the *Aplysia* cannot be found and the *Melibe* is scarce. When he expressed his surprise to Mr. Gooderich at the disappearance of the species formerly so abundant at Trincomalee, Professor Gooderich stated that the same phenomenon occurs on every coast. A scientific inquiry on a large scale therefore, into the Pearl Oyster fishery could not fail to beof great benefit to the Museum as tending to throw more or less light on the habits of numerous species of widely remote classes.

H.E. the Governor next called on Mr. Ferguson, who said:—I suppose it is because I am the oldest member on the roll of the Society in Colombo that I have been asked to propose a cordial vote of thanks to Mr. Collett for the interesting and extremely useful paper he has read to us this evening. In any case it gives me very great pleasure to comply with the request. It is interesting to note that from time immemorial, there have been fisheries of Pearls and Pearl Shell all round the Indian Ocean, on the African, Asiatic and Austral coasts—from Mozambique to the Red Sea and Persian Gulf, to Karachi, the Gulf of Mannar—the Tinnevelly and Ceylon coasts—the Burma coast at Bahrein—the Saigon, Philippines and Bornean as well as Chinese coasts and up some of the Chinese rivers, and also round one-half of Australia. Our Ceylon fisheries are among the oldest and most famous, seeing that a European visitor found 8,000 boats at work about the middle of the 14th century. But then in the Book of Job, some 3,500 years ago, there was mention made of both "coral and pearls." In Europe,

pearls of value have been got from the mussels fished in our Scottish rivers—the pearls in the Scottish Crown now forming the regalia of Great Britain were all got in the Tay and the pearls gathered there in three years (1761-1764) were valued at £10,000. A fine pearl similarly found in the Conway is said to be in the Royal Crown of England. Now remembering that the Scottish mussel is allied to the so-called Ceylon pearl oyster, it will be seen that pearls can be cultivated in quiet river estuaries as well as in the deep water on Ceylon banks, and in the case of Australia inside the barrier reefs. —I have taken a special interest in this question of Pearl Oysters and their Culture ever since I visited Western Australia in 1875. Sir Wm. Robinson, a brother of Sir Hercules, was Governor there and he kindly put all available information about the local Pearl Shell and Oyster fishing, then in their infancy, at my disposal. I met the gentleman who first discovered that the blisters on the inside of the large pearl shells contained fine pearls, of a golden yellow or white colour, some of which were valued up to £1,500 each; while one cluster known as the "Southern Cross" was valued up to £10,000. Captain Donnan may be surprised to learn that in those early days so plentiful were the oysters within the barrier reef on the west and north-west coast of Australia that the pearlers simply waded in and pulled up from the reefs in shallow water an ample supply of large oysters, some of them with very fine pearls. This fact is also mentioned by Saville-Kent; but the case is very different now, all the fishing being in deep water—only it seems to show that such oysters flourish and develop pearls even in comparatively shallow water. The readiness with which pearl oysters adhere by their byssus is shown by some 40 being found on a single Pinna or Razor shell and by Mr. Saville-Kent's experience of their growing above a mangrove swamp off N.-W. Australia. There is great encouragement, too, for culture when we know that the happy little family for which each oyster prepares a dainty home numbers, on an average, as many as 12 million eggs and this when the parent is but one year old. An English dramatist has told us that "an oyster may be crossed in love," but there is ample margin to go upon; and our little *meleagrina* is most enterprising and able both to climb a wall and take a walk, justifying that other poet of "the Walrus and the Carpenter" when he said :—"Oh, oyster come and walk with us." (Laughter.) I trust therefore that the step taken with so much promptitude and public spirit by Your Excellency and approved by the Secretary of State, in referring Sir William Twynam's Report for the highest scientific opinion in England, may result in a Scientific Mission of Enquiry and Experiment. Professor Ray Lankester would seem to be a little unjust to Mr. Holdsworth who signed himself F.L.S., F.Z.S., and who first showed us the difference between certain pearl or pearl-shell yielding oysters. But it was a fact that Mr. Holdsworth had never seen a fishery or even a bank covered with our oysters; and therefore there was much reason to hope that Professor Herdman, F.R.S,—if he came out, now that he and the scientific world knew so much more than in the "sixties," and especially if he had the help and experience of our expert, Capt. Donnan, and was also lent the aid of Dr. Thurston by the Indian authorities (who ought to be asked to join in the Mission with Ceylon)—would be able to give us results worthy of his high reputation and keen powers of observation. There was a great deal of literature, including accounts of Pearl Fisheries and Experiments, to be collated—there might even be later Reports in reference to Californian and Central American Fisheries, than Mr. Collett or himself had obtained;—but not the least interesting contributions to place before Professor Herdman would be both the valuable papers read that evening, and Mr. Collett by introducing the subject and giving the Society so good a paper, had laid the members and the whole intelligent community of Ceylon under a debt of gratitude for which he deserved the cordial vote of thanks he thus proposed with great pleasure. (Applause).

Dr. Vandort :—I have much pleasure in seconding the vote of thanks to Mr. Collett, for the very interesting paper he has just read to us. Although it professes to be only a *resumé* of information derived mostly from sober scientific journals and statistical reports of a not especially enlivening nature, it has nothing of the *dry-as-dust* character traditionally associated with scientific papers, but reads more like an article intended for a popular monthly than a contribution to a staid scientific journal like ours. To some extent, no doubt, he has been inspired by his theme which appeals to so many interests,—historic, poetic, economic, and even political over and above its scientific aspects, and has even allowed himself to subordinate the instincts of the born naturalist to the demands of literary art—as for instance in sandwiching the only technical portion of his paper—not the least important from a scientific point of view—between a quaint disquisition on the right of an oyster to be called a fish (reminding one of Baron Cuvier's famous criticism of the French Encyclopedist's definition of a crab)—and an interesting speculation on the folk-lore relating to the origin of pearls. I, for one, was hoping that while in this mood he would, even while accepting the ugly theory (if scientifically established which I doubt) of the parasitic origin of pearls, have protested against the scientific barbarity, which has no excuse, of robbing the pearl oyster,—our Ceylon oyster,—of its legitimate time-honoured beautiful Greek name, associated with a thousand poetic legends and at least one great Biblical illustration, and substituting for it a vile, inappropriate Latin term, which means, not only *painted* and *coloured*, but false and counterfeit. But like a true Englishman, it is the commercial, practical aspect of the subject which has engaged his attention, rather than its æsthetic side, so I am not surprised to find him strike the key note of his paper in the introductory announcement, that since Diamonds like South African shares are going up, the Ceylon Government and the Ceylon Public had better look after their interests in local fisheries, as Pearls are sure to follow suit. After such a warning, it is hardly necessary to say, that in the selection of his scientific facts, he has *collated* them (if I may be excused the term) so as to keep in view all those that are likely to be of general interest and eschew what would be technical and comparatively uninteresting. I should have wished, however, he had given the natural history of the bivalve he had selected for his subject, a little more of his attention on the paper he has read to us, as no one could have dealt with it better with his extensive reading and special researches in this section of Natural Science. I have no intention of detaining the meeting at this late hour and shall therefore confine myself only to one or two points of practical importance, on which I shall be glad to be enlightened by Mr. Collett. The first refers to the question mooted originally by Dr. Kelaart in his Report of 1857, are oysters monœcious or diœcious—in

other words, are the two sexes found in separate individuals, or are they all female or hermaphrodite capable of breeding by self-fertilisation. Now, according to Dr. Kelaart, who is universally acknowledged to be the highest authority on the subject, there is no proper distinction between the two sexes, except in the contents of the *ovarium* or egg-bag, which in 97 or 98 per cent contain *ova* at all stages of growth even from birth, and only in one or two per cent contains the fluid essential for cross-fertilization and no ova at all. These oysters then represent the male individuals, though there is nothing in the external coat, or internal structure to distinguish them from the others. The practical importance of this fact comes in with the light it throws on a possible frequent cause of the disappearance of oysters from old oyster beds. For, if cross fertilization be essential to the production of a healthy progeny as Darwin has established and large colonies of such progeny growing together are necessary to form a productive "band,' as Kelaart has shown, the destruction of the few males by any accidental cause, may suffice for the extinction of an entire bank of oysters. Mr Collett himself to whom I referred this point before the lecture was good enough to explain to me that he believed that the female oyster has it in her power to change her sex, as often as she chooses, a wonderful fact, if it be the case; only it is to be hoped that Nature has limited this marvellous power of self-transformation to the oyster, which exceeds, I think all that the new woman with all her claims for woman's rights could imagine in her wildest dreams. But I believe even Mr. Collett is not quite sure on this point, so that one of the most important problems connected with the life history of this bivalve still remain to be solved by science. Another point on which I should wish to be enlightened by Mr. Collett is with regard to the formation of pearls. He has given in his adhesion to the parasitic theory and even quotes Dr. Kelaart in support of it—but a careful reading of Dr. Kelaart's reports, both of '57 and '58, seems to me to show that while he only countenanced the parasitic theory as accounting for exceptionally, as it were, the formation of pearls in some cases, he never abandoned his original theory made from actual observation that the true nuclei of true pearls are the ova of the pearl oyster itself as a rule, and only exceptionally the ova of parasites that enter its body with its food, while only inferior and irregular false pearls result from the artificial intrusion of particles of sand, etc., to serve as nuclei. So far as my reading goes Dr. Evarard Home in the last century was the first to advance the theory of abortive ova being the nuclei of pearls, and Dr. Kelaart at first accepted it with a modification by saying that it was not the ova which are left behind in the *ovarium* but those which escape through the over-distended coat of the egg-chamber, when it ruptured as it may easily do near the hinge, when they would bury themselves in the interstices of the mantle and so become the nuclei of pearls. But in his later report of 1859 he says he was so fortunate as to find an entire ovarium charged with no less than 32 pearls, and still another which he did not open, but which appeared to contain as many more—thus completely confirming Dr. Home's theory. Both these specimens he sent to Dr. Owen, and are now to be seen in the Museum of the College of Surgeons in London. How, or whence the *nacre*, or pearl-lining substance was formed for these pearls in the ovary, Dr Kelaart would not or could not determine, but he supposes with great probability—what science at the present day can easily confirm—that the ovarium membrane can secrete it. For it is a curious circumstance that human pathology affords analogous illustrations, both of abortive ova and even embryos becoming the centres of new and varied forms of all growth—and sometimes of concretions of an intensely hard character known as lithopadia—but still more curiously that the lining membrane of the ovary from which proceed these metamorphosed but unimpregnated iva sometimes secretes the most extraordinary structures such as bones, teeth, hair &c., without any trace of embryonic formation, which may even grow from the ovary of the embryo itself, and become serious pathological tumours in after-life, It is unnecessary for me to point out the bearing that this theory of Dr. Kelaart's has on the proper method of oyster culture. Entirely opposed as it is to that now proposed, based on the theory that conditions which favour the entrance of parasites which foster disease are the best for pearl formation. In conclusion, I am sure that Mr. Collett will do Dr. Kelaart the justiceto acknowledge that although there may be no ponderous monograph in any language on the natural history of the oysters—and a great book, according to the great proverb, is not seldom a great evil,—his reports on the subject, though written nearly 50 years ago, are as complete as far as they go on the subject as could be desired. There has been little that is new that has been discovered by naturalists since, to supply the desiderata Mr. Collett refers to in his paper. I say this, because I do not think Ceylon has sufficiently acknowledged the debt of gratitude she owes Dr. Kelaart for his researches, in connection with the Ceylon Pearl Oyster. One of the earliest sons of the soil—belonging to the Burgher community, who having secured a British degree, entered the Army Medical Service, where his reputation as a scientist generally—as Geologist, as Botanist, as Zoologist, especially as a Conchologist in connection with the subject of Pearl Oysters—has received the recognition of the whole scientific world. (Applause.)

After the vote had been carried by acclamation, Mr. COLLETT, in rising to reply, said he would like to answer one or two points raised by Dr. VanDort. Firstly, he would refer to Sir W Twynam as regards the pathological and zoological study of the oyster; that authority said that our knowledge in this respect was still almost nil. His own paper had been entirely theoretical, summarising the latest writings on the subject, and he (the speaker) had taken it up more as a zoological recreation for a busy planter than with any scientific experience of the subject. Dr. VanDort had expected him to put into the paper more than he (Mr. Collett) had intended. He was very gratified at the reception his paper had received; he could feel that if it had done nothing else, it had elicited a most interesting discussion and he thanked them all for their cordial vote of thanks. (Applause).

The BISHOP OF COLOMBO proposed a very hearty vote of thanks to His Excellency for occupying the chair that evening. In any assembly of the inhabitants of Ceylon they were very much pleased to have the Governor with them and the members of that Society felt that in a particular degree. They were very grateful to His Excellency for having made the effort to come out on that wet night. Cynical outsiders might say that a meeting of the Royal Asiatic Society would be the very place to come to on a wet night, because they would be sure to find something dry. (Laughter.) Such a person would have been hopelessly wrong, on an occasion like that evening. He was not aware to what extent His Excellency gave a personal study amidst his many vocations to those matters which particularly occupied them as a learned Society, but it was quite certain that in one branch of their proceedings H.E. encouraged them by his presence that evening as in that part of their proceedings in which they tried to lay or develop that scientific basis upon which alone could be soundly erected any structure of utility in any work, especially of production of any kind. And their Governor had shown them by the interest that he had taken and the efforts he

had made for promoting the scientific side of agriculture and providing a scientific staff for placing upon the most sound basis the great industries and productions of the Island, that he recognised what a Society like that tried to teach, what they were trying that evening and on all similar occasions to teach to the people of Ceylon, *i.e.*, that only upon a thorough scientific study of the facts and the natural laws that commerce and production and works of usefulness can be well conducted. (Applause.) They were very glad that H.E. should be amongst them on such an occasion and that they should have such support. There were many times when their papers dealt with matters, the utilitarian tendency of which could not easily be discovered. (Laughter.) The Society existed in a great measure in order to keep before the minds of men that knowledge was valuable for its own sake. There were also times when the bearing of knowledge, scientific knowledge in particular, upon the practical needs of men and Governments came within their purview and on such occasions they were extremely thankful to have the presence of their Governor. (Applause).

Mr. S M Burrows said that, while he felt a strong sense of his unworthiness for the task, he congratulated himself on the honour done to him that night in his being asked to second the vote of thanks to H.E. the Governor for being present that evening. He said that His Lordship and he had often met on various boards that arranged no doubt adequately for the instruction of others. It was strange that they should thus meet on an occasion when arrangements had been made no doubt equally adequately for the instruction of themselves. (Laughter.) He came to the meeting that evening knowing about as much of the pearl oyster as he did of Chinese, and he went away feeling he could pass a very fair examination on the many scientific aspects of its study—from the highly technical terms so glibly mentioned by Mr. Collett to the case of the "oyster crossed in love" so unexpectedly brought in by a later speaker, Mr. John Ferguson. He begged to second a very hearty vote of thanks to His Excellency for presiding, a distinction which had heightened the interest of the gathering that night.

H.E. THE GOVERNOR.

His Excellency, in returning thanks, said: I am extremely obliged to you—to you, my Lord, for the gracious terms in which you have proposed; to you Mr. Burrows for the kindly terms in which you have seconded; and to you, ladies and gentlemen, for the cordial manner in which you have passed this vote of thanks which is in no way merited by me. It is a great pleasure to me to be present at the meetings of this branch of the Royal Asiatic Society, and I only wish my duties would permit me to attend more frequently. Perhaps on occasions when you are having a learned and scientific discussions I might feel like a fish out of water or to use a more appropriate simile, an oyster off its bed. (Laughter). But when this Society is assembled to discuss an unusually utilitarian question, how to conserve, how to protect and how to advance one of our great industries I feel more at home. Nevertheless I must confess that it was with conflicting emotions that I learnt that the paper today was regarding Oysters and how to conserve them. (Laughter). A poet of old,—Virgil, I believe—Mr. Burrows will correct me if I am wrong—said there is no one more bitter than a beautiful woman whose charms have been spurned. (Laughter). There is here no lady who has been in that unpleasant position; but my charms have been consistently spurned by the Oyster since I assumed the administration of this Colony. (Laughter). And yet no man was more kindly disposed to the Oyster than I was when I landed here. (Renewed laughter). I looked forward keenly to making his acquaintance and anticipated the great advantage that would follow upon such intimacy. (Laughter.) Indeed I may say that I built castles in the air, at any rate on his shells I built many a railway and many an irrigation scheme. (Laughter). Unfortunately I have been persistently boycotted by the Oyster. (Renewed laughter). And now my feelings towards the Oyster have greatly changed and I begin to remember that he has always been hostile to me personally—that I have never taken an Oyster that has not disagreed with me. (Loud laughter). Altogether I begin to look upon the Oyster as a capricious, deceitful fish or mollusc or, as Mr. Haly expresses it, an invertebrate creature. (Laughter). These being the feelings I entertain towards the Oyster when I was called upon to consider measures not for its destruction, but for its conservancy, I was greatly perplexed. (Laughter). It is difficult for a just man to satisfy his own private vindictive feelings and do his duty as Governor of the Colony, but happily the difficulty no longer exists. Thanks to Mr. Collett these conflicting feelings have been reconciled because he tells us that the pearl is a pathological product; that is to say, only disease in the dying oyster can produce the pearl and therefore what we call the Conservancy of the oyster is only to produce those unhealthy conditions of life which will make it diseased or dying (Laughter). Under those circumstances I am one with you all in your desire to conserve the Oyster. (Laughter and applause). Joking apart, I think this talk on our fisheries will not be without its advantages if it has induced us to consider and reflect whether more scientific treatment, more scientific procedure could not be adopted than that of two or three thousand years ago. Dr. Haly is not, but no doubt ought to be a member of the Legislative Council:—if he had been he would have known that that wise and sagacious and far-sighted entity—the Hon. Treasurer, who is present will bear me out in describing it as such,—the Government of Ceylon (laughter) has already taken up the matter and has approached the Secretary of State, and through the Secretary of State the learned Societies and the learned Professors of these Societies, on this subject and that from two learned Professors—Professor Ray Rankester and Professor Herdman—we have had two very valuable reports. Professor Ray Lankester, as is the way with some scientific men, has, to use a vulgar term, opened his mouth too wide. (Laughter). He has seen the opportunity of enriching the scientific world at the cost of Ceylon and he has proposed a costly mission which will no doubt collect much valuable information which would not only be to our advantage, but to the advantage of all Oyster-bearing countries. Therefore I think Mr. Ferguson's suggestion is a good one that the cost of such a mission might be divided

between those countries interested—India, ourselves, and others; but if such co-operation is not possible then I think we might adopt a middle course such as Mr. Ferguson also suggested and get Prof. Herdman if he can spare his valuable time to come over here and in collaboration with Captain Donnan, our great practical expert—they will be, I am sure, able to give us some very valuable information especially regarding that interesting question—the lite history of the oyster. Ladies and gentlemen, I think we must all feel very grateful to Mr. Collett for the very interesting paper he has read. He said it was his zoological recreation. To us it has not only been a zoological recreation but zoological instruction, and I think we are much indebted to him for this practical and useful discussion which has followed the reading of his paper. I thank you again for the very kind way in which you have received it. (Applause.)

At the close His Excellency shook hands with Mr. Collett and Captain Donnan, and inspected all the illustrative objects displayed around the table. He evinced considerable interest in the diving apparatus exhibited by Captain Donnan and the specimens of pearl shell which had been laid out The audience was some little time in dispersing even after His Excellency had left.

To Capt. Donnan, Mr. Collett and Mr. Gerard Joseph belongs the credit of adding much to the interest of the meeting by the display of these "curios" as well as utilitarian displays connected with Pearl Fisheries. A section of a pearl was under a powerful microscope; a display of different kinds of oysters including the largest "meleagrina" from Australia; copies of Mr. Saville Kent's large and profusely-illustrated books and other literature were made available and suspended at one side was an ample object-lesson of the mode in which the native diver did his work for Capt. Donnan, with stone held by coir ropes, place for his foot, the coir basket in which to gather the oysters, &c. The diving apparatus was mainly of coir and consisted of a rope with a heavy lead weight attached, beside a receiving basket of coir (in shape like an inverted tam-o'-shanter) into which the oysters were placed by the diver; as many as 100 pearl oysters could be placed in the one basket at a time.

The function terminated shortly after 11 p.m.

SNAKE BITES AND ANTIDOTES.

The following from the paper on Snakes by Dr. Gunther, of the British Museum, in the *British Encyclopedia*, is worth reproducing :—

No antidote is known capable of counteracting or neutralising the action of snake-poison. Some years ago injections of ammonia or liquor potassæ were recommended, but there is the obvious objection that hardly in one out of a thousand cases of snake-bite would either the appliances or the operator be at hand. Fayrer's experiments, however, have distinctly disproved the efficacy of this remedial measure. Equally useless is permanganate of potassium; it is indeed true that a solution of this compound destroys the properties of snake-poison when mixed with it; and therefore such of the poison as remains in the wound will be neutralised by the external application or injection of the permanganate, but the remedy is entirely without effect after the poison has passed into the circulation. Treatment is therefore limited to endeavours to prevent by mechanical means the poison from entering the circulation, or by chemical agencies to destroy or remove as much of it as possible that remains in the wound, and to save the patient from the subsequent mental and physical depression by the free use of stimulants. Whatever is or can be done must be done immediately, as a few seconds suffice to carry the poison into the whole vascular system, and the slightest delay diminishes the chances of the patient's recovery. Courageous persons badly bitten in a finger or toe are known to have saved their lives by the immediate amputation of the wounded member. To the mode of treatment summarized by Gunter* but little can be added. (1) If the wound is on some part of the extremities, one or more ligatures should be made as tightly as possible at a short distance above the wound, to stop circulation; this is most effectually done by inserting a stick under the ligature and twisting it to the uttermost. The ligatures are left until means are taken to destroy the virus in the wound and other remedial measures are resorted to, or until the swelling necessitates their removal. 2 The punctured wounds should be enlarged by deep incisions, to cause a free efflux of the poisoned blood, or should be cut out entirely. (3) The wound should be sucked either by the patient or some other person whose mouth is free from any solution of continuity. Cupping-glasses, where they can be applied, answer the same purpose, but not with the same effect. (4) By cauterisation with a red-hot iron, a live coal, nitrate of silver or carbolic or mineral acid, or by injections of permanganate of potassium, the poison which remains in the wound can be destroyed or neutralised. Ammonia applied to the wound as a wash and rubbed into the neighbouring parts is likewise undeniably of great benefit, especially in less serious cases, since it alleviates the pain and reduces the swelling. (5) Internally, stimulants are to be taken freely; they do not act as specifics against the virus, but are given to excite the action of the heart, the contractions of which become feeble and irregular, to counteract the physical and mental depression, and to prevent a complete collapse. Brandy, whisky, and ammonia in any of its officinal forms should be taken in large doses and at short intervals. The so-called "snake-stones" can have no other effect than, at the best, to act as local absorbents, and can be of use only in the very slightest cases.

Elsewhere he says :—

"Certain stones reputed, on insufficient grounds, to possess efficacy as antidotes to snake-bites are known as snake-stones."

ANTI-VENOMOUS SERUM.

(Prepared by Dr. A. Calmette.)

INSTRUCTIONS.†

The antivenomous serum is serum taken from an ass or a horse immunised against venom of snakes. It will retain its effects if kept in as cool a place as possible, away from day light and without taking the phial out of its box. At or above the temperature of 50° Cent.—122° Fahr.—the serum becomes inactive. Its preservation has been guaranteed by adding a very small quantity of camphor.

Preventive Power.—The preventive power of the serum is, at the least, of 10,000 *i.e.*, it is sufficient to inject rabbits preventively with a quantity of serum equal to 1/10,000th of their weight

Reptiles of British India, London, 1864, 4to.

† Referred to a week ago, but held over daily owing to continuous pressure on our space.

to enable them to bear, one hour afterwards, without their being intoxicated, a dose of 1 milligramme of dry venom of *cobra capella* of medium activity, said dose sufficient to kill proof rabbits in less than four hours.

THERAPEUTICAL ACTION.—If injected in sufficient quantity to persons bitten by snakes, the anti-venomous serum will prevent the effects of the venom providing intoxication is not too far advanced. It must be injected as soon as possible after the bite. Generally its intervention is still very efficacious an hour and a half after the bite with adults who rarely die but three hours after the bite of the most dangerous species of snakes.

The serum is active against the venom of all species of snakes existing in the ancient and new world. It has been experimented with the venoms of the *cobra capella* and *trimeresurus* of Asia, the *naja haje* and *cerastes* of Africa, the *crotalus* of America, the *bothrops* of the West-Indies, the varieties of *pseudechis* and *hoplocephalus* of Australia and the *vipers* of Europe.

The dose to employ varies according to the species of the biting snake, the age of the person bitten and the time of the intervention.

Generally 10 cubic centimeters are sufficient for children under 10 years and 20 cubic centimeters for adults. However, when the bite comes from a very dangerous species, such as the cobra capella, the naja haje, the crotalus, the bothrops of the West-Indies, it will be prudent to make one single injection at first of a double dose.

TREATMENT OF VENOMOUS BITES.—The first precaution to take is to surround tightly the bitten limb as near as possible to the bite and between the latter and the trunk, with a strip or handkerchief.

The wound will have to be washed with a solution of hypochlorite of lime diluted to 1 gramme for 60 of water previously boiled, titling between 0 lit. 800 to 0 lit. 900 of chlorine per 1,000 cubic centimeters.

The dose of serum must be injected in the subcutaneous cellulary tissue in the right or left side of the belly, and with the usual antiseptical recautions.

Then, with the same syringe, 8 or 10 cubic centimeters of the solution 1/60 of hypochlorite of lime will be injected altogether, but in the different parts surrounding the bite and in the passage of said bite. These injections are intended to destroy, there, the venom which has not yet been absorbed.

From that time, the strip can be taken away from the limb; the patient must be frictioned and coffee or tea be administered, and he be covered warmly so as to provoke an abundant perspiration.

The administration of ammonia or alcohol must be avoided; it would only be injurious both to the patient and to the treatment by the serum.

It is also unnecessary to cauterise the bitten limb either by red iron or chemical substances.

IMPORTANT.—Drs. making use of the above serum are earnestly requested to communicate the results obtained by its application to Doctor A. CALMETTE, Directeur de l'Institut Pasteur de Lille (Nord).—*Pasteur's Institute of Lille.*

MINOR INDUSTRIES:
VANILLA; ALOE FIBRE; AND SOAP.

(*Communicated.*)

IN the good old days when Coffee was king, the Ceylon planter scouted the idea of making money by minor industries. To have done so would have been to place himself without the pale of civilised society. But the collapse of coffee taught a salutary lesson. Planters are wiser in the present generation; and, so long as the calling be an honorable one, are not fastidious as to the source from which they can derive an income. It has already been shown how valuable an adjunct vanilla would be to the main industry—tea. Another product suggests itself, viz.: Aloe Fibre. There are thousands of acres in Ceylon suited to its cultivation. Once planted it requires little or no attention. Its market value certainly fluctuates considerably, but there is always a margin for profit. At the outbreak of the Spanish-American War it rose to over £30 per ton; its present value is from £22 to £23. The cost of cutting, carriage, gratting, baling, &c., is about R140 per ton—freight and London charges £6 per ton. It will be seen from these figures that, at its present price, there is a profit of about R100 per ton.

Again, with coconut oil at our doors, why are there no Soap factories? With coconut oil as the basis, a good household soap could be manufactured in Colombo for about R250 per ton. For anyone "in the know" there is a fortune in soap-making in Ceylon.

E. H. E.

[And yet our big Oil Mills, that used to manufacture soap regularly, could only find a market by exporting to Calcutta and Mauritius, though we imported about two hundred thousand rupees' worth a year, the figures being R269,340 of soap last year! And now the local manufacture is abandoned.—Aloe-growing has been tried, but the labour of preparing the fibre ran away with the profit, in the case of planters in the Kurunegala and Uva districts. —ED. *T.A.*]

PLANTING NOTES.

FATAL SNAKEBITE.—The lamentable death of one of Mr. Oliver's Chief Assistant Engineers on the Northern Railway from snake-bite, breaks through the record that for 60 years no death of a European from this cause has occurred in Ceylon. The greatest sympathy is due to the young widow, and other relatives at home. Mr. Ievers should see to it that Jaffna—Hindu temples and all—are cleared of cobras if it be true they are encouraged for some reason. Let a license fee be imposed, and there will be no protection, or a reward be offered for every snake's head brought to the Kachcheri.

SCIENTIFIC CULTIVATION.—Ceylon tea and other planters will be interested in the following extract from a letter received by us from Mr. Joseph Fraser:—

"I visited both the Rothamsted and Dalmeny manuring field experiments and found much that was interesting and suggestive. Those directing the Dalmeny experiments are strong on the need of getting the land into condition favourable for the growth and development of the nitrifying organisms and where leguminous crops are being raised, to the conditions, favourable, to the microbes involved, in the fixation of free nitrogen through the root nodules. The whole results are being drawn up for publication in pamphlet form, and form what I gathered when there, the details when worked out will be of great practical value."

Correspondence.

To the Editor.

SNAKE-BITE AND CURE FOR HUMAN BEINGS AND CATTLE.

Sir,—The terribly sad ease of snake-bite resulting in the death of Mr. White of the Northern Railway Extension, reminds us that we should make known as widely as possible such treatment as has been attended with success in cases of bites, from venomous reptiles. In Ceylon we do not hear much of death from snake-bite among the natives (and it would be interesting to discover why this is,) but the return of such deaths in India, for 1899, gave 22,480 for human beings and 3,793 for eattle. Dr. Watt gives the following under the head of *treatment*:—

"Immediately on infliction of the bite, a ligature should be applied very tightly about the limb at a short distance above the wound and several other ligatures at suitable distances further up. The flesh around the marks should be excised freely, the surface of the wound should be scarified, washed and squeezed, and bleeding should be encouraged. The amount to be excised around the fang-marks must depend upon the looseness of denseness of the surrounding tissues, and their consequent tendency to allow the poison to diffuse freely or not. The actual cautery may be applied to the deeper portions of the wound, where the poison may not have been removed by the excision. Stimulants, such as alcohol or liquor ammonia in 15-drop doses in an ounce of water, may be given, but over-stimulation should be avoided, and during the administration of stimulants, liquid nourishment should also be exhibited (prohibited?). If depression be marked, mustard plasters may be applied over the heart, on the pit of the stomach, or on the nape of the neck. The patient should be allowed to rest in a well-ventilated room, protected from the sun; in cases where the prostration is extreme, methods of artificial respiration and galvanism may have to be employed. Amputation should at once be had recourse to in cases when the snake is known to have been one of a markedly poisonous character, and the bite is in one of the fingers or toes. In wounds of the larger members or of the trunk where free excision is possible, amputation may not be necessary. The intravenous injection of ammonia or of liquor potassæ do not apparently do much good, but they may be injected freely into the poisoned part. The local application of permanganate of potash is strongly recommended by some authorities. Various methods of treatment, all more or less founded on superstition, are employed by the natives of India, and every now and then alleged specifics for the poison of snake-bite have been vaunted, but as yet no antidote is known which is capable of neutralising the action of the poison. The so-called "snake stones" can have no other effect than at best to act as local absorbents. They are for the most part merely pieces of charred bones which by absorbing from the wound the poison charged blood may be of use in slight cases of snake bite."

There are, of course, numerous drugs used among the natives of Ceylon and reported to cure snake-bite, but we are not concerned with these at present, as what we would like to suggest is the use of some common and handy substance, such as chloride of lime or iodine, or other treatment that can be adopted without loss of time, for it is most important that whatever has to be done must be done quickly.

Some time ago we read interesting accounts of Dr. Calmette's work in Paris in connection with the preparation of a therapeutic serum against snake-bite, and this preparation is, no doubt, now procurable for inocculation purposes. But Dr. Calmette himself recommends that in the absence of the serum, chloride of lime is the next best remedy. The Doctor's recommendation is based on a study of the blood of bitten animals. It was found that in such blood the corpuscles lost their shape and agglomerated; the blood was thus unable to do its work; in other words the fatal results were due to paralysis of the lungs caused by stoppage of circulation by the coagulated condition of the blood. This discovery led to some very interesting experiments with the result that the chemical treatment referred to was found to be efficacious. The chloride of lime should be free from absorbed water, and for use should be taken from an hermetically sealed bottle. One part by weight should be dissolved in two parts of boiling water, but the solution should never be made until it is about to be used. This should be injected subcutaneously with a syringe all around the wound and also under the skin of the abdomen, that it may enter into the circulation as quickly as possible. Dr. Calmette estimates that from 20 to 30 centimetres of the solution will suffice to save the life of a man bitten, it being administered in doses of five-cubic centime each time. Of course time is an important element in the matter.

In conclusion we would quote a passage with reference to Dr. F. E. Brown's cure for the bite of rattle-snakes, which he says he used successfully in his practice in the United States: "I have treated thirteen cases of snake-bite in my practice with simply marvellous results—even restoring life and health when the patient was supposed to be dying. My first cure occurred many years ago. A little child, say three or four years old, was brought home with two ugly gashes on the instep by a fair-sized rattler. I suppose I saw the child about an hour after the bite, with limbs badly swollen and in great pain. I applied iodine to the wound and gave the child drop doses every ten minutes for an hour, then every half hour until decided improvement. The child took 10 to 15 drops in all. Next morning the father reported that the child had perfectly recovered and was playing about as usual. My last cure was about one year ago. A lad about 15 years old, while reaching under some boards for hen's eggs was bitten on his right hand by a large rattler. He was brought to me with hand and arm enormously swollen, 'and scarcely able to stand on his feet. I pursued precisely the same treatment as in my first ease, except that I doubled the dose. He took in all perhaps 25 drops, He recovered rapidly, with no outward results. It is equally efficacious in the treatment of dumb beasts." Dr. Brown here goes on to refer to the cure of a eow which was in a bad way after the snake-bite, which, on his advice, was dosed with 10 drops every 10 minutes for an hour, then every hour for a time. The result was entirely satisfactory even in this case. It would be interesting to know if any of the above remedies have been tried locally, and if so with what success.

INTERESTED,

CACAO IN CEYLON: AND MR. CARRUTHERS.

Dear Sir,—As Mr. Carruthers' remarks on cacao canker at the N D P A meeting on the the 20th ult. have caused considerable discussion in the press, I send you a copy of a

letter I have written to the "Ceylon Standard" on the subject and should be glad if you could find room for it in an early issue as I think what Mr. Carruthers actually did say, ought to be well understood.—Yours faithfully, E. WEBB.

MR. CARRUTHERS ON "CACAO."

Hindugalla, Peradeniya, Nov. 3.

The Editor "Ceylon Standard."

Dear Sir,—My attention has been called to a leading article in your issue of the 29th ult. headed "Mr. Carruthers on Cacao," which is, I think, calculated to give a very erroneous impression of the matter. In the first place Mr. Carruthers never offered to give a lecture, but, in accordance with the wishes of several members of the N D P A, I, as Chairman, invited him to be present at our meeting on the 20th and to give a short address on plant sanitation in connection especially with the cacao canker which was to be followed by a discussion so that those interested in cacao might have an opportunity of knowing what was being done to eradicate the disease.

During the discussion, Mr. Carruthers, who, by the bye, spent a whole year in investigating the disease and in visiting various Ceylon cacao estates, stated, in answer to a question from Mr. C Gibbon, that *as far as his experiments went* no predisposition in the trees was necessary for the attack of the fungus, but he never said cacao was doomed: in fact he reiterated his opinion that cacao would continue to be a most profitable product in Ceylon, if proper measures were taken, though as in duty bound, he warned planters against the disease.

I think, such addresses and discussions, *especially if properly reported,* should be most useful in keeping us informed up to date as to what is being done both by scientists and practical planters to fight the diseases, cacao and our other products are liable to, and I regret that anything should be said in the press or elsewhere to discourage them.

I should be obliged if, in justice to Mr. Carruthers, you would give publicity to this in your paper, and I must say, I think it much to be regretted that you did not obtain more accurate information before writing the article.—I am, dear sir, yours faithfully.

(Sgd.) EDWARD WEBB, Chairman, N. D. P. A.

MALARIA AND AGRICULTURE.

Nannoya, Oct. 26.

DEAR SIR,—The following extract from remarks by Professor Celli (Director of the School of Hygiene, University of Rome) on the Epidemiology and Prophylactics of Malaria, will, I am sure, interest not only "Enquirer" but your other readers too. Under the head "Agriculture and Malaria," the Professor says "It can now no longer be admitted that the simple stirring up of the soil in malarious places determines the liberation of the germs of this infection. On the other hand, any movement which in any way alters the hydraulic conditions of a given area may really become a local cause, predisposing to the development of malaria: marshy vegetation, composed of canes, rushes, water-lilies, cresses and *conferoæ,* is very favourable to the life of the larvæ, and is, therefore, also favourable to and a concomitant of malaria by favouring the existence of the larvæ of *anopheles.* Thus irrigated meadow lands in malarious places, whenever the water becomes quite or almost stagnant in the afferent or efferent channels, and still more rice fields, with their clear and almost still water and typical palustral vegetation, constitute the best habitat of these larvæ. Hence, as is known, the formation of rice fields causes the re-appearance of malaria where it had become extinct and where it already exists, they are a very active focus of reduction."

The article from which I am quoting is a very lengthy one. But the above should suffice to throw light on "Enquirer's" query. Later researches have both modified, but still more, substantiated the professor's thories, and those interested would do well to read through his article fully in the British Medical Journal of Feb. 10th.—Yours faithfully,

GEO. E. P.

PRESERVING COCONUT MILK.

Colombo, Nov. 10.

DEAR SIR,—Referring to the article in the *Tropical Agriculturist,* vol. xx. page 342, I beg to say that "Silicic Acid, *i.e.* Quartzose Sand", cannot preserve coconut milk at all, as is said in "Sell's Commercial Intelligencer." I believe the writer of the article refers to "Salicylic Acid", which chemical is often used for preserving wines, beer, etc., notwithstanding it is strictly prohibited in all European countries. I suggest the method of Prof. Sohxlet, viz., sterilising the milk at 212° F. a procedure that is much used for preserving cowmilk for infants. I should think this is also the best way of preserving coconut milk.—I am, dear sir, yours faithfully,

DR. P. W KOLLER.

PLANTING NOTES.

EUROPEAN PLANTS AND COMMERCE.—In Europe 4,200 species of plants are gathered and used for commercial purposes. Of these 420 have a perfume that is pleasing, and enter largely into the manufacture of scents and soaps. There are more species of white flowers gathered than of any other colour—1,124 in all. Of these 187 have an agreeable scent, an extraordinarily large proportion. Next in order come yellow blossoms with 951, seventy-seven of them being perfumed. Red flowers number 823, of which eighty-four are scented. The blue flowers are of 594 varieties, thirty-four of which are perfumed, and the violet blossoms number 308, thirteen of which are pleasantly odoriferous,—From "*Journal of Horticulture.*"

PLANTING IN NYASSALAND.—We have had many good letters from British Central Africa from our well-known correspondent "H. B."—but none perhaps so crisp and chatty and full of the right sort of information as the one we publish elsewhere. "H B" specially points out how some of the surplus of Ceylon "creepers" could not do better than try B.C.A.—easy as A B C, we gather, would be the career before them—for great progress has been made there. The drawbacks however, are hinted at, so that the advice is neither visionary nor unpractical. Further long accounts of "Leopard" and "Lion" experiences by "H B" must be withheld for the present and will probably appear most suitably in our Christmas number.—"H B", gives a list of several Ceylon men now in Nyassaland.

THE CEYLON PEARL FISHERIES: PROBABILITY OF A SCIENTIFIC MISSION.

Mr. Collett's zoological recreations have borne fruit to some good purpose, and the Council of the local Branch of the Royal Asiatic Society, with Dr. Copleston as President, may congratulate themselves on giving occasion for an interesting and profitable evening, but above all for drawing forth the very encouraging utterances from the Chair made by His Excellency the Governor. There is good reason to believe that a local Enquiry and Mission directed by Professor Herdman, F.R.S., of Liverpool University, will be fruitful in useful practical results. He has long devoted himself to Marine Biology and he was selected to conduct the scientific enquiry as regards the edible oyster round the British Coasts with reference to alleged diseases to which it gave rise. No doubt Dr. Herdman has also been a close observer of all that Mr. Saville Kent (who has apparently fallen out of view of the scientific world of late years) learned and did off the Queensland Coast, in Torres Straits and off North-Western Australia in reference to Pearl Oysters, and the Culture of the same both for Pearls and Pearl-shells. He must also have read of Dr. Thurston's enquiries and reports off Tinnevelly and in the Gulf of Mannar and he will have seen how he, as well as Holdsworth, and we suppose Twynam and Donnan, are well-nigh hopeless of the successful Culture or even Conservation of our particular oyster or mussel at any point round the Ceylon or Indian Coasts. On the other hand, he cannot but read with interest of the experiments of Dr. Kelaart—a worthy predecessor of the many "sons of the soil" who have reflected credit on Ceylon by their scientific and intellectual attainments—and then among the rest of his successfully transferring the *meleagrina* oysters from Arippu to Trincomalee; why not, with all modern appliances, establish a successful culture in some part of that sheltered bay? Capt. Donnan thinks deep water essential to the formation of pearls; but Saville Kent did not find that to be the case in Torres Straits or off Western Australia. It may be said he was dealing with a different kind of *meleagrina*; but he successfully experimented up to a certain point, with the small as well as the large kind. And is it too much to anticipate that there may be an interchange between even Australia and Ceylon and India of their several oysters. Why, in fact, should Professor Herdman's Mission not embrace Queensland and Westralia (and indeed South, for North, Australia) as well as India and Ceylon. But if these Governments fail us,—although we are very confident that Lord Curzon at least, will readily respond to any reasonable proposal from Sir West Ridgeway or Mr. Chamberlain,—yet, we think our Governor is right in saying that Ceylon alone even, should not hesitate to engage Professor Herdman, if only the expense is made a little more moderate than was indicated by Dr. Ray Lankester. Ceylon has certainly the largest pecuniary stake. Not a million, but very nearly a *million-and a half* pounds sterling have been received by the British Government from Pearl Fisheries in the 104 years it has administered Ceylon; and it cannot be said that any full and satisfactory Scientific Mission has, so far, ever dealt with the question of Conservation and Culture. Considering the many and varied ways in which pearls are formed—from the fresh water mussel's treasures in Scottish and Welsh rivers, to the unequalled gems found in the meleagrina's of the Gulf of Mannar, and yet again to the large golden yellow or white pearls "faked" or evolved by skilful experts out of the blisters on the large mother-o'-pearl-shell-yielding oysters of Australian waters; and considering also the several extremely interesting and even successful attempts at forming pearls artificially or through the aid of molluscs in Europe—especially in France,—we think there is every reason to anticipate material as well as scientific advantages from such a Mission as that proposed for Professor Herdman, F.R.S., in connection with our Ceylon Pearl-oyster Banks and Fisheries. If it be the case that the erratic molluscs refuse to listen to the charming of our present Governor, charm he never so wisely, and that Sir West Ridgeway may have to leave our shores without ever seeing a Fishery or even seeing a Bank covered with millions of young oysters; yet His Excellency may rest assured that his name will always be associated with one of the most interesting and important Scientific Missions ever arranged in connection with a Ceylon industry,—if we so may term the rich and romantic Pearl Fishery which has made our island and the Gulf of Mannar famous from time immemorial. Surely after reading Saturday evening's proceedings in full, there is no intelligent person in Ceylon who will deny that a Pearl Fishery is one of the most valuable sources of public wealth, and that, as an industry, it demands every attention and encouragement in the direction of judicious conservation and scientific development.

Mr. Elliott's Paper on "Native Agriculture" and its Improvement—referred to in the Legislative Council last month was published in full in the *Tropical Agriculturist* for November. Mr. Elliott draws a distinction between Planting and Native Agriculture: the former, he considers, can be served from Peradeniya; the latter by a reformed Agricultural School to be continued under the Department of Public Instruction. Our objection to this course is that it would not secure the personal interest, attention and responsibility of the Provincial and District revenue officers and their headmen, without which we are hopeless of any real permanent progress being made in the improvement of native agriculture.

STATISTICS OF THE PRODUCTION OF COFFEE IN INDIA.

[The two tables appended state the facts regarding the production of coffee, the first in abstract for the fifteen years 1885 to 1899, the second in detail for the two years 1898 and 1899. It should be noted, however, that the figures, for which the Government are dependent upon the planting community, are imperfect and defective,—planters, for unknown reasons, sometimes withholding information.]

AREA.

At the end of 1899 there were 274,298 acres of land under coffee in India, all, with the exception of 450 acres, in Southern India. The production of coffee is in fact restricted for the most part to a limited area in the elevated region above the south-western coast, the coffee lands of Mysore, Coorg, and the Madras districts of Malabar and the Nilgiris comprising 90 per cent. of the whole area under the plant in India. About 47 per cent of this area is in Mysore, where there were 128,010 acres in 1899, and the plant is grown on 118,514 acres, being 43 per cent of the whole, in the British districts of Coorg (72,296 acres), the Nilgiris, and Malabar (46,218).

In Madras cultivation on an extended scale is practically restricted to the two districts already mentioned and to Salem and Madura. Coffee is also grown in Burma, Assam, Bengal, and Bombay, but in all these provinces on a very restricted scale.

PRODUCTION.

The yield has been very poor since 1896, that of last year being the worst of the series, and representing only about 17¾ million pounds, this quantity being hardly more than half the production fifteen years ago. Though the recent poverty of the crop has been due in the main to adverse seasons in Madras, Mysore, Coorg, and Travancore, the fall in prices since 1897 has removed the stimulus which had been given for a few years to the further expansion of the coffee-growing area, while disease has combined with adverse climatic conditions to reduce the yield.

Taking 100 to represent the area and production in 1885, the ratio of yearly increase or decrease is as follows:—

	Area	Production.			Area	Production.
1885	100	100	...	1893	109	109
1886	97	90	...	1894	117	101
1887	103	109	...	1895	119	115
1888	104	76	...	1896	121	75
1889	110	85	...	1897	116	69
1890	114	63	...	1898	118	68
1891	111	113	...	1899	115	50
1892	110	97	...			

PERSONS EMPLOYED.

According to the statements there were 27,634 persons permanently, and 82,656 temporarily, employed on the coffee estates in 1899, making a total of 110,290 persons, which is equal to one person to about 2½ acres.

EXPORTS AND CONSUMPTION.

The following figures are the average of the ten years ending 1899-1900:

			lb.
Indian coffee	Production	... ...	30,092,413
	Exports	... ...	30,017,680
	Left in India	... ...	*74733*
Foreign coffee	Imports	... ...	1,581,171
	Re-exports	... ...	735,862
	Left in India	... ...	*845,309*

The principal countries to which were shipped the Indian coffee exported in the last three years were (in lb):

	1897-98.	1898-99.	1899-1900.
United Kingdom	12,773,376	17,392,480	17,640,000
France ...	8,607,872	9,356,816	10,847,536
Ceylon ...	293,888	505,680	1,224,272
Austria-Hungary	591,360	1,023,568	298,704
Germany ...	297,584	618,688	292,544
Australia ...	199,024	265,440	272,496
Asiatic Turkey and Persia ...	863,856	131,264	137,984
Arabia ...	630,896	229,488	85,232

PRICES.

Coffee is not sold, as tea is sold, before shipment for export, and therefore there is no Indian quotation of price. The average prices in London for East India plantation coffee since 1874, are here subjoined with their variations, taking the price of 1874 as the datum = 100. Prices dropped last year, as a consequence of the great expansion in the production of Brazilian coffee, to the lowest level known:

	Per cwt. s.	d.	Variation.		Per cwt. s.	d.	Variation.
874 ...	92	1	100	1887 ...	94	9½	103
875 ..	107	4½	117	1888 ...	85	6½	93
876 ...	108	2	117	1889 ...	99	10	108
877 ...	110	0½	120	1890 ...	106	2½	115
878 ...	107	6	117	1891 ...	105	2¼	114
879 ...	100	10	110	1892 ...	104	2½	113
880 ...	99	9	108	1893 ...	105	4½	114
881 ...	91	4	99	1894 ...	101	—	110
882 ...	85	4	93	1895 ...	101	2	110
883 ...	85	7	93	1896 ...	99	11	109
884 ...	76	4½	83	1897 ...	94	8	103
885 ...	75	3½	82	1898 ...	78	1	85
886 ...	79	7½	86	1899 ...	65	2½	71

J. E. O'CONOR, Director-General of Statistics.
September 6, 1900.

PRODUCE AND PLANTING.

TEA: A WARNING.

Some recent comments made on the authority of the Calcutta "Englishman" by the "Globe" of last Saturday are calculated to work a considerable amount of mischief to the tea industry of India and Ceylon. The statement in the "Globe" is as follows:—"If the Calcutta 'Englishman' is accurately informed there is a growing disposition among Indian tea-planters to follow the same suicidal course that brought China tea into such grave disrepute. Until recently, the almost invariable practice in Indian gardens was either to destroy or use as manure the sweepings of the factories. To some extent this rubbish is composed of tea dust, but sand, and even worse refuse, also enter largely into its composition. In some samples subjected to analysis, fully 50 per cent was not tea at all, and the buyer was consequently cheated out of half his money's worth. The same discreditable fraud is said to prevail to an even greater extent in Ceylon, with the result of a downward tendency in prices, both in the colony itself and in the European market. As the sweepings only fetch five rupees a maund—80lb—it cannot make much monetary difference whether they are destroyed or sold. On the other hand, the depreciation of market values, consequent upon the lowering of quality, must involve a serious loss to the whole trade, while sooner or later Indian and Ceylon teas will be ousted from European favour by competitors with better characters. The matter is of such pressing importance that no time should be lost in dealing with it by measures of a sufficiently drastic sort. If nothing less will serve, the Indian and Ceylon Governments will have to prohibit the sale of sweepings under heavy penalties. It is not merely the commercial future of the industry that

is at stake, but the well-being of thousands of natives." It is to be hoped, in the interests of tea growers, that the "growing disposition" here referred to is not general, and that it will be promptly abandoned where it is practised. If the idea becomes prevalent amongst consumers that India and Ceylon teas are losing their reputation for purity it will be a sorry look out for the industry. From inquiries made in London, we are sorry to find that there is some ground for the warning of the "Englishman," although we cannot think that the practice referred to is carried out on a large scale. It would, indeed, be a suicidal policy if rubbish finds its way to market, and surely planters do not need to be told that it would be likely to inflict incalculable injury on British-grown tea, which has hitherto been held in high repute on account of its purity.

NOT SO GOOD AS IT LOOKS.—Tea growers have been under the impression that tea dealing was a lucrative pursuit, and that in the matter of profits it left the poor grower a long way in the rear. It is quite certain that large sums of money have been made by certain firms who advertise largely, but that prosperity in the tea trade abounds seems to be a delusion, if we may accept the following on the subject from the "Produce Markets Review." This journal, referring to the wholesale tea trade, says: "The great changes in the methods of the distribution of tea during the past few years have had a very marked effect upon the wholesale branches of the trade. Everyone regrets the disappearance of many highly respected firms as a proof of this, and it is well known that those who remain in the business find it a very difficult thing, in some cases, to make ends meet, and in others, to maintain a sufficient return on their capital. When the difficulties commenced a wrong remedy was unfortunately adopted. The wholesale tea trade had been for so many years a very prosperous one, that it was thought that the way to make its prosperity return was, not to cut down expenses, but to add to them, by making concessions to buyers, especially in the length of credit given. The result is notorious in the grocery trade, for while the retailer pays promptly for his sugar and other goods, as in fact he is obliged to do if he is to buy properly, he keeps his wholesale tea house waiting. Another inducement to trade has been to offer special discounts to buyers, which the sellers certainly cannot afford. Such concessions simply add to the crushing expenses current in tea, which are far away and above a reasonable amount, and very much in excess of those in any similar branch of the grocery trade. It appears likely that a crisis is at hand, and that something will have to be done to check the tide of futile endeavours to attract trade at the cost of the seller, who gives away more than his profit in unrecognised additions to his expenses. The only way to increase business is to sell cheaply, but to do this is impossible if expenses are to be still further added to and then lost sight of. Let people openly cut in prices as much as they please, so long as they know what they are doing, but in tea a vicious system of private concessions is ending in the ruin of the wholesale trade without real benefits to the retailer. Indeed, he also undoubtedly loses, if he is a man of means, by the encouragement of people with none, through the lax system of credits."—*Home and Colonial Mail*, October 12th.

PARAGUAYAN FRUIT.

Guava is one of the most abundant of Paraguayan fruits. There are immense numbers of trees throughout the country and women bring the fruit in bushel baskets to Asuncion. It is a round yellow-skinned fruit about as large as a five shilling piece and contains many small seeds. The tree looks like a plum tree and yields about one bushel and a half. The guava season is from Jan. to April and commences again in August. This fruit, says the United States Consul at Asuncion, makes a delicious jelly, clear and light red in colour. The fruit is also used to make paste. Naranjitas, or small bitter oranges, produce excellent preserves. They are about the size of a lemon. The bitter taste is removed by immersion in running water, and the orange entire—skin and pulp—is preserved. This orange is said to hold the flavour much better than the sweet variety. Three years after planting the tree is ready to bear and it sometimes bears twice a year. The lemon, or limon as it is called in Paraguay, is not found in as great abundance as the naranjita, but is also of extensive growth. It is not quite as large as our lemon and is preserved entire like the naranjita. The lemon tree produces from two to three bushels. Aguai is a most delicious fruit, the size of a plum, with two or three shiny seeds. The tree is the size of a large apple tree and yields about four bushels. Many are found in the vicinity of Asuncion, especially in the town of Lambare, also in Campo Grande. Abacaxis is a kind of Brazilian pineapple that has been introduced into Paraguay and grows abundantly. It is very juicy and exceedingly sweet. It is stated by experienced persons in Paraguay that the abacaxis when preserved will retain its flavour and remain fresh for years.—*Journal of the Society of Arts*, Oct. 12.

SNAKE-BITE AND EUROPEANS IN CEYLON.

Our evening contemporary is wrong in saying that no European previous to the sad death of Mr. L F White, Railway Engineer, had been killed by snakebite in Ceylon, that is if Colombo harbour be considered part of the Colony. In the olden days when all the Colombo trade with Europe was done by sailing ships, barques and even brigs *via* the Cape, one of the last-mentioned lying low in the water was climbed by one of our deadly sea-snakes which got up the cable and lay close to a young sailor who was sleeping on deck. The latter towards morning turned round, was bitten and screamed out. His companions saw the snake, and at once a boat was launched and the poor lad taken to hospital; but he died either on the way or soon after arrival there. That, we have always reckoned, was the only authentic case of a European victim previous to this most lamentable occurrence in Jaffna. "Most lamentable," because, clearly, if Mr. White had known what to do, there is a possibility that his life might have been saved. (Each Engineer and indeed new arrival for the Ceylon jungle should have a copy of "Medical Hints" or some such useful pamphlet for guidance.) First there ought to have been a simple, but very tight ligature tied round his arm above the bite; but even before this, or simultaneously, the part bitten ought to have been cut freely with a penknife or razor and the part made to bleed freely. But let us give specific advice on the authority of the late Drs. Elliott and Dickman:—

SNAKE-BITES.—Pinch up the skin between the finger and thumb and cut out a piece about the

size of a shilling. Be sure you cut out the scratch made by *both* fangs of the snake. If you cannot pinch up the skin, stick a pin or anything else to lift it up; but in any way cut or dig out the piece. Any knife—whether pen or table knife—will answer. Have no fear of the consequence of your cut: there is no artery near the surface that you need be apprehensive of opening. A bandage will therefore stop any bleeding that may follow. Cut, however late, and cut boldly, for life often depends upon your doing so. *Liquor Ammoniæ* in 20 or 30 drop doses should also be given every hour or every two or three hours, according to the urgency of the symptoms. Pain is first complained of in the part bitten, which rapidly extends upwards; pain is also complained of in the belly, aftewards breathing becomes laborious, an impediment in swallowing is felt; and the pulse and respiration become barely perceptible, before dissolution takes place. Spasms are sometimes recognized. Bites from the *Tic Polonga* are sometimes followed by discharges of blood from the stomach.

There have been many narrow escapes of Europeans from snakes in Ceylon: one of the most thrilling was that of the V. A. in Belihuloya resthouse who found on lifting his pillow in the morning, a good-sized cobra curled round his gold-watch and which had probably been under his head most of the night!—It is truly surprising that poor Mr. White did not at once take some step to deal with the bite on his arm. We trust the warning his case affords will be widely noted.

GOOD NEWS FOR CACAO PLANTERS.

Good news for Ceylon planters of cacao will be found embodied in the "special report" from Mr. H. Hamel Smith given below. Discussing the prospects for 1901, the writer considers an increased supply of the product is necessary, and he is almost certain that prices are to go higher. Considering the careful study which our correspondent bestows on the market and countries of production for cocoa, much reliance may be put on his judgment and estimates. It is true that he points out how higher prices may check the retail trade, and pleads for the maintenance of average moderate rates; but really does it not seem as if the retail prices of cocoa, as well as of tea, coffee, &c., have run too low; and that considering the good wages of the working classes, a little stiffening all round should do no harm? In any case, to judge by the crop and other statistics given, there is encouragement for Ceylon planters to extend their cultivation, if only suitable land and the vigorous, suitable kind of plant are available. North America is fast on the way to become a great cocoa-consuming country; but as Americans cannot get the supply fast enough, we trust that many will turn their attention in that country to good Ceylon tea.

COCOA PROSPECTS FOR 1901.

AN INCREASED SUPPLY NECESSARY.

(BY HAROLD HAMEL SMITH.)

As far as can be judged, cocoa prospects for 1901 point to the world's supply being larger than this year's, but not equal to the receipts of 1899; yet in spite of this prices are likely to go higher.

In proportion to the supplies received in 1899 it will, I think, be found to work out as 94 against 102, or about ten per cent less. Compared to this year (1900), counting teh year as from January to December, the Guayaquil and African crop will be larger; "Other West Indian," Bahia and Carupano about ten per cent larger all round, whilst in Trinidad, Colombia and Para, I expect to see a decrease.

The crop of the whole of the Island of Hayti or San Domingo, which comprises Samana, Sanchez and Jeremie, is an unknown quantity, and though it has beome an important one, it seems no trouble is taken keep a record of the number of bags that are shipped each year; hence it is often used, like the boy who stands in the centre of a seesaw, to "bull" or "bear" the market, according to the wish of the speculator. By some it is estimated at 50,000 bags, whilst others say that it must be nearly 200,000 bags! Those in whom I have most confidence put it at 75,000 to 80,000 bags. Lately attempts have been made to use the Cuban crop in the same way; but from all accounts this crop will be unimportant for some years to come.

On the other hand although next years receipts are likely to exceed this year's, as I have already said, I believe the average price of cocoa

WILL BE HIGHER.

That is not to say that at times, owing to pressure to sell for financial or other reasons, spells of low prices may not occur; but that at the end of next year manufacturers will find that the average price of the cocoa they have purchased during the year (1901) will cost them, say 4s to 5s, higher all round, than what they paid in 1900,—same as this year it has cost them, I am told, about 7s dearer (71s against 64s), than it did in 1899. A most satisfactory outlook, the planter will say; but if he goes into the matter properly, he will find that it is better for his interest to keep prices more on a parity, say at 72s to 75s for good red Trinidads, than to have it at 85s one year, and at 65s and even 45s the next, and this can only be done by keeping the market sufficiently supplied with the raw material to prevent its being pinched; otherwise the high price will drive a large number of the smaller makers out of the trade, and instead of having as now, more buyers than sellers, there will be plenty of sellers, but only a few buyers.

The reason why cocoa is likely to go dearer next year is not so much that the present rate of increase in the consumption will be augmented to any unexpected degree; but to the fact that last year manufacturers made very large purchases which enabled them to store up, in their private warehouses of which no returns are published, large invisible stocks, which not only rendered them independent of the market and enabled them to buy only when it suited them to do so but these stocks being an unknown quantity, prevented accurate estimates being made of what raw material there was on hand, and had a depressing effect on the market. By next year

THESE STOCKS

will have run out, or have assumed very small proportions, and to carry on their trade properly, the makers must make them up again, and it is on account of the replenishment of these invisible stocks that I anticipate a higher range of prices next year, for the circumstances under which the sales will be made will be different to what they were in 1899, when the visible supply was 55,000 bags, more than it is now (on 31st August the combined stock of London and Havre was 202,734 bags, against 257,734 bags in 1899) and the sellers uncertain what stocks the makers held.

This year has undoubtedly been a very trying one for makers in more ways than one; for whilst selling prices have not been advanced with drinking cocoas, not only has raw cocoa been high, but the sugar, and with cheap cocoas, the arrowroot as well; even the packages, for this has been a famine year in the paper trade, and the tinfoil have been much dearer. Confectioners and retailers of eating chocolates are already complaining of the rise in the wholesale price of the sweetmeat, and being unable to put up the price retail, their profits are reduced to such an extent that, important as the chocolate trade has become, it hardly pays them to handle. Now this is just what must be avoided if the

CONSUMPTION OF COCOA AND CHOCOLATE

is to go on increasing, for it is to the eating chocolate trade, more than to drinking cocoa, that we must look for any substantial and regular increase in the demand, and there is no doubt that the demand will go on increasing if it is not prevented by the high price of the raw article, which must below enough to leave a reasonable profit to the retailer, and yet let them sell the goods at popular prices. Otherwise the goods will notbe pushed; and as in this world nothing stands still, if you do not push your goods you cannot get on, and therefore, you go back. As to the prospects of the presenc rate of consumption being maintained, if not increased, the following paragraph taken from a book on Cocoa published by the largest manufacturer in America speaks for itself:—"If the increased consumption of the last 37 years is continued until 1934, and that is altogether probable, in view of the fact that cocoa is one of the very few articles which contain all the essentials of a perfect food, the amount of crude cocoa required by this country (America) alone will be nearly

600 MILLION POUNDS."

Hence it is to the interest of every cocoa planter not only to extend his cultivation, but to increase the crop of what he has already got planted, by improved methods of cultivation, manuring, pruning, &c. To make cocoa planting profitable you must be up-to-date in the methods employed, otherwise you lose the increase in the crop, that is part of your profits. and if this increase does not come, and pretty quickly too, there will be a scarcity of the raw material, and though at the time planters may feel elated at the high prices they would obtain, in the end they would suffer, for owing to their want of foresight they would be starving, instead of feeding up, the goose that is now laying them golden eggs.

IMPROVEMENT ON COFFEE CULTURE IN SOUTH INDIA.

(*To the Editor "Madras Mail."*)

Sir,—I beg to differ with the idea prevalent among some of my brother planters that an acre of coffee in Brazil contains three hundred trees only though planted twelve feet by twelve feet. It is distinctly stated in Laërness "Coffee Culture in Brazil and Java" that in the former country the land is pitted twelve feet by twelve feet, and in each of these pits four coffee stumps are planted, one at each corner of the pit, so that this will give three hundred clumps to the acre; as each contains four trees, this works out 1,200 clumps to the acre. These four stumps being planted so close together naturally make very little growth inwards, that is towards each other, but grow luxuriantly outwards; hence this wide space of twelve feet between the clumps is essential to their healthy growth. If one side of a tree is cut away and kept free of shoots, the other side will make most abnormal growth, and this is what takes place in a lesser degree with the clumps If single trees were planted at twelve feet apart the spread of branch would not be nearly so extensive as that of the clumps; hence a smaller space would be just as suitable, say eight or nine feet. Both in the Brazilian and Leeming's system the trees are left to Nature and attain a height of twelve feet and upwards. Conclusions as to what is the right distance to plant apart cannot be drawn from seeing Mr. Leeming's trees, as these were originally topped at the usual height four feet, and only will it be possible when his new clearings left entirely to Nature, attain maturity. Planters with coffee planted 6 ft. by 6 ft. and who wish to adopt the Leeming system would do well to cut out every alternate row diagonally, which would leave the field 8½ ft. by 8½ ft. In these days, when the borer is committing such havoc in most Indian coffee districts, the fact must not be lost sight of that shade, both from the shade trees and the coffee itself, is inimical to its spread, and that open spaces with its attendant sunlight encourages the pest, also that there are four chances to one against the whole clump being destroyed by borer. I quote from Laërnes the following:—"In the Santos zone, the first step there is to dig a pit from 2 to 2½ palmo square and of equal depth. It is immediately filled up half a palmo with the earth that has been thrown out which the slave presses down a little. Then a mudas stump is taken and placed at one of the corners of the pit, in such a way as to allow the fibres to be spread out. After these have been covered with a little earth, a second is planted and so on till there is one at each of the 4 corners. The spaces left between the plants are not uniform everywhere. According to difference of soil to the physical aspect of the estate and its height above the sea, planters in the Rio zone generally leave spaces of 12 ft. by 12 ft. 12 ft. by 14 ft., 14 ft. by 14 ft. and even 15 ft. by 15 ft. palmos, while in the Santos zone the spaces are 14 ft. by 14 ft. 15 ft. by 15 ft., and by way of experiment during the last 3 or 4 years sometimes 16 ft. by 16 ft. 18 ft. by 18 ft. and over 20 ft. by 20 ft. palmos. It is needless to observe that this method of planting does not produce Brazil single-trunked coffee trees, such as are almost universal in Java, but very wide-spreading coffee shrubs, that is to say a brood of 8, 10 or 20 slender stems branching out from the mudas stump. As regards the height of the shrub, though it is difficult to state an exact average, seeing that the breadth and growth of the plant frequently depend on the altitude of the plantation, yet we may safely assume that in the Rio zone the full-grown

coffee tree is from 8 to 12 palmos high, while in the Santos the standard varies from 10 to 16 palmos." I may here state that a palmo is equal to 8⅝ inches.

Shevaroys. C. K. SHORT.

—*Madras Mail,* Oct. 24.

Sir,—Adverting to "H. W." 's letter in your issue of the 25th instant, I fail to see how, apart from its impracticability in general planting, a greater number of plants than 302 can be got into an acre by conducting the operation in regular hexagons with 12 feet sides, and having a plant in the centre so that all the plants may be 12 feet apart. In a hexagon of this size every two adjacent triangles form a rhombus whose sides are 12 feet by 12 feet, and there are three such rhombic figures in the hexagon, whose superficial area, therefore, is 48 square yards, and this is space just enough for three plants. It will be observed that the centre plant of each hexagon becomes the corner plant of a rhombus 12 feet by 12 feet so that this practically amounts to planting 12 feet apart, only instead of in squares we have the figure slightly altered, but with the same area. I avail myself of this opportunity of correcting an error which crept into my letter of the 18th instant—in it "more light rain" should read "more light and air."

Gudalur. H. H. G.

A SOUTH MYSORE VIEW.

South Mysore, Oct. 26.—The interesting articles in your issue of the 16th, and subsequently, on "The Improvement of Coffee Culture in S. India," have been read with interest by many planters here. The prospect of picking such big crops with so little trouble is certainly a most dazzling one, but I venture to think there is not one planter in this district who is sufficiently sanguine of success, to cut out any of his existing coffee on the mere chance of such a prospect attaining fulfilment. Borer removes quite enough of our coffee trees yearly, and the difficulty of growing supplies, especially on old estates, has become a difficult and expensive matter. It is permissible to think that borer and leaf disease would attack coffee planted 12 feet by 12 feet just as severely as coffee planted 6 feet by 6 feet is now attacked. Shade trees are proved to be an absolute necessity in this district for the protection of the coffee during the drought from December to April and to reduce the devastation by borer to a minimum. This fact alone serves to demonstrate clearly under what entirely different conditions coffee is grown here to the conditions which obtain in Brazil and in some of the other coffee districts of S. India.—*Madras Mail,* Oct. 30.

TEA CLEARING HOUSE.

This Association was formed some years back for the mutual advantage of the wholesale tea trade and of the wharfingers. The institution has proved beneficial in some respects, especially in promoting despatch in the delivery of teas. Instead of the various wholesale houses having to send the documents round to the very numerous wharves scattered along the Thames bank, they are handed in to a central office in Mincing Lane, which saves considerable time, especially as the same system applies also to the returns of the unused portions of warrants to the owners. There is no doubt, however, that the Tea Clearing House, as at present constituted, has become injurious to the interests of a considerable portion of the trade, and particularly to those of the tea planters and importers, and of the home trade. This is because the members, on its formation, agreed only to buy teas lying at certain specified warehouses, while on the other hand non-members were excluded from the benefits of the Clearing House. People were also tempted to join it by being given discounts of 5 per cent off some of the charges, on condition that these were not allowed to other people, such as the retailers who buy tea. We have always objected to the latter portion of the arrangement, as coming perilously near those secret commissions which form such a canker in trade. These discounts have in some cases been recently increased.

The result of the creation of the Clearing House monopoly has been that, while the imports of tea have enormously increased, the warehouses at which it is placed have remained stationary in number. As a consequence, the dock and warehousing charges on tea have been maintained, and they are, as is generally admitted, exorbitant as compared with those on any other commodity. For instance, they are double those on coffee, an article which is dearer on the average than tea in bond. Tea warehousing has also become an extremely profitable business, so much so that it has been embarked upon by syndicates of merchants and others, who have become part proprietors of Tea warehouses, and who import tea in order to obtain the housing. The whole system militates very greatly against the interests of the tea planters, who have, as everyone admits, very great difficulties to contend with without the additional one of a warehousing monopoly in London coupled with excessive charges. No relief can be obtained from the Customs, who at present absolutely refuse to license more bonded warehouses for the storage of tea in London, and who will not receive payment of duty except at the specific warehouses on their list. This acts as a great hindrance to the proper development of the tea trade in London, but while the Clearing House exists in its present form no change can be expected. It is interesting to know that a leading firm of wharfingers has now seceded from the Clearing House, and it remains to be seen whether the trade will or will not re-assert its liberty of buying where it pleases. Tea-growers, importers, and dealers should also be represented in the working of the Clearing House.

The following circular has recently been issued on the subject, and it would certainly appear that the advantages of the Clearing House would be better acknowledged by an annual money payment, than by maintaining a tea warehousing monopoly.

"Tea Clearing House Committee, 21, Mincing Lane, September 27, 1900.

SIR OR GENTLEMEN,—The Committee of the Tea Clearing House beg to notify to you as a subscriber that Chamberlain's Wharf Limited, are no longer members of the Tea Clearing House, and are, therefore, not entitled to its privileges. Having regard to the terms of Rule 14 the Committee have decided, in order to avoid inconvenience to the trade, to suspend that Rule so far as regards teas already purchased by buyers, and now lying at Chamberlain's Wharf, and teas already catalogued for sale at that wharf. I am, your obedient servant, (Signed) G J POOCK, Secretary."

EXTRACT FROM RULES.

"Rule 14.—No subscriber shall be entitled to warehouse or deposit tea with, or employ in connection with tea, any dock company or tea warehouse-keeper who is not a member of the Clearing House, or to purchase or sample any tea from the warehouse of any non-member."—*Produce Markets' Review*, Oct. 6.

MANURING TEA IN THE AGRAS, CEYLON.

THIS is going to be a bumper year for Mr. Strachan's fine group of estates on the Agras—St. George, Hauteville, &c. Under the very able management of Mr. W. B. Jackson, this group has now reached an average of 800 lb. made tea per acre all over which, considering the elevation, is as good as anything in the island. Mr. Jackson was one of the first to commence burying his prunings, adding some lime, and latterly basic slag. He is a believer also in bones, castor-cake and some sulphate of ammonia. In fact, he has proved the advantage of the mixtures recommended by Mr. Joseph Fraser, for judicious cultivation, and his tea is throughout in very vigorous condition.

ABUNDANCE OF TEAK FROM SIAM.

The teak rafting season this year, at Bangkok, is expected to be one of the biggest on record. The rains have been very heavy in north Siam, and, with the great volume of water in all the rivers, teak that it has been impossible to get out for several years back is now being rafted down. It is confidently expected that long before the end of the rafting season the present high prices for teak at Bangkok will begin to fall.—*Straits Times*, October 23rd.

STUDIES OF NATURE OF THE RUBBER.

It must have occurred to every practical man concerned with the compounding and vulcanization of India-rubber, and thus confronted often with vexatious problems, that the source of much of his trouble might perhaps lie in the history of the material in his hands prior to the date of its arrival at the factory. The removal from a piece of rubber of moisture and foreign substances is comparatively easy; the real difficulty is in the proper appreciation of the mass when nothing but rubber remains. Not even the work of the most expert chemist is a sure guide to whether a certain lot of rubber to-day will yield exactly the same results in manipulation as a lot previously handled, of the same commercial grade and apparently identical in quality.

Undoubtedly the methods or processes of coagulating rubber will yet occupy a more important place in connection with the valuation of this material than has been true hitherto. It appears entirely reasonable that, all things else being equal, a difference in the treatment of two lots of rubber during the process of coagulation might lead to a difference in quality of the product when subjected to treatment in the factory, and particularly in the fabrication of the finer grades of goods. Who can say in how many cases the early deterioration of an article of rubber manufacture has been due, not to a lack of skill or care in compounding or vulcanization, but to the methods or agents employed in coagulation?

It is practically admitted by scientific experimenters with the *latex* of the rubber tree, that the nature of the process which we term coagulation is far from being clearly understood. At least there is a want of agreement as to how this phenomenon occurs, and this amounts to the same thing. If, therefore, it remains to be pointed out how coagulation takes place, the best coagulating agent for the *latex* of each particular rubber yielding species can hardly be named with certainty.

On another page appears a contribution from a careful student of the problem here referred to—Superintendent Hart, of the Trinidad botanical department—whose conclusions appear to us to merit attention. Naturally, this is a branch of study which cannot be followed in a practical way by the great majority of our readers, but it may serve to interest the factory superintendent, the manufacturer, and even the dealer in rubber goods and the consumer, to know that scientific investigation is attempting to prepare the way for a more intelligent supervision of the preparation of rubber from the initial stage.

A single sentence from Superintendent Hart's paper will indicate that the nature of his studies has a more practical aspect than might at first be apparent to the casual reader. He says:

A sample of *latex* treated with nitric acid in excess, shows that the acid absolutely destroys the rubber contained in it for general use, and deprives it of elasticity and its power of coagulation.

It may be inferred that specimens of crude rubber affected injuriously by the coagulating agent, but not enough to produce the full effect here mentioned, may find their way into the market, and finally to the factory, resulting in the production of decidedly unsatisfactory goods.

Another assertion in the same paper will be received with interest by those planters in America and elsewhere, who have been looking forward to the production of rubber from young cultivated seedlings. It is this:

The difference between *Castilloa* rubber taken from young branches and that from matured stems has been well observed at the Trinidad experiment station.

The latter quotation recalls an article published in *The India Rubber World* of April 15, 1894, by Mr. Francis Harvey, an associate member of the Institution of Civil Engineers, of England, recording his observations in the rubber districts drained by the Orinoco river. He suggested that the quality of rubber produced in some sections had deteriorated as compared with a period several years back, owing to the admixture of the sap of mature trees with that of immature saplings, and also the mixing of the gums from trees of different species, all of which he believed would be found an obstacle to the manufacture of high class rubber goods.—*India Rubber World*, Oct. 1.

SOME TEA PROBLEMS.

An intelligent anticipation of future developments as indicated by the direction of present demands must be a profitable recreation and therefore requires no apology for bringing into print. The planter has today thrust upon him some urgent demands which he must meet if he would survive. There is the demand for economy in expenditure on the production of tea, there is the demand for better quality and a greater proportion of it; and besides these the industry requires some measures to be taken for its future security from wasting blights and diseases. On the proper solution of these problems depends the prosperity of Indian tea-planting, and certain modifications in procedure, are indicated as at once called for.

The first of these in spite of what has been said lately to discount the value of expert advice is to raise a greater outturn from the same area or to keep the outturn stationary on a smaller area. This the experience of Ceylon shows to be possible by the employment of manures, but, indeed, that object lesson was hardly needed to prove the already known value of scientific plant feeding. It is arguable that with manures twice the number of plants could be profitably planted in an acre of land than the 2,000 odd which seems to be the present allowance. What is wanted now is not a large quantity of big leaf, but a numerous progeny of tips. What serves the large Souchong leaf that the market says must hereafter be left on the bushes? The saving of labour in hoeing and weeding and the increased outturn of better quality per acre would very materially affect the general position.

It is also worth while to ask whether the system of pruning now followed will not have soon to be abandoned as radically wrong in principle. I would have tea planted in solid hedges as in the old days and allowed to grow as such. The flat tabular form is, I think, the most unsuited that can be devised, having regard to the physiology of plants. Nature points out the pyramidal form as the proper one. Pruning then should become a process for climination of decadent or inferior growth only, very different from what it is now, and plucking might have to be done on stepladders. Planters who talk of "plucking surface" forget that that surface is never full, and, moreover, the bush would necessarily become just as broad in a pyramidal as in a tabular form, and plucking surface so far as that determines anything would not suffer.

On improvement of quality I hardly think many planters set much store. Quality is a relative term, and all tea said to possess quality only holds that distinction in reference to some other not so good. It follows therefore that in a general improvement the position would not be bettered; nevertheless quality is a fad with many people whom we cannot afford to ignore.

It is very doubtful whether better quality all round would hasten the annual increase in the consumption of tea, and better quality all round would certainly not of itself bring better prices without increased demand at the same time. I am not of those who believe that all the improvements and care of the last 20 years have resulted in deterioration of quality. Most certainly quality has gradually bettered, yet prices have gone down, and the man who says they have gone down relatively as quality has gone backward is not worth arguing with. Much of the China crop is made in the same way it was ever made and under the same conditions exactly, yet there also prices have gone down.

But for progress' sake quality ought to—and I believe does—steadily go forward and upward by slow degrees. The policy of "direct from tea-garden to tea-pot" has much to answer for in keeping down quality. Tea requires time and a great deal of it to mature, and instead of "direct" being a recommendation, it is the reverse. Who that has tasted well-kept tea three years old would give it for tea three months old, or doubt the wisdom of hurrying it "direct from tea-garden to tea-pot." Yet the phrase is a catchy one and for its sake the planter has suffered much in pocket and reputation. Doubtless the planter can improve quality, but only at the expense of a decent volume of crop. With closer planting and forced growth much may, however, be accomplished, and it is in this direction rather than in manipulation in the factory that his efforts will be best rewarded.

All this so far as the tea plant is concerned is striving in an artificial direction, which Dr. Watt tells us involves blight and disease. To combat these by medicaments and decoctions of sorts is futile; when tea can only survive by virtue of sulphur and black soap, we shall be in a bad way indeed. In China 1,500 years of artificial treatment has not hurt the tea plant and can it be said that India has not the means of perpetuating her industry on similar lines? A disease-resisting hybrid is quite possible, and until that is forthcoming we have the old China *jât* itself. The present wants of the tea planting world seem to point to a revival of the China *jât* or its near relatives. Immune from most blights it grows like privet, well nigh impossible to kill above ground; it may be slaughtered, but adventitious buds on the roots rejuvenate the whole plant in a few months. It is an early yielding plant. Hail might be laughed at by the owner of China *jât*; you never come amiss to China, it always has a crop of silver downy tips during the growing season. With China, the planter may at will relax his field supervision, for in no operation can the bush be permanently damaged. The want of size in the bush is made up for by number. Until therefore a hybrid is produced combining the best proved qualities of the indigenous with those of the China, here lies the salvation of tea. In the day which is surely coming when only the extreme tip of shoots will be plucked, the China will be the heaviest cropper, and its leaf weight for weight with indigenous under the conditions, will, when manufactured, bring in more money than the other.—X.

—*Indian Gardening and Planting*, Oct. 18th.

A MONSTROUS BLACK COBRA.

(*From a Correspondent.*)

TRAVANCORE, Nov. 2nd.—It was a revelation to me to hear in the course of last week from a Mahomedan officer of the Government Telegraphs that he saw, one noon, on the public road from Quilon to Shencottah, 31st milestone, a black cobra (*Krishna Sarpom* or *Kari Nagam* as he called it) 30 feet long, 15 inches in breadth, and having a hood which he roughly estimated at 18 inches broad. He and his coolies, who numbered about 60, were working in the jungle when the monster appeared and the men were scared, as they took it to be a mountain-snake which they were afraid would devour them; but when they pelted at it, it could scarcely move, it was so dull and sluggish, due to the fact, as my informant believes, that it had had a heavy meal. But every time that the coolies pelted, it raised its hood and showed that it was a cobra. It was for some time moving forwards and backwards on the road while pelted, not being able to find out a way to escape, but at last discovering a crevice in the parapet wall on the road side descended into the ravine below and dashed off at an enormous speed, which my informant tells me was incredibly fast. He measured the trail of the snake with a tape and satisfied himself that it was 15 inches in breadth. The length he ascertained also with the tape trying to remember, as well as he could, the points on the ground where the snake's head and tail were. This can only be approximately correct, as also the estimate of the 18 inches breadth at the hood. Will your readers enlighten me through your columns, whether they can believe this story? There are specialists on the subject of snakes in Travancore, one of whom is

Mr. H S Ferguson. For my part, I can assure him or other specialists that the Telegraph subordinate, whose name I have taken down for future identification, has no motive for inventing a story of this kind or for wantonly exaggerating what he saw.—*Madras Mail.*

[The easiest thing in the world to exaggerate under the above circumstances and probably the length and breadth were doubled.—Ed. *T.A.*]

PLANTING NOTES.

New Varieties of Cacao.—Those interested in cacao planting will read with much interest the proceedings of the Cacao Committee of the Planters' Association which we publish on another page. Some very practical questions were circulated by Mr. Carruthers, the Government Mycologist and we trust that the result of the experiments that may be carried out will be such as to afford a guide to the prevention of disease and the healthy cultivation of new varieties.

Tea Company Meetings.—We direct attention to the reports of several Tea Companies which we publish elsewhere. Speaking at the annual meeting of the Associated Tea Estates of Ceylon Sir Alexander Wilson, who occupied the chair, gave a very full and clear statement of the position of the Company and pointed out that the directors had come to the conclusion that it was necessary to treat the principal estates more liberally with manure, the expense to be re-couped, it was hoped by the increased yield; and Mr. Bethune also supported the policy of manuring. The Duckwari Plantation has done so well as to enable the directors to recommend a dividend of 7 per cent on ordinary shares. Last month the annual meeting of the Ottery Tea Company was held, when a final dividend of 3 per cent, making 6 per cent for the year was declared; under the circumstances these must be considered satisfactory results.

Planting, especially of Rubber, in Mexico.—Mr. J. C. Harvey sends us an interesting letter on this subject, and especially on the value of land in Mexico. What he tells us about the fertility of the soil and the growth of his Castilloa rubber trees is enough to make Ceylon rubber planters discontented. But there are drawbacks even in the Central American Republic and we cannot have everything. Still at Heneratgoda, in two years, Castilloa trees were 16ft. high and 16 inches round the base of the trunk; and at ten years the largest was 38 inches in girth a yard above the soil and about 50ft. high; while Major Gordon Reeves reported trees at 8 to 10 years old 25 feet high and 30 to 36 inches in girth. The Castilloa likes a stormy climate and deep rich soil: in its native habit at it grows to 180 feet with a girth of 15 feet or 180 inches. All this by the way: Mr. Harvey shows the very different growth on poor gravelly soil. We hope he will write again and tell us about his Cacao and Vanilla as well as the progress of his rubber. One grand advantage possessed by Mexican planters is the splendid market for their produce offered so near to them in the United States—no need to send any produce to Europe.

Rhea Fibre.—An enquiry from an Uva planter the other day led us to enquire from Mr. Manley Power how his Kurunegala experiment with Rhea was getting on. He is good enough to send us, in reply, the following interesting information:—"In reply to yours of 20th, I beg to state that we cut the produce of our seven acres of Rhea fibre and decorticated it. I have just sent home a sample to see what they will give us for it, as we have some two tons of ribbons ready to send away if we get a good offer." We trust the price offered may prove amply remunerative, and so encourage an extension of the enterprise.

Rubber.—The German Consul in Payt-Piara (Peru) reports the discovery of large rubberaorest on the Niera River, a branch of the Amazon. An expedition has been organised to start for the interior to secure the right to collect the rubber. The increasing demand for rubber has drawn attention to the advantages of cultivating gutta—a leading product of Java, and several of the neighbouring islands. A recent number of the "Straits Budget" points out that gutta-percha trees growing wild cannot meet the growing demand which must soon outrun the supply unless gutta plantations extensive enough to meet future needs are laid out. Gutta leaves have been freely resorted to in order to eke out the supply. A company has recently been formed at Batavia to develop this branch of industry.—*India Rubber Journal*, Oct. 15.

Coral Reefs of Ceylon and Maldives, &c.—Mr. Stanley Gardiner's Report which we published in our last issue is a very interesting one and we shall put it on record for reference (in a more correct form) in our monthly periodical. Mr. Gardiner considers the whole of the North of the island as far inland as Dambulla as comprising coral reef areas, and he shows that, undoubtedly, Ceylon and India were formerly connected by an elevated limestone flat as also Jaffna and Rameswaram. What he also tells us of his observations from Bentota southwards, the alternate appearance of coral colonies in the N.E., and their washing away in the South-West, monsoon is of much interest. We sincerely trust that Mr. Stanley Gardiner may be able to resume his observations in Ceylon and the islands to our West.

Manuring and the Value of Cattle Manure.—We direct attention to some useful analyses of different kinds of cattle manure, supplied by Messrs. Freudenberg & Co., (of the Hulftsdorp Mills' Manure Works) and given on another page. Planters cannot fail to be interested in the results given and especially in the summing-up which shows that ordinary cattle manure is really not worth for its chemical constituents. more than R7 per ton, or if there has been no waste of nitrogen—the manure being covered in and otherwise protected—the value may rise to about 12 rupees per ton! This is very little; but do the chemists make a proper allowance for the value of "bulk" in a fertiliser,—for returning to the soil so bulky an article as cattle manure?

THE OTTERY TEA COMPANY OF CEYLON LIMITED.

ANNUAL REPORT.

The Directors beg to submit to the shareholders their report and acconnts for season ended 30th September, 1900.

The crop secnred amounted to 172,956 lb. tea' against an estimate of 160,000 lb., showing an increase of 31,401 lb, over last season.

The tea cost laid down in Colombo cts. 23½ per lb. as compared with cts. 27·31 for year 1898-1899, whilst the nett average price realised was cts. 39·55 against cts. 46·91 last year, and cts. 42·40 in 1897-98.

A sum of R3,019·65 was spent on machinery, of which R579·65 has been charged to expenditure, and R1,183·99 for manure has also been similarly charged, making a total amount of R1,763·64.

Last season R2,827·60 was spent on manure, of which R1,827·60 was included in the ordinary expenditure, the balance R1,000 being paid for out of the Reserve Fund.

After making provision for the interest on mortgage, &c., the balance of profit available amonnts to R24,503·60. Of this amount R8,940 was absorbed by the payment of an interim dividend of 3 per cent to 31st March last, and the Directors now recommend that the amount of R2,440, which has been transferred to machinery account (beiug the balance of R3,019·65 mentioned previonsly), be written off for depreciatiou, that a final dividend of fonr per cent be paid absorbing R11,920, and the balance of R1,203·60 be carried forward to the next acconnt.

In terms of the articles of Association, Mr. R H S Scott resigns his seat on the Board, but, being eligible, offers himsef for re-election.

An Auditor will also have to be appointed for season 1900-1901.

THE SCOTTISH TRUST AND LOAN COMPANY OF CEYLON, LTD.

ANNUAL REPORT.

Report by the Directors of the Scottish Trnst and Loan Company of Ceylon Limited, to the Twenty-third Ordinary General Meeting of Shareholders, to be held within the Company's Registered Office, No. 123 George Street, Edinburgh, on Wednesday, the 24th day of October 1900, at 2 o'clock afternoon. The Directors present their Twenty-third Report, being for the year to 31st August 1900.

Estates in the Company's Possession.—The yield of tea for the year exceeded the estimate, though the estates, situated as they are in different districts and at different elevations, show varying results. The average yield per acre was 393 lb. While the general average cost of production was redneced, the net average price realised was lower than in the previous season. The return from coffee shows a gradually diminishing quantity.

Factories, Buildings, and Machinery.—During the year additional motive power for Annfield and Sarnia, and the formation of the Government road to Annfield, necessitated considerable outlay. Minor additions to buildings, upkeep of young tea and of fuel reserves, had also to be provided for.

In the current season machinery will be required for Brookside and Sarnia, and an extension of the faotory at Alnwick cannot longer be delayed.

Debenture Debt.—The balauce of the Debenture issue was paid off at the term ef Martinmas 1899.

Mortgages held by the Company in Ceylon.—During the year the Tonacombe Estates Company Limited of Colombo repaid a snm of £1,000 to account of their debentures held by this Company.

Accounts.—The balance at the credit of profit and loss account is £5,827 19 2

And the directors propose to pay a dividend of 5 per cent per annum, free of income tax	£2,250 0 0	
Note.—Two and a half per cent of this was paid as an Interim Dividend at Whitsnnday 1900.		
To pay bonus of 5 per cent free of income tax.....	2,250 0 0	4,500 0 0
Leaving ...		£1,327 19 2

to be carried forward to next account.

Acreage and Cultivation of Estates.—The ol lowing figures may be of interest to the shareholders as showing the extent of the Company's properties and the area under cultivation:—

	Tea.	Young Tea.	Forest and Fuel.	Patana and Grass.	Coffee, Buildings, etc.	Total acres.
Alnwick	348	132	234	227	...	941
Annfield,	251	..	28	...	10	289
Brookside,	181	60	35	1½	5	282½
Kaipoogala,	277	2	66	75	..	420
Rahanwatte,	258	21	20	9	..	308
Sarnia,	417	93	130	245	90	975
Total,	1732	308	513	557½	105	3215½

In recording an expression of their appreciation of the services rendered by the Estate Superintendents, the Directors desire to make special reference to the long and valued services of Mr Edward Hope, for many years Manager of Kaipoogala, who died in June last, on his way home, after retiring from the Company's service.

Mr. A Gordon Dickson, one of the London Agents, returned to this country in February last, after a year's residence in Ceylon, during which he visited the whole of the Company's Estates.

The Directors have taken advantage of the presence in England of Mr R S Templer of Messrs. Cumberbatch & Co. of Colombo, and of three of the Superintendents, now on furlough, to discnss with them various subjects relating to the practical working of the estates. A conference with these gentlemen has been arranged, and will be held in Edinburgh previous to the meeting of Shareholders.

The Director retiring by rotation is Mr John Wilson, who is eligible for re-election.

The Directors have, with regret, to record the death of the Hon F J Moncreiff, C.A., for many years Auditor of the Company. The audit of the accounts for the financial year under review was entrusted to the late Mr. Moncreiff's firm, Messrs. Moncreiff and Horsburgh, C.A. The Directors ask the approval of this interim appointment, and recommend the election of the firm as Auditors for the current year.—By Order of the Board, FRANCIS A BRINGLOE, Secretary.

KINTYRE TEA ESTATES CO., LD.

FOURTH REPORT OF THE DIRECTORS

to be submitted at the general meeting to be held on Thursday, the 25th day of October, 1900, at 12-30 o'clock, at the offices of the Ceylon Association in London, 61 and 62, Gracechurch Street, E.C.

The Directors have the pleasure to present the accounts for the twelve months ending 30th June, 1900. The estimated tea crop for the season was 480,000 lb and this was again largely exceeded, the total secured amounting to 540,279 lb or up-

wards of 40,000 lb more than was harvested during 1898-99. The average cost of production was estimated at 26 cents per lb, but a considerable saving on this figure was effected, the actual average cost being $24\frac{1}{2}$ cents, the lowest yet attained by the company. The board think these figures reflect great credit on the management of the company's estates; the profit, however, is less than last year, owing to the lower prices realised for the company's teas, the fall in price being $\frac{3}{4}$d, the produce of Ceylon estates of a medium and low elevation having generally fallen fully 1 a lb. The net profit amounts to £4,586 6s 5d, and after paying directors' and auditors' fees, &c., income tax, and commission to superintendents, there remains a balance at profit and loss account of £3,961 8s, to which has to be added £121 11s 11d brought forward from last year. The board have paid half-yearly, as usual, the dividends on the preference shares, amounting to £1,000, and an interim dividend of $2\frac{1}{2}$ per cent on the ordinary shares, which absorbed a further £1,125; they have set aside £250 for wear and tear of buildings and machinery (making a total of £1,000 on that account), and they now recommend the payment of a final dividend of $3\frac{1}{2}$ per cent on the ordinary shares (making 6 per cent for the year), for which £1,575 will be required, leaving £132 19s 11d to be carried forward to next year. A sum of £228 16s 5d was expended on the Ayr Estate factory and machinery, and on the upkeep of the 33 acres of young tea which is not yet in bearing, and this sum has been charged to capital account. The sum of £90 17s 8d has been added to coast advances during the year, and the whole of the advances outstanding have been certified by the superintendents to be good and recoverable. The average yield of tea in full bearing was 650lb. per acre, and the gross average price realised in London was 7·03d. per lb., while the average rate of exchange was 1s. $4\frac{1}{2}$d. per rupee. The estimates for the current season point to a tea crop of 521,000 lb., to cost 24.62 cents per lb.—*H. and C. Mail*, Oct. 19.

KORALE TEA ESTATES.

ANNUAL REPORT.

Report of the Directors, to be submitted at the Fourth Annual Ordinary General Meeting of Shareholders, to be held at the Office of the Company, on Thursday, 25th October, 1900, at 3 p.m.

The Directors now submit the Report and Accounts for the year ending 30th June, 1900 which have been duly audited.

	£	s	d	£	s	d
The net amount at Credit of profit and Loss Account after providing the General Expenses is	1,564	2	2			
To which should be added the balance brought forward from 30th June, 1899	169	6	11			
				1,733	9	1
To dispose of which, it is proposed to pay a dividend of 3 per cent. on the perference Shares which will absorb ...	1,436	11	0			
Directors' fees ...	150	0	0			
Expenses of Formation written off	100	0	0			
And to carry forward a balance of	46	18	1			
				£1,733	9	1

In presenting their Fourth Annual Report the Directors regret that though the estimates of crop from all the Estates have been fully realised, and the quantity of tea secured has been considerably in excess of last year's yield the lower range of prices has reduced the earning power of the Company, and they are thus prevented from declaring as good a dividend as last year.

In accordance with the Articles of Association Mr H W BRETT retires from the Board, and being eligible offers himself for re-election.

During the year Mr W S Bennett, the Chairman of the Company, visited Ceylon and reported favourably upon the effective and economical management of the Estates and their good order and condition, and despite the poor results of the past year, the Directors desire to record their appreciation of the services of the Agents and Managers in Ceylon, whose efforts they trust will during the current year be attended with a result more satisfactory to the Shareholders.

ACREAGE OF ESTATES.

TEA.

	Over 4 Years.	Over 2 Years.	Over 1 Year.	Under 1 Year.	Chena & Patna.	Fuel.	Forest.	Total.
Riverside	290	—	—	—	88	12	—	390
Glenloch	$175\frac{1}{2}$	3	—	—	82	$55\frac{1}{2}$	—	316
Karagastalawa	120	58	29	32	81	58	14	392
Wewesse	348	101	106	45	151	3	50	804
	$933\frac{1}{2}$	162	135	77	402	$128\frac{1}{2}$	64	1902

	Crop.		Expenditure on Production.		
	1899-1900	1898-9	1899-1900 Exchange 1/4 29 64		
	lb	lb	£.	s.	d.
Riverside ...	154,620	151,675	2,329	3	6
Glenloch ..	60,427	60,000	1,265	18	11
Karagastalawa including bought leaf..	82,468	67,965	1,799	16	10
Wewesse ..	95,000	86,547	2,129	3	4

	Cost of Production.		Av. Net Price in London.		Return per Acre.
	1899-00	1898-9	1899-00	1898-9	
	d.	d.	d.	d.	lb.
Riverside ..	$3\frac{5}{8}$	$3\frac{5}{8}$	5·28	5·82	533
Glenloch ..	5	5	5·98	6·77	344
Karagastalawa including bought leaf ..	$5\frac{1}{4}$	$5\frac{1}{8}$			416
Wewesse ..	$5\frac{3}{8}$	$5\frac{1}{2}$	5·79	6·36	273

THE GOOMERA (CEYLON) TEA ESTATES COMPANY, LTD.

DIRECTORS' REPORT.

The Directors beg to submit herewith their Sixth Annual Report and Balance Sheet, for the year ending 30th June, 1900. The accounts, after paying debenture interest and London expenses, show a loss of £173 6s 6d., which amount, when deducted from £203 2s 8d., the balance standing to the credit of Profit and Loss from last year, leaves a credit balance of £29 16s 2d. to be carried forward. The Directors very much regret the poor result of the year's working due entirely to the low prices ruling for the class of tea which the Company's Estates produce. The total crop amounted to 269,104 lb., realising a net average of 5·23d., against 234,817 lb. realising a net average of 6·29d., last year. The Estates of the Company are reported to be in thoroughly good order. A few further improvements to machinery and factory have been made, and charged to current expenditure during the past year. The Directors have been impressed by the necessity of largely increasing the output of the Estates by higher cultivation, and have consulted the leading authority on manuring in Ceylon, Mr. Joseph Fraser, who has embodied his views in a voluminous

report which can be seen at the office of the Company. The Directors propose acting upon the advice given them, and trust that the result will be to the advantage of the shareholders. The Directors did not draw their fees for the latter half of the year and propose waiving them. Mr. B F White retires in accordance with the Articles of Association, and, being eligible, offers h mself for re-election. The auditor Mr. J D Stewart Bogle, C. A., retires and offers himself for re-election.

THE SOUTH TRAVANCORE TEA COMPANY, LIMITED.

DIRECTORS' REPORT,

to be submitted at the fourth annual ordinary general meeting. to be held on Tuesday, October 30th.

The directors beg to submit herewith their fourth annual report and balance sheet for the year ending 30th June, 1900. The outturn of tea was 311,709 lb. being 38,291 lb., below the original estimate, against 337,961 lb., last year. This shortage was entirely due to an extremely severe and abnormal drought during a portion of the year, which adversely affected the flushes. The average price realised was 5·38d. per lb., as against 6·03d. last year and 5·55d. the year before. The gross profit was £2,158 13s 11d., against £3,339 15s 10d., last year and £1,304 15s 3d., the year before. After providing £250 for the Debenture Sinking Fund and placing £300 to coast advance reserve, the nett profit amounts to £853 19s. which, with a balance of £467 16s 2d. carried forward from last year, leaves a sum of £1,321 15s 2d. which the Directors propose to dispose of as follows :—Preference dividend for the year £825. (This has already been paid). Leaving a balance to be carried fsrward of £496 15s 2d. In view of the present depressed state of the tea market, and of the falling off in the yield and prices during the past season, the Directors do not propose to distribute any dividend on the ordinary shares, but recommend that the balance of £496 15s 2d. be carried forward to the new year. The area under tea now amounts to 730 acres. The reports on the condition of the Company's properties from the Manager and the Visiting Agent are of a satisfactory nature. Mr. Stewart and Mr. MacDonald continue to give the Directors satisfaction in the exercise of their duties, and the falling off in the profits is in no way their fault. The Manager's estimate for the present season is 340,000 lb. In accordance with the Articles of Association, Mr. T C Owen retires by rotation, and, being qualified, offers himself for re-election. The Auditors, Messrs. Jackson, Taylor, Abernethy & Co., retire, and. being eligible, offer themselves for re-election.

THE CAROLINA TEA COMPANY OF CEYLON, LTD.

REPORT

of the Directors to be submitted at the eighth annual general meeting of shareholders, to be held at the offices of the agents, Messrs. Frith, Sands & Co., Winchester House, Old Broad Street, E.C., on the 31st October, 1900.

Your Directors beg to submit the balance sheet and profit and loss account for the year ending 30th June, 1900. The nett profit is £6,926 8s 4d ; amount brought forward from last year at credit of the ordinary shares £1,199 9s 9d = £8,125 18s 1d. From which has to be deducted debenture interest £2,450, leaving an available balance of £5,675 18s 1d which it is proposed to appropriate as follows :—To reserve fund £1,200 ; to new clearings, buildings and machinery £1,000; to a dividend on the ordinary shares of 6 per cent. (of which 2½ per cent. was paid on 26th April, 1900) £3,000 = £5,200; and to carry forward to the credit of the ordinary shares £475 18s 1d.

The crops secured during the season compare as follows with those for season 1898 1899 :—Tea from estates 1899-1900, 1,131,333 lb. ; 1898-1899, 961,757 lb. Cocoa from estates 1899-1900, 414 cwt. 1898-1899 555 cwt. The tea crop cost 4·78d. free on board Colombo, as against 4·61 per lb., in 1898-1899, the increase being due to the higher average rate of exchange of 1s 4 15-32d., as against 1s 4 9-32d. The average gross sale price was 7.06d., as against 7·65d. for the previous season. This fall being about on a par with the decline established in Ceylon teas generally, and alone more than accounts for the diminished profit shown by the returns. The yield of cocoa would have been larger had the Udapolla estate not suffered from severe drought during the blossoming season. The excess in the total expenditure on crop account over that for the previous season, was caused by the increased crop of tea, and by the inclusion of a sum of R4,653·80, equivalent to £319 6s 9d. for new clearings and upkeep, the cost of which in previous seasons had been placed to capital account. Including the sum of £1,200 to be added this year, the Reserve Fund now amounts to £9,600, besides which £1,000 is being placed to the credit of expenditure on new buildings, machinery, &c., to cover recent outlays on the Carolina factory, as referred to in the last report. Your Directors are pleased to state that in a special report on the company's estates, which was made by Mr. Megginson, the late estates Manager, during his visit to Ceylon this year, he confirms the advices previously before them that the properties are in a thoroughly satisfactory condition; that the extensions to the tea area, on which much capital has been expended since the Company's formation, have proved most successful and are giving a full return on the outlay; and that the estates are being worked on the most economic lines, consistent with efficiency and a due regard to their future. The staff in the Company's employ continues to give entire satisfaction. Your Directors have appointed Mr. Wharram Megginson to a seat on the Board, rendered vacant by the retirement of the late General Hopkinson, C.S.I., so that they might avail themselves of his intimate knowledge of the estates and their working. The Directors retiring by rotation are Mr. H St. J Oscar Thompson and Mr. C A W Cameron, who, being eligible, offer themselves for re-election.

PROGRESS AND PLANTING IN NYSSALAND, B. C. AFRICA.

(By an ex-Ceylon Planter.)

MLANJI, B. C. AFRICA, Oct. 1st, 1900.

I had a run into Blantyre to see the annual

AGRI-HORTICULTURAL SHOW

which took place on the 5th and 6th ultimo. My daughter and I left here at 7 a. m. and reached Blantyre, 40 miles, at 6 p. m., journeying in a machella, hammock slung on a bamboo pole with eight carriers each. What physique these niggers have to carry my weight, 13 stone, two men at a time, one at each end of the pole, changing from one shoulder to the other and relieving each other by turns as they get tired, trotting along like a pair of Pegu ponies—coolies could not do it. Four men to a chair with a lady in it pumps the Tamil in no time. The Show was not up to much. The people in this country do not seem to realise the amount of good such an exhibition does, and people say : "Oh ! what have I got to exhibit, so and so has better than me ; it's no use my trying, I'll get no prize, &c." Of course if everybody was to say and think the same, there would be no exhibitors at all.

We took in 20 exhibits and got 14 1st prizes, the principal ones being for coffee, ginger, turmeric, tea, fibre, butter, jams, cheese, The

number of European visitors to the Show would be about 250 including ladies, whose bright and cheerful countenances and handsome dresses added charm to the scene.

SIX CEYLON MEN

sat down to lunch, the day of the sports, at one table—Anderson, Moggridge, Robins, Power, Gay and myself. There was only one absentee, Lloyd, who by the way turned up to the Concert on Saturday evening. I counted over 200 Europeans on the sports' ground and every one looking the picture of health, including two Doctors. One of the latter I asked if there was anybody in Hospital? "No," was the reply, in rather a sharp tone!!—as if his professional services were not much required. He remarked, however, that the country appeared to be becoming more healthy. Notwithstanding the critics who assert that we are dying off like flies, and gambling with life, living in such a climate, we can live and do live well enough and enjoy life and work too. It was said, not long ago, that children could not live here. Why? I saw

FAT BABIES

in Blantyre (by the way Mrs. Hardy's, a Mlanji one, was the fattest, but I must not say the prettiest or I may get hauled over the coals by the parents of others) which would take a prize at any English Baby Show. What do you think? There are also to be seen fat rosy-cheeked youngsters with big pith-hats on, the very pictures of health, playing about in the open in the sun all day; surely with ladies and children galore, the climate cannot be so deadly as people would make out.

Ceylon seems to be overstocked with

CREEPERS OR GRUBBERS

at present. Why not send some of them over here; there is room enough in all conscience. Land and living is cheap, but I suppose they funk the climate, although they do not mind the glory of fighting the Boers. By the way I have a son who has been all through the war, and has not got wounded even, lucky boy: it is really marvellous how some escape.

COFFEE

is not looking over bright about Blantyre, There has been no rain for months, and the outlook is not promising by any means for the coming crop. We in Mlanji had 3½ inches of rain last month, which brought out a good blossom and set it well. This is a better tea than coffee country, the climate is so uncertain; but one likes to stick to coffee as it is not such a tedious cultivation as tea.

We have one great advantage here having a Sanatarium at our very door. In five hours or so I can get up to 6,000 or 7,000ft. elevation—perfection of a climate, but too cold and frosty when the sun goes north—May to August; but it is cold and bracing enough down here then.

I tried to kraal some

ZEBRAS

last month, but the men I sent to build the stockade built the gate on the wrong side, and the noise made in the changing of it drove the herd away. I am going to try again soon.

I bought a horse out of a batch of about 20 and it died from fly-bite within a week after I got it here, and the other horses all died, too, having been bitten on the journey here. H. B.

VARIETY OF PRODUCTS IN MEDIUM PLANTING DISTRICTS.

In mentioning the sale of Alpittikande in July last, we referred to the variety of products cultivated on this old favourite property, namely tea, cacao, coconuts (growing remarkably well) and arecanuts; but in addition there are over 40 acres of cinnamon fit for peeling and 10 acres under paddy, in splendid condition; while among minor products, there are pepper, erythroxylon, coca, camphor trees (prospering well), rubber and vanilla. Ten different products on the one property must be an unusual sight. Can this list be beaten anywhere else on a hill or low country estate?

SUGAR-PLANTING IN THE STRAITS SETTLEMENTS.

DRAWBACKS AND DIFFICULTIES AS WELL AS PROGRESS.

From an interesting letter from the Chief Manager of the large Sugar undertakings in the Malayan Peninsula to which frequent attention has been drawn in these columns, we learn that the present undertakings there have not been such plain-sailing as was anticipated:—"On one estate, Geelong, I am glad to say that after fighting sickness amongst the coolies and staff, we have at last got over the troubles incidental to opening up new land. A fine new factory has been erected and starts working this week on an excellent crop of canes extending over more than 1,000 acres, which area should be quadrupled in two years. At another estate, Rubana, on the Perak River, misfortune has overtaken us in the shape of crowded hospitals from ordinary ailments, but latterly cholera which we have only just managed to stamp out. Then to crown all, the rats came swooping down on us and ate down the whole of the canes—some 500 acres—which throws the estate back nearly a year. It has been most disheartening; in fact a long night-mare to me, but I now begin to see daylight through it all."

RUBBER FROM LEAVES.

Dr. Axel Preyer treats in the German *Tropenpflanzer* of the practicability of extracting rubber from the leaves of rubber-bearing trees. He describes certain quantitative experiments made with the leaves of the *Hevea brasiliensis*. In the first experiment the tree was aged 22 years; 500 leaves were treated; the latex was expressed from the leaves by manual pressure and coagulated with citric acid. Result 0·325 gramme (about 5 grains) of utilisable caoutchouc. In the second the plant was aged 18 months, same number of leaves and same process. Result 0·27 gramme (about 4 grains) utilisable caoutchouc. Dr. Preyer makes the following calculation with regard to cultivation on a commercial scale. *Hevea* plants of 18 months require but 10 centimetres (4 inches) of space between them; each plant carries 40 to 60 leaves, on an average 50, which answers to ·027 gramme caoutchouc: there would then be in a hectare (2½ acres) 1,000,000 plants giving 27 kilogrammes (59½ lb. avoirdupois) of caotchouc, even admitting that the yield could be doubled by mechanical extraction, which is doubtful. Dr. Preyer considers that it would remain too insignificant for remunerative culture.—*Indian Gardening and Planting*, Nov. 1.

THE NILGIRI GAME ASSOCIATION.

ANOTHER CONSIGNMENT OF TROUT OVA.

(*From a Correspondent.*)

Ootacamund, Nov. 4.—A meeting, after a lapse of fully six months, was held in the District Collector's office on Friday. Besides the President, Mr. C J Weir, as Collector of the District, and Mr. G Hadfield, Deputy Conservator of Forests, who has undertaken the duties of Honorary Secretary of the Association, there were present Sir Frederick Price, Captain Beadnell, Messrs. Pascoe and Herbert Brown.

A letter was submitted from Messrs. Andrews and Andrews, of the Surrey Trout Farm, expressing their regret at the failure of the two last consignments of trout ova, and offering to present the Association with 10,000 ova free of cost, provided the Association would pay the necessary packing and shipping charges, and suggesting that the consignment of ova be placed in charge of any of the members of the Association, who happened to be travelling back to India. The Honorary Secretary circulated a note with the above letter to the following effect :—" After the sad experience of the last two consignments, it is inadvisable to send for any more ova. Mr. Douglas may be asked if he could arrange with anybody in England to see to the careful packing of ova to ensure the safe arrival at Madras." It was resolved to thank Messrs. Andrews and Andrews for their liberal offer, and say that the Association would communicate with them later on. The Honorary Secretary was asked to place himself in communication with Mr. Douglas in this connection.—*Madras Mail*, Nov. 7.

TWO RUBBER-YIELDING TREES COMPARED.

Dr. Axel Preyer in the German *Tropenpflanzer* makes a comparison between *Ficus elastica Castilloa elastica* grown for rubber side by side near Subang in Java. The plantation visited by Dr. Preyer consists of 40 hectares (100 acres) of *Ficus* dating from 1864, but exploited since 1881. On an average of seven years this plantation aged 35 years gives a mean yield of 600 grammes of solid rubber per tree per year. The yield from year to year however varies enormously. In 1899 the total production of the plantation was 3,060 kilogs.; in 1895 about 3,520 kilogs.; in 1896 about 1,670 kilogs. ; 1897 about 3,270 kilogs. A kilogramme equals 2 1-5lb. avoirdupois. At the same time there are astonishing variations between the trees themselves ; from 100 grammes to 12 kilogs. The latter phenomenal yield was obtained one year, without apparent reason from a tree tapped exactly in the same manner as the others. For some years past *Castilloa* has been put down, especially on the path borders, in the cultivation of Liberian coffee. Judging from the short experience of the plantation, says Dr. Preyer, the mean production of *Castilloa* aged 8 years would be 200 grammes of solid rubber per tree per year ; at the same time there has appeared the exceptional yield of 2 kilogs. As there are 400 *Castilloa* trees to the hectare and only 125 *Ficus*, the yield for the former at 200 grammes equals 80 kilogs. to the hectare and for the second at 600 grammes only 75 kilogs. ; therefore even at present despite the difference of age there is an advantage of 5kilogs. in favour of *Castilloa*. The rubber from the latter also fetches a higher price. In 1899 it was sold at Amsterdam at 5·20 florins per kilog. against 5 florins for *Ficus* rubber. Dr. Preyer however is of opinion that a plantation devoted to rubber on a large scale with European supervision would not prove remunerative even at present prices. Rubber seems to him to be an enterprise specially suited to be pursued as an accessory in other cultivations where the general expenses are already provided for otherwise.—*Indian Gardening and Planting*, Nov. 1.

THE EXPLOITATION OF RUBBER RESOURCES.

A PANAMA RUBBER PLANTATION.—The rubber plantations of the Las Cascadas Plantation Co., Limited, which are situated at Las Cascadas, in the district of Emperador, department of Panama, republic of Panama. This plantation has been in existence since January, 1890, when the then proprietors planted 40,000 India-rubber cuttings, none of which has yet been tapped, and they have been adding to these year by year. They also have a large quantity of coffee and cacao trees, the majority of which are now bearing.

DEVELOPMENT IN BOLIVIA.—The wealth of the rubber resources of Bolivia has been demonstrated fully, but they remain closed to the world in large part because (1) of the sparse population and (2) lack of capital in that republic, but still more so because (3) of the lack of convenient means of transportation. The only means of transportation supplied by nature is the outlet through the river Madeira into the Amazon, and this is rendered almost impassable by numerous cataracts. From a Bolivian source comes news of a French undertaking to build a railway connecting the headwaters of the river Acre with those of the Madre de Dios, the advantage of which will be that the whole navigable river system of Bolivia can then be connected to the Acre, which discharges into the Purus, and that into the Amazon —thus giving Bolivia access to the Atlantic seaboard without reference to the Madeira. The Acre district now exports about 2,000 tons of rubber yearly. It is estimated that the opening of the region which the proposed railway would make possible would soon increase this amount to 20,000 tons yearly.

CONCESSIONS FOR GATHERING RUBBER.—The government of Venezuela has granted to Senor Juan Dall 'Orso, of Maracaibo, a concession for exploiting India-rubber and other products on 15 square leagues of government lands in the district of Colón, state of Maracaibo, for a period of fifty years. He agrees to pay 40 bolivars (=$7·72) for each 100 kilograms (=220 pounds) of Rubber exported ; also, to distribute seeds of the Pará rubber trees among the planters of that district. A concession covering 18,662 acres has been granted to Senor Alejandro Ortega Martinez, in the same state, on the same terms. Maximillian Doremberg has obtained a concession for the exploitation of India-rubber, Chicle, and timber in the department of Palenque, state of Chiapas, Mexico, obligating himself to pay to the government $24 (silver) per ton of Rubber and $18 per ton of Chicle exported.

EXPORT DUTIES ON RUBBER IN PERU.—A decree of the Peruvian government dated May 23rd provides that for rubber lands for which concessions are granted by the minister of public works, a rental shall be paid of 2 *sols* per *quintal*, or practically $1 per 100 pounds, for all rubber extracted. In addition, an export duty is imposed of 5 cents per kilogram on Caucho and 1 cent (?) fine or Jebe rubber, there being 100 cents in the *sol*, worth 43·6 cents, gold.

Mexican Notes.—The Tabasco Commercial Co., with headquarters at Springfield, Massachusetts, are developing a tract of 15,000 acres in the state of Vera Cruz, Mexico, between Coatzacoalcos and Frontera, cutting mahogany and preparing to plant rubber and other crops.—*India Rubber World*, Oct. 1.

CEARA RUBBER.

has not always been considered of the highest value by the Ceylon planter. But from a report I have been reading, styled "The Diplomatic and Consular Report of Bahia" for July 1899, there is a good deal more to be said for it, apparently, than what used to be, at all events, thought in Ceylon. The present day planter, of course, may, for aught I know, be more fully alive to the virtues of "Ceara" than his predecessor. The writer of the aforesaid report begins the subject by a description of Para rubber, which, though aware of its high place commercially, he rather deprecates planters cultivating, on account of the unhealthy districts in which it flourishes. He suggests as alternatives the "Mangabera," and "Manicoba" varieties, but as the former requires from eight to ten years growth before yielding, I pass it over. Coming to

THE 'MANICOBA" TREE.

he says:—"Considering everything the 'Manicoba' plant shows many advantages over other varieties. It is easily planted from seeds or saplings, grows in six or eight months in any kind of soil to a height of six feet, and will begin yielding in about three years a considerable quantity of milk, far more in proportion than any other rubber tree in existence." He then cites the case of a planter known to him who has recently planted over 100,000 "Manicoba trees" and intends increasing the number to a million, being fully convinced that a very few years will show extraordinary results.

But what has all this to do with "Ceara," some person may ask? Simply this, that in another pamphlet by Mr. Thistleton Dyer, he says that he has identified the fruitful "Manicoba" tree with the "Ceara" plant. A retired Ceylon planter, with whom I was discussing the subject, tells me he had many Ceara trees on his estate, and never once troubled to tap them; he thought so little of them. If there are any planters still who are of the same way of thinking, the extracts quoted above may perhaps lead him to reconsider the question.—*London Cor.*

A FARMER'S EVERY-DAY LIFE.

No. 14.

(*By Cosmopolite.*)

HARVESTING AND SHEEP SALES.

The month of September has been,—as usual with agriculturists,—a very busy month, harvesting having been in full swing, in addition to all the big sheep sales of store lambs, so that those who deal as much in sheep as I do, have been kept pretty well on the trot. The moon, which has just run its course, came in on a Saturday, and full moon fell on a Sunday, reminding one of the old prophecy:—

"A new moon on Saturday,
On Sunday at its prime;
If it comes again in seven years,
'T will come in plenty time."

It was during the course of a moon, with these characteristics, that

THE TAY BRIDGE

was blown down and believers took every opportunity of drawing the public attention to the result, as being in keeping with prophecy. This month that has just passed over to the majority, however, has not kept up its character, for it has been windless and rainless, but with heavy fogs at night and sunshines during the day, so that another of the cherished beliefs of our youth has gone by the board. Cutting has almost been completed, and in some cases, farmers with the earlier and higher crops have begun leading the grain to the stack yards, with the usual result that much of it is heating and spoiling, so that extra work has been caused by turning the stacks, to let them cool.

PREMATURE "LEADING."

The so called practical farmer is very fond of leading his crop before it has had time to be killed in the stock, and no number of lessons seem enough to teach him wisdom. Yet he continues, year after year, to abuse the grain merchant for giving him a shilling or two less, per quarter, for his grain which has been discoloured, than what his more patient neighbour gets, who has allowed his crop to remain in the stook until it was ready for leading I fear that too much grain has been led before it was ready, this year, for I already hear the whirr of thrashing machines all around me, and excited farmers, whose stacks are heating, may be seen chasing the proprietors of travelling thrashing mills, and begging of them to come and thrash out their grain before it is quite useless. The outcome of this ridiculous haste is that grain will be knocked down in price, as the merchants will only consent to take grain that is soft and discoloured at a very low rate, and unfortunately, this brings the price of a good sample down also. I was speaking on the subject to the doyen of the grain trade in this locality, and he darkly hinted at prices going steadily downwards, and all because the so-called, practical farmer will persist in leading his grain before it is ready to be stacked. The grain merchant I refer to was, in the early fifties, a digger on Bendigo, at the same time as Lord Salisbury, and referring to that circumstance, it appears that Lord Robert Cecil was considered one of the strongest men and best miners on the gold field. I have no doubt his early experience as a digger has been of service to him in his after-life as a politician and premier of Britain.

THE WEATHER

of the past month has been more delightful than any we have had this year, although, personally, I have had no complaint to find with the drippy weather of the past summer as it exactly suited my land. and I find that I have a finer crop than ny I have had during my term here,

and my men, who have been with me all the time, have formed the same opinion. I heard a story about a farmer, in this neighbourhood, who pins his faith on

ARTIFICIAL MANURES AND THE "FIVE COURSE SHIFT,"

and who has had the usual result, namely, a poor crop. He was speaking to a neighbour of mine, and proudly boasted that he had finished his harvesting in three weeks' time, and had his crop all safe under "thack and rope." My neighbour drily replied: "I dinna care for they shortsome haresties, I like ain that taks a hantle o' wark and a lang time aboot it"; and these are my sentiments. When a man finishes his harvesting in a very short time, it is not a sign that he is a specially smart worker, but is generally proof of his being a mighty bad farmer and the grower of poor crops. I intended sending, this time, some peculiarly bright thoughts which occurred to me, in connection with the harvesting of the crop, but found, after putting these into elegant language, that some Shakespeare or Longfellow or Carlyle had anticipated me, and not unfrequently used my very words. If those fellows had never been, it had been millions in my pocket.

INSURANCE.

Insurance of buildings is not the only outlay in that direction that farmers have to meet, for most of them insure everything about the place, not forgetting their stock and even their labourers, the latter being a very necessary item, in these days of a master's liability. I have had my men insured for many years, but only twice have I put forward any claim against the company, both occasions being on account of sickness, for which I received 12s 6d per week during the time the sick man was off work. In the event of accident by which a labourer is permanently injured or killed, the Company stands between the insured and the claimant. Life insurance in Ceylon was a subject receiving considerable attention lately and clear proof was produced that risks were less in your island than in this country; but I lately read an article which proved that Ceylon was not the safest place in the world to live in, but the fields of our up-to-date battles. Cæsar, it was pointed out, thought very little of a fight in which 50 per cent of the participants were not killed out-right. In Napoleon's time the killed in battle averaged 25 per cent, in the American Civil War 20 per cent, and in our own little South African debate, it has been only 7 per cent. "At this rate," the article continues "in a few years more, the only really safe place for a timid man, will be in a big battle, and the insurance rates on the lives of military gentlemen in active service will be lower than the rates on tract distributors or hotel porters."

SUGARLESS TEA AND UNSALTED MUTTON.

Referring to the war in South Africa reminds me that I read in the *Observer* a letter from one who had been in the hands of De Wet as a prisoner. One sentence ran thus:—"For the first four days of our captivity we lived on nothing but meat, and I can tell you we got as weak as rats."* Now this fact I can corroborate, for, when I was a youngster, living, along with a companion, in the *terra incognita* of New Zealand, we ran short of everything in the shape of food, except tea and mutton; we had no flour, sugar, salt, &c., and, for four weeks, we existed on unsalted mutton and sugarless tea, and so weak did we become that we could scarcely walk a hundred yards, and we both became permanent believers in the old saying that "bread is the staff of life." When the boat, which was wont to bring provisions to us, ultimately did arrive, my comrade seemed unable to justify his appetite, and, after watching the truly magnificent way that he gorged himself, I asked if he was enjoying himself. "Yes, thank you," he replied, but what I don't like is the long time that is wasted between the meals!"

THE SWALLOWS

left us, this year, on the 28th of September, the same date as they have chosen for their departure, 17 times out of the past 19 years. How they know when the day comes round is one of those things that no fellow can understand.

* Because there was precious little *of that meat* if we remember aright, in this case.—Ed. *T.A.*

PLANTS AND THEIR TREATMENT IN AMERICA.

We have to acknowledge with thanks receipt of the following from the Agricultural Department at Washington:—

Progress in the treatment of Plant Diseases in the United States, by B T Galloway, Chief of Division of Vegetable Physiology and Pathology.

Progress of Commercial Growing of Plants Under Glass, by B T Galloway, Chief of Division of Vegetable Physiology and Pathology.

Progress of Plant Breeding in the United States, by Herbert J Webber and Ernst A Bessey, Division of Vegetable Physiology and Pathology.

Two Diseases of Red Cedar, caused by Polyporus Juniperinus N Sp and Polyporus Carneus Nees. A Preliminary Report by Hermann von Schrenk, Instructor in Botany, Henry Shaw School of Botany, Special Agent, Division of Vegetable Physiology and Pathology.

COFFEE IMPORT DUTIES IN FRANCE

Havre, Oct. 15.—According to information obtained here, it is not correct, as reported from Bombay, that Indian coffee exported to France will in future have to pay double the duty levied upon Brazilian coffee. Coffee grown in British possessions will, on the contrary, continue to enjoy the benefit of the French minimum tariff indefinitely. Venezuelan coffee is the only coffee affected, as France has no commercial treaty with Venezuela, and the duty on coffee from that country will therefore be double what it is on other kinds. The duty fixed on Venezuelan coffee was at first to be applied to all coffee coming from Venezuela after September 21; but since this decision was taken, and in consideration of the protests made by the different Chambers of Commerce, this date has been extended until December 31. Meanwhile, a treaty is likely to be concluded with Venezuela, and then the import duty on coffee will be the same for all.—*Home and Colonial Mail*, Oct. 19.

THE TUTICORIN PEARL FISHERY.

The preliminary arrangements for holding the pearl fishery off the coast of Tuticorin were made by Captain Baker, the Superintendent of Pearl Fisheries, Tuticorin; but as he was suddenly taken ill, Captain James the Port Officer, Negapatam, was deputed to carry out the work. The fishery commenced on the 12th March last and lasted until the 28th idem, when it had to be closed as the divers were unwilling to continue the fishery owing chiefly to the immature condition of the oysters and the low prices realised by their sale. Though the revenue derived by Government during the fishery was more than sufficient to cover the expenses of working, the net profit (R11,033) says the Madras Board of Revenue, fell much below the estimated income (R93,000) and the fishery cannot be said to have been on the whole a success. It proved disastrous to the poorer folk—the boatmen and the divers who are reported to have realised hardly enough money to provide daily food for themselves and their families. It began badly by a combination among the merchants to keep down prices and when it became an undeniable fact that the oysters were immature and had a very few pearls, a panic set in so that for days together there were no sales of the Government share of the oysters, and the boatmen and divers had to sell their shares for what they could get. Captain James attributes these results to the commencement of the fishery, a year too early. He estimates that the oysters were only four years old and that they were too young to be fished. A sample of 5,000 oysters was opened by him during the fishery and the pearls extracted from them were valued by a dealer at R17-4-6 only, that is at the rate of R3-7-3 per thousand. The valuation reported by Mr. Baker in respect of the sample of 8,500 oysters lifted in October last was R10-2 per thousand, but, whatever the reason, the event has proved that that estimate was considerably over the mark. Having regard to the fact that valuation by experts is the chief practical guide for deciding whether or not a fishery should be held in a particular year, the Board considers that the method of estimation and appraising the pearls should be placed on a sounder footing.

The question of the possibility of a further fishery next year is not dealt with either by Captain James or the Collector. As a large stock of oysters appears to have been left on the bank, the Board considers that a sample should be lifted early in October or November next and a Report submitted on their condition in view to decide whether there are any prospects of a more successful fishery in 1901. It appears that some of the boatmen and divers of Tuticorin were at feud with the Jadi Talaivan and that their obstructive attitude contributed partly to the poor results of the last fishery. Mr. Bedford, the Collector, suggests that a system of rewards and punishments would be of use in dealing with a temporary panic such as that which took place on the present occasion, by enabling Government to exercise more control over the divers and boatmen. He proposes to consider the question at the time of holding the next fishery and his views will be awaited. The Board regrets to have to record the death of Captain James, who took much interest in and did much hard work in connection with the recent fishery. Mr. Bedford considers that the strain and worry incidental to the task must have told greatly on his constitution. The Government has approved the Board's proposals and shares its regret at the death of Captain James.—*Madras Mail*, Nov. 2.

PLANTING NOTES.

CASTILLOA RUBBER.—We direct attention to the letter with which Major Wyllie has favored us. Perhaps Mr. Willis may be able to settle the question raised as to the varieties of "Castilloa" rubber now in Ceylon.

TEA FOR CAFFEINE.—In his report for 1899, the principal chemist of the Government Laboratory at Bombay states that 226 samples of tea, representing 3,322 packages, were found to be mixed with sand and others substances, and were refused admission for home consumption. Tea which cannot be passed for use as a beverage is mixed in bond, with assafœtida and lime, and used for manufacturing caffeine.—*Chemist and Druggist*, Oct. 27.

DUTCH EAST INDIES.—Tea Trade.—The *Moniteur Officiel du Commerce* points out that the fall in the prices of coffee in the consuming markets has caused increased activity in tea cultivation in Java. Within the space of nine years the exportation of Java tea to Amsterdam only has more than trebled: in 1891 it was 20,639 cases (a case generally containing 40 kilos.), and in 1899 it was 69,320 cases. At Amsterdam the prices of tea in 1899 showed the following fluctuations:—

	Highest price. Florins.	Lowest price. Florins.
Flowery Pekoe ...	1.52	0.38
Orange Pekoe ...	0.60	0.30
Broken Orange Pekoe	0.51	0.38
Pekoe Souchong ...	0.41	0.25
Souchong ...	0.38	0.29

A FRUIT PARADISE is Southern Arabia or Felix Yemen, as described by Mr. Zwemer in a book just published. We quote from a review in the *Spectator*:—

"The day after leaving Mabek brought us to the beginning of the happy valleys of Yemen, very different from the torrid coast. A country where the orange, lemon, quince, grape, mango, plum, apricot, peach, apple, pomegranate, fig, date, plaintain and mulberry, each yield their fruit in season; where wheat, barley, maize, millet and coffee are staple products, and where there is a glorious profusion of wild flowers—called 'grass' by the unpoetic camel-drivers. A land whose mountains lift up their heads over 9,000 feet, terraced from chilly top to warm valley with agricultural amphitheatres, irrigated by a thousand rills and rivulets, some of them perennial, flowing along artificial channels, or leaping down the rocks in miniature falls. A land where the oriole bangs her nests on the dark acacia, the wild doves hide in clefts of the rock and the chameleon sports his colours by the wayside under the tall flowering cactus. Such is Yemen."

"The road from Ibb to Yerim has perhaps the finest scenery of any part of Yemen; never have I seen more picturesque mountains and valleys, green with verdure, and bright with blossoms,—scabiosa, bluebells, forget-me-not, golden rod, four-o'clocks and a large oleander trees. The cacti plants were in full bloom and measured twenty feet against the mountain passes. Two thousand feet below one could hear the sound of the water rushing along the wady bed.'

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Castilloa Elastica Cervantes.—Orders being booked for the coming crop of seeds available in June and July, selected seed from very old trees. R. N. Lyne, Esq., Director of Agriculture, Zanzibar, writes under date 24th August, 1899 :—"Please send me 200 seeds of Castilloa Elastica for further trial; the seeds of Castilloa you sent me last August germinated very well." Price and particulars in our Circular No. 32; special quotations for large orders according to quantity; immediate booking necessary to avoid disappointment.

Hevea Brasiliensis (Para Rubber).—Orders being booked for the coming crop available in August and September, 1900. This is the only crop of seeds in the year. All orders should reach us before the end of July to avoid disappointment, as we have to make arrangements in time; guaranteed to arrive in good order at destination. We have already booked a large number of orders. A leading Sumatra Planter, who ordered 50,000 Hevea Brasiliensis seeds last year writes under date 27th February, 1900 :—"I received your favor of the 12th instant, out of which I learn that you booked me for 100,000 Hevea Brasiliensis seeds for August and September on the same conditions as before, but at the price of—— per thousand." Plants can be forwarded all the year round in Wardian cases. Price and particulars as per our Circular No. 30. A Borneo planter writes dating, Sandakan, 17th August, 1899 :—"The last lot of Para seeds turned out very well.' Our shipments of Para plants last year has exceeded over 300,000 to different countries. Special terms for large orders on application.

Kickxia Africana (Lagos Rubber).—One of the staple articles of commerce in Lagos grow very vigorously, realizing over 3s. per lb. in the Liverpool market. Seeds and plants, price on application.

Hancornia Speciosa (Mangibeira Rubber).—Besides the value of rubber, it bears delicious fruits, which is a great favourite with the Brazilians, cultivated for both purposes. Seeds and plants, price on application.

Coffee Arabica Liberian Hybrid, Maragogopie Hybrid, C. Stanophylla and other varieties. Price of seeds on application.

Ficus Elastica (Assam and Java Rubber).—Seeds supplied with instructions; price according to quantity. This tree grows equally well in high and low land, in forest and grass land, its cultivation being extended largely by the Indian Government. For price of seeds with particulars as per our Circular No. 33.

Manihot Glaziovii (Ccara or Manicoba Rubber).—Fresh seeds available all the year round; price as per our Circular No. 31.

Urceola Esculenta (Burma Rubber) and **Landolphia Kirkii** (Mozambique Rubber).—Seeds and plants, both are creepers.

Cinchona Seeds.—Different varieties.

Sterculia Acuminata.—(Kolanut). Superior quality, seeds and plants; price on application, packed to stand the transit well for several months, a hardy tree, cultivation easy.

Erythrina Lithosperma.—Thornless variety, new crop of seeds ready in December, May and June. Price acccording to quantity on application.

Seeds and Plants of Cinnamon, Nutmeg, Clove, Sandlewood, Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign Countries for 1899-1900 are now being forwarded to applicants in different parts of the world. Also Descriptive Price Lists of Seeds and Plants of Fruit Trees, Bulbs, Tubers and Yams, and Orchids.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says :—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms, &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons and Dracinas, now being prepared and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London :—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Telegraphic Address :
William, Veyangoda, Ceylon.
Lieber's, A.1. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

JAMAICA TO SUPPLY FRUIT TO ENGLAND.

Our columns have this week borne testimony ot the fact that a new era is dawning in the relations of the United Kingdom with one of our oldest colonies. From the beginning of next year a new line of steamers, built specially for the rapid conveyance of tropical fruit, will be established by the firm of Elder, Dempster, and Co. to run fortnightly between this conntry and Jamaica. The steamers are to be of large size and adequate speed, and will rnn direct from Bristol to Jamaica in about 12 days. They will carry mails and passengers, and the service will receive a subsidy of £40,000 a year, to be paid partly by the Imperial Government and partly by the Government of the colony. It is a condition of the contract that the owners of the line shonld purchase 20,000 bunches of bananas for conveyance by each ship, paying for them at the market price of the day. It will be seen at once that this is no ordinary development of maritime and commercial enterprise, though even from that point of view it is not without interest as reviving the old historic connexion between Bristol and the West Indies. It is really a great Imperial undertaking, warmly advocated by the late Royal Commission on the West Indies, and now warmly espoused by Mr. Chamberlain as a salient feature of Imperial policy. The cultivation of the banana promotes and develops many other valuable cnltivations, as was shown at length by our Special Correspondent whose letters on the West Indies we printed at the close of last year. It is thus no extravagent estimate that the value of the fruit exports from Jamaica may in a few years exceed the present value of all the exports from the island and may amount in the end to at least £2,000,000 a year. In 1896 the export of fruit from Jamaica amounted to over 4,000,000 bunches of bananas, to nearly 10,000,000 coconuts, and to nearly 100,000,000 oranges, not to mention other frnits, and it has since largely increased. In the height of the banana season it is no uncommon thing for eighteen steamers to leave Jamaica in a week for the ports of the United States, principally Baltimore, Philadelphia, New York, and Boston. As the supply is inexhaustible the same thing may some day come to pass in the ports of this country. In the meanwhile the establishment of the new direct service, even on its present footing, should offer to those who love the sea a very inviting temptation to visit one of the most beautiful islands in the world. The climate of Jamaica affords every variety of tropical temperatnre except those which are oppressive and relaxing; its scenery lacks no element of tropical majesty and tropical enchantment. Now that it is possible to reach the island in less than a fortnight, and to spend a month there without being absent more than eight weeks from home, snrely many a sea-loving Englishman, with imagination enough to appreciate the historic associations of the British Antilles and taste enough to enjoy the glories of tropical scenery at its best, will say with Kingsley "At Last" and seek the shores of an island which more than any other perhaps in the whole world typifies and illustrates the Imperial instincts and trinmphs of his race. Let us hope, too, that those who go will retnrn convinced that Froude was mistaken in thinking that the sons of the Empire are no longer worthy to bend the bow of Ulysses.—London *Times*, Oct. 13.

THE FOREST DEPARTMENT.

Western Province.—The plantation at the Model Farm at Kalutara has been weeded each month, the expenditure on upkeep being R393·63, or R14·58 per acre. The jak are reported to be doing well and beginning to seed, while the ingasaman and lunumidella are dying out. The Para rubber plantation at Midellena in the Pasdun korale had to be abandoned. The top soil was washed away by heavy rain, and elephant deer completed the destruction of the plants. The expenditure on this plantation up to the time when it was abandoned amounted to R128·47. There has been no expenditure on the other plantations, although I have requested the Assistant Conservator to remove the suppressed trees at Botale and Polonnaruwa.

Hill Reserves.—In the Nanuoya strip plantations the *Eucalyptus robusta* are doing fairly well and require some light thinnings, but the strips originally planted with *Eucalyptus Globulus* and *Acacia decurrens* are not a success. Luckily a large number of standards were left in these strips. At Conical Hill the strip plantations amounting to 38½ acres in compartment I., have made a considerable stride since last year. The very fine plantation at Haputale now requires thinning or coppicing in strips. The coppice made in 1896 is now almost as tall as the uncut strips of 1888-89. The coppice shoots are on an average over 12 inches in girth, whereas the uncoppiced poles planted in 1889 are only about 19 inches in girth. An additional area of 2 acres was coppiced and yielded 263 cubic yards of firewood, which were sold for R526. As the cost of coppicing 2,223 trees was R111·15 and of bringing the wood to depot was R118·60, the net surplus on the transaction was R296·25, or R148 per acre, which for a plantation ten years old is good. Windfalls in this plantation gave 142 cubic yards of wood and 290 small poles, which sold for R348·40, the cost of the work being R175·40.

In the nursery clearings at Nuwara Eliya the undergrowth of brambles, &c., was cut down. This plantation is doing well as is also the plantation of *Eucalyptus Globulus* behind the Kachcheri, which should be coppiced.

BREATHING TIME.

HOW TO CURE PULMONARY DISEASES.

If during the coming winter the observant pedestrian should notice innumerable excited people striding through the streets with a stick across their backs and between their elbows, he must not jump to the conclusion that London has suddenly lost its senses. For this form of exercise is part of a treatment which is now rapidly becoming popular—the cure for asthma, bronchitist and all the other pulmonary diseases which trouble and distress the dwellers in our foggy, smoke-laden cities. Hitherto the asthmatic person has kept indoors as often as possible, carefully shutting windows and doors, and keeping a roaring fire blazing in the grate. Now he is bidden to fling his windows open, to sleep even with his windows open, and, moreover, to keep in the open air as much as possible. But this is not all. He is taught that it is not so important what he breathes as how he breathes. Breathing-exercises, then, are part of the cure, and here not only the sufferer from bronchial catarrh is concerned, but even the woman of fashion anxious to maintain her good looks. For fifteen minutes twice a day women of fashion, asthmatic patients, and, indeed, all the world, are bidden to stand out of doors, preferably in the sunshine, and holding the chest up, to inhale slowly through the nose, and then as quickly exhale the breath through the month. Of course, everyone knows that it is through the nostrils he should inhale, and it is quite probable that many of humanity's illnesses are due to improper breathing; but, at the same time, it will be an almost superhuman feat to make mankind breathe through the nostrils.—*Globe*, Oct. 19.

SUN-FLOWER CULTIVATION IN RUSSIA.

Our Consul-General at Odessa says in his last report that there is a growing demand in Russia for oil-yielding seeds, particularly for those of the sun flower. Until recently there were but few mills for expressing this oil, and the grocers finding no market sent their seed abroad. Now, however there are mills in Russia which require large quantities of it, and they offer the growers higher prices than those obtainable abroad. With the increasing home demand a decline in the exports of oil-seeds may be looked for in the near future. Samples of sun-flower seeds were asked for by the Government of Bengal, where it is intended to try them. The Consul-General from personal experience states that the plant will grow very luxuriantly in East Africa, and he suggests that it may be found a suitable crop for other British colonies. In Russia it is found that the best results in sunflower cultivation are obtained from a well-tilled soil, with not too much clay in its composition; it should be well-ploughed in the autumn and harrowed in the spring. The seed should be sown in April or May in every second or third furrow, One or sometimes two or three seeds should be put into the ground at a distance of two to four inches apart. Broadcast sowing may also be resorted to, care being taken that only one seed falls in every two square feet. The quantity of seed required per acre is twenty pounds; the yield, if good, should be about 1,600 pounds. The yield in oil of seed in husks is seventeen per cent; without husks, twenty per cent. The seed is much liked as a light refreshment by the poorer Russians, and is sold in the streets by hawkers, to be eaten as nuts are eaten in England.—London *Times*, Oct. 8.

DEVELOPMENT OF THE SOUDAN.

FORESTRY.

The Anglo-Soudanese Government has taken up the question of the development of the vast Soudanese forests, which may be a very possible source of future wealth, and an expert in forestry from Burmah has been appointed to study and report on the best methods of intro-ducing improvements and utilising this potential source of wealth. Mr. C E Muriel, Deputy Conservator of Forests in Burmah, has, with the consent of the India Office, joined the Anglo-Soudanese Government for one year, the unexpired portion of his furlough. Mr. Muriel arrived in Cairo on Wednesday from England, and will shortly proceed to the Soudan.

Sir William Garstin, in his report on the Soudan, says;

"It is very much to be hoped that a scientific examination of the Soudan forests may ere long be carried out under the superintendence of an expert. An Indian forest officer (from Burmah for choice) might be deputed for this purpose. It is certain that much valuable information would be obtained from his report. Such an appointment needs no recommendation—its necessity is obvious. A trained forest officer could, moreover, render good service by advising the Government as to the best method of preserving the valuable fuel supply which at present exists on the banks of both rivers."

Although it is only a little over a twelvemonth since the report was published, the advice has been acted upon, and it is to be hoped that some serious attempt will be made to restrain the enormous waste of most valuable trees that now goes on. The supply, although apparently, inexhaustible, must speedily diminish, unless the cutting and felling of the areas is carried out upon some regular system which will permit of the young trees growing up and replacing those cut down. It is, of course, inevitable at present that the felling should be carried out in a wasteful manner. Fatigue parties are landed from the boats and are required to cut the largest amount of wood in the shortest possible time. The men have no idea of the value of the trees, and naturally select those which are nearest to the water and easiest cut. Should this practice be continued, it is certain that a few years must see a great diminution in the belt adjacent to the river. On the Blue Nile even the valuable gum-producing acacias are being felled for fuel.

The vast forests of the Soudan line the banks of the Upper Blue Nile and extend, in an easterly direction, to the Abyssinian frontier. In the Bahr-el-Ghazal Province also, particularly in the Bongo country, large forest tracts exist. The ebony tree (*Dalbergia Melanoxylon*) is met with south of Karkauj, on the Blue Nile, and again in the vicinity of the Sobat River. This tree does not, in these latitudes, attain to a very large girth, nine inches being apparently its maximum diameter. It must, however, be very common in these forests, as most of the principal houses in Omdurman are roofed with it. The value of the *Acacia Arabica*, from which the white and red gum is obtained, is well known; while the other kinds of acacia, such as *Acacia Nilotica* (in Arabic, "Sant"), is the chief source of the fuel supply. The bamboo is met with in the ranges of hills to the south of Famaka, and, according to some, the mahogany tree is found in the forests round Fazogl and in the Beni Shangul country. The means of transporting such woods can only be by the river. Unfortunately, neither the ebony nor the acacia will float in water, and, therefore, such transport is debarred in these cases. If a good and serviceable timber tree can be discovered in the Blue Nile forests which can be floated down the river to Egypt, a large source of revenue will undoubtedly have been found. Extensive saw-mills might be erected at Assouan, utilising the power available at the dam, now under construction, and an important timber trade might one day arise.

On the White Nile, in the Bongo and Rohl districts, the india-rubber creeper (*Landolphia Floribunda*) is found in great profusion. If the rubber yielded by this creeper be not of quite so good quality as that obtained from the india-rubber tree (*Ficus Elastica*), it is still of sufficient value to be counted as an important asset in the future trade of the Soudan. This plant, which has large laurel-shaped leaves, and a white flower resembling a jasmine, requires several years to mature before yielding rubber in any quantity. The natives obtain what they require by tapping the stem, usually in such a reckless manner that the creeper dies under the operation. The india-rubber tree should certainly flourish well in most parts of the Soudan, more particularly south of Khartoum. Although this tree takes from twenty to thirty years to arrive at a girth sufficient to permit of regular tapping, its yield is so valuable (about 3*l.* per tree per annum) that its introduction into the country is well worth attempting.

The above brief resumé fully shows the necessity of beginning a careful study of Soudanese forestry. It will be long before the Soudan will have a Woods and Forest Department organised on the Indian model, but the Anglo-Soudanese Government is to be congratulated on having secured the services of an expert, and we shall look forward to Mr. Muriel's report with great interest.

TOBACCO CULTIVATION IN THE SOUDAN.

A proclamation, signed by Lewa Jackson Pasha, as Acting Governor General of the Soudan, appears in the *Sudan Gazette* giving notice that the cultivation of tobacco is entirely prohibited North of Khartoum. South of Khartoum it is permitted

only with the consent of the Moudir. Such consent may be granted only in districts where tobacco was regularly grown in the time of the Dervishes.—*Egyptian Gazette*, Oct. 16.

A COLONY OF VEGETARIANS.

A colony of vegetarians are living on Tagula Island, a tiny bit of land, in the Dutch archipelago, about 700 miles south-east from New Guinea, and 1,000 miles north-east from Australia. Under the leadership of a Methodist clergyman, the Rev. James Newlin, of Ohio, some seventy people sailed from San Francisco in 1890 for Hawaii. They believed that a higher plane of Christianity was to be reached by a vegetarian diet and freedom from contamination with degenerate mankind. So they gave up their friends and homes in the Eastern States. Tagula Island was finally chosen for their colony. There were about fifty good-natured natives there who welcomed the new comers. There have since been accessions to the colony of people from England, Australia and America.—*New York Sun*.

IDENTIFICATION OF FIBRE.

While a great deal has been published on the identification of the different fibres in commercial use, much of this has not had a truly commercial aspect. It is frequently difficult to identify a fibre from the description given in commercial text-books, especially where fibres closely resembling each other are examined under a microscope after the ordinary treatment or mount.

A writer, in speaking of the microscopical identification of some useful fibres, says that the separation of the ultimate fibres by teasing is tedious, and often leads to a very unsatisfactory mount. The best way is to remove by chemical treatment the resins cementing the ultimate fibres into the filament. This is more difficult with some fibres than with others, those having a high content of silica being usually the most refractory. In this particular, sisal and manila are the most noteworthy.

In a commercial laboratory, where results should be obtained as quickly as possible, a quick temporary mount has to be made which will show the characteristics of the fibre necessary for identification; and in order to prepare the fibre for such a mount, a suitable chemical treatment not occupying too much time is a great desideratum. The best method consists in boiling the fibre in a 2 per cent solution of caustic alkali, washing and suspending the fibre in water, and passing a stream of chlorine gas through it until it is thoroughly bleached and the gums thoroughly destroyed. This may also be done by placing the specimen in a solution of chlorate of potash acidified by hydrochloric acid. At this stage the filament is entirely destroyed, but the ultimate fibre retains the form of the filament. The material is then rinsed in alcohol, and mounted in Canada balsam in the usual way. After this treatment there should be no difficulty in teasing out the ultimate fibre.

The fibre may then be examined under a microscope or micro-photographed. The best method for the examination of fibres is with artificial light, using a polariser. The joints or markings on the fibre seem to have a different rotatory power, or at least they are brought into a more distinctive effect in relation to the rest of the fibre. This is also true in photographing, and the best photographs have been obtained by using an arc light and polarising the rays. The markings are more distinctly brought out when the analyser and polariser are in such relative positions that the background or field is almost totally dark.

To distinguish between sisal and manila is one of the hardest problems of fibre identification, but little trouble has been found after treating the fibres in the manner described above. The characteristic appearance of manila is very much enhanced by the chlorine treatment, and the same is true of sisal. The sisal is very much coarser than manila, and tapers considerably more; when properly prepared the dark centre is seldom apparent. It has, however, after the treatment mentioned above, peculiar markings, having transversal cross-makings which appear to form X's upon the fibre. The peculiar formation of the cotton fibre is so distinctive as to need no comment. Wool, with its peculiar scaly appearance, is also very distinctive, and where wool and cotton are found together they are readily distinguished by an ordinary mount. The above treatment has never been tried on animal fibre, for the reason that nothing would be gained.

Silk is also distinctive; it is quite even, but occasionally little nodules are noticed in the side of the fibre, and for this reason it is not as regular in width as manila. It has apparently no markings, and its ultimate fibres are also its filament.

Among the textile fibres the most difficult to distinguish one from the other are flax and ramie. They are used in the same class of work, when ramie is used at all, and have the same general microscopical appearance. Ramie, at first sight, looks very like flax, although, upon a minute examination, a difference will be observed. The ultimate fibre of ramie is usually coarser, the bamboo-like joints are larger and more marked, and have quite a different appearance from that of flax as seen with a moderately high-power glass.—*Textile World*, Boston, Mass.

BANANAS.

Sir Walter Besant in his column in *The Queen* has the following:—

Bananas should become cheap; they stood for a long time at the figure of 2d apiece which is now preposterous. They became popular about twenty-five years ago, being then sold, as I said at 2d. They are now with many children almost as much an article of diet as potatoes, and I should say, more nutritious. There are several ways of eating them. The best is the simplest and the most obvious; the next best is the banana fritter, made just like an apple fritter; the third way is to "triturate" the fruit with a fork, to pour over it a tablespoonful of claret and to add a little sugar. It can then proclaim a rivalry with strawberries and cream, the more readily because the banana is generally taken when strawberries are not in season.

Molluscs and Pearls.—There is no end to the number of ways in which pearls can be secured naturally or artificially. Here is one of the latest reports of the kind:—"A novel method of producing real pearls from ear-shells (*Haliotis*) has been tried with some success by Monsieur L Boutan, who has described his experiments to the Paris Academy of Sciences for 1898. The method practised is to drill a small hole in the shell of the living mollusc, at a considerable distance from the margin, and to introduce through this aperture one or more minute globules of mother-of-pearl; the mollusc being then returned to its native element. From their position, the introduced globules are prevented from escaping, and in due course are coated with nacreous deposit thus producing really fine-pearls."

CACAO CULTIVATION.

Mr. Carruther's Circular.

At a recent meeting of the Cacao Committee of the Ceylon Planters' Association, Mr. Carruthers spoke on the importation of new varieties of Cacao from foreign countries and stated that the Director, Royal Botanic Gardens, asked him to represent him at the present meeting He thought he might safely promise on behalf of the Director his co-operation and to undertake to get any small importation, *i.e.*, if any member could specify any particular seed.

Mr. Carruthers read questions (annexed) which he had circulated lately to cacao-growing countries in the West Indies with a view to Ceylon planters also answering them. Mr. Carruthers also indicated that if the Committee will decide what experiments should be undertaken, action would follow.

The Committee should accordingly draft a list of certain experiments desired by cacao planters.

Mr. Carruthers had drawn up a few notes which he read, both as to disease and as to means to combat or cure the disease; if practical men were satisfied that experiments had been successful; or if a cure had been effected in specific instances, what was the general effect. As regards native holdings badly diseased, influence should be used in such cases to get rid of dead trees on these native gardens in the neighbourhood of estates.

Resolved:—"That Mr. Carruthers and Mr. Huxley be asked to draft suggestions for experiments to be undertaken, and that they be circulated to the Cacao Committee as soon as possible, (II) that the Government Agents of the Central and North-Western and Uva Provinces be invited to use their influence with the Headmen in the cacao districts in the direction of getting proprietors of cacao estates and gardens to cut down and burn cankered trees with a view to preventing the spread of the disease which, if neglected, is likely to jeopardise the prosperity of the industry, both in European and native hands."

The Cacao Committee of the Planters' Association then adjourned.

QUESTIONS REFERRED TO WHICH MR. CARRUTHERS LATELY CIRCULATED TO CACAO-GROWING COUNTRIES IN THE WEST INDIES.

Is the mature Cacao shaded, and if so for what reasons, *i.e.*, from the sun or wind?

What shade trees are used and at what distance apart in each case?

Do you find the shading is beneficial to healthy Cacao? How does it affect the crop?

Does shading affect the attacks of insects such as Helopeltis, Thrips or any local insects?

What effect has the shade on diseases caused by fungi on stem, branches and fruit?

What distance apart do you plant the trees—are they planted at first thicker and afterwards thinned out?

Is any system of pruning carried out and if so what? Are suckers allowed to remain?

What proportion of fruit that is set, eventually reaches maturity? To what cases do you attribute the withering or drying up of pods in their initial stages?

What is the average number of ripe pods produced by a tree in full vigour?

To what age does the Cacao grow under favourable conditions?

What is the average annual percentage of deaths of trees and to what causes are they due?

How long do the individual leaves remain on the tree?

Do any varieties suffer less from parasitic or other diseases, if so which? Have you any reason for attributing their immunity to any special characteristic?—A. Philip, Secretary, Planters' Association of Ceylon.

PLANTING NOTES.

Irrigation in India.—We learn from Simla, 27th October, through the *Pioneer*, that the Government of India in reviewing the irrigation reports for 1898-99 state that 21 productive works paid collectively 9·62 per cent on the capital outlay, the least remunerative being that of the Periyar project, which paid only 1·7 per cent. The total area irrigated by all classes of works was 18¼ million acres, the value of the crops raised being 39 1-7 crores of rupees.

South India and the Ceylon Tea Exports.—The Wynaad correspondent of the *Madras Mail*, writing upon the most recently revised estimate of the current year's tea exports from Ceylon, says:—"These figures are calculated to make the owners of tea property in this part of Southern India anxious as to the prospects of their growing tea industry, but it is to be hoped that when all the well opened gardens on the plateau arrive at maturity we shall be able to record average yields of 600 lb. per acre, while the cost of placing and selling the teas will not exceed 5½d., and that as Indian teas have for many years past averaged higher prices than those from Ceylon, our new staple will hold its own successfully." Excellent confidence, but there is also the factor of "pushing foreign markets," in which campaigns we venture to think Ceylon is still some way ahead of India.

Assam Rubber for Westralia.—The Woods and Forests Department has received from the inspector-general of Forests, India, a supply of Assam rubber (Ficus elastica), a portion of which is being distributed to resident magistrates, wardens, etc., throughout the tropical portions of Western Australia, for experimental sowing, and with directions as to cultivation. The rubber grows equally well on high or low land, in forest or grass country, but preferably on a light sandy loam, and, provided it is shaded from the direct rays of the sun in the early stages of its growth, is easily raised from seed To give some idea of the value of this tree, it may be stated that the import of rubber into the United Kingdom amounted in 1884 to 198,000 cwt., representing a value of £2,266,000, and the demand has vastly increased during recent years. In Assam a tree of Ficus elastica is tapped when it attains about the age of 25 years. When 50 years old the yield is about 40 lb. of rubber every third year, and continues till the tree is over 100 years old. The white sap flowing from cuts in the trunk is poured into boiling water, stirred until it gets firm, and is then taken out, pressed, and finally washed with lime water.—*Perth Morning Herald*, October 11th.

Mysore and the Coffee Stealing Act.—The report on the working of the coffee stealing prevention act in the Mysore Province shows only seven cases during the year against 19 in the previous year. The diminution is due to the deterrent effect of exemplary punishments awarded.—*Times of India.*

The Peanut Oil Industry.—The American Consul at Marseilles reporting lately on the peanut oil industry observes that more oil is extracted in Marseilles from oleaginous seeds than in any other place in Europe and the industry is beginning to flourish again after the depression produced by the introduction of American cotton seed oil and the failure of the seed crops elsewhere. As no special machinery or process is employed in the manufacture of peanut oil as distinct from other oil seeds the manufacturers crush arachides, or peanuts when the market is favourable but not to the exclusion of other seeds. Last year over 71,000 tons of peanuts reached Marseilles: at Bordeaux a large quantity of West African nuts of good quality is crushed and there are some mills in the north of France, but Marseilles stands pre-eminent in the industry. The nuts are scarcely ever ground whole as this produces inferior oil and cake of little value. In fact a large quantity of the nuts arrives shelled after which the inner or red skin is removed as much as possible by processes resembling those for cleaning wheat in flour mills. These are described in detail in the report. After the kernels have been separated and cleaned they are ground and enveloped in strong fibrous mats, are subjected to hydraulic pressure, and the clarifying of the oil done by means of filters and fuller's earth. The husks are sometimes ground with the cake and form an inferior food for cattle and when coal is dear they are used as fuel in the oil mills. The crude oil runs out thick and troubled, and must be filtered to make it a bright yellow, while if it is to be water white in colour it must be treated further with animal black and fuller's earth. It is stated that no alkaline lye is used, but the art is somewhat secret. The source of supply are Bombay, Mozambique, and Senegal. In some years the African supply is wholly swamped by the supplies from India, and at one time it seemed that Africa would be unable to compete permanently with India. But though the latter still sends large quantities of nuts to Marseilles it appears to be using more and more of its crop at home, so that while the imports between 1890 and 1895 were mostly from India, in 1896 to 1899 they were mainly from Africa. In the earlier year of the decade American cotton oil menaced the crushing trade of Marseilles with extinction because of its low price, but apparently new demands for oils have arisen for the production in Marseilles has returned to its former average and prices also after serious derangements have resumed their old level. There has been a world-wide decrease in the amount of animal grease, while America is consuming her own cotton seed oils in vastly increased quantities and the consequence is an increased demand for vegetable oils. Although the production of the nuts in Africa is enormous no improvement in the mode of cultivation or the price is anticipated for years to come. The soil is readily exhausted by the crop and nothing is done to restore its virtue; labour, though cheap is thriftless and hard to obtain when wanted and transportation is defective. The uses of the oil are numerous; it is described as "the most polymorphous of all oils, adapting itself to all purposes, including nutrition, lighting, lubrication and blending." It is the most difficult of all oils to detect when adulterating olive oil for its chemical reaction is white. The best qualities are in fact used for the table, either pure or mixed with olive or sesame oil; as an illuminant it gives a soft white light; when neutralised it is much esteemed for lubricating and is always preferred to cotton seed oil. It is also largely used in the manufacture of soap, and is the characteristic component of the famous Marseilles white soap.—London *Times*, Oct. 13.

Dendrobium Densiflorum.—Mr Fraser Smith, The Gardens, Cullen House, Cullen, N B, encloses a photograph of Dendrobium densiflorum, grown by him, which this season has been much finer than usual, having twenty-one trusses of its beautiful yellow flowers. This is a special variety which he had sent him from Java, twelve years ago. It has much longer pseudo-bulbs, and larger trusses of flowers, which are richer in colour than in any other variety. The plant has flowered regularly for the past ten years.—*Gardeners' Chronicle*, Oct. 13.

Uganda Coffee: Best in the World.—The development of the coffee-growing industry in tropical Africa is interesting as showing the rich resources of that region for plant production. The first coffee seed was introduced from Kew by missionaries less than five years ago, and from it have sprung the extensive crops now under cultivation. Last season the quantity exported from Uganda alone was over one hundred tons, which will be greatly exceeded by this season's production. Experts say that the quality of the Blantyre coffee is the finest the world can produce, the flavour being superior even to the famous Mocha. The great drawback is the lack of transport, which, however, will be met by the completion in the near future of the Uganda Railway.—*Daily Mail*, Oct. 8.

Egyptian Phosphate Deposits.—*The Egyptian Gazette* of Oct. 10th, contains the following interesting information:—

The Survey Department has just issued a Report on the phosphate deposits of Egypt. The Report contains the result of the investigations of the members of the Survey in the Keneh Moudirieh, in the districts between Keneh and Kosseir, and in the Dakhleh Oasis. In the concluding chapter containing the chemical Report on the phosphates the writer, Mr. A. Lucas, says, "The native phosphates will be useful to all classes of Egyptian agriculturists. They will be useful to the Fellahin and small farmers who know nothing of superphosphates, nor would be able to pay for them if they did, for to these classes the choice is not between an imported soluble phosphate and a native insoluble phosphate, but between this latter and none at all. They will be useful also to those who do know and can appreciate the difference between a soluble and an insoluble phosphate, but whose conditions of work are such as to make the cost of imported manures prohibitive, and for whom it is no longer a question as to which of the two gives better results, but whether it is not wiser to use what lies at their feet rather than to allow their land to become impoverished. And to the large landowners the native product will be of value in supplementing the imported and high priced article. I am strongly of opinion therefore that these recently discovered phosphates ought to prove of great value to Egyptian agriculture, for the following reasons:—

1. They occur in immense quantities.

2. With the exception of those found in Sinai and Dakhla they are easy of access and fairly close to the river and railway.

3. By means of a very inexpensive operation, namely, simple grinding, they can be prepared ready for use.

4. They constitute a really valuable and cheap manure of a kind that is much needed.

5. No other phosphatic manure of similar value exists in the country and the price of imported phosphate manures is such as to render them in many cases prohibitive.

The Garton Lectures on Colonial and Indian Agriculture in Edinburgh University—is the heading of a paper by Robert Wallace, Professor of Agriculture and Rural Economy in the *Asiatic Quarterly Review* from which we learn :—

The expiring century seems an auspicious occasion for the new departure which has been made by the establishment and liberal endowment by Mr. Robert and Mr. John Garton, of Newton-le-Willows, Lancashire, of a course of about fifty lectures on "Colonial and Indian Agriculture" which are to be initiated in the current month in connection with the chair of Agriculture and Rural Economy in Edinburgh University. The first half of the course, which will be delivered by the Professor of Agriculture before the end of December, will be inaugurated on October 18 by an address on "Famine in India," a subject likely to prove of peculiar interest at what, let us hope, may be the closing epoch of the most prolonged, if not the most disastrous, of the recurring trials of physical endurance from starvation to which our Indian peoples have been periodically subjected. The ordinary work of the class will begin with a general view of the agriculture of India, including the main features of the Presidencies and other great political divisions, with special reference to geology, soil, climate, peoples, and chief products.

Further on we are told :—

The smaller Crown Colonies will not be neglected, and the second section of the course will close with a discussion of such miscellaneous subjects as exports of agricultural produce from the Colonies and India, and the relations of the agriculture of the Colonies and India to that of the Mother Country.

The Truth about Ramie.—We were always more or less suspicious about the glowing accounts given of the fortunes in "ramie" or "rhea" fibre, and we regret, in the interests of producers, and especially of plucky pioneers, both in Ceylon and elsewhere, that the following discouraging bit of news comes to us from a Bradford correspondent of Sell's *Commercial Intelligencer*, who writes in the latest issue as follows :—

For the sake of planters in our colonies and investors at home a few words in review of the history and possibilities of ramie may not be out of place. From the manufacturer's point of view the business career of ramie can only be regarded as catastrophic. No single English firm has yet succeeded in dealing profitably with the material, and it is quite within the truth to say that a quarter of a million sterling has been irretrievably lost in the attempt. To put the comparison with cotton in a nut-shell: raw cotton can be made into yarn for some 2½d per pound; ramie costs in process at least 1s per pound. To compare the possibilities of ramie with wool and with silk betrays a complete ignorance of the nature of these two materials. Ramie is harsh and wiry, with none of the warmth and softness of wool or the beauty and pliability of silk. Ramie is much dearer than flax, and has the unfortunate faculty of shrinking when wet; its lustre is metallic in appearance, and ramie cannot be dyed to a good black. Seven English firms to the writer's own intimate knowledge have ruined themselves in ramie. Indeed the seven may be extended to ten, if change of hands be calculated. Two concerns in Germany are moderately successful with the material, the process employed being the familiar one of carding in lieu of combing the "filasse." The Teutonic quasi success is attributable to cheap power, cheap labour, and to the fashion in yarn and fabrics differing from English canons. Ramie booming is a perennial event, and it is as well to let the seamy side see light once in a while. Chapter and verse can be given in substantiation of the statements above—samples, prices, and all particulars.

Chinese Hemp, or Ramie Grass.—Ramie grass, ro hemp, as it is called in the Customs returns, has increased steadily, says a consular report from Kiukiang (China), during the past few years. It is cultivated largely in the adjoining province of Hupei, and shipped from Kiukiang to the Shanghai market, whence it finds its way to Japan, Canton, Chinkiang, and other Chinese ports, where it is turned into the grass cloth so much worn by natives during the hot weather. Three crops are gathered during the year; the first, which is planted in the previous autumn, comes to perfection about the middle of June, the second in July, and the third about October. The second crop is inferior to both the others, as it only remains in the ground about a month and the excessive heat stunts its growth. The first is generally the best, and in good seasons attains a height of 70 inches. It is made up in bales according to length of the stalks, and fetches from 12 to 10 taels per picul of 133 lb., the price depending upon the market in Japan, whither about 60 per cent of the total out-turn is exported. The second and third crops average about 11 to 8 taels per picul. The Consul adds, "I have only heard of one consignment having been made to the London market. German merchants are said to be purchasing it in Shanghai, and one trial shipment has been made to Hamburg direct from this by a native hong, which practically monopolises the trade here. Account sales have not yet been received, so it is not yet known how the venture has turned out." The quantity shipped in 1895 was 37,009 piculs; in 1896, 46,668 piculs; in 1897, 48,925 piculs; in 1898, 57,400 piculs; and in 1899, 70,156 piculs.—*Chamber of Commerce Journal* for October.

Mangoes for England.—The London correspondent of the *Bombay Gazette*, writing on October 12th, says a conference between Mr. Tata and the Peninsular and Oriental Company on the question of establishing the export of mangoes from Bombay on a commercial basis which, in the course of the summer, was mentioned as likely to be held this autumn, duly came off this week. There were present Sir Thomas Sutherland, Sir Owen Burne, and other Directors of the P. and O. Company, as well as Mr. Tata and Sir George Birdwood. Nothing can be formally decided in the matter until it has been brought before a meeting of the Board, which will probably be held today, but I understand that the basis of the arrangement come to is that Mr. Tata and those associated with him will guarantee a shipment of 500 tons of mangoes and other merchantable Bombay fruits, the P. and O. Company during the next mango season, say April 25th to June 5th, providing for one or two of their refrigerator steamers engaged in the Australian meat, butter, and fruit trade calling on their homeward voyage at Bombay. Mr. Tata is now engaged in coming to an agreement with some of the London fruit-importers, but it is hoped he may be able to do better than that by establishing reciprocally advantageous relations with one of the great co-operative stores in the Metropolis. It would probably be easy to dispose of 500 tons of good mangoes in the West End alone in a single day at one shilling each. A few mangoes sent to a Bond Street shop last summer were almost instantaneously sold off at five shillings each, and stringy turpentiny Madeira mangoes now on sale in various London shops are selling at one to two shillings a piece.—*Pioneer*.

PLUMBAGO MINING IN CEYLON.

VIEWS OF AN EXPERT.

Mr. Alfred J Hodgkinson-Carrington, C.E., M.E., A.M I.C.E., M.A.I.M.E., of 26 Bloomsbury Square, London, W.C., who arrived in the island on the 12th October by the P & O steamer "Rome" from Australia, again made a brief stay at the Bristol Hotel, having returned from a visit of inspection to the Moragalla Mines; and, after revisiting the mines, he left for England on the 22nd ult. Asked for an expression of opinion concerning the plumbago industry in Ceylon, Mr. Carrington stated to our contemporary that owners of mines are working by

EXCEEDINGLY PRIMITIVE METHODS.

They apply absolutely no scientific methods in the working of the mines, and, unfortunately, whatever machinery is used, has been put up by men who did not thoroughly understand mining engineering. This had, naturally, caused a general prejudice among natives—miners and mine-owners—against any innovations in the methods of working, or the introduction of mining plants to assist them in their operations.

"There are very many mines in the Colony," said Mr. Carrington, "which have been worked by the primitive methods to a certain depth, and then abandoned, just at the stage when the working should have proved remunerative if under skilled direction and with proper machinery. This has a very prejudicial effect on plumbago mining in the island generally, and must be a source of great loss to the community at large, and those engaged in mining in plumbago particularly. Such English Companies as own mines in Ceylon are taking steps for the working of their mines on a more highly-skilled basis, and it would be largely to the interest of the natives, who are the owners of the most valuable mining properties in the Island, if they would follow the example of their European *confrères.*"

EFFICIENCY OF NATIVE MINERS.

Continuing, Mr. Carrington said he knew of several instances where good mines have been lost through the want of improved methods of working. He has been rather struck with the efficiency of most of the native miners in different parts of the island. Thus it was not for the lack of good labour that the industry is at present in a crude state, for the native miners under proper scientific supervision would be able to do good work.

A SUGGESTION.

The method of working in shifts of twenty-four hours is prejudicial to the health and efficiency of the miners. This custom might be discontinued with mutual advantage to miners and mine-owners.

Mica-Mining in S. India.—The Mica-mining community in the Hazaribagh and Gaya District numbers 42 Europeans and 7,500 natives. It is in contemplation to form a Mica-mining Association for the purpose of representing the views of this body to Government in all matters relating to the industry.—*Madras Mail*, Nov. 14.

PLANTING NOTES.

Benefit of Criticism to the Tea Industry.—All matters connected with the tea industry, says the *Indian Planters' Gazette*, are having the sharp shears of criticism applied to them, and they will come out of the ordeal all the better for the "pruning": like the tea bush itself, the industry will be all the better for the cutting, and, like the tea bush, will prove itself ever green, taking a fresh lease of life and all the better for the change. This is why we have such hope in the industry, the more it is assailed the better it will thrive. The old rotten time-worn branches, useless twigs, and leathery leaves being cut away and thrown aside, the tree itself will spring afresh into a new and vigorous life and yield abundantly. Pessimists would have us believe that tea is played out, but such is as far from the case as an old tea bush may be said to be played out. It only needs the knife to renew its youth.

Stone-cutting and Polishing.—An excellent little manual of instructions upon this subject, by Mr. Geo. Day, F.R.M.S., has reached us from the publishers, Messrs Dawbarn & Ward, 6, Farringdon Avenue, E.C.—price 6d. It forms No. 26 of the Useful-Arts-and-Handicraft Series. Nos. 1-13 and 14-25 are bound in two volumes (post free, 8s) and form a possession, than which no more excellent gift could be made to the carpenter, smith, or other serious or fancy worker in wood, steel and even stone. Single numbers are sold at 6d each. Stone-cutting is a little more difficult than the mere polishing of a pebble, and it may be developed into very elaborate and artistic work. It is undertaken for various purposes, principally:—

1, To provide a large flat surface (or two surfaces) for polishing, without having to grind away a large proportion of the pebble.

2. To slit stones into thin layers, increasing their translucency and beauty.

3. To give stones several angles or facets, giving variety in coloring and reflection.

4. To fit the stone for setting, as a personal ornament or for some useful purpose.

The quotation of the following "table of hardness" may indicate to some extent the great usefulness of the knowledge which the booklet set forth, as well as the simplicity of treatment:—

1 Talc (jet, cannel coal, steatite, etc.)—Easily broken or scratched with finger-nail.

2 Rock Salt—Scratched with difficulty by the finger-nail, but readily cut with a knife.

3 Calcite—Not to be scratched with finger-nail, but easily with a knife.

4 Fluor Spar—Can be but slightly scratched with knife, but easily attacked with a file.

5 Apatite—Does not scratch glass, or only faintly; does not give out sparks against steel; easily scratched with flint.

6 Felspar—Easily scratches glass, is scratched by a file. and gives some sparks against steel.

7 Quartz (agate, jaspar, chalcedony, etc.)—only slightly scratched by file; gives sparks readily against steel.

8 Topaz—Very hard; is not scratched by file.

9 Sapphire—Hardest of all except the diamond; scratches all other stones.

10 Diamond—Scratches all minerals, but is not scratched by any.

Correspondence.

To the Editor.

PROTECTION OF BIRD-LIFE.

La Martiniere College, Lucknow,

November 1st, 1900

Dear Sir,—The Government of India is desirous of making a further enquiry into the question of the destruction of the bird-life of this country. It is probable that, if a proper case be made out, further restrictions will be placed on the indiscriminate slaughter of birds for their plumage—a policy which has had such disastrous effects in other countries.

The Government has requested that a report on this matter be compiled as soon as possible, and, in order that such may bear due weight, it has been determined to obtain the opinion of as many of the leading ornithologists in this country as possible.

Feeling assured of the great interest that you take in the welfare of the birds, I venture to ask you to be so kind as to peruse the following questions and to return to me your opinions as early as possible.

(I) Are you aware of any trade in birdskins, or feathers, being carried on in any district, and, if so, where?

(II). Is the trade, if any, increasing or decreasing?

(III). If you know of any regular destruction of birds, please name the principal species affected, and furthermore state whether any of them are threatened with extinction,

(IV). What effects have you noticed on the bird-life of closed or reserved forests, as a result of the latest Government regulations?

(V). Has the destruction of any particular species in any way affected the agriculture of a district, either for good or ill?

(VI). Are there any tribes, or castes, in your district (if so name them) whose time honoured and immemorial custom it has been to destroy birds for the sake of their plumage?

(VII). Do you think it likely that an act restricting the destruction of bird-life would be received favourably by the natives in your district, or do you think that any such legislation would be regarded as oppressive and an interference with tribal customs?

(VIII). Do you think that, even if there is no trade in feathers in your district at the present moment, that the conditions are such that the trade if established would prove profitable to the merchant, and inimical to bird-life?

(IX). Do you think that it would be advisable to introduce measures restricting the destruction of birds, they would such action in your opinion be unnecessary?

Trusting that you will give this letter your fullest and most careful consideration.—I have the honor to be, Your most obediently, WILLIAM JESSE.

GOURAMI FISH FOR CEYLON:—A QUESTION FOR THE CEYLON FISHING CLUB.

Oxley Island, Nov. 3.

Dear Sirs,—I fell in today with a volume, six months of 1898, of your *Tropical Agriculturist*, and was much interested in looking through it. On page 432 I was reminded of a forgotten promise to report the result of the frog experiment: pray pardon my faulty memory. I regret to say only a few of the frogs lived, and they, after a few weeks, disappeared.

I read with interest "C.D."'s letter about the Gourami. I presume you have by this time acclimatized it in Ceylon. If not, I may be able to assist you in the matter. I am thinking of going to England about March next, and would be willing to take a sufficient number, say fifty to eighty, to establish them in Colombo. I would undertake to do this for twenty-five pounds, delivered on board the ship into tanks supplied to me: a couple of *tin*, not zinc, lined boxes about 3ft. by 2ft. by 2ft. would do. I purpose taking ceratodus to England and the gourami might share their tanks to Ceylon. If you know of anyone (or any club) that will agree to this proposal, please inform me at your earliest convenience so that the necessary arrangements may be made. The Superintendent at the Zoological Gardens, London, informs me that their two ceratodus, also those in Paris, which he had recently seen, are alive and well.—Yours faithfully,

D. O'CONNOR.

"THE THEORY OF MANURING" (AND FARMYARD MANURE).

Colombo, Nov. 9th.

Dear Sir,—Referring to the extract from the "Journal of Horticulture" dealing with the composition and manurial value of Farmyard Manure, we beg to give below for comparison seven analyses of cattle manure, A made by Mr. John Hughes, B made by Dr. Ruempler C D, and E by Mr. Cochran, F, the analysis quoted in the *Observer*, and G, an analysis recently, made by Dr. Koller, in charge of our Hultsdorf Mill's Laboratory :—

ANALYSIS OF CATTLE MANURE: PROPORTION OF NITROGEN, PHOSPHORIC ACID AND POTASH.

Manure.	Water.	Phosphoric Acid.	Nitrogen.	Potash.	Analyst.
	per c.	p. c.	p. c.	p. c.	
(A) Sun-dried Indian Cattle Manure	7·22	0·54	1·47	0·63	Mr. Hughes
(B) European Cattle Manure with litter	?	0·32	0·68	0·80	Dr. Ruempler
(C) Ceylon Cattle Manure No. 1	80·4	0·25	0·45	0·95	Mr. Cochran
(D) Ceylon Cattle Manure No. 2	74·67	0·09	0·64	1·07	Do
(E) Ceylon Cattle Manure No. 3	67·00	0·08	0·47	0·36	Do
(F) Farmyard Manure	?	0·22 to 0·36	0·40 to 0·58	0·4 to 0·53	From the "Journal of Horticulture"
(G) Ceylon Cattle Manure from Upcountry	50·34	0·85	0·33	0·41	Dr. Koller

To facilitate comparison of the respective value of the different cattle manures, we have reduced the percentage of samples A, C, D, E, and G. to the amount of lb. nitrogen, phosphoric acid and potash present in a ton of cattle manure dried at 212° F.

ANALYSIS OF CATTLLE MANURE, DRIED AT 212° F.: PROPORTION OF LB. NITROGEN, PHOSPHORIC ACID AND POTASH PER TON MANURE.

Manure.	Phosphoric Acid.	Nitrogen.	Potash.	Analyst.
	lb.	lb.	lb.	
(A) Sun-dried Indian Cattle Manure	13·04	35·49	15·21	Mr. Hughes
(C) Ceylon Cattle Manure No. 1	28·70	51·66	108·56	Mr. Cochran
(D) Ceylon Cattle Manure No. 2	7·96	56·59	94·62	Do
(E) Ceylon Cattle Manure No. 3	5·43	31·90	24·44	Do
(G) Ceylon Cattle Manure from Upcountry	15·79	15·15	18·09	Dr. Koller

Now the comparison of these analyses shows a remarkable difference between the various manures. It is most marked in the percentage of potash and nitrogen, due no doubt to a large amount of urine in samples C. and D.

As regards the percentage of nitrogen in cattle manure, this partly depends on the age and food of the cattle, but to a great extent on the loss of nitrogen which has escaped into the air in the shape of ammonia. This loss in nitrogeon which we estimate at 9½ lb. nitrogen per ton manure equal to 40½ lb. sulphate of ammonia, can be easily prevented by the use of an ammonia-fixer.

But even then one ton cattle manure per acre would be insufficient to maintain so much as a small crop. Unless several tons are applied per acre, the soil will be more and more impoverished by each successive yield. To strengthen the plants and thus produce a larger yield, artificial manures should be used. The amount of plant food in cattle manure varies so much that planters can never know what they are buying in cattle manure, while artificial manure has the advantage that it can be purchased on guaranteed analysis. However, if cattle manure can be procured at a low rate, it can be applied along with artificial manure. We take the value of one ton cattle manure to be as follows:—

7½ lb. Nitrogen, equal to 36 ½ lb. Sulphate of Ammonia	R4·00
7½ lb. Phosphoric Acid, equal to 17½ lb. Conc. Superphosphate	R1·42
9 2 lb. Potash equal to 18½ lb. Muriate of Potash 50 to 52 per cent potash ...	R1·24
	R6·66

If an Ammonia Fixer has been used about 8 to 9½ lb. nitrogean equal to 39 to 46 lb. sulphate of ammonia should be added which have a value of R4·26 to R5. The total value would be R11·66 outside and we doubt whether at this figure cattle manure can be procured in Ceylon.

FREUDENBERG & Co.,
Hultsdorf Mills, Manure Works.

THE TONGAN BEAN: A USEFUL VEGETABLE.

Gampola, Nov. 5.

SIR,—I desire with your permission to bring to the notice of the public the merits of "The Wonderful Tongan Bean" introduced into Ceylon by our enterprising florist and seedsman, Mr. E Spearman Hughes of Kandy. The Tongan Bean is a native of Tonga, and it admirably suits our climate and soil, and its cultivation on a large scale will profitably pay. It is a hardy evergreen perennial climber producing immense quantities of large flat beans of an excellent and nutritious quality, simply used like our French Beans. In a moderately warm climate and good soil, I estimate that a few plants of this bean will supply a whole family with its delicious, wholesome, and nutritious vegetable for about eight to nine months in the year. It is also a lovely ornamental plant; I have many trained on bowers and trellis fences surrounding my bungalow. The beans are very delicious when picked very young, and boiled whole. The seeds are slow to germinate, so I have carried out Mr. Hughes' instructions in soaking them in hot water before planting, and have met with remarkable success in raising heavy crops. I can confidently recommend them to any one requiring beans of a special quality for their gardens.

I have also some plants of the velvet or magnet beans just now, and will be able to give the public some details of its merits in my next.—I am, sir, yours faithfully, H G.L

HEAVIEST YIELD OF TEA.

18th Oct.

DEAR SIR,—Can you, or any of your readers, give the highest yield ever given by tea, (Ceylon or India.)

1. By an estate of 300 acres or upwards?
2. By a field of 28 acres or upwards?

Yours truly,
"BY DAND."

[Surely, Mariawatte, Gampola, answers the description? See figures in our "Handbook and Directory" where it will be found that the 100=acre field has yielded an average of 1,137 lb made tea for 14 years; while over the whole estate or 450 acres about 930 lb, have been made per acre.—ED. *T A*]

CINCHONA PLANTERS AND QUININE MANUFACTURERS:

PROSPECTS OF BARK AND A WORD OF WARNING.

SIR,—It is now some years since I predicted that the Quinine Manufacturers would kill the goose that laid their golden eggs.

The advice was not taken to heart the continuance of large profits was insisted upon, necessitating a further depression of the unit and the consequence was that the goose died. When its actual decease took place, it is difficult to state; but there is ample evidence that the manufacturers have at last realised that the dear thing is dead, dead as a door-nail. Turning from metaphor to fact, nobody will deny in the face of the unit at present ruling, that consumption of quinine has over-taken production. Nor is there any doubt that it will do so to a far larger extent during the next five or six years, for that at the least is the period necessary to bring matters to a state of fair balance again. The reason for this is evident; it takes five to six years under the most favourable circumstances to grow cinchona fit to bark. Some of the quinine manufacturers may see fit to doubt this statement of supply and demand and no doubt think that as in the good old days, they need only raise the unit for a time to induce large harvesting and shipment, and thereupon will be able to knock it down again and secure the large profits, incidental to this often-

repeated manœuvre. But they leave out of consideration, that, although they have grown fat and sleek upon it in the past, many cinchona planters have been ruined by it and their estates abandoned or planted up with other products and though some, who have been able to last out, are now reaping mighty profits from their ability to do so, they are in the minority. Once more the move may be effective, but only once and it will accentuate the difficulty they will have to deal with afterwards.

What has been the reply of Java to a steadily rising unit? A decrease in shipments, as against the increase which manufacturers doubtless expected. The bark shipments from Java for the last nine months are a million and a half pounds short of what they were during the same period last year and a million lb. short of what they were the year before. These figures in themselves are instructive, for they show that last year Java tried its best to respond to a higher unit and did put in half a million lb. more, (thus enabling the manufacturers to again reduce the unit) only to fall short, all the more during the present year. I believe this fact has caused some astonishment everywhere, probably most of all in Java itself. It is largely due to a theory that a comparatively small number of large trees per acre would give the same amount of bark as, or more bark than a number of smaller ones. In very many places the thinning out of the smaller ones has therefore been quietly proceeded with and now that it is the turn of the large ones left, they are proving a disappointment. Nor is this strange; for it is not the bark on a large tree that is so much thicker and heavier than it is on a small one, it is the wood inside the bark. This is no doubt one of the reasons why oak is grown in coppice, when its object is to provide bark for tanning, though there are other reasons as well.

But by this, I do not wish it to be inferred that there is not a lot of bark left in Java: such a statement could be so easily disproved that there would be no object in making it. What I mean to indicate is that there is not the large amount of *superfluous* bark, either on the estates or held in stock that was expected. If there had been, it would have been rushed in and Java planters would have been unable to keep control of the market as they are now doing. It must not be forgotten that they serve two ends in doing so; they keep up the price of bark and they keep up the price of the quinine they themselves manufacture. That, no doubt is one of the most important factors in the situation, that they are no longer quite at the mercy of the quinine manufacturers in Europe, and they have probably all learnt the lesson that a lb. of bark at a 2d unit is equal to 3 lb. at a 1d unit as regards net results on every 4 per cent bark.

As to India and Ceylon, they are just now putting in rather more bark than usual; but that is a flash in the pan, which will not last. Stocks of bark are exhausted and the area under cinchona bark has dwindled to an insignificant acreage. Take for instance, the district that I write from. This was in past time, specially a district for cinchona, which with a rich soil and suitable climate was at its best. There were about 2,550 acres supplying a good deal of bark well known under the "Elephant Brand". Of these, there are only 1,100 acres left and even a great deal of this has deteriorated, and has been coppiced. Speaking well within the mark, I should say there was not more than 1-3rd of the bark in the district that there used to be. Any very large amount put into the market must therefore, of course, mean coppicing or uprooting. And, if this is the case in a district that made cinchona its speciality and, because of its rich bark and well grown trees, was able to hold out longest, no further illustration is needed, if what has happened in other districts even where cinchona has not died out of its own accord.

As I am one of those whose Cinchona prospects at all events have been ruined by the policy of the Quinine Manufacturers, I cannot be expected to look upon them with any particular favour. Yet, I cannot blame them for doing the best they could for themselves, even while I think they were unwise in their way of doing so. It will at all events be interesting to know what they intend doing in the future. Their wisest policy would undoubtedly be to be as generous as they can, to reduce their margin of profit to a minimum and thus by a good and stable unit to encourage the planting of as much cinchona as possible in the near future and the cultivation of every cinchona tree in existence. It is, of course, impossible to tell what stocks of quinine they hold and what of bark; but although these will form a larger factor in their calculation, they must put them against a period of, as I have stated, five to six years of decreased production and a steadily increasing demand. It will naturally be difficult for them to exercise the large-hearted policy I advocate; yet in their own interests if not in the interests of humanity, it is necessary. Any manœuvre, tending towards a rapid overthrow of the unit from its present position, would decrease the amount of cinchona which will otherwise be planted out in the near future. Whereas an expression of opinion on their part and a desire shown to equalise profits as between themselves and the growers and to keep the unit up for some years to come, would foster schemes of planting. It would also prevent the owners of cinchona from rushing at their trees and cutting them down, so as to have their bark in, while the good times last. By this it would tend to keep the supply of bark up during the time the new openings will require to grow into bearing. There is, however, another factor to be considered by the quinine manufacturers and that is the deterioration of cinchona generally and especially the deterioration of available seed.

They may rest assured that a large amount of the cinchona planted out recently and a larger amount of that about to be planted out in the near future, will not grow into anything worth barking. And even where good seed can be obtained and good plants raised there will not be much suitable land available. All this the planter knows; but the manufacturer does not know. It would probably be to the interest of the manufacturers if they were to send a capable man round the Cinchona Districts of the World and get a reliable report made for them. This, they should, in fact, have done a couple of years ago, or more, when they could and would probably as a result have bought up a very large acreage at very low prices. That chance they have allowed to pass, nobody is likely to part with cinchona now, excepting at a very high figure. But apart from the basis of calculation which such a report would furnish them with, a basis, which I feel sure would agree with my views as above given, they could probably do a good deal to promote planting up of suitable land or acquire such land and get it planted up for themselves. It may be asked "Que diable prit il donc dans cette galère?" Why should this cinchona planter go and advise the quinine manufacturers what to do in their own interests, instead of leaving them alone to reduce the production of bark still further by promoting a rush of harvesting "à tout prix." He surely, knowing all that he says, he does, would hold his bark and come in at the fabulous prices that would ensue.

In answer to this I would state my belief that it is better for the general success of trade in any article of commerce, that there should be a certain amount of stability as against sudden rushes up and down. Such stability, would I believe, be promoted by the policy I suggest.

Again, I think it is doubtful whether a unit ruling much higher than the present one could be a lasting benefit to the cinchona planter. I do not believe that the present price of quinine will have any affect on its consumption, but if it went much higher this might occur.

Again, a considerable rise in the price of quinine and bark might lead to a renewed importation of large quantities of forest bark from South America and thus again slump the market, or it might lead to chemical production of quinine from that all-producing coal tar at remunerative prices.

I believe that it will be best for the Cinchona Planter to be content with the 2½d unit and the Quinine Manufacturer with the 1s 6d an ounce and it is with this object in view that I have written. Even these figures seem lacking in humanity, when so many thousands of fever-stricken are crying out for cheap quinine, but I have personally suffered too much by cheap quinine, not to feel that even a medicine should be distributed through the world at some profit to the producer.—Yours very truly,

J. VON ROSENBERG.

Manalé, near Devikolam, 7th November 1900.

PLANTING NOTES.

THE BOMBAY TEA COMPANY, LIMITED.—This Company, which is not an Indian company, as its name implies, but a retail trading company having branches in most of the Northern towns, has declared an interim dividend of 6 per cent per annum, on both preference and ordinary shares, being the same as previously. Dividend warrants were sent out on Friday, Oct. 26th, 1900. —*Grocers' Journal*, Oct. 27.

THE TEA PLANTER.—The *Revue des Cultures Coloniales* for August 5th has an article on tea, giving an outline of an elaborate paper by Mr. Jules Koch that appeared in Engler's *Botanische Jahrbuch* (Botanical Annual). "On the Genus Tea and China Tea." The article, it seems, is very carefully drawn up, in its original (Wilhelm Engelmann, Editor' Leipzig).

GOURAMI FISH FOR CEYLON.—We direct the attention of pisciculturists, and especially the members of the local Fishing Club, to Mr. D. O'Connor's letter elsewhere. We saw no better way of finding out whether Mr. O'Connor's services were locally required than by the publication of his offer. The gourami is a very valuable tank fish and Mr. O'Connor has established a reputation as a zooloogist and collector and for his success in carrying specimens of different kinds from Queensland to England and *vice versa*. It may be a question whether the Ceylon Government should not be approached with reference to the introduction of gourami into some of the village tanks? "C.D." will be interested in Mr. O'Connor's letter.—Part failure should not prevent a fresh trial.

THE LANKA PLANTATIONS CO, LTD.

ANNUAL REPORT.

Report presented at the Twentieth Ordinary General Meeting of the Lanka Plantations Company, Limited, held at the Office of the Company, on Wednesday, the 14th November, 1900, at twelve o'clock noon precisely.

1. The Directors now submit their Report for the twelve months ending 30th June last, together with the Balance Sheet and Accounts of the Company made up to that date and duly audited.

2. The coffee crop shipped to London amounted to 174 cwt. 3 qrs. 13 lb., and realised £573 8s 5d, Last year, the crop shipped was 722 cwt., and realised £2,843 16s 2d The acreage under coffee alone was nominally 120 acres, and of this, 70 acres are to be planted with tea this season, and the remainder next.

3. The total crop of cocoa gathered on Yattawatta amounted to 1,099 cwt., and realised £4,1218s 5d. against 1,655 cwt. last year, which realised £5,5 9 18s 10 l. The cost of fourteen acres new land, and the net expenditure on clearings not yet in bearing, are charged to capital account. On the same estate 565lb. Cardamoms were gathered, realising £32 8s 4d.

4. The tea received from the Company's estates amounted to 947,194 lb., and has been sold at an average of 6·98 per lb. net, realising £27,566 4s 7d. Last year the Company received 769 578 lb. which was sold at an average of 7·44 per lb. net, and realised £23,862 4s 4d. The season was favourable, and the older fields are responding to the manure that has been applied to them.

5. The average rate at which drafts were negotiated on account of the season's crops was 1/4½, per rupee against 1/4 9·32nds last year.

6. The following statement shows the approximate acreage and state of cultivation of the Company's estates on the 30th June last, as per recent surveys

Estate.	Coffee.	Tea.	Cocoa.	Grass.	Chena and Patena & Waste.	Forest and Timber Trees.	Total.
Ampittiakande, Arnhall ..	20	444	...	4	256	70	794
Fruit Hill ..	..	227	..	...	10	..	237
Fordyce, Garbawn, Gonagalla, and Paramatta ..	...	798	..	5	..	135	938
Rappahannock ..	...	322	..	31	30	90	473
Rillamulle ...	...	195	..	..	343	22	560
Thotulagalla ..	100	281	..	..	64	111	556
Yattawatte ..	...	...	751	95	309	82	1,237
	120	2,267	751	135	1,012	510	4,795

7. The net profits for the past year amounted to £7,511 0s 2d, to which must be added the sum of £952 1s 6d the balance brought forward from the year 1898-99, making together £8,463 1s 8d.

8. Having already paid a half-year's interim dividend on the Six per Cent. Preference Shares to the 31st December, 1899, amounting to £426 6s 0d, the Directors recommend payment of the Dividend on these shares to 30th June last, requiring (less property tax) £422 12s 6d, and having deducted in anticipation £999 4s 5d, being one-tenth of the sums charged to Suspense Account during the ten years ending 30th June, 1900, they further recommend a divident of 8s per sh re, e ng 4 per cent (free of income tax) on the O dinary Shares, amounting to £6,000, carrying f ward a balance of £6'4 18s 9d to the next account.

9. Mr. Edward Pettit, the Director retiring on this occasion, being eligible, offers himself for re-election. Mr. John Smith the Auditor also retires and

being a shareholder offers himself for re-election. —By order of the Board,

C. M. ROBERTSON, Secretary.

12, Fenchurch Street, London, E.C, 2nd Nov., 1900.

THE CENTRAL PROVINCE CEYLON TEA COMPANY. LTD.

REPORT OF THE DIRECTORS

to be submitted to the Shareholders at their fourth annual ordinary general meeting, to be held at Botolph House, Eastcheap, E.C., on Monday, the 5th November.

The Directors beg to submit to the Shareholders the audited accounts for the year ending 30th June, 1900. The total crop of tea from the estates for the past season was 843,388 lb., against 780,395 lb. of the preceding year, being an increase of 62,993 lb The total sales, including bought tea, were 1,206,555 lb , averaging 5·683d per lb., being ·71d less than last year, equal to a loss of profit on the estate crop of over £2,000 by the fall in price alone. As regards cocoa, the crop amounted to 315 cwt., against 533 cwt. last year, the average price being 66s 9d per cwt. as against 58s 4d. There were during the season 243 acres of tea not yet in full bearing. The profits have again been slightly affected by a higher rate of exchange, which averaged 1s 4·34d per rupee as against 1s 4·23d last season. The net profits for the year amount to £3 850 2s which with £1,873 4s 9d brought forward from last year, shows a sum of £5,723 6s 9d to be dealt with. Of this amount £1,500 has been applied to the payment of an interim dividend at the rate of 6 per cent per annum on the Preference shares to 31st December, 1899. The Directors now recommend a dividend of 6 per cent per annum on the Preference shares to 30th June, 1900, and a dividend at the rate of 2 per cent per annum on the Ordinary shares, together absorbing £2,500 and leaving £1,723 6s 9d to be carried forward to next account, as against £1,873 4s 9d last year. The Colombo Agent and Director, Mr. F M Mackwood, is now in England and he states that the Company's places are in good order as to roads, drains, buildings, &c.

COLOMBIAN RUBBER CO, LD. (67,537).—Registered Oct. 23, with capital £100,000, in £1 shares, to adopt an agreement with the Compagnie Generale des Caoutchoucs de Colombie to develop and work, by extraction, cutting or otherwise, rubber forests in Colombia or elsewhere, and to carry on the business of rubber planters, growers, cultivators and merchants, timber merchants, saw-mill proprietors, etc.—*Investors' Guardian*, Nov. 3.

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1895.	1896.	1897.	1898.	1899.	Av of 30yrs.	1900
	Inch.	Inch	Inch	Inch	Inch.	Inch.	Inch.
January ..	5·00	2·92	3·81	2·32	6·98	3·22	3·72
February ..	0·81	0·35	1·68	1·98	2·78	1·93	0·63
March ..	1·84	5·64	3·66	4·21	0·88	4·78	3·71
April ..	9·34	5·93	10·97	22·81	6·66	11·31	15·12
May ..	10·09	9·31	8·30	5·80	17·73	12·09	10·63
June ..	13·09	8·37	10·14	10·94	9·23	8·37	7·83
July ..	0·52	2·85	5·24	6·15	1·11	4·38	6·77
August ..	0·92	6·35	9·09	0·97	0·62	3·67	7·35
September	4·09	10·99	4·58	6·90	1·48	5·01	4·00
October ..	30·36	16·78	4·71	20·60	12 99	14·52	9·47
November..	5·83	19.81	11·66	17·38	8·58	12·66	7 76*
December..	9·44	11·76	8·30	3·65	4·44	6·39	
Total..	92·23	101·06	82·73	103·11	73·48	88·33	76·99

* From 1st to 28th Nov. 7·76 inches, that is up to 9-30 a.m, on the 29th Nov.—ED. *C.O.*]

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS FOR OCT 1900.—We append the Monthly Return of rain from which it will be seen that the highest fall in Oct. was at Padupola in the Central Province, 23·32 inches, and the lowest at Madawachchiya in the North-Central Province, 0·75 inches.

WESTERN PROVINCE.

Negombo, Mr. Bucknall (6) ... 9 64
Kalutara Mr. Emerson (36) ... 12 62
Labugama, Mr. Bond (369) ... 17·79
Henaratgoda, Mr. Silva (33) .. 13·20

CENTRAL PROVINCE.

Katugastota. Mr. Morgan (1,500) ... 10·50
New Valley, (Dikoya) Mr. Ward (3,700) .. 19 01
Helboda (Pussellawa) Mr. Gosset (3,300) .. 14·88
Yarrow Estate. .. Mr. Padwick (3,400) 13 89
Peradeniya Mr. ... MacMillan (1,540) ... 8·42
Duckwari, Mr. Edwin (3,300) ... 14·19
Caledonia, Not received (4,273) .. —
Pussellawa, Mr. .. Powell (3,000) .. 9 27
Hakgala, Mr. .. Nock (5,581) ... 7·97
S. Wanarajah Estate, Mr. Tatham (3,700) .. 12 89
Padupola, Mr. Ward .. (1,636) ... 23·32
Mylapitiya, Mr. Fletcher (1,767) ... 1·85

NORTHERN PROVINCE.

Mullaittivu, Mr. Ebert (12) .. 5·44
Jaffna Mr. Macdonnel (8) 10·73
Mankulam, (N. Read) Mr. Ebert (167) ... 14·50
Elephant Pass, Mr .. Silva (7) .. 13·32
Vangalachettykulam, Mr. Oorloff (179) .. 4·30
Point Pedro Mr. Chitampalam (24) ... 3·59
Jaffna College, Mr. Hastings (9) ... 9·95
Kayts, Mr. Kretser (8) .. 5·45
Kankesanturai, Mr. Pararachasinghe (10) .. 5·65
Pallai, Mr. Silva (24) .. 19 41
Murikandy, (North-Central Road) Mr. Silva (7) 7·25
Nedunkeni, Mr. Ebert (122) ... 21·90
Chavakachcheri, Mr. Silva (16) ... 9·47
Udupiddi, Not received (35) .. —
Marichchukaddi, Mr. Lampue (14) 6·47
Murungan, Mr. Walker (52) 8·25
Vavuniya Mr. Ebert (318) 6 08

SOUTHERN PROVINCE.

Ella Vella Mr. Caldicott (262) 9·65
Kekanadura, do (150) 5·13
Denagama, do (286) 9·84
Udukiriwila Mr. Lourensz (235) .. 6·76
Kirama, Mr. Lorensz (260) 14·46
Hali-ela Mr. Caldicott (200) 14·14
Tissa Mr. Silva (75) 16 27
Matara Mr. Caldicott (15) 8·91
Dandeniya, do (157) 8·88
Urubokka, Mr. Caldicott (890) 17·93
Tangalla Mr. Russell (94) 2·88
Mamadola, Mr. Doole (56) .. 11·87

EASTERN PROVINCE

Irrakkamam. Mr. Bower (42) ... 6·46
Devilana, Mr. Vanderstraaten (136) 5·49
Sagamata, Mr. Bower (40) ... 5·53
Ambare, do (65) 7·00
Kanthalai, Mr. Carte (150) 3·24
Allai, Mr. Carte (95) 7·45
Rukam, Mr. Vanderstraaten (120) ... 4 40
Periyakulam, Mr. Carte (20) ... 6·06
Chadaiyantalawa, Mr. Goodman (57) 3·03
Kalmunai, do (12) 6·60
Rotewewa, Mr Bower (30) 5·64
Lahugala, do (70) 7·30
Naulla, do (30) 5·20
Andankulam, Mr. Carte (41) ... 4·80
Manalpuddy, Mr. Vanderstraaten (21) 1·91
Maha-Oya-Tank, Mr. Vanderstraaten (190) 8·76
Potuvil, Mr. Sinnayah (10) 5·71

N.-W. PROVINCE.

Magalawewa, Mr. Soopenayan (176) .. 11·15
Maha Uswewa tank, Mr. Adams (160) ... 11·60
Tenepitiya, Mr. Churchill (8) ... 12·65
Batalagoda, Mr. Madahapola — 17·48

N.-C. PROVINCE.

Kalawewa, Mr. Chellappah (268) 7·94
Maradankadawala, Mr. Emerson (443) ... 4·49
Mihintale, Mr. Ondaatje (354) .. 2·55
Horowapotana, Mr. Ondaatje (217) .. 4·27
Madawachchiya, Mr. Mackride (285) .. 0·75
Topare, Mr. Jayewardane (200) .. 12·35
Minneriya Mr. Eves — 9 64

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) 10·91
Haldummulla, Mr. Viramuttoo (3,160) 13·98
Kumbukan, Not received (446) ...
Koslanda, Mr. Edge (2,258) ... 16·42
Tanamalwila, Not received (550) .. —
Bibile, Mr. Silva (680) 12·52
Taldena, Mr. Fernando (1,100) .. 8 73
Alutnuwara—Mr. Leembruggen (300) 12·59

SABARAGAMUWA.

Ambanpitiya, Mr. Gregson (729) 17·74
Pelmadulla, Mr. Robertson (480) 16· 9
Kolonna Korale (Hulandaoya) Mr Dabre (203) 10·74
Avisawella, Mr. Clarke (105) .. 20·74

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION,

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	—	1000	...
Ceylon Tea and Cocoanut Estates	500	—	—	—
Castlereagh Tea Co., Ltd.	100	...	95	—
Ceylon Hills Estates Co. Ltd..	100	—	—	...
Ceylon Provincial Estates Co. Ltd.	500	500	510	...
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	—	75	--
Clyde Estates Co., Ltd.	100	50	—	—
Doomoo Tea Co., Ltd.	100	60	65	—
Draytou Estate Co., Ltd.	100	120	150	—
Eila Tea Co., of Ceylon, Ltd.	100	..	50	—
Estates Co., of Uva, Ltd.	500	—	250	250
Gangawatta	500	—	—	—
Glasgow Esttate Co., Ltd.	500	975	—	—
Great Western Tea Co.,	500	—	625	625
Hapugahalande Tea Estate Co.	200	—	—	200
High Forests Estates Co., Ltd	500	...	600	600
Do part paid	350	—	425	..
Horekelly Estates Co., Ltd.	100	—	70	—
Kalutara Co., Ltd.	500	—	300	—
Kandyan Hills Co., Ltd.	100	—	70	—
Kanapediwatte Ltd.	100	—	90	—
Kslani Tea Garden Co., Ltd.	100	--	—	—
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	65	—
Maha Uva Estates Co., Ltd	500	400	—	—
Mocha Tea Co., of Ceylon, Ltd.	500	700	725	—
Nahavilia Estate Co., Ltd.	500	—	375	—
Neboda Tea., Co. Ltd	500	..	500	..
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estate Co., Ltd.	100	—	—	—
Palmerston Tea Co., Ltd.	500	—	450	—
Penrhos Estates Co., Ltd.	100	—	100	—
Pine Hill Estate Co., Ltd.	60	—	50	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	—	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co. Ltd.	100	50	55	...
Roeberry Tea Co., Ltd.	100	—	70	70
Ruanweila Tea Co., Ltd.	100	—	35	35
St. Heliers Tea Co., Ltd.	500	510	..	—
Talgaswela Tea Co., Ltd.	100	—	35	—
Do 7 per cent Prefs.	100	..	—	...
Tonacombe Estate Co., Ltd.	500	..	400	...
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	200	...	..
Upper Maskeliya Estate Co. Ltd.	500	—	450	..
Uvakellio Tea Co., of Ceylon, Ltd.	100	65	70	—
Vogan Tea Co., Ltd.	100	..	70	—
Wanarajah Tea Co., Ltd.	500	..	1060	..
Yataderiya Tea Co., Ltd.	100	—	350	—

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	25	50	..
Bristol Hotel Co., Ltd.	100	...	125	120
Do 7 per cent Debts	100	107·50	...	...
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	...	215	...
Colombo Apothecaries' Co. Ltd.	100	...	140	—
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	92·50	—
Colombo Hotels Company	100	..	295	...
Galle Face Hotel Co., Ltd.	100	..	150	—
Kandy Hotels Co., Ltd.	100	...	127·50	...
Kandy Stations Hotels Co.	100	..	25	...
Mount Lavinia Hotels Co., Ltd.	500	..	200	...
New Colombo Ice Co., Ltd.	100	...	190	190
Nuwara Eliya Hotels Co., Ltd.	100	...	...	37·50
Do 7 per cent prefs.	100	..	—	105
Public Hall Co., Ltd.	20	15	16	—

LONDON COMPANIES *

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon,	10	8½	9—10	.
Anglo Ceylon General Estates Co.	100	..	45—50	..
Associated Estates Co., of Ceylon	10	..	2—3	...
Do. 6 per cent prefs.	10	..	6½—7½	..
Ceylon Proprietary Co.	1	...	½—¾	..
Ceylon Tea Plantation Co., Ltd.	10	..	25—26	..
Dimbula Valley Co., Ltd.	5	..	5½—6	..
Do prefs.	5	..	..	...
Eastern Produce & Estates Co.	5	...	5—5½	..
Ederapolla Tea Co.,	10	...	8—10	...
Imperial Tea Estates Co., Ltd.	10	...	5—5½	...
Kelani Valley Tea Asscn., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	7—8	..
Lanka Plantation Co., Ltd.	10	4½	4—5	..
Nahalma Estates Co, Ltd.	1	..	¼—¾	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	..	...
Ouvah Coffee Co., Ltd.	10	..	6—7	...
Ragalla Tea Estates Co., Ltd.	10	..	10	10
Scottish Ceylon Tea Co., Ltd.	10	..	13—15	...
Spring Valley Tea Co., Ltd.	10	3	4—5	..
Standard Tea Co., Ltd.		..	11—11½	..
The Shell Transport and Trading Company, Ltd.	100	..		.
Yatiyantota Ceylon Tea Co., Ltd.	10	...	8—9	...
Do. pref. 6 o/o	10	...	7½—8	..

BY ORDER OF THE COMMITTEE.

Colombo, November 30th, 1900.

* Latest London Prices.

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, Nov. 29th, 1900.

COFFEE:—		
Estate Parchment per bushel	None	
Chetty do do	Nil.	
Native Coffee per cwt.	Nil.	
do F. O. B per cwt.	Nil.	
Liberian coffee:—per bushel	Nil.	
do cleaned coffee:—per cwt	Nil.	
Cocoa unpicked:—per cwt	Nil	
do cleaned do	Nil	
Cardamoms Malabar per lb	R1·15 to 1·75	
do Mysore do	R1·60 to 2·00	
RICE:—		
Soolai per bag of 164 lb. nett	R9·23 to 9·52	
1st quality:—per bushel	R3·60 to 3·65	
Soolai 2 & 3rd. do do	R3·53 to 3·60	
Coast Calunda	R3·87 to 4·00	scarce
Coast Kara	R3 85 to 3·90	
Kazala	R3·47 to 3·50	
Muttusamba Ordinary	R5·75 to 6·00	
Cinnamon per lb No 1 to 4	52c to 54c	
do do 1 and 2	62c to 64c	
do Chips per candy	R90·00 to 92·50	
Coconuts Ordinary per thousand	R35·09 to 38 00	
do Selected do	R36·00 to 39·00	
Coconut Oil per cwt	R14·25 to 14·37	Business done
do do F. O. B. per ton	R285·00 to 287·50	Business done
POONAC:—		
Gingelly per ton	R100·00 to 102 50	
Coconut Chekku do	R80 00 to 82·50	
do Mill (retail) do	R85·00	
Cotton Seed per ton	R90·00 to 92·50	
Copra per candy		
Kalpitiya do	R45·50 to 46·75	
Marawilla do (Boat)	R41·00 to 46·50	
Cart Copra do	R36·00 to 43·00	
Satinwood per cubic feet	R2·00 to 2·25	
do Flowered do	R5·00 to 6·00	
Halmilla do	R1·90	
Palu do	R1·00 to 1·12	
Ebony per ton	R75·00 to 175·00	
Kitul fibre per cwt	R30·00 to 32·00	
Palmyra do do	R8·00 to 14·50	
Jaffna Black Cleaned per cwt	R1[illegible]·00 to 14·50	
do mixed do	R11·00 to 12·00	
Indian do	R7·50 to 12·00	
do Cleaned do	R8·00 to 13·50	
Sapanwood per ton	R45·00 to 47·50	
Kerosene oil American per cases,	R7·00 to 7·25	
do bulk Russian, per tin	R3·12 to 3·15	
do Russian per cases	R6·37 to 6·50	
Nux Vomica per cwt	R2·00 to 6·50	
Croton Seed per cwt	R20·00 to 22·00	
Kapok cleaned f o b per cwt	R24·00	
do uncleaned do	R5·50	
Plumbago per ton, according to grade — Large lumps	R300·00 to 700·00	
Ordinary size lumps	R250·00 to 650·00	
Chips	R150·00 to 450·00	
Dust	R60·00 to 300·00	

COLOMBO PRICE CURRENT.

(*Furnished by the Chamber of Commerce.*)

EXPORTS.

Colombo, 26th Nov. 1900.

CARDAMOMS:—
All round parcel, well bleached per lb. R2 00
Do. dull medium do. 1·55
Special assortment, 0 and 1 only do. 2·10
Seeds do. 1·60

CINCHONA BARK:—
Per unit of Sulphate of Quinine 11c—For 1¼ to 3 o/o.

CINNAMON :—
Ordinary assortment per lb. 59c.
Nos. 1 and 2 only per lb. 64c,
Nos. 3 and 4 only per lb. 54c.

CINNAMON CHIPS :—
Per candy of 560 lb R92·50

COCOA :—
Finest estate red; unpicked per cwt R60
Medium do do R56
Bright native, unpicked and undried R54
Ordinary do do do R46

COCONUTS—(husked).
Selected per thousand R48·00
Ordinary ,, R38·00
Smalls ,, R29·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R78·75
Do in bags None

COCONUT (Desiccated).
Assorted all grades per lb 14½c

COCONUT OIL—
Dealers' Oil per cwt R14·37
Coconut Oil in ordinary packages, f. o. b. per ton R325·00 Business done.

COFFEE.—
Plantation Estate Parchment on the spot per bus.—None.
Plantation Estate Coffee f.o.b. (ready) per cwt None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb. 65c.

COPRA—
Boat Copra per candy of 560 lb. R46·50
Calpentyn Copra do do R46·75
Cart do do do R43·00
Estate do do do R46·50

CROTON SEED per cwt None

EBONY—
Sound per ton at Govt. depot—R205.
Inferior R155. Next Govt. sales on Dec 3rd.

FIBRES—
Coconut Bristle No 1 per cwt R10·50
Do ,, 2 ,, None
Do mattress ,, 1 ,, 4·00
Do ,, 2 ,, 3·00
Coir Yarn, Kogalla ,, 1 to 8 18·00
Do Colombo ,, 1 to 8 16·00
Kitool all sizes 38·00
Palmyrah 16·00

PEPPER—Black per lb 33c.

PLUMBAGO—
Large lumps per ton R700
Ordinary lumps do 650
Chips do 450
Dust do 300
Do (Flying) 150

SAPANWOOD— per ton None

SATINWOOD (ordinary) per cubic ft. R2·50

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
	cts	cts	cts
Broken Pekoe and Broken Orange Pekoe per lb	52	40	35
Orange Pekoe do	57	36	30
Pekoe do	42	33	30
Pekoe Souchong do	36	27	23
Pekoe Fannings do	31	19	19
Broken mixed—dust, &c. per lb	20	20	18

CEYLON EXPORTS AND DISTRIBUTION, FOR SEASONS 1899 AND 1900.

COUNTRIES	Tea. 1900 lbs.	Tea. 1899 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon. Bales lbs.	Cinnamon. Chips lbs.
To U K. ..	98781869	90885691	6716	..	6716	19757	291514	830928	224631
,, Austria ..	23358	8231	..	..	..	..	..	1500	47600
,, Belgium ...	22630	14424	76	..	76	684	...	84069	118662
,, France ..	267122	81180	68	...	68	78	3407	96680	41786
,, Germany ..	304813	312379	350	..	350	526	63290	638223	502267
,, Holland ..	2000	30211	..	..	..	...	...	18756	113848
,, Italy ..	5932	12471	..	..	..	...	519	150100	153380
,, Russia ..	8008581	3395262	128	..	128	..	..	..	...
,, Spain ..	15130	17800	..	...	..	...	..	209944	58800
,, Sweden ..	61490	63337	9	..	9	..	5171	2400	..
,, Turkey ..	31210	18733	..	..	..	..	2120	1020	10
,, India ..	728859	507120	169	4	173	5	77001	500	..
,, Australia ..	15127670	14271517	2375	..	2375	29	336	9040	19596
,, America ..	3704595	2837962	135	..	135	615	2641	229000	140400
,, Africa ..	202580	248615	19	..	19	..	2315	10500	2408
,, China ..	1093891	1201418	30	...	30	82	1800	82400	...
,, Singapore ..	100731	74492	1	..	1	675	1340	..	..
,, Mauritius ..	16583	90508	..	..	..	..	...	...	..
,, Malta ..	398023	231967	..	...	..	..	..	..	.
Total export from 1st Jan. to 26th Nov, 1900	128897097	114303318	10076	4	10080	22461	451454	2365060	1423388

COUNTRIES	Coconut Oil. 1900 cwt	Coconut Oil. 1899 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts. No.	Plumbago. 1900 cwts.	Plumbago. 1899 cwts.	Fibre.	Ebony cwts.
To U K. ..	218489	149162	19524	7931366	2001	9264204	110772	160042	49384	280
,, Austria ..	8682	6173	30406	120310	...	2900	2	14	...	..
,, Belgium ...	1825	2[illegible]87	71711	495319	75001	150190	29460	35458	17793	...
,, France ..	...	...	24140	17902	201	..	304	1014	638	430
,, Germany ..	11384	8850	63603	1041501	84051	742820	46609	65157	13273	6011
,, Holland ..	..	..	..	130030	.	25050	912	7787	490	...
,, Italy ..	..	404	22617	..	..	8002	..	15	..	45
,, Russia ..	..	..	93557	..	...	1790	1203	1188	6	..
,, Spain ..	..	..	..	...	...	...	..	...	..	..
,, Sweden ..	...	206	4403	...	..	..	303	409	300	...
,, Turkey ..	...	..	1	...	..	2000	...	..	..	...
,, India ..	76109	59600	437	...	..	754750	1065	435	135	..
,, Australia ..	634	742	..	628485	42	...	1999	1166	3966	27
,, America ..	54358	87559	..	1550880	...	..	132543	277768	6791	..
,, Africa ..	42	..	..	49625	...	2293293	..	..	2307	..
,, China ..	1034	3381	20	92743	...	1503	287	127	...	..
,, Singapore ..	4543	22333	..	...	..	..	...	..	303	...
,, Mauritius ..	..	..	...	...	..	--	..	...	..	..
,, Malta ..	...	...	...	..	..	...	..	..	..	..
Total export from 1st Jan. to 26th Nov, 1900	377100	340197	330419	12058161	161296	13246502	325459	550580	95389	6793

MARKET RATES FOR OLD AND NEW PRODUCTS

(From Lewis & Peat's Fortnightly Prices Current, London, October 31st, 1900

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt,		
Zanzibar & { White ,,	Good to fine	£6 a £7 10s
Bombay { Yellow ,,	Fair ,,	£5 15s a £6 7s 6d
Madagascar ,,	Dark to good palish	£6 a £6 7s 6d
CAMPHOR, China ,,	Fair average quality	137s 6d
Japan ,,	,, ,, ,,	195s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 3d a 2s 4d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s 8d a 3s 9d
	Seeds .	1s 6d a 2s
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish .	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	1s 10d a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4d a 4½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	37s 6d a 47s 6d
CINCHONA BARK.—lb.	Ledgeriana Orig. Stem	3¾d a 6¾d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅜d a 5⅝d
	Renewed	5¾d a 7½d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts	Ordinary to fine quill	11d a 1s 8d
per lb. 2nds	,, ,,	10d a 1s 7d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	3½d a 8d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar }	Good and fine bright	3⅜d a 4⅛d
and Pemba }	Common dull to fair	3½d a 3¾d
Stems ..	Fair	1¼d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	100s a 118s
	Middling to fine mid .	85s a 97s 6d
	Low mid. and low grown	75s a 82s 6d
	Smalls	55s a 75s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	37s a 45s
COCOA, Ceylon ,,	Bold to fine bold	90s a 105s
	Medium and fair	85s a 90s
	Native	72s a 80s
COLOMBO ROOT ,,	Middling to good	12s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£18 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	30s a 40s
CUTCH ,, ,,	Fair to fine dry	28s a 35s
GINGER, Bengal, rough ,,	Fair	28s 6d
Calicut, Cut A ,,	Good to fine bold	80s a 100s
B & C ,,	Small and medium	34s a 77s 6d
Cochin Rough ,,	Common to fine bold	25s a 33s
	Small and D's	25s a 29s
Japan ,,	Unsplit	27s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, red ...	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		67s 6d a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr to gd. almonds	40s a 85s
	Ord. stony and blocky	6s a 25s
KINO ,,	Fine bright	1s a 1s 3d
MYRRH, picked ,,	Fair to fine pale	90s a 107s 6d
Aden sorts ,,	Middling to good	50s a 60s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 0¼d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS
INDIARUBBER, (Contd).		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s 3d
Mozambique ,,	Good to fine Ball ..	2s 8d a 3s 4d
	Ordinary to fair Ball .	2s a 2s 10¾d
	Low sandy Ball ..	1s 3d a 1s 7d
	Sausage, fair to good .	2s 6d a 3s 1d
	Liver and livery Ball	2s 4d a 2s 1½d
Nyassaland ..	Fair to fine ball	2s 1d a 2s 1¾d
Madagascar ,,	Fr. to fine pinky & white	3s a 3s 3d
	Fair to good black .	2s a 2s 10d
	Niggers, low to fine ..	11d a 2s 4d
INDIGO, E.I. ,,	Bengal--	
	Shipping mid to gd violet	3s 4d a 4s 4d
	Consuming mid. to gd.	2s 9d 3s 2d
	Ordinary to mid.	2s 4d a 2s 8d
	Mid. to good Kurpah	2s 2d a 2s 8d
	Low to ordinary	1s 10d a 2s 1d
	Mid. to good Madras	1s 6d a 2s 8d
MACE, Bombay & Penang	Pale reddish to fine	2s a 3s
per lb.	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, } cwt	Dark to fine pale UG	6s a 7s
Madras }	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 4d a 2s 6d
Bombay & Penang ,,	110's to 65's	11¼d a 2s 3d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay	Ordinary to middling	4s a 5s 6d
per cwt. Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable	6s
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	3d
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1/0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody .	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ..	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	6½d a 6⅝d
Singapore ..	Fair	6¼d a 6⅜d
Acheen & W. C. Penang	Dull to fine	5¾d a 6¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	35s a 40s
	Middling to good small	20s a 32s
chips ,,	Dull to fine bright ..	10s a 20s
dust ,,	Ordinary to fine bright	5s a 10s
SAFFLOWER ,,	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	51s 6d a 59s 6d
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair middling medium	4d a 5¼d
	Common dark and small	1¼d a 3½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	£4 a £5 2s 6d
	D's and B's	
	Small ...	
Mergui ,,	Small to bold ..	£5 12/6 a £7 10s
Mussel ,,	Small to bold ...	18s a £2 10s
TAMARINDS, Calcutta ...	Mid. to fine bl'k not stony	15s a 16s
per cwt. Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 24s
TURMERIC, Bengal cwt.	Fair ...	28s nom.
Madras ,,	Finger fair to fine bold bright	25s a 27s 6d
Do. ,,	Bulbs ..	20s a 21s
Cochin ,,	Finger ..	24s
	Bulbs ...	7s 6d
VANILLOES— lb.		
Mauritius ... } 1sts	Gd. crysallized 3½ a 9 in	17s 6d a 26s
Bourbon ... } 2nds	Foxy & reddish 4½ a 8 ,,	15s a 21s
Seychelles 3rds	Lean and inferior ...	10s a 13s 6d
VERMILION lb.	Fine, pure, bright ...	3s 3d
WAX, Japan, squares cwt	Good white hard ...	33s 6d

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for December :—

Vol. XII.] DECEMBER, 1900. [No. 6.

REPORT OF MR. C. DRIEBERG, B.A., F.R.A.S., SUPERINTENDENT OF THE COLOMBO SCHOOL OF AGRICULTURE.

THE condition of the School of Agriculture remains the same as before, no provision having been made for giving effect to the improvements suggested by me in previous reports.

The Commission appointed by His Excellency the Governor "to inquire into and report on the advisability of establishing a Department of Agriculture" has made no recommendation with reference to the re-organization of the school, so that the long-deferred question of setting it on a better footing has still to be dealt with. At the request of the new Director of Public Instruction I have just drawn up a lengthy special report on the school.

The largest number of students on the roll in 1899 was 22, the average for the year 16. This is rather below the usual number (about 20), and is to be attributed to the uncertainty of the future of the school.

On the results of the final examination held in November, three students became entitled to the first-class certificate granted by the Department: E. Jayatilleke, G. Jayasinghe, and P. C. F. Fernando.

The third batch of Forestry students trained here passed out in February, and consisted of the following :—Messrs. J. S. Perera, M. B. Seneviratna, G. Rajapakse, W. E. Rowlands, W. Ferdinands, and D. E. Tiathonis. With their departure a new class was formed, composed of Messrs. O. M. Mack, F. Jayatilleke, E. C. Fernando, L. B. Tennekoon, D. C. de Silva, and J. F. Cooray.

The staff of the Colonial Veterinary Surgeon has been increased by the appointment of Messrs. D. Dias and A. M. Fernando (old boys of the School of Agriculture) as stock inspectors.

The Government Veterinary Scholarship for the study of veterinary science in Bombay was awarded to J. E. Fernando of the School of Agriculture, who left for India in November. The previous scholar, Veterinary Surgeon Chinniah, elected with commendable enterprise to start work on his own account, and now commands an extensive practice in Colombo.

I have nothing special to report as regards the Training School and Practising School.

The Government Dairy is now in its seventh year. The dairy herd was free from any form of contagious disease in 1899, and there were but six deaths for the twelve months, three among the cows and three among the calves. This is an excellent record considering the size of the herd. Thirty cows and three bulls were purchased at a cost of R1,564·86, while twenty-nine cows and two bulls and fifty-six young animals bred on the farm were sold for R4,337·26.

Milk to the value of R21,895·64 was supplied, of which R4,823·07 worth had to be purchased to meet the demand from the hospitals, which at different periods required more milk than the Dairy was able to supply. The necessity for the purchase of milk remains a serious defect in the

management, and the only way of avoiding it seems by the Dairy arranging with the Medical Department to supply only as much milk as it (the Dairy) produces. It should be possible to make a monthly forecast of the milk that the Dairy can supply under normal conditions, so as to permit the hospitals to arrange beforehand for the supply of milk in excess of the estimated quantity.

Mr. H. O. Morel, one of the agricultural students, who, with a view to acquiring a knowledge of dairying and cattle management, voluntarily acted as assistant to the Dairy Manager (with much acceptance), has become Manager of Mr. De Soysa's Bagatelle Dairy.

The following statements and returns are annexed :—

A.—Receipts and Expenditure of the Government Dairy, 1899.

B.—Receipts and Expenditure of the Model Farm, 1899.

C.—Financial Statement of Government Dairy and Model Farm, 1899.

D.—Capital Account of the Dairy.

E.—Balance Sheet showing the position of the Government Dairy Farm at the end of 1899.

F.—Live Stock Return.

The success which attended the Fruit and Flower Show held in 1898 suggested the resuscitation of the old Colombo Agri-Horticultural Society on 6th August of the same year. The first Show under the auspices of the revived Society was held at the School of Agriculture on 21st and 22nd July, 1899. The Exhibition, which was on a much larger scale than that held in the previous year, was a most successful event in every respect. After meeting all expenses connected with the Show a balance of R586·40 remained to the credit of the Society. It would, I think, be a good plan to hold future Shows in other centres in the Western Province besides Colombo; the benefit of the Show would then be more far-reaching than if they are always held in the capital.

The following is a record of the rainfall at the School of Agriculture for the year 1899 :—

	Inches.		Inches.
January ..	4·43	July ..	·66
February ...	2·66	August ..	1·01
March ..	1·73	September..	1·06
April ...	9·99	October ..	16·40
May ...	21·24	November..	6·89
June ..	12·73	December..	6·30

The total rainfall for the year was thus 85·10 in. The wettest month was April, but the greatest amount of rain which fell in any one day was 7·65 in., recorded on Friday, the 19th May—that is, between 9 30 A.M. on Thursday the 18th and the same time on Friday the 19th May. The total rainfall for 1899 fell short of that for 1898 by 1·48 in.

The Magazine published in connection with the school is now in its eleventh year, and the publication is, I am convinced, appreciated by those whom it is intended to benefit.

I trust that with the dawn of a new year and a new century some decisive step will be taken by Government towards placing the School of Agriculture on a better footing, whereby it may fulfil its object more worthily.

C. DRIEBERG,
Superintendent.

A.—*Receipts and Expenditure of the Government Dairy for the Year 1899.*

RECEIPTS.

		Amount. R. c.
January	To amount realized by sale of milk ...	2,041 98
February	do ...	1,680 52
March	do ...	1,816 68
April	do ...	1,817 87
May	do ...	1,857 5
June	do ..	1,803 29
July	do ...	1,752 15
August	do ...	1,888 91
September	do ...	1,757 26
October	do ...	1,801 43
November	do ...	1,763 2
December	do ...	1,864 48
	Amount of fees for the services of the stud bull	25 0
	Cost of carriage of milk ...	26 0
	Total ...	21,895 64

EXPENDITURE.

Expended in the purchase of milk ...	4,833 7
Paid to the Manager as part salary ...	300 0
Paid to Mr. Kuruppu as part salary ...	180 0
Paid as rent of the Havelock Race Course	720 0
Paid as rent of the meter for 1900 ...	32 0
Paid to Dairy coolies	1,525 0
Paid to grass land coolies	1 641 0
Expended in transporting milk ...	305 0
Expended in repairing the utensils and the building	120 46
Expended in purchase of castor meal manure for grass lands	135 0
Expended in purchase of oil and medicines	127 94
Paid for licensing three grass garden carts	15 0
Cost of keeping two calves at the Model Farm for six months	51 23
Cost of sealing wax, tape, and coir string	22 81
Cost of three hurricane lanterns ...	7 68
Cost of dieting Mr. H. O. Morel for one month	16 0
Sundries	2 30
Cost of provisions for the cattle ...	9,554 15
Nett profit	2,307 0
Total ...	21,895 64

B.—*Receipts and Expenditure of the Model Farm for 1899.*

RECEIPTS.

Receipts of the Model Farm for the year 1899	4,250 78
Rent of the bungalow	120 0
Do Old link	3 0
Do New link	150 0
Do Health Depôt ...	36 0
Do Grass for the Municipality	6 21
Damages for trees cut down by the Golf Club	49 0
Total ...	4,614 99

EXPENDITURE.	Amount. R. c.
Pay of the watchers	240 0
Rent paid to Government... ...	1,350 0
Nett profit	3,024 99
Total ...	4,614 99

C.—*Financial Statement of the Government Dairy and Model Farm for the Year 1899.*

1899.	RECEIPTS.	
Dec. 31 ..	To purchase of stock in 1899	4,564 89
	To cost of advertising the sales and sending calves to Galle and Kandy	134 25
	To cost of extending the Dairy buildings	750 0
	To cost of getting two cases of dairy utensils from England	219 17
	To amount paid to the Manager for 1899: 6 per cent. commission on Rs. 2,307 ...	138 42
	To Balance at credit on December 31, 1899 ...	13,532 84
	Total ...	19,339 54

1899.	EXPENDITURE.	
Dec. 31...	By balance at credit, January 1, 1899	9,604 29
	By nett profit of working the Dairy in 1899 ...	2,307 0
	By nett profit of working the Model Farm, 1899 ...	3,024 99
	By sale of stock, 1899 ...	4,337 26
	By interest allowed by Bank...	66 0
	Total ...	19,339 54

D.—*Capital Account of the Government Dairy.*

RECEIPTS.

To amount expended from the sum of R22,980 voted for the establishment of the Dairy Farm in 1893	19,539 12
To amount of special advances for the working of the Dairy Farm received in 1894	11,500 0
Total ...	31,039 12

EXPENDITURE.

By amount paid into revenue as proceeds of sale of milk in 1893	7,627 86	
Do in January, 1894	1,262 65	
		8,890 51
By amount paid to Treasurer in part settlemenet of the advance on December 31, 1895	5,237 35	
Do December 31, 1896	2,087 55	
Do December 31, 1897	4,175 10	
		11,500 0
By amount paid on June 13, in part payment of the original vote	—	4,000 0
By balance of vote not repaid to revenue	—	6,648 61
Total ...		31,039 12

E.—*Balance Sheet showing the position of the Government Dairy at the end of* 1899.

RECEIPTS.	Amount. R. c.
To balance of vote not repaid to Government	6,648 61
To assests over liabilities on December 31, 1899	26,269 23
Total ...	32,917 84

EXPENDITURE.	
By amount paid as compensation to the late lessees of the Model Farm from the sum voted	4,400 0
By estimated value of Dairy stock and utensils	14,985 0
By balance at credit on December 31, 1899	13,532 84
Total ..	32,917 84

F.—*Live Stock Return of the Government Dairy for the Year* 1899.

Particulars.	Balance in hand on Dec. 31, 1898.	Purchased during the Year.	Born during the Year.	Total.	Died during the Year.	Sold during the Year.	Not to be struck off the List.	Total.
Cows ...	84	30	—	114	3	29	32	82
Calves .	94	13	21	128	3	56	59	69
Stud bulls..	3	3	—	6	—	2	2	4
Draught bulls ..	4	—	—	4	—	1	1	3

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF NOVEMBER, 1900

1	Thursday ..	Nil	19	Monday ..	1·39
2	Friday ..	·06	20	Tuesday ..	·27
3	Saturday ..	Nil	21	Wednesday ..	·04
4	Sunday ..	Nil	22	Thursday ..	Nil
5	Monday ..	Nil	23	Friday ..	·27
6	Tuesday ..	Nil	24	Saturday ..	Nil
7	Wednesday ..	Nil	25	Sunday ..	·43
8	Thursday ..	·40	26	Monday ..	Nil
9	Friday ..	Nil	27	Tuesday ..	·49
10	Saturday ..	Nil	28	Wednesday ..	·39
11	Sunday ..	Nil	29	Thursday ..	Nil
12	Monday ..	·11	30	Friday ..	·89
13	Tuesday ..	·92	31	Saturday ..	Nil
14	Wednesday..	·14	1	Sunday ..	·23
15	Thursday ..	·01			
16	Friday ..	1·04			
17	Saturday ..	Nil		Total..	6·98
18	Sunday ..	·40		Mean..	·23

Greatest amount of rainfall in any 24 hours on the 19th instant, 1·39 inches.

Recorded by Mr. C. DRIEBERG.

THE GOVERNMENT DAIRY AND DAIRYING IN COLOMBO.

The Administration Report of the Director of Public Instruction for last year contains the following appreciative remark with reference to the Government Dairy:—"The Dairy has done well, as usual. It has supplied excellent milk to various hospitals, and—what is still more important—it has introduced a useful breed of cattle into the Island."

The financial statement attached to the report of the Superintendent of the School of Agriculture not only shows the working of the Dairy for the past year, but reviews the result of its work since its establishment up to the date of the report, and this retrospect only goes to prove the fact that as a commercial undertaking this instruction has been a success.

Now there are many who would be inclined to ask how this success has been attained. We take it that it is to be ascribed to more than one cause. Of these, the selection of a useful breed of cattle, referred to by the Director, is perhaps the most important. To attempt to carry on a Dairy with the breed of cattle native to Ceylon would be a foolhardy undertaking, as good milking qualities—if they ever existed in them—long ceased to characterise these animals. The ordinary South Indian or "Coast" breed of cattle found in our cattle marts, and usually kept as milking stock by the Tamil cattle-keeper and milk vendor, only suits the conditions of this class of people, and is by no means adapted to the requirements of an establishment such as the Government Dairy, the reason being that the average output of milk is too small for successful working. It must be remembered that the produce of dairy cows should realize enough not merely to pay for their feed but also for their attendants, and for both not only during the period they are in milk, but also when dry and until they come into full milk again. In addition to all this there must be the margin of profit. Of course in the case of the native milkman the cost of attendance will be saved, as the owner himself tends his animals. There may be other good milking breeds of Indian cattle, but they have yet to be discovered and introduced into Ceylon *as profitable dairy stock* that will do well when kept in large numbers. The so-called Nellore cow and the English cow may thrive under special conditions and with individual attention, but they are unsuitable for a dairy of any size. The introduction of the Sind breed into Ceylon must, therefore, be put down as one of the chief factors in the success of the Government dairy, and for this the Superintendent must take credit, as nothing was known of these cattle in Ceylon till he "discovered" them and arranged for the first consignment of stock for the dairy.

The adequate provision made in the way of building and grazing accommodation, and the precautions for preventing the Dairy Stock coming in contact with outside cattle, are other causes of the Government Dairy's success. The cows of the native milk vendor are usually poorly housed in crowded, ill-ventillated and damp localities, and either permitted no exercise or allowed to wander about roadsides at nights, exposed to the night air, so that they might find grazing as best they can and at the same time take the risks of contracting contagious and infectious diseases, which, for want of a sufficient surrounding area, even threaten them in their sheds.

Another matter to be remembered as regards the Government Dairy is that it is under good supervision and good management, both of which are wanting in the so-called dairies scattered about the town, where no rules or regulations are enforced for carrying out the various operations involved in good dairying. Is it any wonder then, with so precarious a livelihood, that the native dairyman resorts to illicit means in order to supplement his legitimate income?

CLINICAL NOTES.

By D. A. Chinniah Veterinary Surgeon.

A case of cancer in a slut came under my treatment about two months ago. The animal was brought to me on the 12th of September in a very emaciated condition, and as she shewed great weakness I could not perform the complete operation I decided on. For the same reason I dispensed with the use of chloroform, and then proceeded to make a vertical incision in a line with the anal and vaginal openings.

Under proper antiseptic precautions I inserted my fingers into the cavity and after a vaginal and rectal examination with the help of my left hand, I was able to trace and draw out the horns of the womb, but instead of removing the ovaries I only cut off about 2½ inches of the horns together with the neck and appendages. The wound having been sutured and treated for some time, I performed a further operation on the 8th of October, and removed the cancerous mass. I had the satisfaction of ultimately seeing this dog regain its health. I may mention that the animal was the property of Mr. Chapman Dias of Mutwal, Colombo.

Subsequent to my first operation for worm in the eye (*Filaria Occuli*) performed on the 22nd of April last year, I had two other cases brought to me. One came a day after it had been unsuccessfully punctured by a farrier and the other was sent from Matara in a state of complete blindness,—this animal, too, I was led to believe, having been previously punctured without good results. This subject was a property of Dr. Asserappa, and it was sent for the operation on the 8th of October. As on the previous occasion, I threw my animal, but dispensed with the use of Cocaine. I tried to use the speculum for the first time in this operation, but abandoned it finding my fingers more effectual in preventing the eyeball from moving. With the help of a candle light—which brings the parasite to the surface—I found no difficulty in removing the worm. In both the cases the eyes were restored to their former useful condition.

PRACTICAL HINTS TO HORSE-OWNERS.

By D. A. Chinniah, o.s.v.c.

Chap. II. (*continued*).—Food and Feeding.

The question of *quantity* of food can only be decided on after considering the digestive capacity of the animal, his speed, amount and nature of work, and the climate in which he is being used. The time of feeding must also to a great extent be regulated by the owner.

It is not advisable to use an animal much before two hours after feeding, as otherwise there will be a tendency to indigestion, and colic and other stomach troubles may result. In England horses are fed as frequently as four or five times a day, but in Ceylon they are fed twice or at the most three times. As digestion in hot climates is slow, frequent feeding is not advisable. A fact that is as a rule ignored is that the concentrated food (grain, pulses, &c.) requires more time to be digested than the natural herbaceous diet. It is quite common to see a *muttu* giving his horse an allowance of grass just after he has had his regular feed. This is not to be recommended. Let us for a minute consider the physiological functions of the horse's stomach in relation to digestion of food. The stomach of the horse is for its size the smallest among our domestic animals. The digestion of concentrated foods (grain &c.) takes place mainly in the stomach itself, and the time occupied in the process varies approximately from 2½ to 3 hours. On the other hand the digestion of the bulky grass or hay takes place in the larger intestines, while the absorption of water is carried on in the colon. On these physiological facts are based the following rule as regards feeding:—First give water, second give the grass, and third give the grain. It may not always be convenient to adopt this sequence, but it is as well to instruct *muttus* not to give water or grass for about three hours after the concentrated food has been consumed.

The main advantage of feeding horses on concentrated food is that the capacity of the digestive canal is reduced, and that this allows of greater scope for the expansion of the lungs required by fast work. Ignorant of this fact, the hired-gharry muttu makes a point of stuffing his horse with grass during intervals of work, and in this way ruins its digestion. Overloading the intestines just before work impedes the action of the lungs and causes *broken wind*, commonoly referred to as "panting."

Visitors to Ceylon who spend the greater part of their time in plying about in hired gharries, know the inconvenience of being drawn by horses attached to these vehicles, and Prof. Wallace on a recent visit made special note of the "ruined digestions" of the common hired horses, caused undoubtedly by the indiscriminate use of grass and water during intervals between work. As a result, some of these unfortunate animals are found, to move with difficulty and discomfort to the accompaniment of natural barrel organs within their stomachs!

SIR JOHN LAWES—HIS LIFE AND WORK.

(*Concluded.*)

About 130 papers and reports on the Rothamsted experiments have been published, most of them in the joint name of Sir John Lawes and Sir Henry Gilbert. It would serve no purpose to enumerate the different subjects treated of, suffice it to say that much information of a useful character and founded upon the valuable data supplied at Rothamsted was given to the world in these papers. Sir John also contributed voluminous papers to the philosophical transactions of the Royal Society, the Journal of Chemistry and other Scientific Journals, and drew up two valuable reports which were presented to Parliament. He also appeared on several occasions as a lecturer on agricultural and allied subjects. A few years ago the Rothamsted papers were collected in seven octavo volumes for presentation to various national institutions throughout the world.

The unique feature of Rothamsted—which is the oldest Agricultural Experimental Station in the world—is the long unbroken continuity of its investigations. It would have been nothing less than a national calamity had these ceased at the death of their founder. Sir John Lawes must have felt this, for he foresaw it, and with laudable munificence and admirable public spirit set asid a sum of £100,000 for their permanent cone tinuance. The fund is administered by the Lawes Agricultural Trust Committee, the work of which began ten years ago, and will now go on uninterruptedly despite the lamentable death of the donor.

Prior to his death Sir John was approached with the view of his occupying the office of President of the Royal Agricultural Society, but his advancing years and the infirmities of age prompted him to decline the high honour. Among the many honours that were bestowed on the late baronet, was the awarding of the Royal Medal jointly to himself and Dr. Gilbert by the Royal Society, of which he was a member. In 1893, the year of the jubilee of the Rothamsted Experiment, a national monument was raised to Sir John Lawes, and the highest in the land joined to do honour to "one of the most disinterested as well as the most scientific of our public benefactors," who had laboured for fifty years for the cause of agriculture.

In concluding his excellent account of the life and work of Sir John Lawes, Dr. Fream pays the late baronet this handsome tribute:—

In his successsul efforts to wrest from the soil its secrets, Sir John Lawes established facts which were unknown—undreamt of, even—in the pre-Victorian days, when he first began his experimental inquiries. Many of the truths that he discovered have now become incorporated with the stock of common knowledge, and have benefited the agricultural practice of all progressive countries. He worked, indeed, for mankind, and happily for the results, he was actuated throughout by an unswerving purpose. The fame of the Rothamsted Station is worldwide, and visitors from beyond the seas were always im-

pressed by the charming old Manor-house, so beautifully set among its sylvan surroundings, a fit type of the "homes of England." They invariably carried away, moreover,—as did all who visited the station,—agreeable recollections of the goodness of heart and the courtesy of the great yet unassuming man whose remains were laid to rest, amid every sign of sorrow and respect, at the Parish Church, Harpenden, on Tuesday, September 4. Of him it might well have been written:—"Thou shall come to thy grave in a full age, like as a stock of corn cometh in his season."

MISS ORMEROD, ENTOMOLOGIST.

We received by the last mail, from the author, presentation copies of the Manual of Injurious Insects and Methods of Prevention, and a paper on Flies Injurious to Stock, by Miss Eleanor A. Ormerod, F.R., Met. Soc., &c., the Consulting Entomologist of the Royal Agricultural Society of England and Honorary and Corresponding member of various other societies connected with Agriculture and Entomology. The work is accompanied by an excellent portrait of Miss Ormerod from a photograph by Messrs. Elliot and Fry.

We learn from the agricultural press that Miss Ormerod has quite lately received the honorary degree of L.L.D. from the Edinburgh University, and she is the first lady so honoured. The subject of our notice, who has a world-wide fame as an Economic Entomologist, has for the past twenty-three years devoted her attention to the study of insect life injurious to agriculture.

Daughter of Mr. George Ormerod of Sedbury Park, Gloucestershire, she began the study of Entomology in 1853 from pure love of the science, and fifteen years later was awarded a silver medal by the Royal Horticultural Society for a remarkable collection of drawings and models illustrative of insect pests and their depredations.

Miss Ormerod's help has always been available to anyone communicating with her either in England and from abroad, and that too free of all charge. It is estimated that on an average she received and replied to 1,500 letters every year.

In addition to her scientific qualifications, Miss Ormerod reads freely Latin, French, German, Italian and Spanish, and with a dictionary at hand, also Russian, Dutch and Norwegian. Amongst her most appreciated scientific friends were Prof. Huxley, Prof. Westwood of Oxford and Dr. Riley of Washington. Miss Ormerod's residence is Torrington House, a beautiful place standing in a garden of about two acres, at St. Albans.

In the Preface to the new edition of her work Miss Ormerod makes special mention of the good work done by her sister Miss G. E. Ormerod, as her "colleague and unfailing and skillful helper." And in concluding the Introduction to the book, she writes: "I fully trust it may often be found of service in lessening the losses which at present (and often solely for want of having a little plain information at hand) add greatly to the burdens which weigh down agricultural prosperity," and goes on to promise "so long as it may be desired, and health and power are granted me, I trust to labour to the best of my ability in the cause of Injurious Insect Prevention." We would desire to record in the pages of this little magazine our own high appreciation of the admirable work done by this gifted lady, whose name is familiar enough even in far-off Ceylon, and to add the wish that she may possess an abundance of "health and power" to add to the good work she has carried on with so much ability. We hope to summarise in a future issue Miss Ormerod's excellent "introduction to Entomology."—containing many useful hints—for the benefit of our readers.

HINTS ON MANURING.

The following useful information is summarized from an article on Rational Manuring in the *Queensland Agricultural Journal:—*

Agricultural Chemistry has demonstrated that plant-life calls imperatively for three prime forms of food. These three are nitrogen, potash and phosphoric acid. The produce of the land (whether grain, grass, fruits, milk, &c.) remove from the soil large quantities of nitrogen, potash and phosphoric acid. A portion of these food elements would be returned to the soil if the manure of cattle kept in the land is used, but yet a good deal would still be lost, and the productive capacity of the land can only be maintained by the use of commercial fertilizers.

The most popular materials for supplying nitrogen, and which are largely used in the preparation of commercial fertilizers are nitrate of soda and sulphate of ammonia, in which the nitrogen is in a soluble and available form. Nitrate of soda is particularly adapted for top-dressing during the growing season, and is the quickest acting nitrogenous fertilizer. Leguminous crops are known to draw on the atmosphere for their nitrogen, and hence nitrogenous fertilizers are unnecessary for such crops. On the other hand by taking advantage of this property of leguminous crops, we may obtain from them a portion (and sometimes even all) of the nitrogen required by other crops. If ploughed under, the legumes will not only furnish nitrogen to the soil, but also humus, which improves its physical condition. This is known as "green manuring." On sandy land and in a hot climate, it is not advisable to plough under a heavy growth of these plants while in a green condition. If the soil is very deficient in vegetable matter, the crop should be allowed to die upon the land and then be ploughed under in cool weather. If it is necessary, however, to plough under a green crop, a good dressing of lime, not less than 30 bushels per acre, should be applied to prevent injurious souring of the land.

Barnyard or stable manure is regarded by many farmers as "a complete fertiliser." This is correct only so far as it contains all three of the fertilising ingredients, but these ingredients do not exist there in the proportions required by most crops. Stable manure contains propor-

tionately too much nitrogen and not enough phosphoric acid and potash to be considered a "complete fertiliser."

By a proper rotation of crops and by "green manuring," stable manure can, in fact, be dispensed with, and in some cases such a course is even preferable. The old saying that stable manure is indispensable to successful farming is not now regarded as an axiom. A manure containing an excess of nitrogen will unduly increase the growth of leaf and straw at the expense of fruit or grain. To avoid such a result, stable manure should always be supplemented with artificial fertilisers containing phosphoric acid and potash.

Wood ashes are a valuable source of potash, but the amount contained in them is small and variable. Muriate of potash (potassium chloride) is the cheapest form of potash and the best form, except in special cases where chlorine affects the quality of the crop, as with tobacco and oranges. For these latter sulphate of potash should be used. Kainit is another form of potash salt, containing the chloride, and is specially valuable on sandy soils. It is valued not only for its fertilising properties but for its beneficial effects as a destroyer of insect pests and a remedy in certain forms of plant disease.

The amount of kainit which should be added to fresh stable manure to prevent loss of ammonia through heating is 1 lb. per day for each cow or horse or for eight head of sheep. The kainit will save more than its cost in the value of the nitrogen which it retains, and will possess its original value as potash food.

Swampy and peaty soils, which consist largely of humus, and which, as a rule, are rich in nitrogen, derive only slight benefit from stable manure. Such soils need lime, potash, and often phosphoric acid. The application of these forms of fertiliser is followed by largely increased crops. Phosphoric acid and potash will prove of slight value when applied as "top dressing" during the growing season. When so applied, these fertilisers will stay on the surface and out of the reach of the roots of the plants. Phosphoric acid and potash are "fixed" or retained by the soil. They are not volatile, nor do they leach through the soil. It is quite different with nitrogen. When organic matter, exposed to the air, decomposes, a portion of the nitrogen present volatilises and is lost in the atmosphere. The remainder, unless absorbed by vegetation, is finally washed away. Nitrogen in the form of nitrates readily leaches through the soil. Nitrate of soda may, therefore, well be applied as a top dressing during the growing season.

The commercial fertilisers now in the market are the most desirable supplements and substitutes for stable manure that can be obtained by the farmer. In complete fertilsers the nitrogen, phosphoric acid, and potash are skillfully compounded in various proportions. They are in a finely ground and thoroughly commingled condition, can be applied by drilling, and can be easily mixed with the soil. Their value has been accurately determined by the various agricultural associations, and the interests of the farmer carefully protected.

THE CULTIVATION AND CURING OF TOBACCO.

1. *Soil and Climate.*

A light soil or sandy loam, well drained and containing an average amount of organic matter and rich in mineral matters is considered to be best suited for tobacco cultivation. Tobacco grown on clay soils is too coarse and inferior in quality, but clay soils usually give heavy yields. Soils rich in organic matter or humus produce a better sort of tobacco of the kind fit for making cigars than clay soils. The principal tobacco-growing districts of Bengal are Rangpur, Cooch Behar, Jalpaiguri, Purnea, Darbhanga, Mymensingh, Nadia, Muzaffarpur, Jessore and Manbhum Murshidabd, Dinajpur, Chittagong, Dacca, Tippera, Bhagalpur, Pabna, Monghyr, Cuttack, etc., named in order of importance. The Chittagong tobacco* commands the highest price in the market, viz., as much as R22 per maund, the Rangpur tobacco selling from R6 to R12 per maund. The tobacco of other districts enumerated above is sold at R3 to R7 per maund. Ignorance of the method of cultivation and of curing causes in many places inferiority in the quality of leaves, but the difference in flavour is, no doubt, also due to influences of the soils and climate.†

2. *Chemical Composition.*

Tobacco requires particularly good soil and heavy manuring, as it is richer in nitrogen and in mineral constituents than almost any other crop. The composition of the leaves vary very much in both nitrogenous and ash constituents according to the richness of the soil or the amount of soluble plant food contained in it. The amount of nitrates in leaves may be as much as 10 per cent of the dry matter. The ash of Indian tobaccos varies between 16 and 28 per cent, the greater part of which consists of carbonate of lime. The soluble portion of the ash chiefly consists of potash salts, the proportion varying from 5 to 35 per cent.

The following table taken from Johnson's "How Crops Grow," page 378, gives the average constituents of tobacco ash :—

Percentage of ash	24·08
Composition of the Ash.	
Potash	27·4
Soda	3·7
Magnesia	10·5
Lime	37·0
Phosphoric acid	3·6
Sulphuric acid	3·8
Silica	9·5
Chlorine...	4·5
	100·00

* The Chittagong Hill Tracts produce the best tobacco in Bengal. This is generally used for making cigars by the Burmese. There are three varieties ; (1) Khao Doung ; (2) Mri Kheoung, and (3) Rigri Kheoung. The excellence of these varieties of tobacco, it is said, is due to the speciality of the soil rather than to any peculiar mode of cultivation or of curing. The leaves are cured in the way in vogue in Rangpur and Jalpaiguri.

† Cow-sheds are commonly used by the rayats for drying tobacco ; this gives a bad flavour to the tobacco.

Potash should occur chiefly as carbonate (or ordinary wood-ash,) in the soil, and the richness of a soil for tobacco is chiefly due to the abundant presence of nitrogen, potash and lime, as nitrates, carbonates, sulphates and phosphates. From this it will appear that the most appropriate manures for the tobacco crop are ashes (or crude potassium carbonate), saltpetre, gypsum and lime. But as manuring is expensive, soils naturally rich in nitrogenous and ash constituents, that is, very fertile soil should be chosen for growing this crop.

3. Rotation.

Tobacco is sometimes grown after jute or Indian corn has been harvested, but very often it forms the only crop of the year. It can be grown for three or four years successively on the same ground.

4. Seed-Bed.

The soil of the seed-bed is dug up with spade and manured with rotten cowdung and ashes and then raised artificially about 6 inches. When the ground has been well pulverised, it is levelled. Seed is sown thin, so that each seedling may have about one inch of space round it. After sowing, the seed is lightly covered up with earth. The seed-bed is kept covered with mats until germination takes place. It is necessary also to keep the seedlings protected from rain and heat of the sun. They may require to be watered at intervals of two or three days. Seed is generally sown in the middle of Bhadro (first week of September). In dry laterite soil it is best to do the sowing early, *i.e.*, about the second or third week of August. Half an ounce ($1\frac{1}{6}$ tola) of seed is to be sown to produce plant required for one acre; but loss invariably occurs owing to patches of seedlings growing too thick. It is therefore advisable to grow seedlings from one ounce of seed for one acre of land. Sometimes ants do considerable damage to seed and seedlings when ashes sprinkled round and over the seed-bed prove efficacious.

5. Preparation of Land.

The soil for the tobacco cultivation should be prepared during the months of August and September. Eight to ten ploughings are necessary. Deep cultivation and thorough pulverisation of the soil are most important. The soil should be liberally manured with well-rotted cowdung and ashes. The soil is then to be levelled with a light harrow. It is needless to say that even poor soil can be made to produce a good crop by proper tillage and heavy manuring. Soils destitute of potash, unmanured soils or soils manured with flesh, humus, calcium chloride, magnesium chloride and potassium chloride produce a bad burning tobacco which is unsuitable for making cigars. The use of cowdung also should be avoided in raising tobacco for the manufacture of cigars. Potassium carbonate, saltpetre, potassium sulphate, and calcium sulphate (gypsum) are the best manures for tobacco intended for cigars. They give to the leaves a sweet flavour and burning quality. Gypsum is excellent as a top dresser, and its use is particularly recommended to Indian cultivators. Crops manured with it suffer less from the effects of drought and require less irrigation. Gypsum is a byeproduct in the manufacture of the ærated waters and can be obtained very cheap,—at 4 to 8 annas per maund. The mineral manures are used generally from $2\frac{1}{2}$ to $4\frac{1}{2}$ maunds per acre. Ordinary household ashes also are an excellent manure for tobacco. They contain a large amount of potash and lime, and are particularly recommended for clay and humus soils.

6. Transplanting.

When the seedlings are about 3 inches high in the nursery, that is, after they have shown three or four leaves, which takes place within six weeks from sowing time, they are fit for transplantation. The transplantation begins in the beginning of Aswin (the 3rd week of September), and extends as late as the end of Kartick (middle of November). Early planting is preferable, especially for dry climates. The seedlings should be planted in the evening 3 feet apart from one another. Smaller varieties, as Hingly, Motihari, etc., may be conveniently planted 2 feet apart. The transplanted young seedlings are to be carefully watered for the first few days until they strike root. Irrigation may be afterwards necessary at intervals of about ten to twenty days, according to the nature of the soil. In Rangpur and Jalpaiguri a hand plough is repeatedly dragged by a man alternately along and across the tobacco fields, which serves the purpose of hoeing and stirring the soil. This is done until the flower buds are seen. In places where artificial Irrigation is required, regular hoeing is wanted—twice after each irrigation, or four times in a month.

7. After-treatment.

A few days before the plants run to flower, their buds and lower leaves shoud be nipped off, and they should be so pruned that only eight leaves, and on no account more than ten, may be left to each plant from the top. In Jalpaiguri finely-powdered earth is used to stop bleeding or overflowing of sap from the broken parts immediately after pruning. This mode should be followed in other quarters. Plants reserved for seeding should be topped in this way, but left to flower and seed. The plants always bring forth shoots by the side of the stalks of leaves pruned, and care should be taken to prune off the shoots every now and again until the leaves are mature. The longer these buds and shoots are kept, the more injury is done to the leaves required to be gathered.—*Indian Agriculturist.*

(*To be concluded*).

GENERAL ITEMS.

Senor V. Marcano, one of the leading medical authorities of Cuba, has discovered that the juice of the Pineapple materially aids in the digesting of the proteids of both animal and vegetable foodstuffs, while R. H. Chittenden, of the Connecticut Academy of Sciences, asserts that the fresh Pineapple juice is a constant and powerful digestant of albuminous matters, acting in both alkaline and acid media, but more energetically in neutral than in either of the others. In fact, chemists have separated the active digestant

principle and put it in the materia medica. This substance, closely analogous to pepsin, is known as bromelin. Pineapple juice has been found to be most efficacious in throat troubles and diphtheria, as the juice dissolves the fleshy tissue, such as is found in these ailments. A cure of diphtheria in a most marked and, in fact, abandoned case is reported in the *Druggists' Circular* as follows:—"For three or four years I have been hearing of the use of the Pineapple juice for the cure of diphtheria, but though little of it. Recently, however, it has taken better shape in the report of a case where the child was given up by the doctor, and a friend coming in remarked that he had known children relieved by the Pineapple. The physician in attendance said, 'Get it and try it; it can do no harm.' A ripe Pineapple was got and the juice expressed and given in teaspoonful doses slowly. It seemed to clear the throat, swallowing was much easier, and in a few hours the child was sleeping. Recovery followed. The Pineapple was used in a number of cases subsequently, with success, in the same neighbourhood, and the people think it better than medicine." In bronchitis, Pineapple juice has been found to be excellent medicine by Dr. Flascher in softening the mucus. His formula is as follows: "Slice the fruit, sprinkle with sugar, heat to boiling and strain. The dose of syrup so obtained is about two tablespoonfuls." In Cuba the Pineapple is highly esteemed from the fact that it is in general use as a mild laxative. From the Pineapple itself pharmaceutical chemists have separated a crystalline substance which they call mannitol, which is in active use in compounding prescribed medicines for throat and lung troubles.

In reference to the polishing of rice we read in the *Queensland Agricultural Journal* that according to the *Grocer*, fashion demands a bright lustre in rice placed on the European market, and this is secured by rubbing off a dull outer coating of the grain, which has been shown to have a food value nearly twice as great as the rice grain after polishing. The polishing process, however, greatly improves the appearance of the grain, and it is now almost universally practised in cases where the rice is intended for the markets of the West. The material secured off is sold under the name of rice flour. The polishing is effected by friction against pieces of moose hide or sheep-skin, tanned and worked to a wonderful degree of softness, losely tacked round a double revolving cylinder of wood and wire gauze. After the polishing the rice goes to the separating and shifting screens, made of different sizes of gauze, by which it is graded before packing.

The Banana seems much to the front at the present day, and comes in for a good deal of laudation: the banana plant, says M. de Lovedo, in *El de Progress Mexico*, will feed 150 men from the product of one hectare of land so planted; while the same area in wheat would only supply food for six individuals; for the same space and under similar conditions of cultivation, its produce is 40 times that of potatoes and 100 times that of wheat. The fruit of the banana contains 72 per cent of water, 2·14 per cent of nitrogenous matter, and 22 per cent of saccharine substances, the latter giving it its great nutritive quality.

We have all heard of mummy wheat which is said to have been raised from grain found in the hands of Egyptian mummies some 3,000 years old, and now comes the story which we read of in the *Queensland Agricultural Journal* of Mr. R. A. Stewart, a saddler of Kowes, Isle of Bute, growing peas from seed found in the tomb of an Egyptian king! A characteristic of this pea is that the white flowers have a beautiful red centre, surrounded by a white corona. The plants grew up strong and vigorous to a height of 6 feet, the pods averaged 2 to 3 inches by half an inch, and the peas are said to be of excellent flavour.

The chief Camphor-producing country is Formosa, where it is a Government monopoly. The reason for making it such appears to have been, among other reasons, the reckless destruction of trees and the great fluctuations in price, as well as the want of uniformity in quality in the article previously. The Government has passed strict forest regulations, and by wire forest administration Formosa is capable of supplying the world with 6,000,000 or more pounds (English) of camphor annually. The quality is established, and the price fixed not only locally but abroad. Tenders are invited for the lowest price of sale in foreign markets, and in March, last year, the monopoly of sale in foreign markets was secured by Mr. T. Arai of Messrs. Samuel, Samuel & Co. The above interesting facts are recorded in the *Brisbane Courier*.

The *Louisiana Cultivator* referring to Indian corn says:—This wonderful plant that can so nearly supply all the food required for man and beast, bids fair to do still better in the early future. While it is now the dominant crop in American agriculture, it seems to promise even higher food values in the future. It stands supreme as a fattening food, and the bassis of fat cattle and pigs in America. It is also fed largely to working animals, and analyses show that it contains sufficient protein to make it reasonably good food for them, though not so good as oats, the typical worker's food, because of its high proportion of protein. This nitrogenous matter it found chiefly in the germ of Indian corn, hence the size of the germ in a measure indicates the proportion.

If tomato plants show signs of disease by the unhealthy appearance of the leaves, or scabby fruit, they should be at once sprayed with Bordeaux mixture of a strength of 4 lbs. bluestone (sulphate of copper), 4 to 6 lbs. quick lime and 40 gallons water.

What does an inch of rain mean? Few persons have a definite idea. An acre, if calculated out,

will prove to be 6,272,640 square inches. An inch deep of water on this acre will be as many cubic inches of water, which, at 231 to the gallon is equal to 27,154 gallons. This immense quantity of water will weigh 228,190 lbs. or 114 tons. One hundredth of an inch (·01) alone is equal to over one ton of water to the acre.

It was reported in the *Government News* some time ago that for some unaccountable reason a large proportion of the rice grown in South-west Louisiana turned out red. The coloured rice was found by chemists to be as nutritious as the white, but still there is a prejudice against the former and this affected the selling price.

The following recipe is given by the *Queensland Agricultural Journal* to prevent rust: Melt one lb. lard and one ounce camphor. Skin the mixture carefully and stir in a sufficient quantity of black lead to give the metallic colour. After clearing machinery thoroughly, smear with the mixture and let it remain for a day and then rub clean with a soft cloth.

Says the *Sydney Mail*:—Small particles of cinder and metal are constantly getting into the eyes of engine-drivers and stokers. They have one invariable way of getting them out. No sooner has the driver of an engine got a nasty bit of grit in his eye, then his companion, the stoker, opens the eyelids quite wide and licks out the unseen fragment—which might produce tragic results sometimes—with his tongue. The public knows little of this heroic remedy, but on every line in the world it is being applied every hour of the day. All surgeons recognise that this is often, with all their beautiful instruments, the only way. And amongst the thousands of women connected with the English fishing trade who have to clean herrings it is also practised as the only method of getting out of the human eye the very minute herring scales that lodge there and soon produce serious mischief if not removed.

Four hundred pounds weight of hen manure is equal in value to 2,400 lb. of farmyard manure. In a ton of fowl manure analysis showed 48·60 lb. phosphoric acid, 48 lb. potash, and 67 lb. nitrogen; whilst farmyard manure contained only 6 lb. phosphoric acid, 10 lb. potash, and 11 lb. nitrogen in one ton. Much of the value of any manure depends upon its freshness, and whether it has been kept under cover and dry.

The TROPICAL AGRICULTURIST MONTHLY.

XX. COLOMBO, JANUARY 1st, 1901. No. 7.

SOME CATERPILLAR PESTS OF THE TEA PLANT.*

(*Concluded from page 374.*)

NO. 5.—The "Morowak korale Nettle-grub." *Thosea recta*, Hampson.

The eggs of this species have not yet been observed, but they are probably laid upon the surface of the leaves.

Caterpillar: lozenge-shaped, slug-like, of an applegreen or yellowish-green colour, often with a series of irregular red patches on the back. Stinging spines arranged on small tubercles in a marginal and two dorsal series. Head concealed on the under surface. The insect has no legs, but progresses in a slug like fashion. The fully grown caterpillar measures from ½ to ¾ inch in length.

Cocoon: dark brown, egg-shaped, compact, and smooth, attached either to the under surface of a tea leaf or in the angles of the twigs and stems. When the pest is at its height, the cocoons may be found in clusters on the twigs, the leaves of the trees having been completely devoured. Specimens kept in captivity remained as cocoons for from 17 to 21 days.

Moth: grayish brown, with a rather furry body. The female has a blackish spot in the centre of the fore wing and two faint lines, one near the base and the other near the tip. The basal line stops short of the front or costal edge of the wing. The male has a darker patch at the base of the wing bounded by a short white streak which (as in the female) does not reach the costal edge. The male moth has an expanse of ¾ inch. The female is rather larger measuring slightly more than an inch across the expanded wings. The male may also be distinguished by the stouter (feathered) antennæ, the corresponding parts of the female being thread-like. (Excellent figures of the caterpillar, cocoon, and moth appeared in "The Indian Museum Notes," Vol. IV., No. 2.)

**Royal Botanic Gardens' Circular*, No. 19.

I have been acquainted with the present species as a tea pest, for about eight years. A correspondent, writing in the *Ceylon Observer* of July 27, says that he can remember a severe attack as far back as 1885. I first received specimens from the Ambagamuwa district, where large acreages of tea were defoliated. I next heard of it from Balangoda. The pest has probably asserted itself repeatedly in different districts, but the outbreak in Morowak korale seems to have caused a quite unprecedented scare. The superintendent of the estate on which it made its first appearance in that district has kindly supplied me with the following particulars:—

"I first noticed it on July 15; it was seen on about half an acre of tea. After two days it had spread over about 3 acres, and then at the rate of about five acres a day over 25 acres of tea. [This rapid extension of the affected area could not have been caused by any actual migration of the army of caterpillars, which are sluggish and travel very slowly. It is doubtful even if they wander far from the bush upon which they were born. It probably arose from successive batches of eggs hatching out on consecutive days, deposited by months which had dispersed from the centre of infection, where a smaller previous brood had undergone its transformations unnoticed.—E.E.G.] The damage done was not of a permanent nature; but the caterpillars eat out almost every vestige of green leaf, and the whole 25 acres were stripped almost bare. When I found I could not prune quick enough to overtake its spread, I pruned broad belts round the area attacked, burning the prunings and sweeping the ground. I found the insects seemed unable to cross these belts, and as I pruned out all the tea inside it died fast, exposure to the sun and want of sustenance apparently combining to kill it.

"In about five weeks from its first appearance it had disappeared nearly entirely, although I found a few insects here and there in other parts of the estate. When, however, the young flush grew (about

five weeks after pruning) I found it covered with a minute form of the same insect. Under the lens it showed the same shape, colour, &c., as the original insect, and here and there it grew to nearly full size after some days. I stripped all the young flush off for about four rounds, and after that it again disappeared aud I have not been troubled with it since. [This renewed attack after pruning can ouly be accounted for by supposing that a number of the cocoons had escaped observation at the time of prnning, being possibly concealed in the angles of the stems and branches. These may have emerged as moths in three weeks' time and, failing leaves for the purpose, laid their eggs on the bark of the pruned trees. The eggs would have hatched out in about 10 days, when the young larvæ would commence feeding on the new flush. It is doubtful if they would have thriven under these conditions, as these caterpillars usually prefer the more mature leaves and avoid the young flush.—E. E. G.] I cannot find ont anything about its propagation, which has pnzzled me completely. I could find no trace of the moth; but on all the trees attacked small round cocoons, black, about the size of a pea, with a smooth bark-like shell and a neat little trap-door at the top. were deposited thickly where the branches forked, I was astonished to find that whereas at first insects about half or three-quarters size emerged from these shells, later on a considerable proportion of them hatched out a grub-like winged insect, something like a white ant, but with small wings. I found, moreover, that as the full-sized insects died they shrivelled up, and in many cases I found small white lice-like insects clinging to the carcasses. I am inclined to think it was from these that the very small grubs which attacked my young flush came."

There must have been some error of observation here. The insect develops in quite the normal way, from egg to caterpillar, caterpillar to chrysalis (enclosed in its cocoon), and finally chrysalis to winged moth. It is possible that some confusion may have arisen from cocoons having been broken open, when the caterpillar, reduced in size, would be observed awaiting its transformation into the chrysalis stage. I cannot explain the "grub-like winged insects," unless they could have been the newly-hatched moths, before their wings had properly expanded. The "white lice-like insects" were undoubtedly mites, which quickly swarm upon such dead matter, and could, of course, have had no connection with the subsequent brood of small caterpillars.

Before this outbreak could have assumed the proportions described in the above correspondence, there must have been at least two earlier and smaller broods. I can only repeat my warning—to keep a good look-out for these preliminary broods, and destroy them before they have had time to gain ground. When the pest is at its height, if the attacked field is nearing the proper time, pruning will be the best remedy, care being taken to effectually destroy all the prunings, and to search for and remove all cocoons attached to the stems of the trees. If the field is only just coming into bearing, the foliage may be thoroughly sprayed with arsenate of lead or some similar insecticide, which will poison the leaves and the caterpillars feeding upon them. No leaf should be plucked from such trees for at least 14 days. The actual leaves that will then be taken will have been disclosed since the application of the poison.

No. 6.—THE GREEN NETTLE-GRUB," *Thosea cana* Wlk.

The caterpillar of this moth is practically indistinguishable either in form or colour from that of *Thosea recta* described above. It is perhaps more nsually without the red patches on the back, but this character is very variable in both species. The two insects have similar habits and appear to be equally destructive.

The moth of *T. cana* may be distinguished by its more uniform grayish-brown colour and by the absence of the short white-streak which marks the fore-wing of *T. recta*. *T. cana* has two indistinct brownish lines accross the wing, with a small brown speck in the space between them.

I have recently received specimens from the Kelani Valley district, where the pest appears to have been prevalent for more than a year, and to have steadily increased its area of attack in spite of persistent attempts to check it by handpicking. My correspondent wrote as follows in March of the present year:—

"The insect is just now present in great numbers I am catching as many as 2,000 per cooly. It attacks the same field every time, a somewhat poor jat of tea, appearing—as far as I can make out—about every two or three months. Sick and small bushes are quite denuded of leaves. On healthy trees the leaves are almost eaten through, a thin skin only being left on upper side of leaf. [This is the work of the quite young caterpillars. The older insects will eat right through the leaf.—E.E.G].) This insect appears to me to change colour as it grows, being at first green with yellow with a somewhat transparent appearance. [This is just before pupation.—E.E. G.] I can find no cocoons, nor any eggs; the insect seems to come all at once. [The eggs would be extremely difficult to detect. The cocoons are probably attached to the stems.—E.E.G.] Healthy indigenous tea adjoining the fields attacked has so far escaped, with the exception of a very few individual trees. For the past three weeks we have had a most severe drought, and this attack is, I think, the worst I have experienced. A portion has just been cut across and allowed to run up again. Out of an area of 635 acres, all in one block, two fields only, one of 100 acres (2½ years) and another of 100 acres (1½ year), are attacked. A field in which the insect first appeared is now quite free."

An examination of particulars of rainfall supplied by the same correspondent for the year 1899 seems to show that the pest was at its height during the S.W. monsoon. April, with 20·35 inches; May, 27·55; June, 21·52; July, 10·72; and August, 5·47, are bracketted together with the remark that the caterpillars were very numerous over 80 acres, and that the collecting coolies were bringing in from 1,000 to 1,200 insects apiece. In September, October, and November, though a larger area was involved, the caterpillars are reported as being "not nearly so numerous."

In the above case large nnmbers of coolies have been employed in collecting and destroying the caterpillars, but apparently with little success in checking the attack. The fact is, that when once the pest has attained such vast proportions, it is almost impossible to eradicate it by artificial means. One-hundredth part of the same energy applied at the time of the earliest broods would have been much more effective. In young tea, such as the above, which is not in plucking, spraying with some arsenical compound could be freely employed without any possible danger.

No. 7.—THE "FRINGED NETTLE-GRUB," *Natada nararia*, Moore,

Egg; very inconspicuous, oval, flattened scarcely raised above surface of leaf, very pale green, transparent, showing the colour of the leaf through it. They are laid singly on the upper surface of a tea leaf, and can only be distinguished by holding the leaf at an angle, when the surface of the eggs shine with a metallic iridescence.

Caterpillar; varying in colour, pale green, yellowish green, or whitish green, often with a broad reddish brown or purplish stripe on the back, which is constricted or interrupted at a point near the middle and again near the hinder extremity. This dorsal stripe has usually a darker outline of the same tint. All round the margin is a fringe of long pointed tubercles bearing tufts of stinging spines, and a row of smaller spiniferous tubercles on each side of the

dorsal stripe. The spines on three or four of the tufts on each side near the head are blackish; all the others are green. The head, as usual in this family, can be withdrawn into a little pocket, and the caterpillar has no legs. When fullgrown it is little more than half an inch in length. It rests on the under surface of the leaves.

Cocoon; broadly oval, almost globular, dull reddish-brown, smooth. The moth escapes by a lid-like opening at one end. The cocoons are attached either to the leaves or twigs of the plant, or to the fallen leaves and rubbish below the tea.

Moth; male, pale ochreous, the middle of the fore-wing covered by a reddish brown patch, in the centre of which is a black spot. Antennæ strongly feathered. Expanse ¾ inch. Female, dull brownish-ochreous, fore-wing darker. Antennæ thread-like, Expanse 1 inch.

Moths in captivity emerged from the cocoons after 17 days,

The Uva tea districts seem to enjoy almost a monopoly of this species as a tea pest. Though it is a widely distributed insect throughout the Island, and certainly occurs in all the tea districts, yet I have received no reports of damage to tea or of its occurrence in unusual numbers in the Central Province.* My first acquaintance with it—in its character of a pest—was in November, 1897, when I received specimens from Badulla. And quite recently several estates in Passara have suffered severely from the same insect. A correspondent writing on the 10th January, says:—

The pest was first noticed on this estate early in July last year, when the caterpillars were half-grown, alolng the roadsides, under the Grevilla trees. They gradually spread over almost the whole estate, stripping about 100 acres of all leaves. For some time 500 coolies were collecting a bushel a day of the cocoons from under the fallen leaves. They seem to turn to chrysalis, moth, and caterpillar simultaneously in all parts of the estate, and run through the changes of their existence in about two months. Early last November, in many of the fields, clouds of the moths appeared at dusk. The moths were in existence also early in September. They completely disappeared for about three weeks while the eggs were hatching. I have never identified the eggs. At the time I write there are still a few caterpillars to be found, but I hope, if January continues wet, the damp may kill the survivors, as it has done before. I found them also on many jungle trees near the tea fields."

This correspondent adds memoranda of the monthly rainfall, from which it appears that the broods of July, August, and September occurred during the spell of comparatively dry weather, but the brood that was so noticeable early in November followed a distinctly wet month, October showing a fall of 15·94 inches.

In April of the present year I personally visited the Passara district and the estates that had been subject to this pest. The bushes had completely recovered from the attack, and no permanent damage was noticeable. The superintendent, however, was of opinion that there was not such good wood to cut into at the next pruning as should have been found in a healthy field. I was informed that the cocoons were nearly always found under fallen leaves b elowthe bushes—often attached in clusters of five or six to dead Grevillea leaves, seldom on the leaves or twigs of the growing plant.

During my visit moths of *Natada nararia* were flocking into the verandahs of the bungalow at dusk, attracted by the lights. I experimented with a simple moth-trap, a coconut lamp in the middle of a basin of water. But very few moths were captured in this way, possibly owing to the presence of a brilliant moon at the time. This plan should be tried again on moonless nights.

* Specimens have since been received from the Rangalla district.

No. 8.—THE "RED SLUG," *Heterusia cingala*, Moore.

Egg: narrow, elongate, very pale yellow. I have never found the eggs *in situ* in the field, But some moths that were kept in a breeding cage for the purpose of study deposited their eggs loosely on the floor of the cage. It is possible that in nature they are deposited in crevices of the ground at the foot of the plants upon which the caterpillar is to feed. The young larvæ hatch out in four weeks' time.

Caterpillar: broad and comparatively short. Brownish red to bright brick red. With six longitudinal series of small tubercles, on the summits of which are two or three short hairs and one or two pores which secrete a globule of clear viscid fluid, giving a dewy appearance to the living caterpillar. There are the normal number of legs, six on the front and ten on the hinder part of the body. Length of full-grown caterpillar slightly over one inch.

The cocoon is formed in the fold of a leaf. It is tough and closely woven, of a pinkish straw colour, It contains a creamy white chrysalis. Caterpillars that formed their cocoons in my breeding cage on January 2 emerged as moths on the 22nd of the same month.

Moth: fore-wing black with metallic green reflections, with a creamy white patch at the base, a broad creamy white bar just before the middle, and some creamy white spots towards the extremity. Hind-wing peacock blue suffused with black, with a very broad pale primrose-yellow band across the middle, and some yellowish spots towards the extremity. Anterior half of the body peacock blue and black, posterior half bright yellow. In the male the antennæ are broadly, in the female narrowly, feathered. The expanded wings measure 1⅝ inch in the male and 1½ inch in the female.

The moth flies in the daytime, and might easily be mistaken for a butterfly on account of its bright colours. When handled it emits some frothy matter which has a strong pungent smell very like that of the English ladybird beetle. which is thought to afford the insect protection by making it distasteful to birds, &c. I have received reports of injury by this pest from the Pussellawa, Pundalu-oya, and Rangalla districts, and more recently from Passara and Lunugala. On some estates in the latter district the attack appears to have been very severe. Acres of tea bushes were completely defoliated, and the affected fields were said to have looked as if they had been burnt. The caterpillars were observed in large numbers in November, in the following January, and again in April. I have been unable to determine the exact length of the caterpillar stage, but the complete life-history of the insect appears to occupy about ten weeks.

These caterpillars have no stinging hairs, and may be handled without any unpleasant results. They should be collected and destroyed whenever seen, together with the cocoons, and all dead leaves should be swept up from below the bushes and burned.

The caterpillars are fortunately subject to the attacks of a parasitic fly (*Exorista heterusiæ*, Coquillet.) This fly fastens its eggs upon the back of the caterpillar, the young maggots penetrate the body of their host and feed upon its contents, taking care not to touch any vital spot until they are ready to undergo their own transformations. The diseased caterpillar has usually sufficient strength to spin its cocoon, but collapses without turning into a chrysalis. The sudden disappearence of this pest, after reaching its climax is usually due to the work of this useful parasite, though sometimes a bacterial disease is still more effectual in the work of extermination.

BAGWORMS AND FAGGOTWORMS,

These are the larvæ of various species of moths belonging to the family *Psychidæ*. They have all very similar habits, though differing considerably in appearance. The caterpillars construct for themselves cases in which they pass the greater part of

their existence. In fact, the female insect never leaves its case, but lays its eggs and dies inside it. These cases have always a strong foundation of finely woven silk in the form of a tube which closely envelopes the caterpillar, but different species embellish the outsides of their cases in different fashions. Some (*e.g.*, *Clania crameri*) arrange small twigs longitudinally all round, till the whole has the appearence of a small faggot of sticks. *Clania variegata* sometimes adopts the faggot form, and at other times uses large pieces of leaf as an outside covering. Another species fastens short lengths of twig side by side in a spiral. Another places the minute sticks transversely, forming a four-sided case. *Psyche minor* adopts a chevaux-de frise pattern of erect fibres and pieces of grass, and occassionally adds some minute snail shells by way of ornament. And a large number of the smaller species have smooth cases partly constructed of minute pieces of bark and lichens. As the caterpillar increases in size, the case is let out from time to time and fresh material worked in. When feeding only the head and front part of the body is extended, the case meanwhile being moored to the leaf by a thin silken cable. At the slightest alarm the head is retracted and a flexible curtain is drawn tightly across the entrance. When the time for its resting stage arrives, the caterpillar firmly anchors the case to a leaf or twig and closes the mouth of the tube with silk. It then turns round inside the case with its head towards the hinder opening of the tube, and changes to a chrysalis in this position. If the insect happens to be a male, it will eventually (in from two to six weeks' time) emerge as a moth, usually of a dull brownish or blackish colour, sometimes with colourless transparent wings. But the female insect does not leave her dwelling. She shuffles off the chrysalis skin inside the case and awaits there the attentions of the male. As the head of the female is next the only available entrance to the tube, and her body being some five or six times as large as that of the male, it follows that her partner must be possessed of a very flexible and extensile organ; and we find that the abdominal segments of the male moth are accordingly capable of very great longitudinal extension to meet the special circumstances. After impregnation the female deposits her eggs—still within the case—and dies. It is said that the young larvæ make their first meal from the dried carcase of their parent. They then emerge into daylight and soon build small tubes for their individual protection.

From the fact that the females are wingless, it is evident that these pests can spread only in the caterpillar stage. It is probable that the very young larvæ are distributed by attaching themselves to the coolies' clothing, or they may be carried for some distance by the wind. Otherwise it would require a very considerable time before a large field could be affected from a given centre.

No. 9.—THE "SMALL BAGWORM," *Psyche* (*Manatha*) *albipes*, Moore.

It is this species that gives the most trouble on tea estates. The caterpillar lives in a conical grayish case, with a few fragments of bark or leaves attached to the outside.

The male moth is dark brown, with white feet (whence the specific name). It has a wing expanse of ¾ inch. The female moth is a whitish, fleshy, grub-like insect, merely a bag of eggs. It remains concealed within its larval case.

This insect has frequently been reported as destructive to tea plants in new clearings in the Kelani Valley districts. After defoliating the plants it does still further mischief by gnawing off the bark. Hand-picking is the only practical remedy. Plants in which the bark has been eaten away must be cut back below the injured part.

No. 10.—THE "LARGE BAGWORM," *Clania variegata* Snell.

This species is sometimes troublesome on local patches, but seldom affects any large acreage.

The caterpillar is enclosed in a bag of grayish silk, to which large pieces of leaves and an occasional twig are often attached. The male insect usually covers its case with pieces of twig, turning itself into a miniature faggot. But the larger-bodied female seems to find the sack-like case the more comfortable form. It remains there till it dies.

The male moth has rather narrow pointed wings, streaked with different shades of brown. Expanse 1½ inch. It is seldom seen, the females being much the more common.

The species occurs commonly throughout the tea districts, and has been reported as defoliating small groups of bushes; but being a large insect it is easily seen, and should be collected and destroyed whenever observed.

No. 11.—THE "TWIG CATERPILLAR," *Boarmia Bhurmitra*, Wlk.

The caterpillar has exactly the appearance of a dry twig when at rest. It belongs to the family of *Geometridæ* or "Loopers," which have only two pairs of legs at the hinder extremity of the body and progress in a leech-like fashion. When at rest they clasp a branch with these terminal feet and extend the body rigidly, in which position they are almost indistinguishable from a dead twig. The colour of the insect assists the deception, being mottled and streaked in different shades of brown. A full-grown caterpillar measures 1½ inch.

The chrysalis is formed just below the surface of the ground. It is of a reddish colour, smooth and glossy. It remains in this stage for about 14 days.

The moth is very pale brown, minutely specked and spotted with darker markings which form wavy lines across the wings. Expanse from 1½ to 1¾ inch. The moths rest, during the daytime, flattened against a tree trunk or rock, with wings expanded, in which position their colour harmonizes remarkably with their surroundings.

I have been unable to locate the position in which the eggs are deposited.

Although this insect has been observed commonly in Ceylon for a great number of years, it is only within the last month that it has been brought to my notice as an insest pest. Its work on an estate in the Kandy district has now well earned for it this reputation. I was able to pay a personal visit to the place, and found the caterpillars simply swarming on the tea, which they were rapidly defoliating. I was shown a large Grevillea clearing, across half of which the plague of caterpillars had swept. They had stripped these trees bare, together with the young Cardamom plants growing below them, and had treated several Iron-bark Gums in the same manner. On turning up the ground underneath the Grevilleas, the chrysalides were found in large numbers just below the surface. The manager of the property has given me the following history of the pest, as observed by himself. It has been noticed on this particular Grevillea clearing for the previous three years, but to a smaller extent, increasing its area of attack each consecutive year. It usually appears in February and disappears during the rainy season. The pest always starts at the top of the ridge and works downhill, directly against the prevailing wind. In the present year the plague of caterpillars continued well in August, at which time the moths were appearing in thousands, coolies being employed to catch them as they were resting on the bark of the trees. Over 50,000 were said to have been destroyed in this manner in the space of one week, a single cooly bringing in sometimes nearly a thousand moths. The showery weather greatly assisted in the success of this work, as the moths are sluggish at such times and do not readily take wing. The manager was advised to prune the zone of tea upon which the caterpillars were then feeding and to fork lime into the soil with a view to the destruction of the chrysalides. All prunings were to be burned or

buried. At the time of my visit it was noticed that large numbers of the caterpillars were dying, attacked by some fungal disease that had an extraordinarily rapid action. Apparently healthy specimens collected that morning were dead and covered with fungus ten hours later.

The fact that this pest makes its first appearance, each year, on full-grown Grevillea trees will make it difficult to stamp it out at its commencement without sacrificing such trees. The spread of the pest is not due to an actual migration of the caterpillars, but to the fact that the moths move onwards and lay their eggs where there is food for the future larvæ. Between the months of February and July, the period when the pest is usually prevalent, there have probably been three or four distinct generations. It has not yet been determined what becomes of the insects during the rest of the year. This is a point that requires investigation. It is possible that a few individuals carry on the breed. Or it is again possible that eggs laid in July and August may remain dormant until the following February.

There are several other caterpillars that attack and do a certain amount of injury to the tea plant, *e.g*:—

The Tea Borer, *Zeuzera coffeæ*, Nietner
The Cutworm, *Agrotis suffusa*, Hubner.
The Yellow Tussock, *Dasychira, horsfieldi*, Saund.
The Small Tussock, *Orgyia postica*. Walker.
The Atlas Moth, *Attacus, atlas*, Linn.
The Lobster Caterpillar, *Stauropus alternus* Wal.

But the present circular deals more particularly with those that have been found to occur in such numbers as to seriously affect the crop.

In conclusion, I would again emphasize the importance of being beforehand with the caterpillars. Stamp out the earlier broods before they have time to breed and to extend their area of operation; pluck off all folded and twisted leaves as regularly as "banji" is now removed; and encourage coolies and kanganies to observe and report the earliest appearance of any caterpillars on the tea. Specimens of every caterpillar pest should be sent in to the Entomological Department for identification.

E. ERNEST GREEN,
Government Entomologist.

Royal Botanic Gardens,
Peradeniya, August 15, 1900.

TRANSPLANTING LARGE MANGO-TREES.

Most men have their own particular way of removing and replanting trees of large dimensions, but to those who have not essayed the task this appears a big job to tackle. It is for such persons these remarks are intended. The writer makes no pretensions to a special knowledge of the subject, but having successfully removed and replanted a number of large-sized mango-trees, the method adopted is here given for what it is worth.

Of course, there is a great deal to be taken into consideration to insure success, especially if it be intended that the tree shall retain its foliage. If this is not a consideration, the top may be cut back, and the labour of removing considerably lessened; and thus the risk of losing the tree reduced to a minimum. If the tree is taken from a warm friable soil, and from a secluded position, and replanted in a position having all these favourable conditions reversed, success cannot be expected. If the soil is the only thing that is likely to militate against success, the unsuitable soil may be taken out and good soil be substituted for the reception of the tree. If the tree is removed from where it enjoyed all the moisture it required, and is placed in a dry position, and then neglected, total or partial failure will result. If the last condition is reversed, success is certain. Granted that these, and many other little matters which generally appeal to common reason, are carefully thought out beforehand, the work, instead of being a trouble, will proceed with a fascinating pleasure, and, having succeeded, the man is justly proud of his accomplishment.

A strong box, measuring 30 inches square by 20 inches deep inside measurement, will do for trees having a height of from 8 to 12 feet and a corresponding diameter measure through the top; 10-inch by 1-inch pine boards will do for the sides and ends. The ends of the box will be exactly 30 inches long; the sides will measure just 38 inches long. You will want eight pieces of 3 x 2 hardwood, 20 inches long; two for each corner. The ends of the box must be nailed on to the edge of the hardwood pieces; the sides to the hardwood on their flat, and all flush with the pine. You will observe the ends of the box are nailed to the hardwood on their edges; this brings the thickness to 4 inches at each end, so that, when the ends are put in, this takes up the 8 inches allowed on the sides, making inside measure 30 inches square, and outside 38 inches by 32 inches, with the four corners bolted together on the outside. Having made the sides and ends, stand the two sides up—the hardwood outside—and put in the ends, hardwood outside. This brings all the hardwood pieces flat together, with 1 inch thickness of pine between them. Now cramp the corners together on an even floor, and bore ⅝-holes 5 inches from the top and 5 inches from the bottom, and bolt together; 5½ inches by ⅝-inch bolts will do nicely. When you are nailing the pine to the hardwood, avoid driving nails where the bolt-holes will be, and be sure not to split the hardwood with the nails. Now you have a box without top or bottom as yet. These will be mentioned later on. You need not bolt one end in, as this will have to be done after it is placed around the tree to be taken up.

How the Tree is Taken up.—Place the three sides of the box round the tree, and bolt in the end. See that it is all tightly screwed up, and square it so that the trunk of the tree is in the middle. Now proceed to cut away the soil all round the outside of the box, and, as every 3 or 4 inches are removed, drive down the box with a wooden maul, striking on the hardwood corners. A little judgment will be necessary, as the sole object is to get a solid cube of unbroken soil compressed inside the box. Should you encounter stones that will be in the way of the box going down, they must be carefully taken out. As soon as you uncover a root, cut it clean through with a chisel and mallet, so that the bottom edge of the box does not grind on it as it goes down. If you sever the roots as soon as they are visible, and without removing any more soil, there is a firm bottom to cut on, and less injury will be done to the roots and cube inside the box. Continue cutting away the soil, and driving down the box till it is down level with the surface. (If the soil has been banked up around the tree, it should be removed and made level before the box is placed in position. Even then it may be found necessary to sink the box below the surface to get in all the side roots, but not to the detriment of the surface roots.) You may now nail on the cover, from which it will be necessary to cut out two half-circles to fit the trunk in. Pack some grass or bagging tight between the edge of the boards and the trunk to act as a fender to prevent injury to the bark. Having put on the cover, you may excavate 1 foot deeper all round the box, giving yourself plenty of room and keeping the loose soil well out of your way. Now undermine the box on whichever side you intend to let the tree down (for the tree and box must come down on its side so that the bottom may be nailed on). While you are undermining the box, and before you attempt to let down the tree, see that all the tap-roots are carefully cut through; for if any are left uncut when the tree comes down, they will pull the cube partly through the bottom of the box. This precaution will prevent unnecessary forms of speech and much waste of time.

It will be just as well to prop up the front of the cube to prevent the tree coming down unex-

pectedly. Of course, you see the necessity of clearing away plenty of soil to allow the top of the tree to fall into a hollow space. If this is not done the tree, when down, will lie at an angle which will make it very awkward to trim off the soil and roots. We will suppose the tree, with the cube inside the box, is now lying on its broad side. Then proceed to cut away all the soil that is protruding beyond the bottom edges of the box. Cut the soil off nicely square across, and then whatever roots there are can be sawn off level with the soil The bottom may now be nailed on and the tree up-ended.

If the sun is hot it soon suffers while lying down, for the under surfaces of the leaves are tender and quickly scald. Hence the necessity of getting the tree upright again as expeditiously as possible. Before beginning operations, it will be as well to have a look round to see how near you can get to the tree and which position will be best for getting it into the dray. You will want strong hardwood skids—4 inches by 4 inches by 18 feet long will do. The ends of these may be placed under the box before the tree is up-ended, with the other ends of the skids resting about 18 inches on the dray; :a roller is placed on the bottom of the dray at the ends of the skids, it will land the box well forward with little effort.

The dray must be well propped up fore and aft, and the wheels can be left down into the soil to reduce the incline. If the ruts are dug out the shape of the wheels, it will keep all steady. The soil can be cut away from the front of the wheels when you are ready to start away with the tree. Greasing the skids will help considerably. All lever movements must be made with great steadiness and precaution, especially when the tree is about midway on the skids, for if too much play is allowed, and a gust of wind comes along at the same time, an accident may result. Pieces of 3 by 1 hardwood battens nailed on the bottom flush with the outside edges will keep the box nicely square on the skids while you are levering the tree into the dray, which to the uninitiated looks a dangerous job. These pieces of battens are just as useful to subsequently guide the tree down the skids off the dray.

To Plant the Tree.—Having placed the dray within about 15 feet of the spot where the tree is to be planted, put one end of each skid under the box, the other ends to reach the hole, but to one side of it then slide the box gently down the skids till it reaches the ground. Now turn it over on its broad side with the bottom of the box presented to the hole it is to be planted in, with 2 or 3 inches hanging over. Prise the bottom off with the crowbar, and up-end the tree. This requires small effort, as the top will about balance the box. The tree being now upright in its new home, you can take the nuts off the bolts, and prise the box asunder with the bar. Lift the pieces out, and fill in the hole round the tree. If, when you are prising the box apart, you see the cube of earth is likely to fall to pieces, remove one side only, fill in that side, then take out another, and fill that in till it is all done. If a number of trees are to be shifted, the top and bottom of the box should be bolted together instead of nailing. For this purpose use ½-inch iron rods screwed down 2 inches at each end with nuts and washers to fit. The rods will need to be 24 inches long. The bottom, in this case, should be hardwood, and the battens before mentioned can be parmanently fixed on the outside boards. Whether the top and bottom are nailed or bolted on, it will be necessary to cut the boards longer than the width of the box to allow for any bulging that may possibly occur. If bolts are to be used, the holes should be slotted quite 1 inch long. Now, as the top and bottom cannot be put on at the same time, it will be best to screw on the top, temporarily putting the screws between the slots. The total cost of taking up and eplanting a tree such as shown on the dray (box included), amounted to £2. One man succeeded in doing all the work of the tree on the dray without any help whatever.

[A precisely similar interesting process is adopted in Paris, where very large trees are often transplanted. The French foresters think nothing of transplanting trees 20 to 30 feet high with a corresponding diameter.—Ed. *Q.A.J.*]

ORANGE GROWING IN CALIFORNIA.

To those who are interested in fruit-growing, one of the most interesting sights in one of the two great horticultural tents in the late Paris Exhibition, was the display of fruit staged by the Arlington Heights Fruit Company. If one can believe literally every thing which has been said and written about Riverside "the greatest Orange growing district on earth," this place comes nearest to the earthly paradise of which the mediæval poets and prose writers dreamed and spoke, Its advantages are bewilderingly numerous, and, *inter alia.* "it has no millionaires and no paupers." The delights of Riverside, and the enterprise of the Arlington Heights Fruit Company are duly set forth in a dainty little pamphlet, and when our dear cousins across the water take up the cudgel—in this case it is a pen, we know that they are not going to be unpleasantly modest about their own achievements. The present writer would gladly respond to the "Greeting and invitation from Riverside," but the little pamphlet is silent on the "incidentals" of passage-money and hotel bills! But the facts quoted in the pamphlet are of very great interest, and California is undoubtedly a wonderful country, whilst "Riverside is the exponent and example of the highest development in California—material, moral, social, intellectual." He must be a cantankerous person who wants more than this. Mr. Chauncy M. Depew tells us that a man who owns 30 acres in California is a country gentleman. "He does just about work enough to keep himself in good physical condition and class from 3,000 dollars to 4,000 dollars a year. I know one man who makes 3,000 dollars a year on 10 acres of ground. They press the button, and Nature does the rest."

The orchard area of Riverside is 30 square miles, or 19,200 acres, in which are growing 1,536,000 Orange-trees, so that until some other district can adduce figures in excess of these, the claim of Riverside to be the greatest Orange-growing locality in the world must remain undisputed. These trees planted 20 feet apart, and the produce for this season is estimated at about 318,024,000 Oranges, and the product of this district is stated to be one-third of the output of the State. The money value of this enormous quantity is calculated at 6,000,000 dollars, or an average of over 671 dollars for every man, woman, and child, in the district. Although Oranges are chipped from Riverside every month in the year, the bulk of the crop is exported between Dec. 1 and May 1. Riverside is especially favourable for the cultivation of the Orange for it has all the essential elements of success; an ample water supply, the proper soil, the right altitude, and the absence of fogs. The selling value of Orange (bearing) groves vary from 500 to 2000 dollars per acre. The most favoured variety in the Riverside district—where indeed it may be said to have been raised—is the Riverside Washington Navel, the king of Oranges; it has stood the test of twenty-five years cultivation, and maintains its superiority.

Riverside, in its Magnolia and Victoria Avenues, possesses "two of the most famous avenues in the world;" their combined length is 20 miles, mostly through continuous Orange-groves, and within the limits of the city; whilst in the city park may be seen the largest and finest collection of Cacti in America, "if not in the world." *W. Roberts.—The Gardeners' Chronicle.*

RUBBER TRADE IN BRITISH GUIANA.

With reference to the report on the rubber-trees of the colony, Mr. Quelch said he found on enquiry that a report corresponding in detail to what the Society wanted, was being prepared by Mr. Jenman for the Government, and as it would be possible to secure copies of this report, all he had judged it desirable to do was to prepare a short report merely, which might be distributed in the meantime to those enquiring about rubber-trees. He then read the following report, for which a vote of thanks was passed:—

The rubber trees of the colony may be classed under two heads, namely, those that yield india-rubber proper or caoutchouc, and those that yield balata or guttapercha. In all cases, the product consists of the dried milky juice yielded by the trees when the bark is cut. Technically and economically, the differenees between the two products are very marked, and even in the rough state they are readily distinguished by the character that at ordinary temperatures india-rubber is always highly elastic, while balata is comparatively inelastic. For the collection of both balata and india-rubber in the colony, licences are required to be taken out, and a royalty is charged on the amount collected.

Balata is obtained from the well-known bullet tree (*Mimusops balata*), which occurs widely distributed in the lowlying lands of the colony, more especially in the Berbice, Canje, Mahaicony and Pomeroon districts. The trees reach a height of about 100 feet, and a diameter of from three to four feet, yielding a hard, heavy and durable wood. In general appearance, size for size, they are not unlike the sapodilla trees, to which they are closely related.

To obtain the milk, a series of oblique right and left cuts along the trunk, leading to a central perpendicular channel, is made, to the bottom of which a small clay cup or tin is fastened to catch the milk as it runs. The cuts should be carefully made so as not to damage the tree, and if properly done, they heal up within the space of about four years when the tree may again be tapped As the milk runs but for a short time, the quantity obtained at such bleedings is comparatively small, and it has recently been proposed that the edges of the gashes should be sliced off daily for a few days, by which larger supplies are obtained, care being taken not unduly to drain the tree so as to cause its death. Experiments in Penang on Para rubber trees have shown that by this means larger and larger quantities of milk are obtained for several days, and it is likely that this method is applicable in all cases of rubber production.

The séparation of the rubber from the watery milk is practised in many different ways: as for instance by drying in the sun, by artificial heat, by chemical precipitation, and latterly, it has been proposed, by centrifugal machines. It is claimed that the purest result is obtained by the last method; but hitherto artificial heat has been chiefly in vogue, and has generally been productive of the most satisfactory results. The balata industry in the colony has been greatly extended recently, more than 330,000 lbs. having been exported last year, though the amount fluctuates considerably from year to year.

Of the native trees yielding india-rubber proper, but little is really known. It is certain that several trees are to be found over the colony generally, of many different species, that yield rubber—presumably of commercial importance—but up to the present, little has been done to exploit this probable source of wealth. From the reports published by Mr. G. S. Jenman, Superintendent, Botanic Gardens, we know three of these rubber-plants from which small quantities of rubber have been obtained and examined, but larger quantities are needed before, from a commercial standpoint, they can be compared with the different kinds in the market. These three plants pass under the common names of "Hatie," "Touchpong," and "Macwarrieballi."

The "Hatie" (*Hevea spruceana*) is closely allied to the Para rubber-tree (*Hevea brasiliensis*), and grows in the colony in corresponding situations to its southern representative; that is, in alluvial lands more or less swamped and inundated at high water. The tree grows to a height of from 40 to 60 ft., with a diameter of about twenty inches, straight of trunk among other trees of the forest, but spreading and branching by the waterside where it is exposed. "The leaves are trifoliate, on long stalks crowded together towards the ends of the branches from between which the flower opens. The leaflets are entire, oblanceolate in shape, acute, polished green above and bluish green beneath. The fruit is a three-cornered capsule with seed of the size of a small nutmeg." The Hatie is common in the upper estuaries of the great rivers and in the various creeks leading therein, but the trees are always more or less scattered, though an abundance of young plants can be obtained in their neighbourhood.

The Touchpong (*Sapium biglandulosum*) appears to be a common tree both on the high lands of the interior and on the lowlands of the coast. Examples are met with in many parts of Georgetown where they are known by the common name of gum-tree. It is closely related to the Jamaica milk-wood or gum tree, and grows to a larger size even than the bullet-tree. It will readily be recognised by its broadly lanceolate, entire leaves, of from 5 to 9 inches in length, with two glandular spots, on one each side of the short stalk at the base.

The Macwarrieballi *(Forsteronia gracilis)* is one of the bush-ropes of the interior, where it appears to thrive in the more rocky and gravelly places. Mr. Jenman found it on the high ground near the Great Falls, Demerara River. It is closely allied to the milk-withe of Jamaica, and like that plant appears to produce excellent rubber. Being of comparatively small size, about 4 inches in diameter, the stem yields only a small amount of milk, but the milk is extremely abundant in relation to the size of plant.

Besides these three species, others such as the kumakaballi and the cow-tree are also known to be rubber-yielding, and in fact experiments are in course of completion at the Botanic Gardens for the identification of other species and their establishment in cultivation.

That foreign species of rubber trees can easily be established in the colony, is evident from experiments in plantations in Ceylon, Penang, and other parts of the world; but seeing that one of our native forms is so closely allied to the Brazilian plant that is noted for the production of the best rubber, it would seem to be worthy of enquiry whether our own species is not equally valuable. The subject certainly deserves serious consideration.—*Timehri*.

DRAINAGE OF LAND.

Too much attention cannot be paid to this subject. Artificial draining is the primary part of successful agriculture, and even in the early days of Rome, the draining of land was extensively carried on.

HOW TO KNOW WHEN DRAINING IS NECESSARY.

1.—Whenever after rain water remains in the furrows or stump holes.

2.—When the soil sticks to your shoes or horses' feet and farm tools.

3.—Whenever you see water in the footprints of a horse or other animals.

4.—When animals sink deeply into the soil.

5.—When the rays of the sun form a hard crust on the soil.

6.—Whenever after heavy rain the little holes in the ground show more water in them than in other parts.

7.—If after rain a stick is put into the ground and taken out, water will rise in the hole.

8.—If crops will grow better when land is gathered up into small ridges

In the first place we get rid of the stagnant water, both on the surface and below it. Stagnant water has an injurious effect on vegetation, it is deprived of its oxygen, and while it remains in the soil it prevents fresh water from taking its place. Water held in suspension is detrimental to plant life and must be kept moving, it also opens the soil and lets the air in after it. The theory of draining is well illustrated by a flower-pot with a hole in the bottom, the water will either give life or death to the plant; it gives life when it can pass through the pot, but plug the bottom up and let the water stop, and death is the result.

SOME BENEFITS TO BE DERIVED FROM DRAINING LANDS.

1.—Draining removes stagnant water from the surface and subsoil.

2.—It lengthens the season, well-drained land can be worked much sooner after rain.

3—It deepens the soil.

4—It warms the soil by stopping evaporation.

5—It equalises the temperature of the soil.

6—It carries down soluble substances to the roots of the plants.

7—It prevents injury from drought and wet.

8—It improves the quality and quantity of the crops.

9.—It increases the effect of the manures.

10.—It prevents the heaving of the soil.

11—It helps to prevent disease in plants.

12—It increases the general health of the locality.

A good soil, with a gravel subsoil, need not be drained, but with a stiff clay subsoil it is necessary. The deeper the drains are the further apart they may be placed. Before commencing to lay down a system of drains; an outlet for the main drain must be found, and the drains marked out so as to give the necessary fall, a fall of 3ins. in a 100ft. will be sufficient, the bottom of the drain must be kept smooth and must be carefully graded. Care must be taken to avoid, if possible, bringing the subsidiary drains in at right angles to the main drain, as this impedes the flow of water at every junction. The main drain should be made amply large enough to carry off the water from all feeders. Great difference of opinion exists as to the depths of drains, they vary from 1½ft, to 6ft., much depends on the nature of the soil, retentive soils require deep drainage, the deeper the drains the wider they may be apart.—*Journal of the Jamaica Agricultural Society.*

PLANTING NOTES.

MR. J. H. BURKILL, an assistant in the Herbarium at Kew, and formerly in that at Cambridge, has been appointed assistant to Dr. Watt, the Reporter of Economic Products, Department of Agriculture, in Calcutta, and will leave this country in January next.—*Gardeners' Chronicle.*

LARGE SHIPMENT OF APPLES.—We learn from Boston, U.S.A., that some two or three weeks since the largest shipment of Apples on record was made from that port for Liverpool. This shipment consisted of 28,285 barrels of all the best varieties suited for the Christmas market. —*Ibid.*

LINNEAN SOCIETY.—On the occasion of the evening meeting held on Thursday, December 20, 1900, at 8 p.m., the following papers will be read: 1. "On the Structure and Habits of the Ammocharides," by Mr. Arnold T. Watson, F.L.S., &c. 2. "The Flora of Vavau, one of the Tonga Islands," by Mr. T. H. Burkill, M.A., F.L.S. 3. "Warning Colours in Insects," by Prof. E. B. Poulton, M.A., F.R.S., F.L.S.—*Ibid.*

A WONDERFUL IRIS.—Mr. Peter Barr writes to us from Victoria, regarding a new German Iris staged by Miss Love at a local show:—"Those who visited the Tatura Show on Wednesday, October 17, must have seen Iris Painted Beauty. It was conspicuous in the fine, but crowded, box of cut flowers staged by Miss Love, of Tatura, and was, during the day, the cynosure of the exhibits. Its beauty was of a very exceptional, marked, and distinct character. An expert gave it as his opinion that no Iris of so much refined beauty had ever before been seen in this or any other country. It belongs to the group commonly known as German Iris. The flower is pure white.—*Ibid.*

"FROSTING" SHRUBS.—Your correspondent, "W. C.," will find the following method satisfactory if carefully followed out. Procure a tub or pail according to the size of the shrubs or branches to be treated, put in enough whiting and water to make it of the consistency of paint, then add enough liquid-size to make it adhesive —about a pint to a pailful of mixture; well stir it together, and keep it stirred while using. Having the shrubs ready at hand, dip them in the mixture, then let the superfluous stuff run off; having ready a flower-dredger containing "Jack Frost Powder" (which can be purchased at any good fancy shop), and sprinkle the shrubs there with while moist; let the dressing dry gradually, and keep them in a dry place till wanted. Small pieces of the common Gorse dressed in this way, and placed in pots or dishes with a groundwork of small Ferns and moss, make a striking contrast to small Codiæums and Cocos Palms for the decoration of the dinner-table for the Christmas season.—A. S. COLE, Moncreiffe Gardens, Bridge of Earn, N.B.—*Ibid.*

THE CHARDUAR RUBBER PLANTATION, ASSAM.

RESULTS OF TAPPING.

Mr. J A McKee, Conservator or Forests, Assam, has recently published a report giving the results of tapping operations carried out in compartments 3. 4, 5, 6, 7 and 8, etc., of the Charduar Rubber Plantation in the past season of 1899-1900.

AREA AND OUTTURN.

2. An area of 474 acres, containing 6 810 trees, was worked over, yielding 4,502 lb. of clean and dry rubber, as per detail below, and it should be noted that the trees in compartments 3 and 4 were tapped for the second year in succession, having been also operated on in 1898-99:—

		Acres.	Trees.	Clean rubber yielded. lb.
Compartment 3	...	1·66	25	24
Do. 4	...	94·31	1,499	863
Do. 5	...	126·84	1,849	1,176
Do. 6	...	77·25	1,116	889
Do. 7	...	80·39	1,060	833
Do. 8	...	73·73	980	657
Roadside trees	...	20·00	281	60
Total	...	474·18	6,810	4,502

COMPARISON WITH THE PREVIOUS SEASON'S OUTTURN.

3. The above figures give an average outturn of 9·5 lb. of clean rubber per acre and ·66 of a pound of elean rubber per tree. In the previous year, the figures of outturn were very similar, being 9·4 lb. per acre and ·52 of a pound per tree, the outturn per trec being reduced by the Bomani Hill Plantation containing 8 acres, in which the trees are planted much more densely, and are, therefore, smaller than at Charduar, the aetual density being 92 trees per acre in the former compared with only 14 per acre in the latter. It is, however, noteworthy that the Bomani Hill area yielded 9·5 lb. of clean rubber per acre, or about the same quantity as the average outturn for the whole area of 322 acres worked over in the season of 1898-99—a fact which tends to prove (the trees being of equal age) that a densely-planted arca does not yield more rubber than one sparsely planted—while, on the other hand, it must have cost more to plant out originally and to establish as a going concern —see also remarks in paragraph 15.

OUTTURN OF TREES TAPPED TWO SEASONS IN SUCCESSION.

4. Compartments 3 and 4, which were tapped for the second season in succession, yielded practically the same outturn as in the previous year, the figures for compartment 4, containing 1,499 trees, being ·60 and ·58 of a pound of clean rubber per tree for the first and second year respectively, while the few trees (25) tapped in eompartment 3 this last season yielded ·96 of a pound per tree, as compared with ·70 of a pound per tree obtained from the entire compartment in the past year, the greater outturn this season being doubtless altogether due to the fact that the trees operated on were specially selected ones.

METHOD OF TAPPING: DIFFERENT TOOLS USED.

5. Mr. Copeland, the Deputy Conservator of Forests, under whose careful personal superintendenee and management all the operations were carried out, reports that tapping was commenced in the first week in December, or six weeks carlier than in 1898, the object being to escape the rain, which, however, does not seem to have been effective, rain having fallen off and on during the whole tapping period. It is also reported that three different tools were employed on the work, compartments 6, 7 and 8 being tapped by Nepalese and Assamese, in the old and usual manner, with *kukris* and *dhaos*, whereas compartments 3, 4 and 5 were tapped by Garos with half-inch carpenters' gouges introduced for the first time as an experiment. The gouge was worked with a small mallet and is reported to be the best of the three methods, as it does not damage the tree so much as the *dhao* or *kukri*, shallow wounds, only bark-deep, being made, instead of the deeply incised and jagged wounds caused by the last-mentioned tools. In this connection, it is important to remember that the rubber cells are located in the inner bark layers, and that to obtain the *latex* flow, it is unnecessary to wound any portion of the cambium. It is, therefore, expedient that the tapping tool employed should be capable of being controlled and guided to a greater extent than is practicable with a *dhao* or *kukri*, which can be used only with a forcible, and, oftener than not, a damaging cut.

6. The plantation was inspected by the Conservator as recently as the 13th of the present month, when it was observed that bark was already forming over the gouge euts, that is to say, within eight months of the tapping operations, and it seems safe to predict that these kinds of wounds will be thoroughly healed twelve months after their first infliction. The *dhao* cuts, on the other hand, take longer to heal, and compartments 1 and 2 that were tapped in January 1899, are only now recovering from the operation. Roughly speaking, it may be stated that these kinds of cuts take six months longer to heal than those made with the gouge.

COMPARISON OF RAW OUTTURN OBTAINED BY DIFFERENT TOOLS.

7. The outturn of raw, uncleaned rubber obtained by the different methods was slightly in favour of the *dhao* and *kukri*, compartments, 6, 7 and 8 yielding ·79 of a pound per tree, as compared with ·65 of a pound per tree yielded by compartments 3, 4 and 5. But the slight difference of outturn in favour of the *dhao* is more than counterbalanced by the greater damage caused to the trees. while it is reported by Mr. Copeland that the loss in weight caused by the extraction of foreign matters is in favour of the gouge—the actual ratio based on the results of carefully weighing the first two days' tappings being as three to 5. Unfortunately, the clean rubber obtained from the different compartments was subsequently not kept separate, when it became impossible to correctly differentiate between the clean outturn resulting from the use of the different tools, and the figures exhibited under this head in Statement A attached are considered to show results too favourable to compartments 6, 7 and 8, at the expense of compartments 3, 4 and 5.

NEW TOOL RECENTLY DESIGNED.

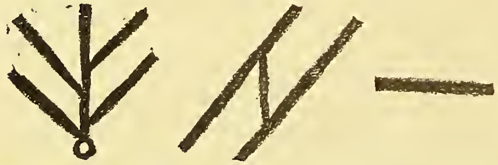
8. In this connection it may be noted that, with the help of Messrs. Ahmuty & Co., Calcutta, a new kind of gouge has lately been made, which promises to turn out better for the work than either of those above mentioned.

LOSS OF WEIGHT BY INTERMIXTURE OF FOREIGN MATTERS, &c.

9. Considering the figures relating to loss of weight, owing to cleaning and drying, as a whole, it would appear that, on the raw material as first collected, this loss came to about 5½ per cent—a proportion which compares favourably with the results of the previous year, when this form of wastage amounted to as much as 9 per cent, and which proves that some factor was present in the season's operations which tended to raise the quality of the raw outturn obtained.

DIRECTION IN WHICH CUTS SHOULD BE MADE.

10. The cuts were made horizontal or only slightly oblique, it being noticed that the wounds bled in proportion to their horizontal direction, and that any considerable deviation from this direction resulted in a slower and reduced flow of rubber. Experiments on untapped trees were made personally by the Conservator with the view of testing this point, arrow-shaped (the Brazilian method), oblique, as well as horizontal cuts being made, when it



was very apparent that the *latex* flowed far more freely from the last kind than from either of the others. No examination of the bark or bast has yet been made to test the cause of this observed fact, which is not in agreement, it is believed, with experiments made elsewhere on rubber-yielding trees and plants of other species.* But an enquiry will be instituted with the help of Dr. Watts, the Government Economic Reporter and the Director of the Forest School, with the view of obtaining information on the point. In the meantime, it seems safe to hazard the opinion that the rubber cells must be placed in more or less vertical rows, and that, in fact, in arrangement they resemble somewhat an arterial system, when it will be readily understood why a horizontal cut must be much more effective in tapping their contents than a vertical or oblique cut of equal length.

RUBBER RESIDUUM AND WASTAGE DISCUSSED.

11.—Another point was tested at the same time by the Conservator, which perhaps helped to create the opinion that the tapping operations, as performed in 1898-99, were of an unnecessarily careless or wasteful nature. Allusion is here made to the fact that, when the rubber is stripped from the cuts, a milky, and sometimes copious, residuum runs out of the wounds down the tree, and as no arrangement is made to collect this overflow, the impression may have been carried away that it represented wastage. But the Conservator was able to prove to his satisfaction that this residuum, which closely resembles rubber-milk in appearance, contains no caoutchouc, and is capable of being practically absorbed by blotting paper or of being evaporated in the sun. In fact, it consists practically of little else than water and contributes no appreciable proportion of the true wastage, which seems to be wholly represented by that portion of the *latex* which spurts out of the wound during the actual process of tapping and overflows on to the trunk or branches of the tree, or is sprinkled or drips on to leaves or undergrowth at its base. But all this apparent wastage is carefully collected and cleaned, and although it sells at a greatly reduced rate in the London market, the proportion it represents to the quantity of clean, good material collected is not of any great importance. This last season, this particular kind of rubber amounted to 128 lb. weight out of a total 4,5 2 lb. of clean material obtained, or rather less than 4 per cent; and it was sold separately in London at 1s 10d instead of 3s 7d per lb, which is equivalent to a gross loss (excluding charges) of R165 on a possible R10,844, or about 1½ per cent.

* Vide *Indian Forester*, XXVI., page 317.

FINANCIAL RESULTS ON RUBBER SOLD IN LONDON. 12.—The financial results of the operation were decidedly satisfactory as will be seen from the following figures:—

	£	s.	d.
4,323 lb. of clean rubber (reduced in London to 4,280 lb.) were sold at 3s 7d per lb.	766	16	8
128 lb. of ground rubber (reduced in London to 122 lb.) were sold in London at 1s 10d per lb.	11	3	8
Add—Interest, 7 days on £201-5-0	0	3	10
Total receipts	778	4	2
Deduct—London charges, including freight from Calcutta	59	17	11
	718	6	1
	Rs.	a.	p.
Equivalent at exchange of day	10,732	12	3
Deduct—Calcutta charges	52	15	9
	10,679	12	6
Deduct—For plantation charges, tapping, cleaning, packing, freight to Calcutta, etc.	3,839	2	0
Net profit	6,840	10	6

A net profit, therefore, after deducting all charges, of R6,840 10-6 was realised on the 4,451 lb. of good and inferior rubber despatched to England from the Plantation, which is equivalent to R122-15-3 per maund of 80 lb. or Re 1-8-7 per pound as compared with Re 1-2-3 per pound realised last year.

OTHER RUBBER. 13.—Besides the above rubber sent to England for sale, a balance of 51 lb. was disposed of in the following manner, which will make up the total 4,502 lb. obtained from the season's tapping operations—see paragraph 2—

Sent to	Reporter on Economic Products, Calcutta	10
Do	Agricultural Chemist, Dehra Dun	2
Do	Curator, Government Garden, Nilgiris	½
Do	Ranger Venkatramana, Forest Department, Madras ..	1
Sold locally for R51-8-0	..	35½
Kept as sample in stock	..	2
		51

TAPPING CHARGES AND BROKER'S REPORT ON QUALITY OF RUBBER. 14.—Full details of all figures discussed above will be found in Statement A attached to this report, and in this connection it only seems necessary to draw attention to two more points, *viz.*, the reduced expenditure effected on tapping operations and the favourable report of the London Broker on the quality of the

rubber forwarded for sale. In regard to the first point, it should be noted that, in the previous season, an item of R1,198 was incurred on the purchase of coal tar for smearing over the wounds caused by the *kukris* and *dhaos*, partly as a healing application, but chiefly as a preventive or check on illicit tapping that might subsequently be made on the trees that had been worked over departmentally. This last season no expenditure has been incurred under this head, as it seems doubtful that the application of tar is of any utility and the danger of illicit tapping is not considered sufficiently great to justify the considerable expenditure above mentioned. By eliminating this part of the original procedure, and by reducing the actual expense of tapping, the cost on the material landed in Calcutta was reduced from R94 to R70 per maund of 80 lb., the actual figures being as follows :—

Cost of 3,363 lb. of rubber obtained in 1898 99 R3,967
Do 4,502 lb. do do in 1899-1900 3,839

With regard to the second point mentioned above, Messrs. McLeod & Co. of Calcutta, through whose firm the rubber was despatched to London and sold, write as follows :—

"People who have examined our parcel inform us that it is the finest stuff ever seen here from Assam. Last year's shipment could scarcely be improved upon in matter of cleanness and condition, but this parcel is more presentable, the packing being better done."

Doubtless, the better packing in *acme* tea boxes lined with cloth, instead of despatching the product in bags, as was done in the previous season, had much to do with the better price paid, 3s 7d per pound having been realised as against 3s 4½d in 1899.

SUPPLEMENTARY EXPERIMENTS.

15. In a Statement B, which is not here reproduced, Mr. McKee gives a detail of the girth and crown or spread measurements of 10 per cent of the trees that were tapped last season. The results are interesting so far as they go, and tend to prove, as might be expected, that the outturn of rubber is in proportion to the spread of the trees. Abstracted, the figures give the following results :—

Number of compartments.	Total number of trees measured.	Total girth measurements. Ft.	Total crown measurements. Maximum diameter. Ft.	Total yield of rubber of measured trees, in tolas.	Remarks. Spread per tree.	Outturn per tree.
1	2	3	4	5	6	
						tolas
4	100	1,064	6,416	3,362	64' ...	33¼ = ·83 of a lb.
5	162	1,446	9,844	5,414	61' ...	33½ = ·83 ,,
6	95	703	6,035	3,896	63' ...	41 = 1·00 ,,
7	96	649	5,815	3,769	61' ...	39 = ·97 ,,
8	97	475	4,487	2,281	58' ...	29½ = ·73 ,,

The girth measurements of the trees are so difficult of being made in a uniform manner, owing to air roots which form supplementary stems having a tendency to anastomose, that the figures under this head may be ignored ; but if the figures relating to the average spread, of trees in the different compartments are compared and it is borne in mind that the trees in compartment 4 were tapped for the second year in succession, it seems that, as above stated, the largest outturn is obtained from the trees having the best and widest crowns.

RESULT OF TAPPING TREES THREE YEARS IN SUCCESSION.

16. Another interesting statement is that attached to this report as Appendix C, which shows the result of tapping 21 good selected trees in compartments 2 and 3 for three years in succession, 1896-97, 1897-98, and 1898-99. This experiment should have been commented on in last year's report, but seems to have escaped observation. Abstracted, the results were as follows :—

Number of trees.		Yield in lbs. 1896-97.	1897-98.	1898-99.
21	..	46	48	9

and they seem to prove that, although the first two years' operations will yield nearly equal outturns—agreeing in this with the figures quoted in paragraph 3 for compartments as a whole—there then, in the third year, comes a terrible falling off of 75 per cent. And as the trees in question, for the most part, are specially good specimens, and, in fact, are the dominant trees in compartments 2 and 3, the experiment should warn us to be very careful in working over the plantation too frequently, in successive years, without giving the trees sufficient time for recuperating from their former tappings. The figures also prove that the small quantity of rubber yielded per tree by our tappings must be considered the maximum that can safely be extracted from them at present. Mr. Home's estimate of 2 lb. per tree made when forecasting the outturn of 1898-99 was evidently of too sanguine a nature for the compartments as a whole.

FUTURE OPERATIONS.

17. With the meagre information as yet at our disposal, it is not safe to arrange for work more than one year in advance. Next season, therefore, it is proposed to tap compartment 4 for the third year in succession, with the object of verifying, in a more decisive manner, the results obtained from the limited experiment mentioned in paragraph 16 and recorded in the attached Statement C. But should the results of tapping the first 100 trees of this compartment show conclusively that the outturn is much smaller than on previous occasions, the work in this area will at once be stopped. In addition, compartments 9, 10 and 11 of the Charduar Plantation, containing 251 acres and 3,490 trees, and the eastern block of the Khulsi Plantation, containing 88 acres and 2,400 trees, will be tapped for the first time. The Charduar trees will be 19 and 20 years old and those at Khulsi 23 years old, and it expected that they will yield, at the rate of 9 lb. per acre, a total of 3,051 lb. of clean rubber fit for despatch to London. Subsequent operations should be guided greatly by the result of tapping compartment 4 for the third year in succession. If the outturn is poor, it will, I think, prove that, in the present condition and age of the plantation, it is only less wrong to tap the trees two years than three years in succession, and the practice should be discontinued. As a tentative measure, under these circumstances, three years' rest should be

allowed to each area after having being tapped over. On the other hand, if no bad results follow, the re-tapping of No. 4, compartments 1, 2 and 3 that were last tapped in 1898-99 may be again operated on in 1901-1909, as well as compartment 4 for the fourth year in succession.

CONCLUSION.

18. In conclusion, the following deductions have been made from the points brought out by the figures and observations discussed in the above report. In some cases these observations still require more proof before they can be formulated as rules for the guidance of future operations; but it seems convenient and likely to be useful to attempt such deductions as a means of attaining steadily, if gradually, to a correct method of plantation management:—

(1) That in the present condition of the plantation, only about 9½ lb. of clean rubber per acre can be safely extracted from the trees at one tapping (see paragraph 16).

(2) That a densely-planted area does not necessarily yield more rubber per acre than an area of the same age in which the trees are relatively much fewer (see paragraph 3).

(3) That the out-turn of a tree in rubber seems to be in proportion to its crown or lateral spread (see paragraph 15).

(4) That a carpenter's gouge or a modification of this tool is best adapted for tapping, as it does less damage to the trees than the *dhao* or *kukri*, and enables the rubber to be collected with a smaller intermixture of foreign matters and dirt (see paragraph 5, 6 and 7).

(5) That only horizontal cuts should be made during the tapping process, as neither oblique nor vertical cuts yield the same quantity of rubber (see paragraph 10).

(6) That the expensive application of tar to the wounded trees is not justified by any commensurate result, and may be discontinued (see paragraph 14].

(7) That so far as experiments have been made, there are grounds for believing that the trees cannot be tapped three years in succession without showing signs of exhaustion, and that if this is proved to be correct, it is also probably only less wrong to tap the trees two years in succession (see paragraph 16 and Statement C).

(8) That neat and careful packing has an important effect on the selling price obtained for the rubber in the London market (see paragraph 14).

	R.	a.	p.
Packing, weighing and cost of Acme chests, etc.	78	7	7
Carriage from Plantation to Tezpur	12	8	0
Steamer freight, Tezpur to Calcutta	159	9	0
Erection and repair of camp huts ..	243	14	0
Clearing jungle and making paths for Inspection	909	4	0
Measuring girth and crown and labelling trees	420	5	5
Purchase of, and making, gouge ..	66	12	0
Miscellaneous	206	3	0
	2,116	15	0
Add—As per statement, cost of tapping and collection and cleaning of the rubber	1,722	3	0
Total ..	3,839	2	0

Add—On account of Agents' charges:—

	£	s.	d.			
Printing, advertising and sale expenses ..	0	2	6			
Freight ..	6	19	7			
Wharf charges ..	4	19	4			
Brokerage ...	3	17	9			
Fire Insurance ..	0	15	6			
Postage and petties ..	0	7	6			
Agency and Superintendence, London and Calcutta	23	6	9			
	40	8	11 =	604	5	2
	R	a.	p.			
Calcutta charges:—						
Shipping ..	11	2	0			
Insurance ...	33	1	9			
Stamps and postage ..	8	12	0	52	15	9
Total ..				4,496	6	11
	£	s.	d.			
Gross amount of sale of 4,323 lb. of clean rubber (reduced in London to 4,280 lb.) at 3s 7d per lb.	766	16	8			
Gross amount of 128 lb. of ground rubber (reduced in London to 122 lb.) at 1s 10d per lb.	11	3	8			
Add interest for seven days of £201-5 ..	0	3	10			
	778	4	2			
Deduct—Discount at 2½ per cent ..	19	9	0			
	758	15	2 =	11,337	1	5
Deduct—Total expenditure as above				4,496	6	11
Net profit on 4,451 lb. of rubber ..				6,840	10	6
Do per lb.				1	8	7

—*Indian Forester*.

THE VALUTATION OF RAW RUBBER.

BY H. L. TERRY, F.I.C.

Probably there is no other body of similar importance or intrinsic value which is bought and sold on less scientific lines than is india rubber in its various qualities, and it can be asserted with confidence that in the case of no other regular article of merchandise has less progress been made in the way of putting the sale and purchase on a scientific rather than "rule of thumb" basis. Not that there is anything to be wondered at in this when we consider all the facts, the problem to be solved being undeniably one of considerable perplexity, but all the same, seeing the progress that has been made with regard to putting the sale of other organic products on a scientific basis, it might have been supposed that something would have been attempted in the case of rubber. As my present title may lead the reader to imagine that I am here about to propose some scheme to effect the desired result, I may as well put in a disclaimer at once, my present effort being limited to a few casual remarks on the subject generally, though it is hoped that such remarks may not be entirely without interest, even if their perusal fails to throw a gleam of light into the gloom that still surrounds the matter in the minds of those who are more competent to hold forth on it than I am myself. In using the term rules of-thumb, I do not wish to be understood as doing so in a derogatory spirit, because, even if the case is not similar in all trades, there is no doubt that the practical man who uses his senses of sight, smell and touch is in the rubber trade often superior to the scientist. For an opinion of value on many rubber products it is much

safer to consult a foreman of long experience with the particular class of goods concerned, than it is to refer to the scientific man unless the latter, which is not always the case, has studied the manufacture closely in the works. And this seems to hold just as strongly with the raw rubber; at the present time this is bought by the practical man who employes his senses alone and extreme caution should be evinced by those who say that this position of affairs is all wrong, and that rubber should be bought and sold on chemical analysis.

Now, as regards chemical analysis, everything depends upon the sampling. Unscrupulous mining agents can get any result they wish from a gold reef by omitting to work upon a really average sample for their assays. This sampling is a matter really of great complexity and occupies a considerable amount of time, but its importance cannot be exaggerated. At the Rio Tinto copper and sulphur mines in Spain, the sampling, in order to get a representative assay, is carried out in a very comprehensive manner, the company priding themselves on the effectiveness of the system which they have worked out. With rubber, the case is very similar unless a really average sample were taken from bulk, the results of the chemical analysis, say the determination of dirt, water and resin, might easily be very misleading. No doubt, with proper methods, an average sample could be obtained, but at what cost of time and labour? Rubber is much more difficult to work than is the case with the general run of minerals, and where time enters largely into the question, the difficulties, in my opinion at least, in the way of getting an accurate valuation of a few tons of African ball rubber would be found practically insurmountable. In some cases where the quality is pretty uniform, the chemical method might prove of utility, but we have to remember that uniformity is the exception rather than the rule, so we must base our calculations accordingly. It certainly seems desirable that some agreement could be come to between dealers and buyers as to the amount of water in raw rubber; at present, where the amount of water varies to such an extent, it is rather like buying a pig in a poke. The subject has before now come up for discussion in the correspondence columns of this journal, but I do not remember that anything definite was come to. Not so long ago I remember reading of a case in London, in which a rubber firm made a claim for loss of weight, the difference between the weight invoiced and that actually delivered being accounted for by the water which had percolated the cask. I forget how the claim resulted, but the point is an important one. If some arrangement could be come to with the exporters to send the rubber on board ship with a maximum of, say 10 per cent. of water, there would be an advantage in freight charges, and it would certainly prove an easier matter for the purchaser in England to arrive at the value of the shipment. As the case stands at present, the commoner qualities of rubber are bought in a rather speculative way, and it becomes of importance for the management of the works to estimate their value for the several purposes to which it is intended to put them. Now, here considerable progress has been made compared with former years, though it must be confessed that the very elaborate methods of testing which have been worked out at some of the German works have not commended themselves to the trade as a whole, the suspicion having gained ground that unless you have a scientific staff employed at a low rate of remuneration the time and trouble involved in carrying out the tests are not justified on the score of expediency. It may not be without interest to give a few details of the testing system, as carried out, or said to be carried out regularly at one of the largest German rubber works. The apparatus employed is very similar to that used in testing textiles or metals; that is, a weighing machine, to which is attached an iron rod with a grip, and at the other end an iron rod with a grip, worked by a cog-wheel, as in the ordinary lifting jacks. This explanation may not be particularly clear, but it is difficult to describe machinery in a few words or without the advantatious aid of diagrams. Fine Para is taken as the standard, and its stretching power and resistance to rupture ascertained, and a series of comparative tests are made with other rubbers, in which way it can be ascertained whether a particular rubber tested is not too dear, compared with Para reduced to the same standard. For instance, when the rubber tested is found to be 35 per cent. under the quality of Fine Para, while its price is only 25 per cent. under, an indication of moment is obtained. For mill purposes, a table is made showing the stretching and resistance to rupture of the various compounds and is referred to on occasions when it is proposed to alter the composition of the mixings. In this way it is found possible to avoid any variation in the quality of the goods, moreover, these tests, it is said, have proved useful in the case of claims brought against the firm for supposed defective work. This brief account of what is done in some quarters in Germany will suffice for the present occasion; it is a good illustration of the scientific bent of the German mind, and in this case, there is every reason to suppose that advantage accrues from its adoption. The German passion for detail, however, is not always justified by results, and the Englishman is apt to treat its excesses with but scant respect. I am open to correction in the matter, but I do not think that the German method of testing rubber finds its counterpart in England, though I am not at all inclined to say that it could not be introduced into our works with advantage. Some years ago I adopted a comparative method of testing the value of washed raw rubbers, depending on the melting points. Naturally the rubber which contains the most resinous constituents melts the soonest, and the relation between tensile strength and melting point is a very close one. The table which I made naturally commenced with Para and ended with African Flake, the other brands of rubber taking up their positions at intermediate stages. In this way, by strict attention to details of time, best results of value can be obtained, showing not only the difference which exists between the various brands of rubber, but also to what all extent variations occur in the tensile strength of rubber which is always sold under one name, and which is commonly supposed to be of uniform quality. There is no doubt that failure to recognise the differences existing in the quality of rubber is a fruitful source of trouble, because it leads to incorrect vulcanisation. Especially is this likely to be the case where the goods are submitted to mechanical tests of great stringency, as, for instance, in the case of buffers for certain of our railway companies, and it is a fair presumption that trouble which has occured in the past might have been obviated if the rubber, previous to mixing, had been put through some sort of test, such as indicated above, to enable an opinion to be arrived at with regard to its axact quality. In the absence of such testing, there must always be an element of chance about the results of vulcanised mechanical rubbers as regards the important particular of tensile strength, and when trouble arises it is rather too much the tendency to put the blame on some workman or other, whereas it is more probable that the real cause lies in the failure of the workman's superior to recognise that the time of vulcanisation, or the percentage of sulphur might have been altered with advantage. However it may be said that here I am somewhat transcending the limits of my subject, though it is always permissible when advocating a change of policy or procedure to state clearly in what direction benefits may be expected to accrue from the innovation. The subject as referred to above, is clearly seen to come under two heads, which have little in common, viz: the testing of raw rubber before purchase, and the test-

ing by mechanical means, of the purchased rubber to ascertain its fitness for particular purposes. At the present time, there does not seem much prospect of any improvement heing effected in the first case; in the second case, however, it seems of moment that rubber manufacturers should seriously ask themselves the question as to whether the time and trouble which are devoted to the matter in Continental works are justified or not by results. It is a question which cannot be answered offhand, but only in the light of results, and I am not in a position to give what may purport to be a decided opinion one way or the other. I may, however, by way of commentary, remark that the trouble involved, to say nothing of the capital outlay on testing machines, should be in proportion to to the output of the factory in the class of goods which the tests are ment to benefit; in other words as the same emount of time and trouble in testing would be necessiated for the filling of a small order by a small factory, as in the case of a Government or railway contract by one of our largest manufacturers what would be justifiable in the latter case might not be so in the former, as the expense incurred would not bear proportionately on the cost of production. There are other points, of course, that call for consideration, but the limits of space preclude my saying more on the present occasion, so I lay aside my pen with the hope that these remarks may severe as an incentive for some more competent writer to give the journal the benefit of his views on the subject.

THE GARTON LECTURES ON COLONIAL AND INDIAN AGRICULTURE.

PROFESSOR WALLACE.

The Inaugural Address on Famine in India.

INDIA AND CEYLON.

Introduction.—General view of Agriculture of India, including the main features of the Presidencies and other great political divisions—Bombay, Madras Central and North-West Provinces, Punjab, Bengal, Assam, Burmah, and Ceylon—with special reference to Geology, Soil, Irrigation, Climate, Peoples, Famines and Chief products.

Tillage Implements.—Indian Ploughs, Native Harrows, Hoes, Seed-drills, and Hand Implements. European Implements and their suitability or unsuitability to Indian conditions.

Cultivation and Crops.—Rotations and Mixtures. Tillage before and after sowing. Seed and sowing. Harvesting and preparation for market. Commercial uses. Diseases and Injuries. Classification of Crops into Cereals, Pulses, Oil Seeds, Fibre, Fodder and Miscellaneous Crops, with special reference to the production of Wheat, Barley, Rice (Paddy), Maize, Millets (*Juar Bajra* and *Ragi*), and Sorghum—Gram Horse-Gram, Lentil, Pea, Ground Nut, Rape, Linseed Caster-cil Plant, Sesamum—Cotton, Jute, Ramei, and Hemp—Lucerne and Guinea Grass, Sugar-cane, Tobacco, Cinchona, Tea, Coffee, Indigo, Poppy—the commoner valuable Grasses of India, and their cultivation as practised at the Allahabad Grass Farm and other milstary stations in Northern India—Grass Cutting—Haymaking—Silage.

Irrigation,—Land and other conditions suitable and unsuitable for irrigation. Location and relative advantages of Canal, Well, and Tank (Lake, &c.,) Irrigation. Quantity of Water necessary for various crops and time of application. Water lifting appliances—The common leather bucket, the Persian Wheel, the Picotta (lever lift), and the hand scoop lift.

Manures.—Village refuse, Nightsoil, Cattle Manure (partly used for fuel), Ashes, Bones, Fish Manures, Saltpetre, Green Manure, Castor seed refuse.

Live Stock.—Characteristics of Indian Cattle—Mysore, Kistna River, Gujarat, Kankreji, Nagar, Sind, Hurrianah, Malwi, Deccan, Southern Maratha, Konkan, Kanevarya, Goranea, Bagondha, Madras Red, Trichinopoli, Gir, Nellore, Kangam, and Cinhalese—value as working and milch cattle. Buffaloes—Jaffrahad Gujarat, Nagpur, and common breeds—their general characteristics and special milking qualities. Horses and Mules. Goats and Sheep. Common Diseases of the Domesticated Animals.

EGYPT.

Introduction. Physical features—Soil, Climate, Population. The Fellahin or cultivating class.

Irrigation.—The Rise and Overflow of the Nile—The Ancient Basin system of Upper Egypt—The Indian Canal System introduced into Lower Egypt—Drainage—The system of washing Salt Land.

Manure.—Pigeons' Dung—Ashes Sabakh (Crude Saltpetre).

The Chief Crops.—Divided into Winter, Summer. and Autumn Crops, with special reference to Cotton, Sugar-cane, Barsim (Clover), Wheat and Barley, Maize—Rotations and Methods of Cultivation.

THE SMALLER CROWN COLONIES.

Main Points of Interest in—West India Islands, British Guiana, the Straits Settlements, Uganda and other African Continental Possessions and Islands—Islands in the South Atlantic and Pacific Ocean.

Miscellaneous.—Relations of the Agriculture of the Colonies and India to that of the Mother Country—Exports of Agricultural Produce, &c., from the Colonies and India, with special reference to Earth Phosphates, Bones, and other manures, Frozen Meat, Cotton, Grain (including Wheat), Tea and Coffee, Sugar, Fresh Fruits, Spices, &c.

MANILA HEMP AGAIN.

Manila Hemp is not hemp at all, but it is the fibre of the *bark* of a species of plantain tree; its botanical name being *Musa textilis, Nees* and belongs to the *familia Musacea.* This fibre is produced only in these Islands, although no effort has been spared to produce it in Borneo, Java, Sumatra, India, New Guinea, Australia and Africa, but without success. Formerly when it was shipped direct to the States it was invoiced as *Plan'ain Bark Fibre*, but during the past 40 years it has been called Manila Hemp. Its value was early recognised by the American whalers who used to freqnent this archipelago over 100 years ago. Before the days of steam, when the crack American clipper ships ran between Liverpool and New York the smart appearance of those ships with their sails of snowy cotton duck and riggings of Manila Hemp contrasted very strongly with the British ships with their canvas sails and Russian Hemp rigging. Nothing in the world equals Manila Hemp for running rigging as it does not rot nor harden when wet like Russian hemp and its lightness and strength as compared to Russian hemp made it a valuable article for standing rigging before the days of wire rigging. Formerly an American Steam Cordage plant was located at Santa Mesa and the huge 12 and 16 inch hawsers for towing up the Hoogli to Calcutta were made here, as well as the famous whale line used by the Pacific whalers, which was shipped to San Francisco and Honolulu. The United States navy has a rope walk at the Boston Yard and the cordage for the navy is made there ont of Manila hemp. The manufacturing of cordage is a very simple matter, but it requires the services of men who know their busines and they receive high salaries. The Manila hemp tree requires a pecular soil and a certain amount of moisture and sunshine, without these three conditions the fibre is valuless, besides the tree has to be cut down at a certain period of its life otherwise it is useless for hemp purposes. The natives go into the Lates or hemp plantations is gangs generally of two men, a woman and a boy. One man fells the trecs or "ponos," the woman trims the trunks and the leaves, and splits them into the requisite length, the boy carries these slabs to the other man, who with his crude cointraption

separates the film from the pulp. The hemp is then dried in the sun, and sold to the owner of tbe Late. On average days woik for a gang of three persons is about 25 lbs. of cleaned hemp. The cleaning of tbe fibre from the pulp is very severe labor, and a man can only work at it for 3 days in the week, the earnings are very small and the life of a hemp cleaner is a short one, as a rule. These uneducated natives go into the nearest hemp Late, clean up the hemp and deliver half to the owner as his share, then sell to him the other half as their share. The owner of a hemp Estate has no sinecure, if he starts a new plantation and sets out his "ponos" he will have the monkeys and wild hogs to contend with: the former pulling them up to see if they are all growing and the latter rooting them up for food, what is left over requires from two to three years to mature, and during this period the "Late" must be kept clean from the rank growth of a tropical jungle in order that the young trees may receive their proper nourishment, then comes the tussle with the men, aud if there is anything a native detests it is clearing a hemp estate from weeds. Up to the present time no appliauce has been invented to cleanse the fibre from the pulp, and it remains to be seen if some cute Yankee" can get up such a labor saving machine. Fully 60 @ 75 % of the hemp finds its way eventually to tbe States where it is in great demand for "binder twine" for the wheat fields as well as for the boring of artesian and oil wells, to say nothing of the demand for cordage. The principal competition it encounters as a "binder twine" factor is the "sisal" grown in Yucatan, but a wheat farmer will readily pay double tbe price for Manila twine in preference to sisal, although the implement company may assure him that the latter is "just as good," but a smart wheat raiser knows better." When the railroad through Siberia is completed, and the rich "steppes" along the line are converted into wheat fields, a new market may result for Manila hemp.—*Manila Times.*

DATE PALM PLANTATIONS.

In his annual report the Couservator of Forests, writes as follows in reference to the date palm plantaions in the interior:—I am glad to report that the date palms in the far north continue to develop in a most satisfactory manner. Progress has been especially marked in the seedling plantation at Lake Hamy, as well as among the Algerian palms planted there. The seedlings are now from 3 ft. to 5 ft. high, and their general growtb has been so uniform that a person working among them can only partly be seeu. Many plauts of either sex have also flowered. The Algerian palms have made great progress; some are quite 10 ft. high. Tbey have developed numerous suckers, and is anticipated that some of these will soon be strong enough to transplaut, and thus increase the existing number. Sufficient fruit was borne by one or two this year to show that a fine sample of superior quality may be ultimately expected when they get iuto full bearing. Unfortunately the only oue remaining of the two received from Algeria, which were marked as being male palms, has now turned out to be a female, and it produced a few dates this season. This is to be regretted, has had there been a male of exactly the same kind of date, the use of its blossoms as a meams of fertilising the others would have rendered it highly probable tbat the fruit subsequenely yielded by seedlings raised from the dates these palms produced would have shown little if any departure from the original excellent type of date. Fortunately, however, a parcel of fruit was obtained from Tunis last year through the courtesy of Professor Perkins, the dates from which are very similar iu character to the "Deglet Nour" date from Algeria, and as seedlings are being raised from this seed the loss sustained will be somewhht modified.

The palms at Hergott continue to thrive and dates have again been ripened there, this being the eighth season that this fruit has been produced in the north. The occurrence of light rains, however, dnring tbe ripening period rather affected the quality of the dates this year, as the unbroken contiuuance of a dry arid heat is indispensable to the thorough perfection of the dates: but as this is a very exceptional experience at that time of the year it may be a long time ere it occnrs again. A further effort has been made during the year to increase tbe uumber of seedlings in the experimental plot at Oodnadatta. On November 27, 1899, 236 seeds, which were obtained from Tunis, as already indicated, were sown there by the foreman [Mr. N. W. Wilson.] and most of them germinated, but only 24 were found to be living when he again visited tbe block on April 30, 1900. This number, however, with those that were alive the precediug year total 36, and witb a little more attention it is expected that the area will be stocked quite full enough.

As the train goes up from Hergott and back only once a fortnight it will readily be understood that the iutermittent nature of the rail service renders operations here very difficult, and uecessitates leaving the piants to take their chance, as under present circumstances a resident officer cannot be maintained without incurring too heavy an expenditure. But while this retards the ultimate completion of the plantation it affords valuable evideuce as to what may be expected when the seed are simply sown and left to themselves, which it was the object of the experiment to sow.

The number of palms at Hergott and Lake Harry on Juue 30, 1899, was 3,013. The total increase from seed at Hergott for the year ending June 30, 1900 was 9; and at Oodnadatta 36. The total alive at Hergott on June 30 last was 277; at Lake Harry, 2,475; and at Oodnadatta, 36.—*Adelaide Advertiser.*

BANDA NUTMEGS.

An Indian specialist, describing Nutmeg gardens in Banda, says: "The agreeable scent which is wafted from the wood invites us irresistibly. The high canary, warringin, and teak trees act as a protection against heavy showers and gales for the conical Nutmeg trecs whose foliage is formed by pointed leaves hanging down from the branches, shooting out regnlarly Between the shiny foliage sparkles the ripe open frnit of which the dark brown nut is the kernel, while the bright red mace envelops the nut as an elegant network. Occasionally we meet in the wood with bamboo bushes aud other vegetation. Sweetly blows the cool air, invigorating and bracing is the scent of the Nutmeg, while the wood echoes with the merry voices of men and women gathering Nutmegs, and children picking canary nuts, mingled with the various sounds of the cooing nut-pigeons (manoek faloer,) parrots, the Iudian nightingale (baikolie), the canary-yellow karajamoe."

A peculiarity of the nut-pigeons inhabiting the Archipelago is that they swallow the fruit bodily and discharge the nut whole and uudigested. This cnriosity, which no doubt leads to the distribution of the plant, was formerly connected even with its sex as showu in Vogel's remarkable passage; "If the bird that drops the nut is a male, the tree growing from it will be male too; if the bird is a female, the tree will be a female as well, whilst if the bird happens to be still a virgin, the tree that grows from the swallowed nut will be oue of the best in the woods."

Whilst nature produces 100 male against 100 to 200 female trees, it is a fact that only the female yield fruit. On the whole the latter bear fruit when ten years old, but their produce at that age is still small. In the year immediately following, the produce increases rapidly, gradually again more slowly, until the highest point of produotiou is rcached between the twentieth and twenty-fifth year continuing undiminished during twenty-five years. Only then, about its

sixtieth year, a decrease may be noticed. Many trees, however, reach a much greater age; some of them are said to complete a century.

The Nutmeg trees bear blossom and fruit without intermission, in every stage of ripeness, and so nuts may be gathered all the year round. The greatest abundance, however, falls during the months of July and August.

The Nutmeg itself is the kernel of the fruit, which is pear-shaped, of the colour of a peach, and consists of four parts; the outer fleshy part, then the membranous substances covering the shell of the Nutmeg and known to commerce as mace, then the shell, and finally the kernel or actual Nutmeg.

The greatest care is required in gathering and handling the fruit. Twenty-four hours after the opening of the fruit—a sure sign of its ripeness—the nut will drop to the ground, thus injuring the mace-network and deteriorating its proper quality, as its lying on the soil makes it apt to become wormy. On the other hand, the closed fruit may be still unripe, and knocking these down would be highly injudicious.

Work commences at 5 o'clock in the morning at the ringing of a bell, when men, women, and boys and girls over sixteen years go out into the woods armed with the gaaigaai—a long stick with a prong at the end—to break off the ripe fruit and a basket to carry the collected nuts.

The wood is the all-in-all to the labourer. It is his place for work and recreation. It is his club, and even the spot where the young man seeks his future wife when the overseer is out of the way, notice of whose approach is kindly given by the friends of the young couples imitating the call of the nut-pigeon as a danger signal.—*New York Merchants' Review.*

RICE THRESHING AND HULLING IN INDIA.

The Indian cultivator cannot be expected to understand the scientific cultivation of rice, nor can the Indian *bunniah* be expected to realise the value of mechanical threshing and husking, or hulling, of rice. From time immemorial the paddy has been threshed and husked by the most primitive methods, which the people of the country have found good enough to meet their requirements. The importance of labour-saving machinery is not yet appreciated, and we can quite understand that a mechanical contrivance costing a thousand rupees, and intended for the purpose of the husking rice, is looked upon as an expensive luxury. But when it is realised that such a machine pays for itself in one year, and after that is a source of clear profit to the owner, land-holders will begin to see that it is to their advantage to invest in such a labour-saving and money-making machine. In such matters, however, it seems to be generally accepted that if the *Sirkar* were to take the initiative in introducing labour-saving machinery in Wards' Estates and show the advantage to be gained by such, the neighbouring zemindars would have an opportunity of seeing such machines at work, and thus be induced to invest in them to the advantage of their own as well as their ryots' pockets. We are led to these observations by a perusal of a most interesting article in the *Journal* of the Jamaica Agricultural Society for July 1900, on the cultivation and treatment of rice in Jamaica, by Rupert H. Lindo, a perusal of which will repay anyone interested on the subject.

After describing the cost of land, etc., selection of land, cleaning and preparing land, nursery for rice plants, planting out and reaping (all of which opperations are fairly well understood in this country), the writer goes into the questions of threshing, drying, hulling and preparing for market. Threshing is performed in this country by the ancient method of trampling by cattle, but were a threshing machine used out here, one small machine, worked by a small engine of two horse-power, could thresh 170 bushels per day of eight hours, each bushel, say, of 40lb., or equal to 6,800lb., equal to 170 maunds per day. Compare this with the outturn of the *ryot* by the old method, and we get some idea of the value of a steam thresher.

The writer of the article under reference then proceeds to describe hulling and preparing for market, and we cannot do better than quote his own words. He says: "This is the most important part of the process for treating rice, and it is the point that we have been aiming at from the very start; for, besides growing rice successfully, the next thing in importance is to place the paddy in the best condition possible for the huller to handle. Of course, one can always resort to the old mortar and pestles [these are used in India.—ED., *I. G. & P.*], but what can they do with 20 acres of rice yielding 1,200 bushels of paddy? The huller I use is of the 1895 patent, and is made by the Engleberg Huller Company of New York, and cost, landed in Jamaica, £60. They are pefect machines, all things being equal." The writer then gives detailed instructions as to how this machine is to be used, and suggests the central factory system for threshing and hulling rice. Such a system would seem to be well suited to this country, as the small tenants and cultivators cannot be expected to invest in a costly machine. The threshing and hulling could be done on the same principle as the cane-pressing is done all over Behar by the proprietors and patentees of the Beheca Sugar Mills. For an innovation of this kind to be successful it is essential that it should be initiated by the Government, as the people have faith in any undertaking that the Government patronises.

Those who desire to introduce mechanical threshing and hulling may be interested to know that the 'Engleberg" Rice Huller, so strongly recommended by Mr. Lindo in the article under notice, can be had at Calcutta from Messrs. Macbeth Brothers and Company, 2, Pollock Street, whose advertisement has been appearing in our pages for some weeks past. The price of a single Huller complete is R1,100.—*Indian Gardening and Planting.*

ACKNOWLEDGMENT.—A paragraph appears on page 336 of the *Tropical Agriculturist* for November 1st, which is taken from the *British and Colonial Druggist* without acknowledgment, we regret to find. The paragraph is headed "The Camphor Corner."

LIMES AS A GERMICIDE.—It may not be generally known that fruit acids are germicidal, but the information is of special value to planters generally. The juice of lime and lemon is as deadly to cholera germs as corrosive sublimate, or sulphur fumes, or any other disinfectant. It is so powerful a germicide that if the juice of one lime or lemon be squeezed into a glass of water, that if then left standing ten or fifteen minutes, the water will be disinfected. It makes little difference where the water has been obtained, or whether it has been boiled or filtered. This is a fact worth knowing, for anyone may at any time find himself under circumstances in which it is impossible to get either boiled or filtered water. In such a case the juice of a lime or lemon will purfiy the water perfectly.—*Indian Planters' Gazette.*

COFFEE UNDER A CLOUD.

[You might like to make extracts from the enclosed cutting taken from a recent number of the London *Globe.*—J. HUGHES.]

In a particular sense, the fragrant beverage has for many years past been most appreciated in this position. The affinity of coffee with "the weed" is an ancient discovery. There is a Persian proverb which declares that coffee without tobacco is meat without salt; while the Arabs say that a dish of coffee and a pipe of tobacco are a complete entertainment. And probably the majority of "men who dine" would agree that no dinner can be regarded as complete without the presence of those comfortable peace-makers at the end of it. For some time past, however, coffee has been under a cloud of far greater density than that raised by the worshippers of my Lady Nicotine. It is admittedly an exquisite beverage; but there are fashions in the best of good things, and even perfect institutions at times come under their sway. For the moment, coffee has almost entirely lost its domestic claims to consideration. Its presence on the breakfast-table is exceptional; and as for coffee at the great event of the afternoon—where is it? Or, to go a step farther with the cynic, what is it when it is there? We need not pause for a reply. As a social factor, the annual consumption of less than three-quarters of a pound of coffee per head of the population of Great Britain is quite insignificant. It leaves us, so to speak, at the very bottom of the coffee-tree the top of which is reached in Holland; the Dutch, with an allowance of twenty-three pounds per head, being by far the greatest coffee-drinkers in Europe. In England, therefore, coffee is now passing through a phase of almost total obscuration. Doubtless it will presently emerge, perhaps, to become again the radiant centre of social life. Of course, the connoisseur—the man who "feels" a cup of perfect Moka as a youthful poet does his first sonnet—still gets his coffee as of old. The majority, however, are obviously indifferent; they are content to wait till the cloud rolls by.

The praise of coffee has been so universal that its merits may well be taken for granted. More curious is it to trace the leading cause of its decline. And that which probably underlies all the multifarious reasons assigned is the fact that its preparation involves a little more care and trouble than tea. Ours is a trouble-saving age, and we are apt to adopt what is narest aud radiest. What is not easily done is easily left undone. Given good tea to begin with it is difficult to be at cross-purposes with the teapot. An optimist has even declared that "nothing is easier than to make good coffee." But he is manifestly in error; it is easier to make bad. To say that "the dullest girl can be taught to make good coffee in three lessons" is against the common experience of domestic life. But as a rule the coffee-maker is not solely in fault; the common failure of the beverage to attain a reasonable standard of excellence is due to more than one cause. Determined, however, to agitate in this useful branch of reform, and starting with the planter's maxim, "old coffees, young teas," there is no reason why ordinary householders should not mature the bean in their own store-closets. It should be kept raw, and preferably in small bulk; the grateful aroma being due to a volatile oil which is developed in the process of roasting. If kept too long afterwards the flavour deteriorates, but even this may be to some extent received by carefully heating the ground coffee before use. The connoisseur declares that coffee should not be boiled, nor even allowed to "stand" for any length of time. And this, indeed, is the very crux of the question. Of course the delicate aroma and fine flavour may be entirely lost by excess of boiling; and it is to avoid such a contingency that the expert assures us that "right" coffee should be a simple infusion, instead of the too customary decoction. Unfortunately, however, the experts themselves are largely at variance on this point. Some of the most experienced makers allow their coffee to "boil up" for a single minute, and with a most satisfactory result. Others—among whom was Brillat Savarin—simply infuse their coffee like tea. In short, scarcely two persons make it in precisely the same way at all points, nor is there any royal road to this great achievement.

A FARMERS' EVERY-DAY LIFE.

NO. 15.

(*By Cosmopolite.*)

THE HARVEST.

How delightful it is to sit at one's "ain fireside," listening to the howling of the wind in the chimney and the ceaseless patter of the rain on the window; and to know that everything on the farm is secure, the stacks in the yard, trim and cool and already for a harvest thanks-giving, as soon as the clergy may think proper to announce such a day of fasting. I know that all my neighbours cannot be in this equable frame of mind, but I speak for myself on this occasion, and am thankful that I have got through this rainy harvest so successfully, although it has been an anxious time whilst it lasted. The peripatetic steam mills are engaged night and day thrashing out the heated stacks of the careless farmers, and the price of grain is going down by leaps and bounds. In a month or so all this par-boiled grain will have been worked off the market, and then I hope the price will go up again, and those who have good grain to sell, may get a fair price after all. There are great complaints about the grain turning out short in quantity, to the extent of a sixth of the expectations and I am, therefore, somewhat anxious to have a day's thrashing, so as to get a fair idea of my probable outturn. It is a very amusing thing to hear some old farmers talk (especially after their third or fourth nip) about the wonderful crops they have grown in their time, and the grand prices they got for them whereas now—alas! alas!! Comparisons are sometimes painful. But what imagination some of those old fellows must surely have particularly on the subject of

OAT CROPS

about which they expatiate with overwhelming eloquence. I suppose it is true that as one grows older one's pleasure is chiefly found in reminiscence and so those farming raconteurs must find it a relaxing pastime to babble about their past history and achievements, giving play to their fancy as they embroider the details of some specially enjoyable narrative. Why has no eminent author sprung from the ranks of the agriculturists—one who could give to the world, at a popular price, an edition of stories gathered on market days or in the peaceful retirement of the publican's booth? Such a book entitled "Fairy Fancies from Frivolous Farmers" would, no doubt, sell well and become a standard work on the shelves of all village libraries.

During the past few weeks the great

SHORT-HORN SALES

of the North have been much in evidence, and exceptional prices have been agoing, the purchasers having been chiefly Foreigners, Englishmen and Colonials. The top average was secured by Mr. Duthie, of Colynie, with £150 8s; but even unknown breeders made averages of £50 and £60. Although the best short-horns in Britain are bred in Aberdeenshire, this is not the class of cattle mostly kept by our farmers, the black-polled being the fancy breed of the district, and the one that has carried the name of Aberdeenshire to the front at every show of beef-producing cattle that has been held in Britain. Since McCombie of Tillyfour carried everything before him, at Paris, with his Black-Polls from Aberdeenshire, the breed has never gone back, and these still remain the champions of the World.

In every agricultural paper, as a matter of fact, the greatest number of articles and the greatest amount of space is taken up with the subject of

DAIRYING.

Now, there is no doubt about it that money is made by dairy-farming, but neither easily nor pleasantly. One hears a great deal about the joys of a dairy farmer's life; the buckets full of frothy milk, and the mild-eyed cows, chewing the cud as they cheerfully give up the lacteal fluid to their kind friend, the dairyman. But there is another side to the question, and one about which I have lately been cross-examining a dairy farmer,—a man who has gone through the whole curriculum, from under-milkman to boss of the milk buckets, and his views are, I think, likely to interest my readers. The ordinary routine of this dairyman's work is as follows:—He rises at 3-30, milks about a dozen cows; washes himself in icy-cold water; takes a hasty meal by the dim religious light of a candle; drives off to town, a distance of five miles, and distributes the milk to his customers before seven o'clock, this being done in the dark during the winter time, unless when a moon happens to be on the *tapis*. He gets home again, just when most people are about to break their fast, and then he proceeds to cut chaff for a few hours, a horrible grind, which, however, gives him plenty of exercise. Then he has to milk the cows again, and, in the evening, feed them and get his own supper. After that he has six hours in which to clean himself, get ready for next day's work and try to get some sleep, and no sooner has he fallen into a sound sleep than he hears the usual morning call and knows that it is half past three. Now this jolly sort of a life goes rolling on, not for five or six days, but for seven in every week, and so, I think, no one should grudge the dairy-man his profits, when the miserable existence which he leads is made known. I suppose I am the only farmer in Britain who buys his milk, in preference to keeping cows, as I find it more profitable to do so; and also because the work of the farm goes on more smoothly without the irritation connecetd with a lot of dairy cows.

COFFEE, CINCHONA AND CARDAMOM PLANTING IN SOUTH INDIA: THE KANAN DEVAN DISTRICT.

SIR,—In your issue of October the 20th, you reprint from the *Investors' Review* without comment an article on the "Kanan Devan Produce Company, Limited." I hold no brief for Sir John Muir or his Companies, have nothing to do with them in any way as a shareholder, or otherwise, and am as much disposed as anybody to criticise much of their action and policy. I have no doubt Sir John Muir and his co-Directors can take care of themselves as regards this attack and as clever-headed businessmen know what they are about. But the article in question is likely to harm the prospects of the Kanan Devan District generally, both as regards its credit and its position towards the Madras and Travancore Governments. For, although the Kanan Devan Produce Company own the greater part of the Kanan Devan District, there are some private owners as well holding a considerable acreage of land, and, although not dependent on the Company, the outsiders' future is, to a certain extent, bound up with its prosperity, or otherwise. This is emphasised by the fact of there being a Planters' Association in existence consisting of the Company's representatives and the outsiders, of which I have the honour to be President.

My opportunities for judging of the Company's prospects and properties are therefore considerable and are augmented by the fact of my having been for nearly twenty years a resident planter in the district. I am not prepared to take the pessimistic views of the writer of the article in question, and, in justice to the credit and welfare of the district, I trust you will allow me to state my reasons in your columns.

The figures quoted in the article, and which are no doubt correct, are, as they stand, misleading. No statement of the age of the area opened is appended, and one would be led to suppose that almost the whole of the acreage is unproductive. This is not the case, as operations by the Company were commenced in 1894. While the estates purchased, several of them at very low prices, date back many years previously, there are at present on these Hills and belonging to the Company 3,000 acres in mature bearing and 2,000 acres in partial bearing; 7,800 acres are immature. The reserve forest and grass in this district is some 100,000 acres. The latter is ignored in the article! In Assam, I believe, the Company hold between 2,000 and 3,000 acres of tea and some 7,500 acres of first class freehold forest.

It should be recollected that a practically new and difficult district has been opened up and that enormous difficulties of transport have had to be and have been successfully overcome. Thus, for instance, the capital outlay includes 34 miles of cartroads with tramways, a wire ropeway from a ghaut of over 6,000 feet to the low-country and ⅓ cost of 10 miles of a cartroad in the low-country, the latter designed and built to take a light railway.

But the benefits of this liberal initial outlay will hereafter be apparent in many ways quite apart from the fact that any more land opened in the future will be capable of being brought to bearing point at an expenditure of not more than £20 per acre. The estates have been carefully blocked into large areas and well conneeted and traversed by good roads and will, therefore, be easy of management and superintendence. The number of factories required will be reduced to a minimum. The cost of transport of tea and other produce down and estate requirements up will be rendered as low as possible, and thus only will produce be able to compete with other districts, more favoured as regards

situation. It has been carefully calculated that the cost of a lb. of tea, f.o.b., will not be more than 25 cents. Thus, while produce will be put on the market at a low rate, it should be remembered that all the tea will be high grown from 4,700 feet to 6,500 feet, that it is all grown in magnificent forest land and that therefore both yield and prices should be high. It is true that, at present, prices realised are not very sumptuous, but this is partly due to Travancore teas not as yet obtaining the attention they deserve in the market, a position that will remedy itself as a larger supply creates a larger demand; partly it is due to inadequate factory accommodation, a matter which is being remedied as fast as possible; partly it is due to all the tea here being young and giving a cup of insufficient flavour and strength. The fact that the Company possesses considerable Cinchona estates in full bearing is slurred over in the article; these should, during the present year alone, give a nett profit of some £23,000. Speaking generally the estates and the district should be seen and compared with others of a like age before an attempt is made to criticise the Company's present position and future prospects. Armchair criticism of figures is an easy matter, but no doubt, these figures were carefully considered before they were sanctioned and undertaken.

But it is further impossible to look upon this large concern merely from the point of outlay representing so and so many acres opened. There are the huge reserves of land not yet dealt with and they represent a large share in the capital outlay, dormant at present, but which will in time undoubtedly be utilised. Thus, apart from the reserves of forest suitable for coffee, tea, and cinchona, there are large areas of land suitable for rice and other food products where some day the Company will be able to grow all that is required to feed its estate labour.

Then there is a large area of higher grass land in the Kundalé valley close to the wire rope outlet, eminently suited for a Hill station sanitarium situated at 6,000 feet above sea-level with a rainfall not exceeding 50 inches with magnificent scenery and well watered by the clearest and coldest of streams, this should become a favourite retreat for the man from the plains. For this to come about and the land to become valuable for settlement purposes, the long-deferred railway from Ammayanaykanur will first have to appear. But as that also will again mean a reduction in the cost of tea, f. o. b., there is no doubt Messrs. Finlay, Muir & Co., will see to its coming. Then there is the magnificent water-power, at present running to waste, but some day, though perhaps not in the immediate future, to be utilised in conjunction with the almost pure iron lying beside it. In conclusion, it is my belief that, in spite of the large capital drawn attention to in the article, the estates being well opened will pay well and that many years will not pass before this is one of the most flourishing among Planting Districts.

J. VON ROSENBERG.

—*Planting Opinion*, Nov. 17.

CINCHONA PROSPECTS.

We direct the attention of all interested in cinchona (and we are glad to think the number is increasing in Ceylon) to the long letter given in our last issue—with which Baron von Rosenberg, of North Travancore, has favoured us. Our correspondent is well-known as one of the most enterprising planters of cinchona trees in Southern India, and as a proprietor who, through good and evil report, has adhered to his first love and who has therefore, merited a better return for his capital and labour than has, we fear, as yet been secured by him. But the Baron well knows that he is only one among many thousands of planters who failed to realise their expectations in cinchona. No more romantic story has ever been written in connection with planting enterprise in the tropics than could be penned in the history of cinchona planting in India and Ceylon from the day Clements Markham—still hale and hearty in England—brought the first precious plants from far Peru to the Nilgiris and Hakgala, forty years ago. At first utterly despised as only a "medicine" plant by the ordinary tropical planter, or put out as a quick-growing, handsome shrub for avenue or wind-belt purposes,—with the failure of coffee and the harvesting of the first bark from the said belts, (realising as much as 10s per tree nett of crop), there came a wild rush into "cinchona" with the disappointing result only too well remembered even now in Ceylon. Not only were planters bitterly disappointed, if not ruined, when the enormous export in one year from Ceylon of fifteen million lb. took place; but cinchona dealers and brokers in London—who at one time monopolised and made a good thing out of the trade—found themselves utterly at sea in their estimates and with large unsaleable stocks in hand, and had to wind up and disappear. Even quinine manufacturers suffered severely and several factories also disappeared. If ever, therefore, any men had full warning as to the need of caution, they are the planters of cinchona, the dealers in bark and the manufacturers of quinine; and yet our correspondent today thinks a further and special word of warning not to be out of place. He holds that we are in now for a period of decreased production extending over the next five or six years—and this we can quite believe—and simultaneously, that the demand for quinine during this same period is likely to increase steadily. The "unit" should, in our correspondent's opinion, be well maintained if not increased during this period, and that would enable planters to do justice to their trees, and would also encourage further and careful planting, especially in India and Ceylon. There is much good sense in all this. We have to guard, on the one hand, against a temporary "boom" in prices leading to a rush into harvesting and even into "prospecting" in South America; and on the other, against such a fall as would discourage planting altogether. Baron von Rosenberg thinks that the happy medium is found in 2½d. as the price per unit in bark and 1s. 6d. as the selling price per ounce of quinine. If that be the case, long may such rates be maintained. Our correspondent winds up by giving a much-needed warning as to the seed used by cinchona planters. That seed generally has deteriorated, is only too true. We think that seed from old trees in Java, Ceylon and India should only be used when interchanged and that none should be utilised in the country of its growth, except under entirely new conditions,

Still better would it be to get a fresh supply of seed from Peru or Bolivia, if the collection and carriage were feasible at a moderate outlay. As regards "planting" we know that a good deal has been done in Ceylon in a quiet way this year. One proprietor in a favorite district is planting twenty acres with cinchona and doing all possible justice to the experiment; while others are following our advice about planting up boundaries, the sides of paths, ridges, &c., with the graceful cinchona chiefly of hybrid or officinalis varieties. May a full measure of success be attained in these experiments.

TOBACCO AS AN INSECTICIDE.

An authority in the Antipodes gives, in the *Agricultural Gazette of New South Wales*, the following advice as to best way of using the ordinary dried tobacco leaf as an insecticide: "For aphis, the roots of the affected trees are bared, and the tobacco, ground to powder, is dusted well over the roots and ground about them. A ring of tobacco dust is put round the trunk of the tree just below the surface. The earth is then thrown back, and when rain comes the nicotine is washed out of the tobacco, and gets spread over the roots, killing all black or woolly aphides with which it comes in contact. Secondly, as a wash: one pound of waste tobacco will make about four gallons of wash, and half pound of soap is added to make it more adhesive. The leaf can be steeped in cold water over night, and the soap boiled up and added; but most orchardists boil up the leaf and soap together straining the resulting liquor and applying it hot. Tobacco is a contact poison, and is the best known remedy for soft-bodied things like aphides, but it does not affect scale insects very much, when they are full grown and protected by their shelly outer covering. If tobacco wash could be sprayed on to the larvæ of scale insect it would destroy them wholesale."

FRUIT &c. IN WEST AUSTRALIA.

It has been said that "Westralia is all Sin, Sand, Sorrow, Sore-eyes and Sir John Forrest." This is certainly most untrue. I have been on a visit to the Great Southend Agricultural District (on the Railway Liue from Perth to Albany) and have seen enough to convince me that the precious ore is not the only attraction in this vast land. I stayed for about a week at Rataning, a great farming centre. The crops on many of the farms are magnificent and the orchards, it would be difficult to equal anywhere. I saw fruit orchards on which not a drop of water has ever been poured and over the whole area of which one could travel and not find a withered leaf. The abounding vigour of all

THE TREES AND VINES

is the outstanding fact that attracts the attention of most visitors. Oranges do not do well but apricots, apples, cherries, almonds, &c., are in their element—the two former doing splendidly. I saw cherry trees that you could not touch with your hand without touching fruit. These cherries fetch one shilling per pound on the ground. In an orchard that despatched 33 tons of grapes last year I could not discover a single "supply" among the vines, though I went round twice. A Homestead Farm of 160 acres can be had in this district for £1. Of course, the canny Scot is here, and there are 19 Macdonalds alone in this one district.

LIME AS A FERTILISER.

Lime is a good fertiliser, but not for all plants. It is beneficial to some, injurious to a few, and indifferent in result to others. "Farmers' Bulletin" No. 77, issued by the United States Government Agricultural Department, gives good information on this subject. From it we gather that the following are some of the plants which have shown marked benefit from the use of lime. Spinach, lettuce, beets (all kinds), gumbo (okra), salsify (vegetable oyster), celery, onion, parsnip, cauliflower, cucumber, egg plant, cantaloupe, asparagus, kohl-rabi, cabbage, dandelion, Swedish turnip, pepper, pea, peanut, martynia, tobacco, sorghum, alfalfa, clover, barley, wheat, oats, timothy, and Kentucky blue grass. Not only was the crop greater, but in many instances it was ready for market much earlier where the soil was limed. There was at least two weeks' difference in kohl rabi in this respect. Tobacco not only made a much better growth when limed, but the ash was much lighter in colour. Those that are injured by liming are suradella, water melon, blue lupine, and common sorrel. Standing between the two groups of plants given above are a number which when they are supplied with all of the nitrogen they required in a readily assimilable form such as nitrate of soda, show little or no benefit from liming. Among those are Indian corn, common millet, Hungarian golden millet rye, potatoes, carrot, Rhode Island bent (grass), and redtop (grass). On a very acid or sour soil even those plants would be benefited by lime by virtue of its helping to change the nitrogen into readily assimilable nitrates, provided sulphate of ammonia, blood, tankaje, fish, cotton seed meal, plant-roots, etc., were present as sources of nitrogen. Intelligent farmers in malarious districts may make their own choice from the above facts and be properly guided in the use of lime for agricultural purposes.—*Indian Agriculturist*, Nov. 1

HYBRID FRUITS.

An article on "Conifers," in a recent number of the *Speaker* mentioned the immense improvements which careful selection and cultivation have made in flowers and fruits: but the vast promise which the hybridisation of fruits seems to hold out was not mentioned—that is crosses between fruits of the same class. One may, perhaps, wonder whether something of the same sort might not be attempted between vegetables. A few years ago an enterprising amateur gardener and fruit-grower at Blandford had some hybrid fruits—crosses between mulberries and raspberries, blackberries and raspberries, strawberries and raspberries, &c. Perhaps it was prejudice, but I thought the uncrossed fruit superior. The other day, Mr. Forrester, Lord Portman's steward and a famous and successful cattle-breeder, showed me some very fine hybrids, called Logan berries, between the raspberry and the blackberry. They were darker in colour than raspberries, and much larger and longer, and really very nice eating, though use has much to do with one's appreciation of flavours. The Loganberry is reported to be an American hybrid between the red raspberry and the blackberry. The berries are of enormous size, fully as large as the largest blackberries, which in form and structure they resemble. They are deep reddish-maroon in colour, melting and without a core, and very firm. Gathered, or on the bush after being ripe, they keep a long time without spoiling. The flavour is rich and sharp, with a dash of the raspberry and of the blackberry, mellowed, and refined, but distinct from either, and so luscious, novel, and agreeable that the Logan berry cannot fail to become a great favourite as a dessert fruit, while as a preserve it is said to be unequalled. The canes are strong and vigorous, semitrailing in habit, and very prolific. They fetch 2s. 6d. each, or 24s. a dozen, but no doubt should

they get into general favour prices would fall materially before long.

A paragraph in the *Times* not long ago is suggestive and interesting: its substance is somewhat as follows:—At a meeting this summer of the Royal Horticultural Society, a fruit was exhibited for the first time which bids fair to become very useful. Botanically, also, it is of considerable interest, the plant bearing it being a hybrid between the raspberry and the common blackberry. As the "Mahdi," as it is called, was raised by Messrs. Veitch, its origin is well authenticated, the seed parent being a variety of the raspberry known as "Belle de Fontenoy." The same cannot be said for the Logan berry from the other side of the Atlantic, though for this a somewhat similar parentage has been claimed. A high authority is of opiuion that the raspberry plays no part in its composition, and that both its parents were and American species of Rubus. This may be so, but cooked Logan berries are certainly much more like raspberries than blackberries, and have none of the tartness of the latter, but closely resemble the former. The "Mahdi" has very much the habit of the blackbeery, and in cultivation is trained in the same way. Its frus, says the *Times*' writer, recalls the dewberry of our hedges. There is the same bloom, but the number of fruitlets is greater. Careful investigation reveals many intermediate characters—for instance, the flavour of the "Mahdi" combines a preponderant influence of the dewberry with a suspiciou of the raspberry. The present writer would therefore hold that its parentage would differ largely from the Logan berry, though the latter when cooked resembles a luscious raspberry, the blackberry flavour being hardly perceptible. Most important is the time of fruiting as regards the economical future of the plant, for it comes into bearing as raspberries are failing and before blackberries are ripe; but the finest berries are produced early in the season—about the middle of July, that is. The "Mahdi" is very prolific and has considerable claims as a decorative plant; it would not, however, be placed upon the market for probably at least another twelve months.

The Japauese wineberry (*Rubus Phoenicolasius*) is another recent introductiou to our gardens and should be mentioned here. It bids fair to be a great acquisition to our gardens. Properly cultivated the plants bear a quantity of delicious fruit, which ripens well in a warm corner. The plant itself is hardy. It resembles in growth the blackberry, but the foliage is larger, with silvery reverses to the leaves, and the thorny stems have a deep crimson-brown tint, and are decidedly handsome. Until about half-ripe the fruit is concealed by a crimson, hairy, calyx-like covering, protecting it until it is as large as a fine blackberry; it has a clear wine-colour, transparent throughout. As each spray bears thirty or forty fruits and they are finely flavoured like the best sort of blackberry, it will be admitted that this latest addition to our fruit garden is not to be despised. Besides being valuable uncooked, the wineberry makes excellent preserve, its fine acid flavour making it specially suitable for cooking. The fruit is found on the wood of the former season, and the strong suckers thrown up in summer should be fastened back with wire, to expose them thoroughly to ripening sunshine. A mulch of rich soil in June over the roots helps the fruit to swell better and the plant enjoys abundance of liquid manure and water. It is highly ornamental in August with its scarlet berries and should be largely grown.

The Logan berry makes, as I can personally testify, most excellent jam and in a pie it is far better than the raspberry, while the blackberry is tart and commonplace in the comparison and not in the running at all. The seeds of the blackberry are hard and disagreeable. Those of the Loganberry give no trouble.

As some hybrids have been so successful, one can surely hope that a great future lies before fruit hybridisers. Shall we not live to see many practically new fruits, and seeing what careful cultivation has done for raspberries and strawberries, it is possible that the gardens of the wealthy in a dozen years and, perhaps, too, in time, even those of the poor, may abound in splendid hybrid fruits, larger, more luscious, and more palatable than anything we now find in them.

Mr. and Mrs. Forrester, seeing my interest in a subject with which I can claim no special acquaintance, have drawn my attention to the Chinese artichoke (*Stachys Tuberifera*), a new vegetable of distinct flavour, to which the Royal Horticultural Society has awarded a first-class certificate. They say it is very palatable and profitable. It is described as a most agreeable, perfectly hardy vegetable, novel in appearance, and easily cultivated in any garden. The roots may be left in the ground through the winter and dug up as required; the surface of the earth should be covered to prevent frost hardening the soil.

The plant grows to a height of 9 to 15 inches, is free-branching, and forms neat bushes. From the axis springs a large number of fibrous roots, on which the tubers grow in immeuse numbers. The tubers are 1 to 2 inches long, and are half-an-inch in diameter at the thicker end, tapering to a point at their attachment to the root. They have a spiral appearance, are pearly white, and eaten raw, are intermediate in flavour between a succulent radish and a Jerusalem artichoke. Boiled, steamed or roasted and served with melted butter, in much the same way as the globe artichoke, they are delicious and make an excellent dish. When planting soil should be throughly pulverised so that the roots can run freely and the tubers can swell without hindrance. From 18 inches to 2 feet is the proper distance to put the rows apart and the distance between the plants should be 8 to 12 inches. Planted at this distance apart a bed 5 feet by 30 would give a good returu, sufficient for most families. As the tubers when exposed for any length of time get rather discoloured, they should be covered with soil till wanted for use.

ALFRED J. H. CRESPI.

CACAO PLANTING IN CEYLON: SPLENDID CACAO PODS.

A Colombo merchant writes:—"When so much is being written about the cultivation of cacao, the accompanying specimens, grown on Katugastota estate, may interest you and show you that there is still a future for cacao."

We have scarcely ever seen finer pods. Here are the weights and measurements of the two pods before us, which we must send round Fort offices for inspection:—

13 in. long by 13 in. in girth, weight $3\frac{1}{2}$ lb.
14 do, by 14 do. do. 4 lb.

Can these be beaten?

THE SUSTAINING POWERS OF BANANA.

One of the most courageous marches ever taken was that of Colonel Wilcocks to Kumasi. We hear that during the march from Kumasi the whole party lived on bananas. On one occasion they even waded shoulder high through a river for two hours. Does any one want a higher test of endurance on a vegetable diet than this?—*Journal of Horticulture.*

A NEW GREEN TEA-ROLLER.

It is stated that a well-known firm of Calcutta engineers will shortly introduce to the industry a new leaf roller, which has been designed by Mr. Perman, an experienced Assam engineer planter. The machine will be called the "Express," apparently the name is justified in view of the fact that 300 lb of green leaf can be efficiently rolled in about 20 minutes. The new roller is circular in shape, occupies a space of about 4 feet square only, and last, but not least, the cost will probably work out less than that of other existing rollers.—*Planter*, Nov. 17.

BRAZIL COFFEE NOTES.

The steamer "Dacia" which left Santos on the 21st ult. carried 100,020 bags of coffee. This is said to be the largest cargo of coffee that has ever been shipped from the port of Santos.

To a circular of the state government of S Paulo asking for estimates of the coffee crop for the year 1900-1901 answers have been received from 71 municipal districts, whose production is estimated at 3,643,867 bags. From 92 municipal districts no answers have yet been received. We presume that in those that have been reported the most important coffee-producing districts in the state are included —*Rio News*, Oct. 2.

UGANDA: A PARADISE FOR COFFEE;

COTTON, RUBBER, EBONY, TIMBER, AND OTHER PRODUCTS.

Coffee grows wild over all the more hilly districts of the Uganda Protectorate. When properly prepared it has a delicious flavour, and is quite fit to be put on the market as gathered from the wild bushes. Coffee yields the most encouraging results under cultivation. Mr. Whyte is of opinion (and from the little I know I agree with him) that the Kingdom of Uganda and the adjoining districts of Busoga, Unyoro, and Toru are destined to be great coffee-producing countries. The soil, the water supply, and the abundance of shade from forest offer conditions and advantages rarely present in equal force. Local labour is almost as cheap as in British Central Africa; but, of course to make coffee-growing possible as a commercial enterprise, the railway must be completed to the lake, and steamers on the lake must gather up the coffee crops for transport to the rail-head and thence to Mombasa. Given the railway and the steamers, and I think no other part of tropical Africa could compete with Uganda as a coffee-country.

Cotton grows wild, or half wild, in many places, and is to some extent cultivated in the Nile Province, chiefly on the sites of Emin Pasha's former settlements. It is of good quality and long staple, but, except for local purposes, it is not worth consideration, as it would probably never pay to export it over the railway to the coast.

The castor-oil plant grows abundantly, and the oil which is very easily obtained by crushing, is very useful for lubricating purposes.

Sesamum seeds yield good oil. They are met with here and there in Uganda, but not so abundantly as in British Central Africa.

Rubber (chiefly from two species of Landholphia, from a *ficus* and perhaps from a tree called scientifically *Tabernæmontana*), is probably abundant in every thicket of the Protectorate below 5,000ft. in altitude. Rubber will probably become a very important item of the Uganda exports; but at present time, although the natives know of its existence, and of the trees which produce it, they make little or no effort to collect it for sale.

The ebony trees (*Diospyros*) grows in the western forests, where also the camwood (*Raphia*) is found. A common tree in Uganda is the "incense" tree, the constantly exuding gum of which is the principal ingredient in increase. I do not remember to have seen this tree growing in such numbers in any other part of Africa, or for it to be so easy to obtain its delicious-smelling gum. As a matter of fact, when ever one wishes to fumigate a house or room, and to replace the mustiness of these dwellings by an agreeable odour, one has only to send a native servant to a short distance to scrape the exudations off the incense tree and place these on hot charcoal, and a delicious smell of incense at once arises.

I should certainly think that the splendid timber which can be obtained from the Mau forests would be an important article in the future exports of Uganda. This timber will be derived from three conifers—a juniper, and two species of *Podocarpus*. I do not suppose that this timber would be worth exporting to England, but it would certainly vie with Scandinavian timbers on the East Coast of Africa, and even perhaps in India, the more so as it is said to be left untouched by the white ant.

All the southern half of the Uganda Protectorate to the south of the 2nd degree of north latitude is a country of forests. The forests of the Mau-Plateau, Mount Elgon, and the Suk Hills resemble in appearance more the woodlands of a temperate country. The trees belonging either to genera or epecies found in Cape Colony, or else—and to a considerable degree—in the forest of Abyssinia. Some of this—so to speak—Abyssinian forest has rather a European look, and, no doubt, has European affinities. On the other hand, the forest of Busoga, Uganda, and Toru are essentially West African.

All their great timber trees—African teak, *Oldelandia, Diospyros, Parkia, Parinarium, Khaya* and *Vitex*—though they are represented to a great extent in East Central Africa as far as Nyassaland, seem to be more closely allied species to those of West Africa. Indeed, on entering these magnificent tropical forests—some of them the finest developments I have ever seen—one might believe one's self in the Cameroons, in the Niger Delta, or in the Liberia. The forests on the slope of Mount Ruwenzori range from a purely tropical character up to the Abyssinian vegetation of the Mau Plateau. A great deal of the local timber, no doubt, would not be worth exporting but it is likely to prove of incalculable benefit to the country itself, as it serves for ship-building, house-building, furniture, and the finest work in joinery. In the forest regions of Uganda below 5,000ft. there are, I believe, only two kinds of palm represented—Makindu or wild date, and a magnificent species of *Raphia*, which, unlike other *Raphia* palms, towers to a greater height of stems. The trunks of the date palms are employed for many purpose in buildings. They make excellent piles for wharves of piers; columns for supporting the verandahs of houses; in fact, they can be turned into a variety of purposes, and there is such a demand for them that some forestry regulations will soon have to be instituted to protect them from undue destruction. The mid-ribs of the *Raphia* palm fronds, which are of enormous length, are also very useful articles as rafters.

I have touched on a few of the native vegetable Products of Uganda, but it should also be borne in mind in considering the resources of the country that the soil and climate of about half of the Protectorate are admirably suited, at different levels, to the cultivation of cacao and tea. Mr. Whyte, who has had considerable experience in years gone by in different plantations in India and Ceylon, considers parts of the Uganda Protectorate as singularly well adapted for the cultivation of the tea plant. He compares such parts of Uganda as are suited for this cultivation to the estates of medium elevation in Ceylon. The rain fall, he remarks, is a little less than it would be in

such parts of Ceylon, but he considers it much better distributed all through the year. There is very great demand for tea amongst the more civilised natives in Uganda and Toru. Mr. Whyte thinks that the local demand for tea (as, indeed, for sugar, coffees, cacao, and other products) is worthy of consideration. No doubt, also, when communication by means of the river Nile is better organised and the sudd cleared away, large quantities of Uganda products could be sent down the Nile to feed the Soudan.

The sugar-cane thrives wonderfully in the better parts of the Uganda Protectorate. It is cultivated in nearly all the native gardens. Individual canes are often met with 15 feet long, robust, and long-jointed, and as well developed as the average cane in the West Indies. The Uganda sugar-cane goes on ratooning for years, and forms a considerable item in the native dietary. We have now got up machinery for crushing cane, and are already turning out coarse sugar, which forms part of the rations of the Indian troops, and enable us to save considerable expenditure, as formerly this coarse sugar (gur) had to be imported all the way from India.

Almost all English vegetables grow and are grown in the Uganda Protectorate with encouraging success. Orange, lemon and mango trees, which were planted a few years ago, have done exceedingly well; but, except on Mau Planteau, it would be impossible to grow stone fruit, apples, pear, or any of those trees which require a real winter.—Zanzibar *Gazette*, Oct. 31.

TEA CULTIVATION IN RUSSIA.

Indian and Ceylon tea growers have not much to fear from competition with Southern Russia. The progress so far made with the cultivation of tea along the south-east coast of the Black Sea is but slow, and it is the opinion of many authorities that the industry cannot possibly assume any very great proportions for a considerable number of years. This information is afforded by the British Consul for the district, who adds that with the exception of the Imperial Domains and the firm of Popoffs of Moscow, no other tea planters of any importance have shown any inclination to purchase lands for tea culture, and that in reality the results obtained up to date are not of such a nature as to inspire would-be tea growers with the necessary confidence to place capital in such enterprises. Messrs. Popoffs, who own three extensive plantations in the neighbourhood of Batoum, are apparently wearied of the results of their eight years' experience in the business, and are, it is reported, negotiating the sale of their property to the Imperial Domain Lands.—*Home and Colonial Mail.*

THE GOURAMI FISH IN CEYLON.—We are reminded that at a meeting of the Fishing Club about a year ago, Mr. W. E. Davidson reported :—

Mr. Davidson said that last week a tub arrived at Colombo with five young Gourami fish from Messrs. Scott & Co., of Mauritius. This was a fresh attempt which Mr. Burrows had made to ntroduce this fish into Ceylon waters by way of an experiment. The fish were now with Mr. Fowler, who proposed rearing it in Colombo, as they only thrived at sea-level. He (speaker) had had a deal of correspondence on the subject with people, who were experienced in the rearing of this fish and had found out that they do not thrive above sea-level.

We have some idea that Mr. Fowler afterwards reported a failure of the Gourami? But one or two trials should not suffice. There is room for another.

PETROLEUM AND KEROSINE OIL IN CEYLON.

Very few, we suppose, have a proper idea of the importance of the Bulk Petroleum Installations in this island, which have been established in connection with the regular visits of the Shell Transport and Trading Co., Ld.,'s tank steamers. This Company is in itself one of the largest in the world, with a capital of two millions sterling, and a fleet of twenty-three steamers, besides numerous small craft. As local agents, Messrs. Delmege, Forsyth & Co., apart from the headquarters' installation at Kochchikade where 450,000 gallons of petroleum can be stored, have now in full working order tank depôts at Galle, Kalutara, Kurunegala, Kandy, Nawalapitiya, Hatton, Nannoya and Bandarawela. We had the impression that the importation of kerosine oil in cases (oil-tins and cases coming from Russia principally, but a certain quantity from America) was due to the greater convenience of carriage of the case oil to certain districts not at present served by railway; but we learn that the Tin-making Factory at Kochchikade now turns out as many as 1,000 tins a day, to meet the demand we speak of. This industry, together with the other work done at the Installations, altogether requires a staff of 115 men—so that we have, in this entirely new industry, a great addition to the means of livelihood in the Northern division of Colombo where at one time some of our largest and busiest coffee stores were situated.

As regards Liquid Fuel, for which there is also a large Storage Tank Installation at Kochchikade, adjoining but quite separate from the Bulk Petroleum one, although there are now some ten regular local consumers, the demand has not yet developed to the point it may be expected to reach, after proper trials have been made by the railway, and other large fuel consumers, and several of these trials, are to be begun very shortly. We learn that the Company's steam-hopper "Attaka" recently made a trip to Jaffna, and on the way up burnt 14 tons of Cardiff coal, and 6½ tons of liquid fuel returning—which at the relative costs of the coal and fuel, shows a very large saving by use of the latter. Up to the present, the Company's own steamers have been the chief sea consumers, but certain other large lines are getting some of their steamers adapted to use it, and the German war ship "Fürst Bismarck" took a supply here on her way to China.

So far, all the Bulk Petroleum imported into Ceylon, has come from Russia but the liquid fuel is from the Company's lands in South Borneo, where a very large amount of capital is being spent in developing the concession which is held from the Dutch Government. As the large refineries erected there get into full work, it is expected that the greater part of the Company's Eastern trade will be supplied with refined Bulk Petroleum from there. Very large shipments of liquid fuel have already been made, from the Com-

pany's South Borneo ports, to Singapore, Hongkong, Bombay, Madras, Calcutta, Suez and London, as well as large cargoes of Solar distillate for gas-making purposes and other petroleum products to London.

The Company has Bulk Petroleum Tank Installations in full work, at Suez, Karachi, Bombay, Colombo, Madras, Calcutta, Penang, Singapore, Bangkok, Hongkong, Shanghai and other China ports, Nagasaki, Kobe, Yokohama, with liquid fuel storage tanks, as well at Suez, Bombay, Colombo, Madras, Calcutta, Singapore, and in process of erection at Sydney, Melbourne and several other ports. Most of these are very much larger than the Colombo Installations.

COFFEE AND TOBACCO.

For the benefit of intending coffee and tobacco planters in Rhodesia or other parts of South Africa, Mr. Jackson, Keeper of Museums, Kew Gardens, has given the following list of books:—"The Coffee Planter of Ceylon," by Sabonadière (Spon); "Coffee Planting in Southern India and Ceylon," by Hull (Spon); the article on "Coffee" in Spon's Encyclopædia: "Liberian Coffee in Ceylon," published at Colombo by Messrs. Fergnson (1878); "All About Tobacco," Messrs. Ferguson, Colombo (Agents: John Haddon and Co., Bouverie-street, London, E.C.) the article on tobacco in Spon's Encyclopædia —*Globe*, Nov. 9. —[Strangely enough Mr. Jackson omits the latest and most complete work on Coffee, namely "The Coffee Planters' Manual" compiled by J. Ferguson (1899 edition) with a special chapter on "Pulpers" and other machinery—copies of which are also to be got at Haddon's.—ED. *T.A.*]

GERMAN RUBBER ASSOCIATION.

The German Rubber Goods Manufacturers' Association held its annual meeting at Frankfort recently. Forty factories are represented in the asscciaion, of which sixteen employ under 100 hands, sixteen employ between 100 and 500, and eigth employ over 500. All important German concerns are connected with the institution, which wields a powerful influence. The Association has been consulted by the Government about the new tariffs to be arranged this year.—*Chemist and Druggist*, Nov. 10.

THE LINNEAN SOCIETY.

"PATENAS" (?) IN AFRICA.

The opening meeting of the session was held on Thursday evening, last week, at the Society's Rooms, Burlington House, Piccadilly, W., Professor Sydney Howard Vines, F.R.S., President, in the chair.

The closing paper, Mr. J E S Moore, dealt with the origin and character of the "park lands" of Central Africa, and was illustrated by a series of lantern-slides. These park lands in the Tanganyika have quite the appearance of having been formed by the hand of man, but are really natural growths due to the fact that light surface soil has been laid down over what Mr. Moore takes to have been lake deposits. Any given line of country will show large plantations, with quite a homelike look, separated by grass lands; and, as Tanganyika is approached, they dwindle in size till they consist of a few shrubs, overshadowed by giant euphorbias, cactus-like in appearance. Then come stretches of grass, dotted with euphorbias, and, last of all, the salt steppes by the Lake, which is now held to have had at one time an outlet to the sea. Mr Moore's explanation is that, at first, only the euphorbias would grow on the salt steppes; but as these sprang up they afforded a shade and shelter to self-sown shrubs, each of which, as it established a footing, contributed to the natural planting of the area by the distribution of its seeds, till this process reached its highest development in the large plantations where the shrubs overtopped the euphorbias to which they owe their growth.—*British and Colonial Druggist*, Nov. 9.

TONGALAND SUGARCANE.

Mr. B Colenbrander, Magistrate, Ingwavuma, in his district report to the *Agricultural Journal*, writes: During the summer of 1898, I planted at this Magistracy, which is almost 3,000 ft. above sea level, a small portion of ground with what appeared to me an unknown species of sugar-cane, obtained from Tongaland, as I had never observed the same cane growing amongst the many plantations on the coast. The cane which is very juicy, does not grow to any great thickness, and has a light yellow surface, turning into a deep brown whenever exposed to the sun. It has thrived very well, especially under the unsatisfactory circumstances and in the unsuitable locality in which I planted it, and appears very prolific. I have counted as many as 63 sticks to one stooe.—*Natal Mercury.*

THE GOVERNMENT DAIRY.

The Government Dairy is now in its seventh year. The Dairy herd was free from any form of contagious disease in 1899, and there were but six deaths for the twelve months, three among the cows and three among the calves. This is an excellent record considering the size of the herd. Thirty cows and three bulls were purchased at a cost of R4,564·86, while twenty-nine cows and two bulls and fifty-six young animals bred on the farm were sold for R4,337·26. Milk to the value of R21,895·64 was supplied, of which R4,823·07 worth had to be purchased to meet the demand from the hospitals, which at different periods required more milk than the Dairy was able to supply. The necessity for the purchase of milk remains a serious defect in the management, and the only way of avoiding it seems by the Dairy arranging with the Medical Department to supply only as much milk as it (the Dairy) produces. It should be possible to make a monthly forecast of the milk that the Dairy can supply under normal conditions, so as to permit the hospitals to arrange beforehand for the supply of milk in excess of the estimated quantity.

"VENESTA" TEA CHESTS.

"Venesta, Limited," London, are anxious that it should be known among Ceylon tea planters, buyers, exporters, etc., that a circular recently issued by some large home buyers declining to purchase tea packed in certain "veneer" chests, did not refer to the "Venesta Tea Chest" which is an entirely different package to the chest referred to, and does not resemble it either in lining or construction.

INDIAN TEA ON THE CONTINENT OF EUROPE.

MR. HARRINGTON'S REPORT.

There appeared to be a feeling (in India) that the American tea trade required special efforts no longer, but only ordinary business enterprise; that the Special Commissioner who had worked things up there might now do greater service elsewhere, and that the tea trade of the United States might, without prejudice to the interests of tea-planters in India and Ceylon, be left to the American tea-dealer, aided or encouraged in some particular ways by the Associations referred to above. How far this idea was correct remains to be seen. A change of programme was introduced. The "American Fund of the Indian Tea Association" became the "American and Foreign Market Fund," and the Association declared in favour of the policy of canvassing vigorously for the lion's share of the existing tea-trade of Germany, France &c., and advocating tea in preference to the rival beverages, coffee and cocoa. Accordingly, Mr. John E M Harrington was appointed special "tourist" to the Indian Tea Association (Calcutta and London) and on the 20th March last was instructed to make a tour through various parts of the Continent of Europe with a view to (*a*) ascertaining by enquiry on the spot the present position and statistics of the tea trade in each country visited and (*b*) to report as to the most practical method of developing both the taste for tea in general and the demand for Indian tea in particular. It was a somewhat "large order," but the absolute necessity for some such investigation as was undertaken was shown by the fact that, whereas in the British Empire some 90 per cent. of the tea consumed is British grown, in all the States of Europe practically 90 per cent. is supplied by one or more of the following producing centres:—China, Japan and Java, less than 10 per cent. falling to the share of India and Ceylon.

The space at our disposal will not admit of a detailed review of Mr. HARRINGTON's interesting and instructive Report on his tour. The route followed included Italy, Turkey, Bulgaria, Austria-Hungary, Germany and Holland, and the time occupied was less than four months. This brief time was evidently fully utilised, for the Report contains a large amount of most useful information. In some respects, it shows previous ideas as to the potentialities of some of the above countries as tea-consumers to be open to revision; but, generally, it may be said to confirm the opinions we expressed long ago, that there is a market to be had on the Continent of Europe, but that it is not to be had for the mere asking. Success can only be achieved by systematic effort and a certain amount of outlay. It is not a case of advocating the merits of British-grown teas in tea-drinking countries where peoples have a natural inclination to give the preference to products of portions of the Empire to which they belong. The work that has to be done is to popularise tea among peoples more accustomed to drink coffee, cocoa, beer or wines; among peoples largely prejudiced against, rather than predisposed in favour of, British products, and in countries where tea is to some extent heavily handicapped by local fiscal tariffs. These are conditions that preclude the hope of more than slow progress even with the most determined effort. Mr. Harrington's Report shows that there is ground for this hope, and on the whole, it may be regarded as more encouraging than it was, perhaps, generally expected to be. Facts and statistics are given, suggestions are made, and the future will depend largely not merely upon the action taken upon the extent to which planters provide "the sinews of war" so essential to success in the conduct of a campaign such as that which the Indian Tea Association has undertaken. Conditions vary not only in different countries, but in different towns in the same country. For instance, Mr. Harrington writes less hopefully about Naples than about Rome, in which latter place there are more English and American travellers and a larger fashionable Society to follow the general example of such Society in other countries and adopt "Afternoon tea" or, as the French say, the "five o'clockie." Turkey offers a fair field, and, moreover, does no small amount of "transit" trade on behalf of Southern Russia and Persia. Low sorts are most in favour and long wiry leaf has a preference in the Persian trade, where Camel transport tends to break up the tea. Bulgaria is mostly a coffee consuming country, the tariff on tea is high, and the language and trade customs are difficulties to the British trader. Mr. Harrington cannot recommend direct expenditure of time or money upon so small a field, but thinks the market may be reached indirectly from Constantinople. As regards Austria-Hungary, various difficulties are pointed out, and it is remarked that "no practical method is apparent by which Indian tea could be rapidly and successfully introduced." Very different is the case with respect to Germany, where Mr. Harrington thinks a good trade might be developed if proper arrangements were made and a liberal outlay faced for the first three or five years.—*Madras Mail*, Nov. 26.

A BRAZILIAN RUBBER PLANTATION

(To the Editor of the *India Rubber World.*)

Is it possible to find in the United States, or elsewhere, some one who would be interested in a plantation of Ceara rubber? In March, 1899, we established a plantation in the state of Pernambuco, about 12 kilometers from the capital, where we now have more than 100,000 trees of *Manihot Glaziovii*, vigorous and growing well. Having now, however, other needs for our capital, we should be willing to sell the plantation, though our preference should be to retain our present interest in it, provided parties can be found to join us as partners, or found a company, with a view to supply the money needed for meeting the expenses involved during the few remaining years, until the trees become productive. The plantation really promises a very handsome profit. The estate is now in fine condition, with laborers' cottages and stables built by us, and pasture land fenced in and stocked with cattle. The location is healthful and only about 3,000 meters distant from a railway station. The extension of the railway past the estate is projected.

Within three or four years the trees are expected to begin yielding from 1 to 3 pounds of rubber per year. The labor of gathering the crop will be slight, because the trees will simply be tapped and the rubber will coagulate on the trunk, when it can be pulled off dry. With the monthly expenditure of $500 to $1,0 0, not only can the plantation be kept in condition, but, within two years, our original plan of increasing the number of trees planted to 500,000 could be carried out.

We prefer for the present not to publish our names in this connection, but will be pleased to have this appear in The *India Rubber World*, and to have you receive for us any correspondence which may result. M. & Co.

———, Brazil, October 1st 1900.

ESSENTIAL OILS.

From Semi-Annual Report of Schimmel & Co. (Fritsche Brothers) Leipzig, New York, London, for October 1900, we take the following:—

CINNAMON OIL, CEYLON.—There has been an exceptionally large demand for this article, to satisfy which we have been carrying on the distillation without interruption since the beginning of the year. The prices of the best qualities of chips fluc-

tuated between 3⅛d and 3½d per pound. In view of the animated condition of the cinnamon market, there is absolutely no prospect of a return to the previous values. The shipments have been enormous, The aggregate for the first seven months of this year comes to not less than 900,672 pounds, of which nearly one fourth has been acquired by our firm. The distillation of the finest quality of heavy, sweet, cinnamon oil is one of our specialties.

CITRONELLA OIL.—Since the publication of our previous Report, the value of this important article has suffered a further decline, and it would appear that the supply exceeds the consumption. The statistics again show an important increase in the production. Recent quotations were a shade under ten pence, and were the lowest on record. This oil is largely employed for perfuming benzin and mineral oils, and it might also be found very useful for lac and oil paint. The Java variety of citronella oil has found great favour, and in fact is fully entitled to be called the elite-quality. Its effect in the better qualities of soap is striking, the natural explanation being its high content of geraniel and citronellal.

CLOVE OIL.—The information given in our last Report, as to the unsatisfactory result of the last clove harvest in Zanzibar and Pemba, has since been confirmed. The total yield is estimated at about 50,000 bales, or say 3,000 tons, as compared with 140,000 bales or 8,400 tons in 1898-99. The cultivation of cloves is also undoubtedly influenced by the state of the labour market, which has gradually taken a very favourable turn since slavery was abolished on both islands. At the present quotations cultivation has become unremunerative, and it is bound to decline still further, so as to harmonise with the consumption, for the lower values are simply due to the continued over-production and the piling up of non-realisable stocks in Bombay, London and Holland. The latter, taken together, are so important, that it would require several bad harvests to equalise the surplus.

RUBBER PLANTING IN SUMATRA.

In answer to enquiry addressed to the St. Petersburg Company, the following letter has been received from its president, dated in Prussia :—

TO THE INDIA RUBBER WORLD—Gentleman : The Russian-American India Rubber Company, of St. Petersburg, Russia, has sent me your favour of August 20th, because it is not my company, but myself who is going to make a trial on a large scale with *Ficus elastica* plantation in Sumatra, east coast. As all experiences are to be made, I am sorry not to be able to give you any further informations for the moment, except that there will be planted about sixty thousand trees per annum, beginning from this year.—I remain, gentlemen, very truly yours, FRED. KRAUSKOPF.,

President Russian-American India-rubber Co.

Villa Hohenbuchen, bei Schlangenbad Wiesbaden, September 18th 1900.

TRAVEL IMPRESSIONS OF A JAVA PLANTER IN CEYLON.

SOIL—VEGETATION—PLANTING—CACAO—COFFEE—CINCHONA—TEA—COCONUTS—RUBBER.

Mr. J. Bley writes in *Teysmannia* as follows :—

In journeying to Europe I stayed a fortnight in Ceylon and had, thanks to good introductions, the opportunity of seeing a pretty good number of the various cultures; the time was too short however to permit of thorough studies. Ceylon is such an interesting island, that I can assure every colleague, that it is well worth the trouble to visit it. Travelling is everywhere united with expense; if one has not the money to spare for the extra excursion, let him travel in the (very good) second class of the "Norddeutscher Lloyd" or of other good lines, instead of in the first : thereby one saves enough money for the trip. The objects worth seeing in Ceylon are situated comparatively close together, the railway communication is good, and even without being introduced one sees much of interest; it is only needful to be able to speak a couple of words of English.

COUNTRY.—Ceylon has in the southern portion very few lowlands of importance for cultures, so that there is little land there suitable for rice, native sugar-cane and such like cultures. Travelling by rail from Colombo to Kandy and the terminal station, Bandarawela, one reaches pretty quickly a considerable height (6,300 feet) through difficult hill-country. One misses, however, the volcanoes with which in Java we are so well provided; Adam's Peak alone has the same form, but does not appear to be of volcanic origin. One might very well think this of the high lying sanatorium, Nuwara Eliya. The country and the kind of soil are there very like the Diëng plateau. The land also has something of the lo k of the Djampang districts in the Preanger, only it is wilder and rockier.

The SOIL of the districts that I saw consists almost everywhere of granite and quartz rocks with a very thin layer of poor earth above; the estates near Nuwara Eliya form an exception to this. They cannot, however, be compared with our good Java soils.

From the nature of the case it is not possible in such a short time to form a judgment of the CLIMATE. I was there in the dry monsoon; according to the rain statistics the rainfall in the southern portion of Ceylon appears to be pretty much the same as in Java; it seemed to me, however, that it is there hotter at an equal height.

LAND TENURE.—The land is freehold; consequently there is no emphytensis or ground-tax paid for it, which has greatly facilitated the transition to other cultures. If anyone wishes to have waste-land, he applies for a piece; it is inspected by the Government and the forester, who fix a minimum price for it, for example ƒ 10. When it has been mapped out by the surveyor, it is put up for sale and sold to the highest bidder. If this is another than the first applicant, then he must repay the cost of measurement, &c. Lands belonging in freehold to natives may also be bought.

THE VEGETATION is poorer than in Java; it is striking that so little bamboo grows there; that which is found there is almost entirely *bamboo ampel* and *bamboe petoeng*;* the native houses are consequently built of brushwood and mud.

Woods are seen here and there, but no large trees, so that timber, wood for tea chests, &c., must be imported. Perhaps the Netherlands colonies might be able to find a market there for wood. Good pasture-land is also not readily available, so that guinea-grass and *roempoet petoengan* † or *kàlăndjănă* ‡ are planted. Singular

* *Bambusa fera* and *B. nigrociliata, B. aspera or B. gigantochloa aspera.*

† Mal. *rumput*, grass; *petoengan* I cannot explain.

‡ I cannot explain this.

is the contrast, when one comes through one of the many tunnels near the terminal station, Bandarawela, where the drier northern portion of the island begins. In place of jungle and undergrowth one suddenly sees the hills covered with clumps of short grass, which however does not appear to be suited for cattle fodder.

The Botanic Garden at Peradeniya is very fine, but not what the garden at Buitenzorg is; the European staff then consisted of only two persons and a third was just expected. The grouping of the plants, it is true, appears at first sight very picturesque; but when one looks for a particular plant, one sees at once the great advantage of the systematic method of planting at Buitenzorg. In addition the guides by their English-Sinhalese pronunciation of the Latin names makes them even more unintelligible than the Javanese *mandoer*, * who translated cinchona calisaya into High Javanese as "*kina lepen koelo*."

Very beautiful in blossom certainly stood *Magnolia* sp. (Himalaya) with large white flowers, which should certainly suit the taste of our Javanlings [*Javantjes*]; further *Poinciana regia*, the flamboyant of Madagascar, a handsome blue-flowered shrub, as also the "cannonball tree," so named from its shot-round fruits, &c., &c.

POPULATION AND LABOR.—The indigenous population of Ceylon are the Sinhalese, who appear to have just as little inclination for manual labor as for instance the Malays of Sumatra. For the work on the plantations and in the factories therefore Tamil coolies from British India are generally imported. The pay per day is usually for men 35 and for women 25 rupee-cents, equal at the ruling rate of exchange to about 30 and 20 of our cents. The coolies have frequently *f* 50 and more of advance, may leave the estate, but are then obliged to repay the advance, unless according to a common custom it be taken over by another estate.

As may easily be understood, it is in the highest degree difficult to exercise control over them. Their skill and industry appear to be about the same as those of our Javanese and Sundanese. The planters generally converse with the coolies in the Tamil language, but to a strange it sounds unpleasant with an English accent. One finds everywhere however natives, and especially Sinhalese, who know some English, more even than in Java, who understand Malay, which is certainly an advantage for tourists.

The people are more loquacious, more bustling and dirtier, but also more brutal—which generally see, to go together—than our Javanlings.

MEANS OF TRANSPORT AND CATTLE-BREEDING.—The railway transport is both for persons and goods considerably cheaper and consequently the night trains also more comfortable than in Java.

On the other hand, Ceylon has railways and tramways only in the industrial portion. The postal service appears to be cheaper and better managed than in Netherlands India, but of telephone communication, even in the towns, there is hardly any. In the principal places and at the hotels one can hire carriages, drawn by big Australian or Persian horses, pretty much for the same prices as in Java. There are also jinrikshas drawn by Tamil coolies. The typical method of transport for persons in Ceylon is however the little carts drawn by dwarf-oxen.

* Jav., overseer.

One sees big *deelemani* * carts with two oxen, but many more hackeries [*karretjes*] and bandies with one ox in front, which go almost as quickly as horses. The transport carts are drawn by large Bengal oxen evidently imported; on account of the rocky ground all the horses, as well as *sappies* † have iron shoes. A singular custom of the carters is to brand entire designs on the beasts and often to furnish the horns with brass tips. It is said that several planters have tried to breed horses, but the results were bad. All the horses bred there were small, weak and often albinos, which must probably be attributed to the bad food. The horses are fed with feed imported from Australia or with plenty of *gabbah* ‡ and some locally grown grass; the *sappies* with paddy straw, pressed cakes from the coconut oil mills and grass, when that is to be had, which is often not the case.

The roads are excellently traced and hardened with broken stone, but sometimes terribly narrow and the turns pretty sharp. It must have cost an amazing amount of work to cut the roads out of the rocks. An interesting and efficient means of transport is on many estates the "shoots"; these are cable lines of the very simplest construction for the hill transmission of produce and firewood. A steel rope of ¼ to ½ English inch diameter is, preferably without any other support, stretched to one post or more, often high above ravines and roads. On this the load is hung by a light pulley, or in the case of a very great incline simply by a hook, and then runs down by its own weight to be taken up below. The pulleys are then pulled up again by persons for further use. This method of transport is not used for fragile articles, but for fresh tea leaves, coffee, firewood, &c. Nothing can be sent uphill by the "shoots"; for that purpose however I saw the well-known cable lines driven by water-power: the contrivance is however very expensive. The firm of Walker Sons & Co. have erected many "shoots" and cable lines.

The fresh tea leaf is also transported in large baskets, provided with divisions to prevent drying, and in open-worked sacks of coco yarn, which are lighter and stronger than gunny bags.

CULTURES.—One stands amazed at the energy with which our neighbours undertake their experiments in cultivation, and one also comes to the conviction that English capital must be much easier or stronger than Dutch, or otherwise it would have been impossible in Ceylon to have been able to go over completely and entirely from coffee and cinchona to the cultivation of tea. One sees now and then indeed just as here and there in Java the "whole grocer's shop" system carried out; I saw, for instance, planted amongst each other—tea, cacao, Arabian and Liberian coffee, two varieties of caoutchouc, pepper, cinchona &c.; as a rule however only tea is planted.

COFFEE.—This culture seems to have pretty well been done with; at least I saw very little Arabian coffee left, and Liberian coffee does not appear to do in Ceylon, which is probably chiefly due to the shallow soil.

CINCHONA I also found almost non-existent, and what I saw was of inferior variety. It is true that there seems to have been a

* I do not know what this means.
† Jav. *sapi*, oxen.
‡ Paddy ?

rush to buy good Ledger seed from Java, but the neeessary eare does not appear to have been taken everywhere bestowed upon it, so that very little seed germinated. I certainly saw no soil that I should judge suitable for Ledger; we need not therefore be very anxious regarding the competition of Ceylon; there is, however, much cause to fear that we in Java will ourselves again ruin the market by too great planting. What is still harvested of cinchona bark is for the most part sold in Colombo on account of the German firms and despatched packed in square bales.

TEA is now the chief culture of Ceylon. It is planted from somewhat above sea-level to over 7,000 feet and on every sort of soil, even upon rocks. Only on two places did I see no tea planted, namely on the roofs of the factories and between the railway rails; everywhere else I saw tea on flat ground and on slopes only accessible for rock-goats on pretty deep yellow-brown soil (good exception) and on soils ½ to 2 feet deep above solid strata of granite and quartz, nay even on bare rocks each bigger than a factory, in fact everywhere where there is a crevice of a finger's breadth or a handful of quartz gravel, which has the appearance of the government salt with us, tea has been planted. Each planter has his own opinion reparding method of planting and manufacture exactly as in Java. The most widely planted is the small-leaved Ceylon hybrid; I saw also, however, indigenous Assam or what came very near to it; it is found that a little hybridisation makes the plants stronger. Rust (helopeltis) and other diseases I saw little of, though I understood that borer, red spider, &c., were experienced.

THE DISTANCE BETWEEN PLANTS varies from 3 into 4 to 5 into 6 and 7 feet; on high-lying grounds the conclusion has been arrived at that one must not plant too elosely. Planting is generally in strait lines without terraees and without following the configuration of the land. On sloping grounds open drains without banks are cut in an almost horizontal direction. The ground is generally weeded quite clean or entirely surface-worked with the *patjoel**; blind drains or deep working of the soil as in Java I never saw practised. The ground is often therefore as hard as *padas*†; but it must not be forgotten that the large quantity of gravel gives a natural drainage. It seems strange to me, that nearly everywhere rows of SHADE TREES are planted along the boundaries and at distances of 50 to 200 feet throughout the estates, usually *Grevillea robusta*, and on higher lands varieties of *Eucalyptus*. The object of this is to break the winds, and also to obtain firewood, which is very scarce; moreover many planters on low-lands find light shade useful for tea.

Much more care seems to be bestowed in Ceylon than in Java upon systematic pruning; I believe that to this and to the excellent climate must be ascribed the good yield per acre. Pruning is done branch by branch with pruning-knives somewhat larger than those we use for the coffee, and the aim is to cause the bush to increase in breadth from below upwards; knots on the branches are not allowed to remain, but otherwise different systems are followed. On high-lying lands for instance heavy pruning is carried out once in four years and then three months left before plucking; on low-lying lands in shorter periods.

MANURE.—They have begun to recognize in Ceylon, that the very poor soils need manuring, and since stall manure is only exceptionally available, experiments are being made with "*boengkil*,* fish and tea manure." I was shown an old China tea garden, the production of which was, so it was said, brought up from 400 pounds to 1,200 pounds per acre, by putting into the ground every other year 80 rupees worth of manure, beside the cost of transport.

PLUCKING I saw was the three leaves about every ten days; the women have for this a large basket on their back, which is suspended by a string over the head. The plucked leaf is often collected in the garden and then transported to the factory. (See *Means of Transport.*)

The TEA FACTORIES are mostly built with a more liberal hand and more all of a piece than in Java. The buildings are larger and especially higher, often two to three stories. Where it is in some measure possible, water-power is employed and then mostly turbines, so necessary with the help of steam and petroleum machines for the dry season. The buildings and machinery are generally ereeted by firms like Walker, Sons & Co., Ld., and others, who also supply all other needful appliances. Building oneself is much less in use than in Java. The wood is imported from Canada, Burma, &c., and iron joists are also much used.

WITHERING.—Withering is carried out much more thoroughly here than in Java and generally artificially in lofts. *Tampirs*† are not used for withering; it is done on shelves that are generally filled in with "Hessian cloth," a kind of fine gunny stuff either flat or, for the more eonvenient filling and emptying, sloping and also in such a way that one end can be loosened; the eloth is then rolled up each time, and the work goes on in that manner by means of trained labor more rapidly (one woman per 100 pounds leaf). I also saw shelves with their planks and also with loose meshes of yarn. Each one finds his construction the best, if more goes on it.

ROLLING is done twice, thrice or even four times; thrice is the most usual, that is to say, the leaf is first rolled with little pressure ½ to ¾ hour, then sifted in the roll-breaker, the large leaf again rolled ½ to ¾ hour, sieved, &c.; the times for the different rollings varies much.

FERMENTATION is often entirely omitted on low-lying lands, prolonged rolling being sufficient. On higher lands however fermenting is well done and then often in rooms that are kept cool by means of ventilators and wet curtains.

RE-ROLLING after fermentation seems to be no no longer usual, only on a high-lying estate the tea is first rolled for half-an-hour (in the dry season ¾ hour), then fermented 1½ to 2 hours, and after that only the coarse leaf re-rolled ¾ hour (in the dry season one hour)

For DRYING all kinds of dryers are in use; I saw mostly the "Paragon." SIFTING is mostly

* Jav. *pachal*, hoe, mamoty.
† Solidified earth.

* Oil-cake poonac.
† Jav. *tampah*, fan.

done with the oscillatory sieves of Jackson or Walker, the coarse leaf is cut with various sorts of "cutters," mostly "Parnalls" and "Jackson's." The usual mechanical packing is done to a small extent in chests made by the natives, for the most part in chests half an Eng. inch thick of so-called mommi [*sic*] wood, imported from Japan, sawn to scale and provided with dovetails. Chests are also imported from Canada ⅜ inch thick and consisting of three layers of wood glued together, that apparently is cut mechanically and not sawn. They are provided with tin corners, clamps for the lids, etc, and cost in Colombo R1·30 net. Compressed steal chests seem to be very little used now.

PROSPECTS OF TEA CULTIVATION.—I believe that in Ceylon pretty well all suitable ground is planted with tea; it is true that some gardens have hardly come into bearing, but on the other hand many old gardens are retrograding in quantity as well as in quality of crop, so that one would judge that the top point of production has been reached, unless it should appear that manuring on a large scale gives the results that many expect from it. The produce will certainly not, however, be cheaper thereby; and when one sees how readily consumption takes up the large quantities of Indian tea, one is convinced that there will still remain a place also for the product of Java, Whether planting is being greatly extended in Assam and India I could not learn. I was told, that only young men are being engaged as superintendents, who have studied some years as engineers, a hint for our young men, that it may come to that in Java.

CACAO is still pretty largely planted in Ceylon. I visited an estate near Matale, the centre of the cacao industry, and saw also here and there smaller plantations. A red variety is mostly planted, which greatly resembles the Java sort, only the fruit is somewhat darker violet-red and the streaks more greenish; experiments are also being made with other hardier varieties. All the diseases that we have on the cacao in Java I found also here, such as stem-borers, large borers in the fruits, and also stem-canker, which does much harm and which is attempted to be cured by cutting out the bark and by coppicing. What I did not find was the dreaded disease in the fruits, which threatens to annihilate cacao cultivation in Java. I saw cacao being dried in sheds, the drying floor of which was made of laths, covered with cheap coconut fibre stuff, which seems to answer well.

VARIOUS BYE-PRODUCTS.—Here and there one sees pepper, indiarubber, etc., planted, but they seem more to be experiments. Kapok* is everywhere grown by natives, but experiments to plant kapok on a large scale do not seem to exist. The product is bought and exported by European mercantile houses, but the qualitty appears to be inferior.

COCONUT INDUSTRY.—It appears that this industry in Ceylon is on low lands a counterpart of the tea industry on the high lands, but it is extremely difficult to obtain any information regarding it. The nuts mostly grown appear to be the same varieties as in Java, viz. *klappa-idjoe*† and *merah*‡; other kinds are also found. From of old oil has been expressed by the natives from the coconuts in mills driven by *sappies*, of the same system as the *kadjang*§-oil mills in the Solo district, only larger and heavier. Later on hydraulic presses and crushing mills were erected by Europeans and wealthy natives, and copra exported which is generally packed in square bales.

DESICCATED COCONUT.—An entirely new industry has sprung up in the last few years in the manufacture of dried coconut preparations, which seem to be chiefly used by confectioners. I just managed after much fruitless effort to gain admission to one of these factories. The course of manufacture is as follows:—The nuts come to the factory deprived of their husk, are cut in quarters by a circular saw, the flesh of the fruit is extracted with a chisel, then deprived of the brown skin by a kind of plane and further cleansed with a file, and the pieces washed first with warm and then with cold water. The cleaned nuts are then either cut in slices in machines constructed for that purpose, or rasped in another kind of machine. In the first case one obtains slices, in the second case coarse flour; both are dried in a drying-machine just as tea is; the flour is so sifted, that three kinds are obtained and packed in tea chests with tea lead. In the factory that I saw this was done by means of a tea packing machine with a screw-press on it.

COIR.—Another important industry is the manufacture of mats, bags, etc. of coconut fibre (coir), but I was not able to obtain permission to see it; only I heard, that the fibre and the raw yarn are prepared as a domestic industry by natives in the district between Colombo and Point de Galle and sold to the factories, which work it further with hand-looms.

ALOE FIBRE.—I was present at an experiment with a machine for the cleaning of aloe (agave) and other fibres. The machine worked in the same way as the Faure machines, only the leaf was mechanically put into and out of the machine. It appears that this industry is there still in the region of experiments, just as with us. In conclusion a word of thanks to the gentlemen who afforded me the opportunity of seeing so many interesting things in so short a time.

* Silk-cotton.

† Jav. *kalapa ijau*, green coconut.

‡ Mal. *merah*, red.

§ *Cojanus indicus*? (*Lochang* is the Jav. name for pulses in general.)

COTTON PLANTING.—With a Cotton famine and its tremendous consequences to British trade and manufactures almost in sight, it is amazing how little is done to attempt to supplement supplies. With the exercise of a little energy and expenditure of some capital there is no reason why Manchester should not emancipate itself entirely from its present state of dependence on United States' supplies, liable to be cut off at any moment. Cotton could be grown in the north of Brazil to clothe the whole world and, if undertaken on a large and comprehensive scale, probably at a much cheaper rate. Labour is certainly far cheaper here than in the States, whilst the advantage of a depreciated currency in such a competition is likewise not to be despised. The cotton growing States are moreover the most densely populated of the country, Alagoas coming second in this respect only to the Capital itself. A powerful association for the plantation of cotton in the Northern States could not fail to be as profitable to planters as advantageous to home manufacturers if properly undertaken, and deserves to be seriously considered.—*Brazilian Review*, Oct. 23.

THE STATE OF AMAZONAS (BRAZIL) AND THE RUBBER INDUSTRY.

The State of Amazonas, the greatest in area of the United States of Brazil, lies between longitudes 74° W. 54° W., and between latitudes 4° N. and 10° S., having a total area of about 600,000 square miles. It is bounded on the north by British Guiana and Venezuela; on the west by Columbia, Peru, and Bolivia; on the south by the State of Matto Grosso; and on the east by the State of Para.

On the north and west frontiers there are some highlands and plateaux, but for the most part the State consists of vast, low-lying, forest-clad plains intersected by the innumerable tributaries of the River Amazon. These rising in the Andes, converge to the main stream of the Amazon, named in this State the Solimoes. Flowing as they do, through flat country, their course is generally extremely sinuous, and their current sluggish. The course of the main stream, on the contrary, is comparatively straight and the current swift, that is to say, about four miles per hour. Flowing from west to east the Solimoes divides the State into two, about equal, parts, and forms a most important highway for commerce between Para, situated at the mouth of the Amazon, Manaos, the capital of the State of Amazonas, and Iquitos, situated in Peru, being navigable as far as the latter part at all times of the year for vessels drawing not more than 12 feet. The distances between Manaos and other points on the Amazon and its tributaries will be found in Tables Nos. 1 and 3.

It is noticeable that the majority of the larger tributaries of the Solimoes, namely, the Javary, which forms the boundary between Brazil and Peru, the Jutahy, Jurua, Purus, and Madeira, flow from south to north, whilst only one large tributary, the Negro, and two smaller, the Japura and Iça, or Putumayo. enter the main stream from the north. Although no mountains occur until the extreme north and west frontiers of the State are reached, yet, on the whole, the part lying to the north of the Solimoes is considerably higher and less swampy than that lying to the south. On the Upper reaches of the Rio Branco, a tributary of the Negro, large grass-covered plains, known ocally as "Campos Geraes," occur, on which a considerable number of cattle are raised. For this very reason, however, that part of the State is at present of less value, and is less explored than the southern part, where the immense tracts of swampy land produce the invaluable "Hevea Braziliensis," from which the rubber is extracted.

The recent report of the British Vice-Consul at Manaos, from which the above description is taken, says that it may indeed be said that the whole commercial importance of the State depends upon the extraction of rubber which is the paramount native industry.

The following tables show (I.) the distance from Manaos to the ultimate ports on various rivers, and (II.) to Para and to various ports abroad, and (III.) an estimate of the total world's supply and consumption of rubber:—

The State of Amazonas (Brazil) and the Rubber Industry.

I.

MANAOS TO—	DISTANCE.	RIVER.
	Miles.	
Sto. Antonio ...	697	Madeira.
	Days.	
Alto Acre ...	39*a*	Purus
Bocca do Breu ...	50*a*	Jurua
Ouro Preto ..	21*a*	Jutahy
Bocca do Jaquirana ...	20*a*	Javary
Pongo de Manseriche ...	24*a*	Solimoes
Camanaos ...	8*a*	Rio Negro
Boa Vista ...	10*a*	Rio Branco

a Steaming from Manaos.

NOTE.—The number of days includes those spent at at various points called at during the voyage.

II.

MANAOS TO—	DISTANCE.
	Miles.
Para	86
Lisbon	4.14
Havre	4,90
Liverpool	5,149
New York	4,240

III.

Production of Rubber.

PRODUCING COUNTRIES.	ESTIMATED QUANTITY OF RUBBER PRODUCED ANNUALLY.
	Tons.
Amazon district (Brazil, Peru, Bolivia) ...	25,000
Rest of South America	3,500
Central America and Mexico	2,500
Java, Borneo, and Eastern Archipelago ...	1,000
East and West Africa	24,000
Madagascar and Mauritius	1,000
India, Burmah, and Ceylon	500
Total	57,500

Consumption of Rubber.

CONSUMING COUNTRIES.	ESTIMATED QUANTITY OF RUBBER CONSUMED ANNUALLY.
	Tons.
United States and Canada ...	21,000
United Kingdom	21,000
Europe (excepting United Kingdom)	15,500
Total ...	57,500

[These estimates are, we think, taken from our "All about Rubber," some of the figures being slightly altered and given in "tons" in place of "cwt."—ED. *T.A.*]

THE SUPPLY OF TEA AND LOW PRICES.

(To the editor of the *Home and Colonial Mail.*)

SIR,—In looking through the market reports of the various chroniclers of current opinion on Indian tea one is struck by the ingenuity displayed in accounting for the depression in market values. "The increase in the duty," "The general knock-out," "Irregularity in bidding," "The burden of 6d per lb duty, whilst coffee and cocoa escape at 1d to 2d," &c., &c., every one of which reasons, I venture to think, would not matter in the slightest if the real reason were not predominant, namely, over-supply. It is quite apparent that the self-denying ordinance of last season, or automatic feed regulator, is out of working order; and the old policy of printing tea for public sale on the principle of "Devil take the hindmost" has again been resumed. One broker's circular recognises this by saying that "the quantity offered was in excess of the requirements of the trade." The total number of packages offered in public sale for the whole fifty two weeks of 1899 was about 1,600,000 packages or, omitting five weeks' holidays, an average of 34,000 packages per week. And as for the last six weeks, the market supply has been over 300,000 packages, or 50,000 packages per week, with every prospect of more to follow; the cause of the depression is not difficult to find. It is a maxim in political economy that "limitation in supply is the most powerful augmentor of

value"; and surely the converse is equally true, that over-supply is the most powerful depressor of value. What remedy to propose is not my present object. Buyers find no fault with cheap tea; and if it suits the sellers to let them have it in abundance—well—it's a free country.—I am, sir, yours, &c. D. F. SHILLINGTON.

UNDOUBTED PROFITS ON TEA: WHERE DO THEY GO?

A QUESTION FOR THE "THIRTY COMMITTEE" TO SOLVE.

"Cosmopolite"—an old Ceylon planter—writing on 13th November, says:—

"Glad to see Ceylon is in such a healthy state; hope tea will go up again; for it makes no difference to drinkers like myself. I pay just the same price for the same quality of tea, whatever the rise or drop of the market may be. So I always pray for a rise, just as a help to my old friends in Ceylon. Where does the difference go? Can't the 'Committe of 30' find that out? Somebody is scooping in the profit that has no right to it."

There can be no question of the great profits attending the distribution and retail sale of teas in the United Kingdom. A minor London Tea-selling Company reports by this mail dividends up to 10 per cent for its last year and from the "A B C" downwards, all such Companies go on prospering exceedingly. Pity that the poorer producers cannot have a share of such profits!

SNIPE SHOOTING BREAKS.

(*To the Editor of the "Asian."*)

SIR,—A certain amount of luck as well as straight shooting is necessary in order to make a long break of snipe. The birds must be collected together in a small space; rise singly and within easy range for the shooter to make a long consecutive run of kills. Of course no one can kill with certainty when there is much walking between shots.

One man I knew shot seventeen snipe running (near Secunderabad I think it was). Another in the vicinity of Barrackpore killed thirty-four snipe in thirty-four shots: he had one miss in his break, but squared matters by knocking over two at one shot. As far as I remember it was his eleventh shot which was the miss.

I should imagine that there must be several men in India who have killed 20 snipe or more consecutively. As a rule unfortunately, the only people who know of feats of this sort are the men who do them; and the better the shot, the more modest the man—consequently many a great deed is lost in obscurity! "FLEUR-DE-LYS."

—*Asian*, Nov. 27.

[The writer of the above we have previously identified with Major G P L Birch R.A., now at Rawal Pindi, stationed at Trincomalee early in the year for a short time.—ED. *T.A.*]

DR. GEORGE WATT'S ANNUAL REPORT of the Economic and Art Section of the Indian Museum for the year 1899-1900—referred to in our Correspondence column elsewhere—contains much useful information respecting cotton, fibres, tea, coffee, timbers, etc., from which we may quote in our monthly later on.

SEYCHELLES WISH TO LEASE ALDABRAS ISLANDS.

The authorities in the Seychelles are desirous of leasing the Aldabra Islands, famous for the turtle, for any period from nine up to thirty years. A few years ago, when Mr. Risely Griffith was Administrator at Mahé, he visited the Aldabras, and found the islands in a very dreary and deserted condition. The turtle reigns supreme there, and grows to an enormous size, and it is not improbable that the islands will be leased by someone engaged in this profitable branch of trade. If the consumption of turtle in London is to increase in proportion to the accretion of mayors and aldermen, it may be a shrewd investment for some Leadenhall purveyor to secure the lease of the Aldabras. There is regular communication now between London and the Sychelles.—*Daily Chronicle*, November 12th.

A MEXICAN RUBBER PLANTATION.

The statements printed in our last number under the head "Returns from Rubber Planting," relative to the work in Mexico of La Zacualpa Rubber Plantation Co. have been supplemented by a later issue of *The Rubber Planters' Bulletin*, from the company's San Francisco office. In the first place, their resident director (in Mexico), O H Harrison, writes of a new method of preparing rubber from the *Castilloa elastica*, by Enrique Ampudio Chavero, the plantation manager. It consists of the addition to the *latex* of the juice of a plant found on the plantation, resulting in a more satisfactory coagulation than has before been seen in that country. The result is described by Ashmore Russan, an English rubber expert who carried a specimen from Mexico to London lately, as a "perfectly pure and almost white product." Mr. Ashmore says, further: "I consider it equal to the finest Para, that is worth 4s 2d per pound (or say $1 gold). Certainly no Central American or Mexican rubber like the Zacualpa company's has ever been put on the market. It is worth at least 50 per cent more than that prepared by the Indians."

A letter from Mr. Ashmore printed in this Bulletin states that on July 4 last he saw on the Zacualpa plantation a nursery of three acres, said to contain 2,000,000 plants of *Castilloa elastica*, growing so regularly as to suggest that all the seeds planted had germinated. He inspected 30,000 young trees, two years old from seed, growing amid maize and shaded by it, the majority looking healthy and strong. Planted in other areas, also chiefly among maize, were 270,000 other young *Castilloas*, looking well, and Manager Ampudia expected to plant 300,000 more during the season. On the company's old plantation he saw planted trees ten years old being tapped. Some of these he was unable to span with his arms at four feet from the ground, "and few, if any, were under fourteen inches in diameter."

"The men were tapping the trees in the old Indian fashion, but it was probably the last time they would be permitted to do so. Senor Ampudia and his colleague, Senor Lopez, are experimenting with a view to discovering a less murderous, more economical, and more simple method, and as I am quite as keen as they are, I am going to send out some special tools and knives to further their experiments. I think, though, that they have hit upon a method which will enable them to do without machetes and knives. I have a pretty good idea as to what the method is, but at this stage I prefer to say nothing more about it."

Mr. Ashmore attempted to cure some *latex* from *Castilloa* trees by smoking, using a stove and corozal nuts for fuel. "The milk coagulated, but the rubber was very spongy, and the process terribly slow."—*India Rubber World*, Nov. 1.

UNITED PLANTERS ASSOCIATION OF THE STRAITS.

CATERPILLARS ATTACKING COFFEE.—*The Chairman* informed the meeting that after very careful consideration the Committee had come to the conclusion that they were not in a position to recommend legislation, and that the Committee proposed with the sanction of the meeting to forward the following resolution to the Government. "That the Committee of the United Planters' Association do not feel disposed to take on themselves to recommend legislation on their own responsibility, but desire to express their great sense of the interest and assistance which the Government have shown in the matter, more particularly in connection with the remedial measures proposed by the Acting Brithis Resident, Negri Sembilan."—*Carried.*

THE PROPOSED APPOINTMENT OF A RECRUITER OF TAMIL LABOUR FOR THE FEDERATED MALAY STATES. —The Committee propose that the salary should be $500 per month as an outside figure, but that that sum should command a really first-class man. As to the method of contribution to the cost by non-Government employers of labour, the Committee proposed a capitation fee of $2 for coolies recruited by the proposed officer and 5 per cent on cash disbursements; in cases where the officer only acts as Agent, he would only charge 5 per cent on cash disbursements, drawing bills upon the employer, at the common usage. That the officer's headquarters should be at Negapatam. That the Committee are not in a position to name any one in particular to fill the post; but that T Heslop Hill's name has been repeatedly mentioned in connection with the matter, and they feel sure that his appointment would meet with the unanimous approval of the planting community

EXPORT OF COFFEE TO EUROPE—Letters from Mr T H Hill were laid on the Table, also a letter from Messrs Sanderson and Co of London being a report on the samples previously sent home

COFFEE—Mr T H Hill says: It is evident that the Malay Peninsula can compete with the Brazils in the cost of production of coffee. In the interests of all concerned the standard should not be left as it now is, viz:—"Fair average of the Season" and at I have already said it will be seen it is unreasonable to expect any one man to be able to deal with the matter, even if willing to face the delay and expense. I am informed that 24 monthly sales would probably suffice and when it is remembered that the export duty on coffee is fixed on a sliding scale, and that the higher standard would pay the higher duty, it appears equally to the advantage of the Government and the Planter that such further standards should be sought for, and the Government might fairly be asked to grant a sum per cwt. towards the expense of the coffee shipped as indicated. The value is advancing and if such should be the case in the future each shipment would result not only in benefit to the members of the Association but possibly in actual cash profit as well. If the two standards are now established in future I believe it would be a step in the right direction to make Liberian Coffee more popular and enable estates to carry on better in times of depressed markets.

SANDERSON & CO.—The chief thing to bear in mind is to take out all the broken and black berries and keep the sample as even as possible in colour, viz. a bright golden yellow or brown, but not dingy and dull. Our present quotation for our fair average picked standard, is 38/—c & f.

THE COMMITTEE had decided to send 5 piculs of coffee to Aden, and to keep 5 piculs at Port Dickson: to test the advisability of storing coffee, the samples having been duly passed. That as an outcome of the correspondence which had been read to the Meeting, the Committee with the approval of the General Meeting had decided to follow Mr. T H Hill's advice: and to forward monthly shipments of 100 cwt. at least to Messrs. Sanderson and Co. to be auctioned in the way Mr Hill suggested. That various planters had already given in their names as guaranteeing shipments for one year. That the management of the experiment was to be in the hands of six members to be elected at the meeting—three from Selangor, three from Negri Sembilan. The Committee to pass all samples, and see that they were up to standard. The coffee was to be sized into two sizes: to be sent to the Port Dickson Coffee Curing Co. who would see to the bulking and shipment, and generally act as Agents.

The following Gentlemen were elected: Messrs. Bailey, Toynbee and Prior from Selangor and Messrs Cuming, Coates and Lake from the Negri Sembilan. It was further unanimously agreed to send a special letter expressing the gratitude of the meeting to Mr T H Hill for all his efforts and recording a vote of thanks passed at the meeting.

EXPERT.—A semi-official letter from the Secretary to Resident General addressed to Mr Carey was next read announcing the appointment of Mr Stanley Arden to superintend the proposed experimental planting, and requesting the opinion of the Committee as to where his headquarters should be, and what suggestions the Committee might wish to make for carrying out his duties. The Chairman reported that the Committee had decided to name Kuala Lumpur as Mr. Arden's headquarters, and that for the present the best that could be done was to carry out the suggestions contained in the semi-final paragraph of the letter of the Secretary to Resident General, which read as follows: "That he (Mr. Arden) should I think, visit all the estates where Para Rubber is largely planted and advise the planters on the subject, and should, later on, experiment with the cultivation of other products."

TAMIL COOLIES.—During the last year, some $15,000 have been expended by the Selangor Government in bringing Tamil labourers into that State. The Chairman stated that the Committee after discussion suggested, with the approval of the meeting, replying as follows:—"That this meeting thanks the Secretary to Resident General for the information, but cannot realise that the sum mentioned represents the total sum expended on the number of coolies recently brought into Selangor by that Government."

JAVA produces some 80,000 tons of teak timber per annum of which, however, only 10,000 tons are exported, chiefly in the shape of railway sleepers. At present the transport of long logs and squares is attended with difficulties which have not as yet been met; and though the annual possibility of the teak forests of Java is estimated at some 150,000 tons, no rivalry with Indian and Siam teak need be apprehended for some time at least.

FOWL MANURE.—A poultryman, who is noted for success in producing vegetables, states that he grows twice as much on an acre as formerly. He keeps 100 fowls, and has two lots of ground, one being given up to the fowls while the other is used for a garden. the lots being about 1¼ acres each. The next year he turns fowls on the garden plot, and uses for a garden the plot that was vacated by the fowls. By thus giving up his garden plot to poultry every alternate year, he keeps the soil very fertile.—*Texas Stockman and Farmer.*

THE FUTURE OF TEA AND COFFEE:

THE CRY FOR IMPERIAL FISCAL FEDERATION—"PROTECTION."

The circular letter from the United Planters' Association of Southern India given in our Correspondence, appears at an inopportune moment; for the news has only just been published that the "sugar bounties" of the Continent—the most notorious and obnoxious form of differential treatment—are about to be abolished and it is not likely, with that fact in view, that the British Government would enter on a policy so opposed to the principles of political economy which are now-a-days accepted by nearly all schools of statesmen. Not only so, but the Chancellor of the Exchequer, in a recent speech in Lancashire, specially denounced the suggestions he had seen made in certain quarters, respecting differential duties; and it is, therefore, in our opinion, a mere waste of time to try to move the Government of which Sir Michael Hicks Beach is so prominent a member, to listen to the prayer of the circular before us. A united memorial on the part of all British tea producers against the "sixpenny duty" on tea is far more desirable and likely to bear fruit, though, we fear, not in the approaching budget. How then is "tea" to get relief from the accumulation of stocks and consequent low prices now threatening if not prevailing? The first lesson surely to all producers both here and in India is to strive to the uttermost to pluck and manufacture better teas—no longer to sacrifice quality to quantity; but to pluck finer and aim at a higher standard of outturn. Native growers and makers of tea are not likely to take such a hint and we must, of course, recognise the fact that a certain quantity of cheap common tea is bound to be manufactured both here and in India; but we think there is encouragement to anticipate a new outlet for much of these cheaper teas in the movement now actively commenced by the Indian Association, Calcutta, to spread a taste and demand for tea among millions of the native community who can well afford to buy and use such teas. There can be no good reason why the vast population of India, Burma, the Straits and Ceylon should not follow, to some extent, the example set them in China and Japan in regard to the drinking of tea, morning, noon and night, albeit in the form of a very weak infusion. The custom cannot, of course, be expected to prevail generally for a good many years to come; but we hope to see each year make a difference in the local consumption of cheap teas. In this connection we draw attention to the article from a Calcutta paper on another page entitled "the slump in tea."

At the same time the manufacture of "green teas" must go on, and the fight to win over fresh consumers for our teas on the Continent of Europe and America be strenuously maintained. There is still another means of affording possible relief to the local market, of making Colombo more than ever the great tea port of the East, and certainly of increasing the trade and business of this port. That is to be found in the abolition of the local import duty on tea. We are convinced that the sooner this is done, the better for our tea interests all round. For one thing, it must at once meet the convenience of our Russian friends and encourage them more and more to concentrate their business at this port. If it further induced a local manufacture of "brick tea," there would be a distinct gain through the proportion used of our cheaper teas; while as to "blending," as it is notorious that Ceylon teas are blended at every port to which they are exported, we cannot for the life of us, see why the blending should not be carried out in Colombo, rather than, or just as much as, in Melbourne, Sydney, New York or London. As for the risk of China, Japanese or Java teas being re-shipped from Colombo as "pure Ceylon," we have frequently pointed out that some of our Ceylon tea shipments have already done us as much discredit as any lots from other countries under our name, could possibly effect, but as a matter of fact, experts in the different ports and countries could not be deceived by any "pure ceylon" label, while fraudulent attempts of the kind might be penalised at the same time that the import duty was abolished.

BRITISH NEW GUINEA.

INTERVIEW WITH MR. C. E. KENNEDY, MANAGER OF NEW GUINEA DEVELOPMENT SYNDICATE.

THE COUNTESS OF HOPETOUN'S BROTHER—A COLONIST OF THE NEW COUNTRY.

We had an interesting conversation last month with Mr. C. E. Kennedy of New Guinea, who was on his way home and had spent nearly a month visiting Ceylon, upcountry for the most part. Mr. Kennedy is a colonist of ten years' standing in the comparatively new tropical colony, part of which is the same latitude south of the equator as Ceylon is north of it, and part of which reaches even to the equator itself. When Mr. Kennedy first went to New Guinea (as a lay worker for the C. M. S.) he was warned that it was a dangerous fever-stricken country and that he would never come back. After ten years' residence, Mr. Kennedy is now taking his well-earned furlough, determined, like others who know New Guinea, to remove the impression, wherever possible, that the conditions of life in his adopted home are anything but unfavourable to white men who are careful and temperate.

LABOUR

which we believed was one difficulty, is really very plentiful and obtainable for the equivalent of 1d a day! Amongst the independent Colonists, however, there is a feeling that Government is spoiling the labour market by offering too high wages—in some cases as much as 3d per day. This is no doubt so as to secure permanent workers, in a place where living is so cheap for natives that they are not likely to work except when inclined. Skilled labour moreover is very difficult to get, but there are enough hands for the mining schemes on foot;

no less than four companies for Gold Mining in New Guinea have already been floated. The country, Mr. Kennedy tells us, will grow anything that Ceylon will grow, from coconuts to tea. He himself has been growing coconuts (100 acres planted—1,100 acres reserve) with considerable success, and cacao also is making a start. Asked as to

TEA

Mr. Kennedy thought it was unlikely that tea would ever be grown in New Guinea; it was already overproduced in Ceylon and India—not to mention Java or any other place. The Far East New Guinea Colony facing the Pacific, Mr. Kennedy is quite sure, will one day become one of the most prosperous, as it is one of the most fertile and extensive, under the British Crown; it only requires that prospectors should get over their prejudice, visit the place and introduce more capital, for it to progress very rapidly. An instance of this shyness was found in the case of Messrs. Lever Bros., of "Sunlight" fame, who were urged by Mr. Le Hunte, the present Governor (successor to Sir Wm. Macgregor) to take up a tract of 5,000 acres for coconuts, to supply the oil needed in their soap manufacure. Mr. Kennedy himself was ready to take the charge, and, indeed, had been asked to inspect the land—the 5,000 acres were offered without limitation as to locality—but after considerable consideration the offer was allowed to slide! Land may be had for 2s 6d an acre and only the diffusion of greater knowledge as to the resources and climate of the country is required before settlers will come in their numbers to add civilisation and wealth to a new portion of the ever-growing Empire of Great Britain.—Coffee had been tried with success:—both Arabian on hill sides at considerable elevation and Liberian in the lowcountry grow well; but the plantations, Mr. Kennedy said, had been neglected. They are now likely to be taken in hand by a Sydney Mercantile house bent on developing a planting industry. A ready market for "coffee" is available, and, indeed, Australia will take off a considerable supply of coconuts, coffee, cacao, &c.

THE HOPETOUN INTEREST IN NEW GUINEA.

From Mr. Kennedy, we further learnt an interesting bit of information. It appears that the Countess of Hopetoun's brother, the Hon. Edward Dayrolles Evelcigh de-Moleyns, 4th son of Baron Ventry, has taken a liking to the country and intends to settle there. He has for some years been working in Queensland; but hearing of the further Colony, chartered a yacht last year and took a nine months' tour cruising round the coasts of New Guinea, and landing at various points, made several trips inland to explore the territory. He has now taken up 2,000 acres in the Kearns district which, with his brother (the Hon. Richard Andrew (?) 3rd son of Lord Ventry), he intends to cultivate. It is satisfactory that a scion of a family which now has an increased connection with Australia should thus be settled in New Guinea—not only on account of the force of attraction that such a circumstance contains for new and hesitating colonists; but also because it may prove useful in arranging for the amelioration of the laws and regulations prevailing which are as yet to some extent subject to the approval of the Governor-General on the mainland, as they have hitherto been to that of the Governor of Queensland.

VARIOUS NOTES.

It was interesting, and amusing to us, to see how much Mr. Kennedy knew about planting operations in Ceylon in a variety of products, until we remembered that he had been a regular student of the pages of the *Tropical Agriculturist* as well as of several of our Planting Manuals. We began to tell him that one of the finest plots of coconuts in the island was opposite Mount Lavinia Hotel, and how it got planted, when he replied, "by Dr. Macvicar—I've read about it in your book and have already inspected the garden with interest."

Mr. Kennedy's description of the growth of his palms on the shores of New Guinea in three years, shows that good seed nuts, careful planting, rich soil and a suitable climate must all have been available. We hope Mr. Kennedy will be able to visit Goluapokuna and some of Mr. Jardine's work on coconut plantations in the Kurunegala district.

Our visitor's "forbears," of course, hail from that part of Galloway where the people used to declare:—"We're a' Jardine's, Johnstone's and Kennedy's here;" but he—like his father before him—was born in Staffordshire, and never left it till he started for New Guinea.

CACAO IN CEYLON.

Our notice of the large cacao pods which we received the other day from Katugastota estate and sent round the Fort offices has attracted the notice of an authority on the subject, who says it is important from an economic point of view to have the number and weight of the seed, as the fruit wall might be very big without corresponding size of seeds. Fortunately the seed were still available:—44 from the one pod, and 36 from the other, the 80 seeds weighing as nearly as possible a quarter of a lb. As regards the characteristics of the pods, we think they were more typical of the Forastero than of the Criollo variety

"Travel Impressions in Ceylon of a Java Planter."—The interesting paper under this heading translated from the Dutch by Mr. D. Ferguson will be found on page 470. It is useful to see how a practical planter from another and foreign colony regards the country, soil, climate, land tenure, vegetation, labour, &c., in Ceylon. As might be expected Mr. Bley makes mistakes which will be obvious to Ceylon readers.—We also expect to give shortly the report by Mr. Treub of the Java Botanic Gardens on his visit to Peradeniya and the other Gardens. This has been translated for us by Mr. Barrister de Vos and Mr. D. Ferguson and will be found both instructive and interesting.

FARMER'S EVERY-DAY LIFE IN SCOTLAND.

No. 16.

(*By Cosmopolite.*)

In a former paper I expressed views anything but favourable to the value of

ARTIFICIAL MANURES IN FARMING

and as special attention was drawn to my opinion by the editor of the *Observer*, I may be permitted to supplement what I wrote then with a few remarks. Of course, I know that the vendors of artificial manures are about the best customers any news paper has, as they advertise wholesale, and so naturally editors are chary of putting anything into their papers likely to be prejudicial to their customers' trade. I am not, however, wishing the proprietors of the *Observer* to adopt my views, at the same time I must be permitted, in these papers to tell what I have proved conclusively in my farming operations. When I say that my artificial bill on my first few years' farming in Buchan amounted annually to over £200, and at the present time it amounts to nothing, it shows that I am at least, a believer in my own views; and when I add that my crops only averaged 4½ to 5 quarters per acre, during the years when I used artificials, and now when using cattle and sheep manure only, they average 6½ to 7½ quarters, I think I have good reason to compliment myself on the policy I have adopted. But although I am a non-believer in artificials, it does not follow that I take no interest in the investigations carried on at Rothamsted and other experimental farms, so that reading the exciting letters of Messrs. Talbot and Melville White, lately appearing in the *Observer*, has afforded me much pleasure. Of course, when a sufficient amount of cattle manure cannot be obtained, as so often happened in Ceylon, some sort of artificial has to be applied and I observe that sulphate of ammonia and nitrate of soda are specially selected by the gentlemen named; but it appears to me that they have not taken enough of trouble to learn what is the best time to apply these manures, but have done so in a somewhat haphazard style. With regard to nitrate of soda, for instance, it is readily absorbed and passes into the plant; so, in farming, it is always applied after the corn blades are well developed. If I was a tea planter and was applying nitrate of soda to my bushes, I would wait until the flush of leaf had got a good start before doing so. Sulphate of ammonia on the other hand is not available until the ammonia absorbs oxygen and therefore does not come into action so quickly; consequently it should be applied to the land sometime before the plant is ready to absorb it. It may interest my readers to be told that nitrate of soda applied to hay increases the bulk of crop very much, but makes it so rank and disagreeable to the taste that animals will refuse to eat it unless compelled by hunger to do so. Would not the same effe be likely to occur in the case of tea leaves and if so what would the tea-taster say about the flavour? I gather from Messrs. Talbot's and Melville White's letters that the ject they have in view is not only the increase of crop, but the upkeep or restoration of fertility to the soil. I may mention therefore that so exhausting to the soil is nitrate of soda, that many landlords prohibit its use altogether, and I don't blame them, for I know that sometime ago it became quite a custom with farmers whose leases were drawing to a close to manure with nitrate of soda for the last two or three years, and this took all the fertility out of the soil and left the incoming tenant some years of heavy expenditure in order to get the place into a productive state again.

PAPER MAKING LECTURE.

THE POSSIBILITIES OF BAMBOO.

Mr. Ainsley Walker, in his lecture on paper-making delivered at Croxley Mill, Hertfordshire, recently, dealt with raw fibres, and the sources from which they were obtained, and described the machinery employed to cleanse esparto grass and straw from dust and other impurities. Speaking of straw, he pointed out its curious property of producing a greasy effect after having been put through the beater. This enabled them to produce a sheet which had more rattle, or to use the paper-makers' phrase "tinny effect," than could be secured from grass. Straw gave a very hard fibre, and as it consisted of parenchyma cells, which, however, served as filling the proportion of bass fibres was small, and a sheet of less strength was obtainable than from grass was the result. Bamboo was introduced in 1870 by Mr. Routledge who was also the means of bringing esparto grass to the notice of paper-makers. So enthusiastic was Mr. Routledge over bamboo that he published a pamphlet on the subject, printed from bamboo fibre, and excellent paper it was too. Mr. Routledge predicted that in years to come bamboo would be the most prominent fibre used in industry. So far that prediction had not been fulfilled, because wood had in the meantime played such an important part in paper-making. Bamboo had been described as a gigantic straw, with which its physical and chemical properties were closely allied. It therefore happened when they examined a sheet of paper under the microscope, that they found it no easy matter to differentiate the two classes of fibre for both had in considerable quantities the char,ateristic parenchyma cells and the cuticular cells. To this day the problem of readily and satisfactorily resolving bamboo into fibre remained unsolved. The difficulty he believed, was in knowing just how to boil it. He had experimented himself and though he had obtained fairly good results, he had not really succeeded. The subject thus presented a great opportunity to those students who desire to obtain honours for original research. Mr. Routledge stated that

THE BAMBOO YIELDED AS MUCH AS 40 TONS

of green stem per acre, and that these when dry were equal to six tons. The bamboo also grew at an almost incredible rate. It was said that it would grow to a height of 40 feet in 40 days, which was actually one foot a day. Here were possibilities for paper-makers in these days of keen competition. Paper-makers had been told that they had a sad state of things to look forward to in the future, but, if suitable means could be found for its treatment, they had bamboo to fall back upon. Therefore if the worst came to the worst, they could go to the wilds of India and establish the industry where the raw material would grow at their doors. The stems of the bamboo were cut before the plants arrived maturity, and that was all the treatment that was necessary before boiling. This brought them to those great sources of fibre—mechanical and chemical wood. Mechanical wood was obtained mostly from white pine, the poplar, and the aspen. These woods produced a fine, bright and white effect. They were cut into lengths equivalent to the width of the

stone against which they were to be pressed by hydraulic pressure. The rough sand stone tore the fibres asunder, and a stream of water, flowing over the stone, carried the fibres into a trough, from which they were passed forward to a series of cylinders, arranged with sieves of meshes of progressive sizes, by which the fibres were sorted according to their coarseness or fineness. At different stages the pulp was run into large vats with revolving cylinders, the idea of which, he believed, was taken from a machine invented by Mr. Dickinson. The pulp adhered to the revolving cylinder, and when a sufficient thickness was wound round it it was taken off. This then was known as mechanical wood. Chemical wood was obtained by the use of certain liquors and boiling. Great care had to be taken that no knots were allowed to go through. Some authorities said they should be drilled out, while others said that all the hard knots should be removed from the soft pulp after it had been run from the boilers. He was a believer in this plan. All, however, were agreed that any rotten wood or stained portions should be removed before boiling. The wood in some mills was carried on an endless revolving belt along which boys and girls were stationed in order to pick out the undesirable parts. Then the wood was crushed. The adherents of another process objected to this. They sawed the wood into inch discs, which were carefully packed in the boiler with a view to getting in the greatest amount of wood, and they also claimed to get by this plan a finer circulation. The great objection to this method was the loss by sawdust, which some declared amounted to 10 per cent., a serious item. In this country the pine and the fir were the sources from which mechanical wood was supplied, but in America it was obtained from 25 different varieties, the chief of which were spruce and poplar. As showing the great interest taken in the supply of wood for pulp, he mentioned that about 50 years ago, Mr. Young suggested the use of poplar in this country, saying that it was the coming wood fibre. He even went to the length of planting poplars for miles upon miles on the banks of the Dee in Scotland, but the climate and the soil were not suitable, and much to everybody's regret, the trees died off. Mr. Walker afterwards instructed a number of students in the use of the microscope.—*Home paper.*

ELEPHANT BREEDING IN MALAYA.

Through the kindness of Sir Frank Swettenham the Resident-General of the Malaya States, a a correspondent of *The Asian* has been given some interesting items of information concerning the breeding of elephants in captivity. It may be remembered that over two years ago we discussed the "Domestic affairs of the elephant" and the information now placed at our disposal considerably amplifies the facts set out under that heading. The breeding of elephants is a question of little practical importance ; so high an authority as the late Mr. Sanderson stated that even if elephants did breed in captivity, it would not pay to begin stud operations as the youngsters are of no use for working purposes until 15 years of age; and this being so it was cheaper and more satisfactory to catch and tame. From the naturalist's point of view the matter is full of interest, and it would appear that the sources of information Sir Frank Swettenham has made accessible to us, will provide answers to many debated questions. From the fund of information presently furnished we select a few of the more important items. The Sultan of Perak, whose mahouts have supplied answers to the questions put for our correspondent states that the pairing of tame elephants as a rule results in the birth of a calf. "The birth of calves can be regarded as a matter of certainty." This disposes of any idea that the production of calves in Malaya is only occasional or accidental. The young ones are taken in hand to be broken when about four years old, and are apparently used for light work at a much earlier age than the limit named by Sanderson. But there is probably a wide margin of difference between "work" as understood by the late Superintendent of Kheddas, and as understood by the not very energetic Malay. We had, we confess, gained the impression that the domestication of the elephant in Malaya was complete, but our illusions are dispelled by the information now before us. The question was asked "whether a bull born in captivity has been successfully put to a cow born in captivity ?" And the answer disposes of the "complete domestication" theory in very few words :—A bull born in captivity has never been successfully put to a cow born in captivity. The fact is curious, and opens up a large new field of enquiry. No enquiry was made as to whether a cow born in captivity had been known to throw a calf to a wild bull; but there is little reason to doubt that the cow, which has never known freedom, proves equally fertile with others when served by wild males in the jungle. The query "Can you say whether a bull born in captivity has been successfully put to a cow caught and tamed?" was, unfortunately, left unanswered. The point is an important one, involving, as it does, the question of respective effects of captivity on the reproductive power of male and female. The opinion that tame tuskers do not more commonly exhibit desire because hard-worked, is, we believe, pretty generally accepted ; two answers to leading questions are answered by the Sultan's mahouts in terms which strongly confirm this belief. "The bulls which cover most freely are those which are in the best bodily condition and which do not perform hard work ;" and again "the bull which has been longer in captivity, has the stronger sexual inclination." In regard to the latter, it must be born in mind that the work performed by tame elephants in Malaya is extremely light compared with that demanded of elephants in military or civil employ in Burma and in this country. None we are informed, work all the year round, and most are worked for only a few months out of the twelve. Further, the Malay owner, when his elephant shows signs of failing condition, turns him out in the jungles for a considerable period to regain flesh.

Sanderson's dicta concerning elephants in connection with breeding have been proved erroneous in some respects, and the Malay authorities confirm the more modern views. Sanderson, it will be remembered, favoured the theory that the period of gestation varied according to the sex of the calf. The Malay witness is not altogether satisfactory in his answers to questions concerning the length of the period of gestation, but as regards the length of period in connection with the sex of calf, he is quite definite—"It is the same whether a bull or cow-calf is produced." Of this matter, however, we shall speak again. In considering the points in which Sanderson's informants differ from our Malay informants, the difference in the conditions of the life led by tame elephants in this country and those surrounding the tame elephant in Malaya must be borne in mind ; the latter far more nearly approximate to the conditions of jungle life and therefore we may conclude that natural habit and tendency is less disturbed. Therefore while Sanderson's informants may have been perfectly

correct in many of the statements which are at variance with those made over the Sultan of Perak's signature, the seeming contradiction may probably be explained by the widely differing conditions prevailing in each country. Thus, Sanderson stated that *musth* is not of regular occurrence in the tame bull, which statement, everybody knows, is perfectly correct; the Malay authority says: "With bulls in sound and full condition which are over twenty-five years in age, the periods of *musth* recur every year when the 'sependurian' is ripe in the jungle." He does not mention the season at which the fruit referred to does ripen, but he makes it perfectly clear that the bull elephant goes *musth* at a recognised season in each year. This does not controvert Sanderson. On the contrary there is a negative confirmation of it in his remarks that *musth* rarely appears in animals much below par. Difference in conditions of life cannot explain so radical a physiological difference as the following—Sanderson says: "There is ample proof that it is not the male elephant that comes in season. In following single males with a view to capturing them with trained females, they may always be relied upon to make advances to the females usually to some particular one." This is not very convincing evidence though it bears the stamp of observation for which Sanderson has deserved reputation. The Sultan of Perak's men say that bulls *do* show signs of *musth* in the presence of a cow in season, and that the cows have no regular season, "but merely follow the conduct or inclination of the bulls." Sanderson, if we read him correctly, did not admit any *correlation* between *musth* and sexual excitement, adducing in proof that on four occasions on which he had opportunity of judging the bulls showed no sign of *musth*. We think, however, that Sanderson's judgment on this point is now generally admitted to have erred.

It is curious that the answer to our correspondent's enquiry concerning the length of the period of gestation should be qualified. "Those who are experienced with regard to the habits of elephants put the period of gestation at twenty-four months." Inasmuch as opportunities of ascertaining the correct period are as frequent as those offered by other domestic animals it is somewhat strange that no Malay expert has taken the trouble to observe this point. There is no doubt that the period varies considerably in length, the recorded cases range from 19 months to 20¼ months, and in contradiction to Sanderson's native informants the calf born after the longest period was a female. There is evidently something to be learned from the Malay experts, as, in reply to the question whether the presence of man deterred bulls from leaping, the answer contains the statement "Others (elephants) again can be deterred by those men who have learnt the art of the elephant doctors of old times." We have "elephant doctors" on this side the bay, but their practice of necessity lies in a groove different from that of the Malay who for centuries has had dealings with "breeding stock" if we may apply the term to animals whose state of domestication is so incomplete that the union of two born in captivity is infertile. It does not appear that enquiry was made concerning the maximum age attained by the elephant, or if made no answer was given. The point is one which has been much, and sometimes fiercely debated, but facts worth recording are practically non-existent. From the circumstance that the bull elephant, according to our Malay informants, reaches maturity at the age of twenty-five, we might speculate from this basis on the limit of age attained, but see no particular end to be accomplished by so doing. There is no good reason for indulging in conjecture now as our correspondent informs us he is preparing a fresh series of questions for submission to the Sultan of Perak and hopes thereby to obtain light on this and several other points.

AN ORCHID FROM CEYLON.

PRESENTED TO THE R B S., LONDON.

A meeting of the Fellows of this Society was held yesterday, Mr. Andrew Clark in the chair. Mrs. Scharlieb, M.D., was elected a Fellow, and the names of ten candidates were read. There were shown specimens in flower of the lily of the valley orchid from Ceylon, presented by Miss Drage, and a flower of the Victoria Regia water lily now in bloom in the Gardens.—*Daily News*, Nov. 16.

RUBBER FROM TOBAGO.

An item which is likely to be of great importance in the future exports of Tobago is rubber. The only rubber which has hitherto been exported is the gum of the indigenous balata tree. This has been done on a very small scale, and could not be extended without rapidly exterminating the finest timber tree in the colony. Many cocoa planters, however, are now experimentally planting on selected parts of their estates the more profitable sorts of rubber trees, and two large estates are now devoted almost entirely to Castilloa. On one of these, in Tobago, seventy thousand trees have been planted but, of course, some years must elapse before the produce is put on the market.—*Chemist and Druggist*, Nov. 24.

ARTIFICIAL INDIGO had long been known as a laboratory product, costing far too much to be made upon a commercial scale. No one in this country thought of improving the process or inventing a new one, everybody being well content to be practical and to make the things he was accustomed to make. A large staff of trained chemists, maintained for purposes of practical research by the Badische Anilin and Soda Fabrik, turned their energies to this problem. It was, no doubt, a costly investigation, but not an unremunerative one, since many good things were discovered by the way. At last the triumph of theory was reached in the perfecting of a process, which practical ability, combined with vast knowledge and enterprise, has made a great commercial success. The output is now equal to the indigo crop of a quarter of a million acres in Behar; and, as will be seen by another communication which we print today, the planters are now appealing to the Indian Government for aid in setting up a supplementary sugar industry as the only chance of competing with the German factory. It would be easy to give other illustrations of the truth Professor Perry wants to drive home—that our education is not sufficient to enable us to hold our own, that our adhesion to antiquated methods is forfeiting our industrial advantages, and that it behoves the whole community, through all its enterprises, whether private or Government, to awake to the necessity for a more strenuous pursuit of that organization and co-ordination of knowledge which is called science.—London *Times*, Nov. 9.

TEA MANUFACTURE: SUITED TO REQUIREMENTS.

In discussing this question, the *I. P. Gazette* has the following:—We have been manufacturing, in bulk, a class of teas which cannot possibly compete in price with Chinas and Ceylons, Dealers at Home can get common and medium low class teas, just as good as ours, from China and Ceylon at a figure considerably below ours. Therefore, for that very simple reason, they are not wanted. A drug on the market, they are only saleable at a sacrifice; at a figure in fact which cannot possibly cover cost. The worst feature about the market is that even our better quality medium teas are now selling at prices which, in former years, were realised by our commons; the whole-sale dealers and blenders are now using these in their 1s canisters. The tea drinking public are thus getting better value for their money; and, acquiring a taste for our higher class teas, will always demand the same quality for their shilling. Thus, whilst the price of teas is going down to the detriment of the producer, the wholesale dealer and blender and consumer are more and more getting their money's worth, in that they are obtaining for the same money superior teas to the common qualities with which they were satisfied in years gone by. We do not appear to comprehend this very apparent fact, that our common low grade teas are altogether going out of fashion. At present there is not a sufficient supply of the good liquoring quality teas to meet the demand, wholesale dealers and blenders have, therefore, perforce to take the less desirable kinds, but at their own prices: whilst they get better value for their money than they have hitherto got, the producer suffers heavily in that his product goes for a mere song. The chief cause then for the present slump in prices is undoubtedly over-production of common and poor medium kinds. This is due in a measure to coarser plucking this season, for a large proportion of the current season's crop has been of very indifferent quality; attributable partly to climatic causes and partly to a coarser system of plucking. There was, unfortunately an altogether abnormal market last year for common teas, and although a note of warning was sounded by all the Brokers in this city it was unheeded, and orders were issued that quantity, and not quality, was to rule the roost. The inevitable result has been that we have just played into the hands of the wholesale buyers at home. The next cause for the slump in prices of most importance, we think, we may safely assert is the shipping of teas to the home market direct, instead of selling in Calcutta. It has now become an unmistakably patent fact that if the Indian tea industry is to survive, and animation is to take the place of depression, Calcutta must take the place of London as the chief mart for the sale and distribution of our teas. Mincing Lane has not the diversity of buyers which our local Market has.

PLANTING NOTES.

Gourami Fish in Ceylon.—We are much obliged to Mr. Fowler, Government Agent, Southern Province, for the information which he gives us in a letter we publish elsewhere. It is extremely satisfactory to note that Mr. Fowler's last attempt was so far successful, that two of the fish are flourishing at Galle, and that he is interesting himself in further introductions. We trust his example will be followed by some enterprising pisciculturist in Colombo or its neighbourhood.

Cassava or Manioc.—We direct special attention to the letter of the Curator of the Botanic Gardens on this subject and we trust that intelligent cultivators in different districts will at once comply with Mr. Macmillan's request, by forwarding to him specimens of the leaves and roots (flowers and fruit if possible) of the Cassava grown in the neighbourhood.—Mr. Jardine and Mr. W H Wright ought to be able to help the Gardens in this matter.

The Kanan Devan District.—We quote elsewhere a stout defence by Baron von Rosenberg, of the Kanan Devan District in South India, against an article which recently appeared in the *Investors' Review* which he thought was calculated to harm the prospects of the district generally, both as regards its credit and its position towards the Madras and Travancore Governments. His opinion is that before many years Kanan Devan will be one of the most flourishing among Indian planting districts.

Prosperity from Cotton-growing?—The last product we should think likely to afford a promise of profit to planters is "cotton." The price has fallen so greatly in India that we doubt if any European could make the cultivation pay. No doubt where there is rich soil, a favourable climate, and above all a local demand, the cultivation of one or other of the superior kinds might prove profitable. But Sir W. W. Mitchell did a great deal by introducing new seed into Ceylon, without being successful in getting native and other experimentalists to make much out of cotton. Here, however, is a paragraph from the *Egyptian Gazette* (Nov. 14th) which indicates that the American cotton plant is to be tried in German West Africa and is expected to do well:—

American Cotton Plant in West Africa.—If the Germans do not attain to success as colonisers it will not be the fault of the "Colonial Economic Committee" in Berlin. By the help of generous expenditure they are now enabling Germans in West Africa to make a most interesting experiment. They have made an agreement with some American planters, to be accompanied by a hundred and fifty workmen, to introduce the American cotton plant into West Africa. It is anticipated that the plant will flourish well, and in that case the commercial prosperity of the district should be assured.

No doubt soil is rich and climate favourable in West Africa; and if labour prove abundant and cheap, the comparative proximity to the Liverpool market ought to tell. But abundant production will render competition keener than ever.

"PLANTING IN MEXICO"—is the heading of a very full letter by an ex-Ceylon Planter given in our daily and *T.A.* It contains a greater amount of practical information than has hitherto reached us, more especially as regards "labour supply"; and it will be seen that the report given is not very favourable. On the whole, for the British capitalist and planter, the advice of our correspondent is to follow the flag, either in British Honduras or the Malay States. But "Planter" affords a great deal of miscellaneous information regarding Mexico and its sub-tropical industries.

SNIPE.—An interesting letter to the *Asian* regarding snipe-shooting in breaks, is quoted on another page. The idea of such rapid and increasing destruction may jar upon non-sportsmen; but the capture of live snipe apparently leads to far more pain to the birds Live snipe, tortured by being tied together by the legs in bundles, are being exhibited for sale in the Calcutta Municipal Market, says the *Asian*. Taken up and swung about in the faces of customers and thrown down dozens of times a day, starved and maimed, the spectacle of the sufferings of these little creatures is a disgrace to those who have the power to put a stop to it.

JAVA CINCHONA SEED.—In connection with an advertisement of Java seed, we had the following note a short time ago:—

We used to consider bark analysing up to five or seven per cent as valuable; but the advertisement from Java which we publish in our daily indicates trees with bark up to 17 per cent! The seed from such trees, if carefully plucked and transported, must be very valuable. The prices fixed are from two to five guilders (each about 2s in value, we believe,) per gram, of which about 200 go to the ounce. The seed is, therefore, priced very high, undoubtedly; but we suppose an appreciable quantity is found even in each gram, or the 200th part of an ounce. Can there be any mistake in our calculation?

This was translated and copied into the Amsterdam "Indische Mercuur" of 25th September and has led Mr. H. Vaupel of the "Preanger Culture Company," Java, to send us (November 4th) a letter of correction in Dutch, the substance of which (through the kindness of Mr. Advocate de Vos of Galle) we are able to give as follows:—

"Now, without discussing how the advertisement in your various issues, works out, I take it that you, in Ceylon, are not up to the mark as to the number of plants to be got from a gram of cinchona seed. For this reason I to convince, you, send you a gram Ledgerseed, derived from original mother-trees with a standard of 17 per cent z.w.k. and of which the price is 5 florins. The number of seeds in this gram is 3,700. In Java, it is expected that by careful cultivation of this amount of seed the yield should be 1,200 at 1,000 cinchona plants for the 5 florins, making at most half cent the plant-which surely cannot be called dear."

We are much obliged for the correction and also for the gram of this very valuable Ledger seed, to which a careful trial will be given in a Nuwara Eliya nursery; while the resulting plants can be tried at different elevations as the Sanatarium is perhaps too high for pure Ledgerianas.

PEPPER AND CARDAMOMS.—These two products are doing well in Southern India though the former does not realise in England anything like the prices that are paid for Singapore pepper. Why?—*Planting Opinion*, Dec. 8.

PARA IN BRAZIL.—The output of Para rubber this season may possibly be augmented (says the *India Rubber World* of Nov. 1.) by the fact that the drought in the state of Ceara has become so excessive that the governments of the Amazon States have been defraying the expenses of the famine-stricken Cearense peasants to Para and Manaos, whence they would be likely to proceed to the rubber fields to find employment. During the first six months of this year the rainfall at the port of Ceara had been less than one-tenth as much as during the same period in 1899. For the same reason, a falling off in the production of Ceara rubber is to be expected.

PRODUCTION OF IPECACUANHA.—One of the most widely used of all vegetable drugs is the powerful emetic ipecacuanha, which is obtained from a Brazilian shrub. The French *Conseiller de Commerce*, at Cuyaba, in the State of Matto Groso, gives in a recent report an interesting account of this plant, which has in that State and the neighbouring districts its only habitat. The drug is obtained from plants which attain a height of from 12 to 16 inches. The leaves are oval, dark green, and sharply ribbed, and the white flowers give place to an ovoid fruit containing black seeds. Besides the *Ipecacuanha Cophoelis*, or the "white ipecacuanha," as it is generally known, there are several other varieties which are somewhat different, but all are used for the same purpose, and are distinguished as brown, black and striated ipecacuanha. The drug is obtained from the root of the plant, where it occurs in quantities about the size of a quill, between the layers. The taste is acrid and bitter, and the odour is nauseating That found next to the bark is most active in its effects, having in the highest degree the emetic property, due to the active principle known as "emetine." The State of Matto Grosso which as before observed, is the habitat of the plant, is one of the richest in Brazil, among its many natural products being gold and diamonds, rubber, sarsaparilla, jalap, jaborandi, copaiba, various drugs and gums of several kinds. Ipecacuanha is found in the north and north-east of the San Luiz-de Carceres, formerly in the Vila Maria region, and its habitat covers an immense area comprised between a network of rivers in Brazil, Bolivia and Paraguay. The dense foliage of the forest of this region provides the dank and humid conditions which favour the growth of the shrub. The Brazilian product is known as Rio Ipecacuanha, and the product secured from different shrubs in other countries passes under the name of the port from which it is shipped. Attempts have been made to transplant the shrub and to cultivate it in British colonies in various parts of the world, but without success, and Brazil continues to be the only source of supply for the best grade. The process of gathering the plant is perfectly simple, and during the rainy season, when the ground is soft, is very easy. A stick is inserted under the root, and while this is raised with one hand, the entire plant is pulled out with the other. As little care is given to the protection of enough plants to secure a future supply, the output is growing smaller, and the price consequently higher each year. The scarcity of workmen is a great difficulty. In the dry season the roots cannot be gathered, and it is at this season when anyone adapted to the work is engaged in gathering rubber. During the rainy season, from October till April, when the plant may be easily drawn from the ground, women are usually employed for the work.—*Scientific American.*

GOLD IN TREES.—The impecunious man may soon be seen grappling with the monarchs of the forest for the wherewithal to pay his way. In the "Zeitschrift fur practische Geologie" Herr Lungwitz writes of the gold in trees. It only amounts to from about 5d to 5s per ton of ashes. The metal tends to collect in the trunk near the roots. Of course the quantity is greater according to the auriferous character of the soil, and probably, too, the intensity of growth, so that in tropical countries gold may exist in many plants —*Daily Express.*

A BOTANICAL ACQUISITION.—Botanists will be interested to learn that the important cryptogamic herbarium of M. Bescherelle, a well-known French botanist, has just been acquired by purchase for the Department of Botany in the British Museum This herbarium which is one of the most complete of its kind in the world, consists chiefly of mosses, lichens and liverworts, collected in great part in the French colonies, where M. Bescherelle has practically had a monopoly in this respect for the last 30 years. The *Manchester Guardian* (Nov. 23rd) understands that there are 15,000 specimens of mosses and nearly 4,000 specimens of liverworts in this fine collection.

LIMITED COMPANIES.—From "Notes on the Companies Act, 1900," by L Worthington Evans, we learn Directorships will certainly not be so popular in the future as they have been in the past, especially (let us hope) among incompetent nobles sometimes called Decoy Ducks. The Act contains restrictions of the power and additions to the liability of a director as well as "a formidable list of fines and penalties." The responsibility and duties of the secretary are also increased; and these additional requirements, as well as others in regard to registration, apply to all companies registered under the Companies Act. After the first day of January, 1901, no new company having share capital may proceed to allotment until the minimum subscription has been subscribed, and not less than 5 per cent. of the nominal amount of each share has been paid in and received by the company as application money. And both these conditions must be fulfilled within forty days after the first issue of the prospectus In default of compliance with these and other conditions an applicant is entitled to receive back his application money in full; and unless it is repaid within forty-eight days after the first issue of the prospectus the directors become jointly and severally liable for the amount. For all companies registered after January 1, 1901, quite a number of new requirements are introduced, which, as Mr. Evans truly observes, will tend to make the statutory meetings of the company (ordinary and extraordinary) exceedingly important instead of the often useless formalities to which we are accustomed. The power of control possessed by the shareholders is vastly increased. At an early stage in the company's existence a shareholder will be able to test many of the statements in the prospectus and ascertain officially the facts about the allotment, as well as the names of his fellow shareholders with whom he can combine for protection. The book contains an interesting chapter upon the duties and responsibilities of the auditor, whose appointment has now at last been rendered compulsory, and is to be made not by the directors, but by the shareholders.

A NEW GOANESE INDUSTRY.—A contract has been entered into for the construction of an edifice for the Bombay and Goa Trading Company in the New City of Vasco de Gama. The firm consists of Mr. S J De Souza and of the representatives of the late Mr. Goculdass Tejpal the Bombay millionaire. The principal object of the firm is the erection of a coir and rope factory together with the utilisation of the other products of the coconut palm. The firm who are building the coir factory are in a position to operate in this commodity on a large scale. It is calculated that the company will require from 24 to 30 lakhs of coconut husks annually for fibre and coir yarn, and it could easily convert the coconut into copra and export the same or convert this last into oil and export it. It is in contemplation to order out the latest machinery for this purpose.—*Pioneer*, Dec. 3.

OSTRICH FARMING IN AMERICA.—We call attention to Mr. T. A. Cockburn's chatty notes in another column. From a circular he sends us, we quote as follows:—

The Ostrich Farming Industry has been begun in San Antonio, Texas, by Mr. Thomas A. Cockburn, for some time the proprietor of the famous South Pasadena Ostrich Farm, of Southern California, in the hope of establishing this peculiar industry as successfully in Texas as has been done in California. Fifty of these magnificent birds have been transported across the continent to their new home near San Pedro Springs, where there is every prospect of their settling down to regular Ostrich ways. Compared with the imported South Africa article, the local product is considered by connoisseurs much superior, and after a careful examination of the large and varied stock of boas, capes, collars, tips, plumes, fans, etc., at the San Antonio farm, this opinion will be upheld by the general public. The birds vary in age from a few weeks to eight and ten years of age. A full grown ostrich weighs about 275 pounds, and stands nearly eight feet high, both sexes are a brownish color until eighteen months old, when the males turn black and the hens grey. At four years old the selected birds are paired off, and soon the male bird digs a hole with his feet, in which the hen will lay an egg every other day, until from twelve to fifteen are in the nest, when they begin setting, the hen in the day and the cock in the night; in from forty to forty-two days the chicks should hatch out. In this country they are immediately taken away from the nest and raised by being fed on cut up green alfalfa. They will then grow at the rate of a foot a month until six mouth old. The average life of an ostrich is about seventy years. The food consists mostly of alfalfa hay, cut up small, sugar beets, cabbage and corn. Bones and shells are occasionally given to help digest their food and form the shell, coarse gravel is also kept in the corrals for the same purpose. The eggs weigh three pounds each, the unfertile ones are blown and obtain a ready sale as souvenirs of the ostrich farm. The feathers are plucked every nine months and are graded into their various lengths and colors. These sell in the markets at prices varying from $5.00 to $100 per pound, the latter from the long white plumes taken from the wings, only those feathers from the wings and tails are plucked, the body feathers are shed once a year and are gathered up in the corrals. Every feather has a selling price. Many and varied are the products of Texas, but the industry of Ostrich Farming is possibly the most interesting and peculiar to the general public, and no tourist should consider his trip complete until he has paid at least one visit to the San Antonio Ostrich Farm. There is no more pleasing or suitable souvenir to take back or send to some eastern friend than a feather boa or a bunch of tips manufactured from a Texas ostrich. Prices of birds of all ages on application to the proprietor. Feather goods of all descriptions for sale on the Farm, at producer's prices.

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1901, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th Novembe, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year."

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1901, booking necessary before the end of March; large quantities on special terms; Plants in Wardian cases.

Manihot Glaziovii—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Kickxia Elastica.—(*Funtumia Elastica*).—Seeds and Plants, orders booked. (Lagos rubber.)

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Urciola Esculenta and **U. Elastica.**—Same as above. (Burma rubber.)

Parameria Glandulifera.—Orders booked for seeds for January-February delivery; also plants, immediate booking necessary. (A good rubber creeper of Malacca.)

Landolphia Kirkii.—Seeds in July-August, early booking necessary. Plants can be supplied all the year round. (A highly recommended species.)

Chonemorpha Macrophylla.—Seeds and Plants; orders booked. (A very valuable rubber-yielding creeper.)

Memusops Globosa and **Payena Leerii.**—Seeds and plants in July-August, booking necessary before April.

Achras Sapota, Willughbeia Firma, W. Edulis and other **Rubber and Gutta Percha** yielding Trees and Creepers, Seeds and Plants.

Cinnamomum Zeylanicum (Cinnamon superior variety). New crop of seed in April to June; booking necessary before the end of February; also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

Cinchona Ledgeriana.—Seeds now ready, also other varieties.

Seeds and Plants of Nutmeg, Clove, Sandlewood (white and red), Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign countries for 1901-1902, now being prepared, and will be ready in a few months.

"SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Price List of Seeds and Plants for CEYLON use post free on application.

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms, &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus Cycads, Tree and other Ferns, Crotons, Orchids, Bulbs, Dracinas, now being prepared and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address:
WILLIAM, VEYANGODA, CEYLON.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
HENARATGODA, CEYLON.

Correspondence.

To the Editor.

PLANTING IN MEXICO.

(*By an ex-Ceylon Planter.*)

The Editor, *Tropical Agriculturist*, Ceylon.

Mexico, Sept. 9, 1900.

DEAR SIR,—In the *T. A.* for January (which went amissing and only reached me in August) and for July, I notice a couple of letters from Mr. E O Darley on "Planting in Mexico," also your note on the same, asking for information *re* labour, taxes, police etc. In the July number, Mr. Darley has given you some information, and I now take the liberty of supplementing the same. It must be remembered that Mr. Darley writes from the State of Tabasco, whereas I am in the State of Oaxaca, and therefore my remarks and statements mostly apply to this State, and to the district I am in. But at the same time there is little or no difference between the States as regards taxation, communication, etc. I have now been nearly 18 months in Mexico, and have had ample time and opportunity for going fully into every matter that affects planting and give my actual experience. I may preface my remarks by stating that I was planting in Ceylon from January 1877 to May 1880 in Udapussellawa and Maturata, and from May 1880 to December 1898 in Johore, the Federated Malay States, and West Coast of Borneo. I arrived here at the end of March, 1899.

SOIL AND LAY OF LAND.—Beyond any doubt the soil of Tropical Mexico is exceedingly rich and of vast extent, and, in what I may call the low country, is of a rolling character with large areas of almost level country, generally along the rivers, and between the spurs of the main ranges, these spurs generally being of limestone formation. Taken all round, however, the country is badly watered. For instance, in the whole of this Company's lands extending to 111,000 acres, there are three large streams, miscalled rivers, two of which form the North, East, South and South-Western boundaries, one running through the centre of the block. There are only ten other small streams running into these, and yet our land lies at the foot of the "Sierra Madre" mountain. Soil suitable for atmost any kind of tropical cultivation can be purchased for from $3 to $50 the acre, anywhere in the best part of Mexico. We sold for tobacco for the latter price here.

CLIMATE AND RAINFALL.—Once outside the range of yellow fever "vomito" which roughly is confined to a distance of about 60 miles inland from the sea, from Tampico to Coatzacoalcos, the climate for the Tropics is remarkably good and perfectly healthy. The rainy season begins about June and ends in September, but during October to end of December there is generally a fair amount of rain. From January to May the weather is fine with occasional showers. March, April and May are the hot months, November, December and January the cold; and even at this elevation, 615 feet, fires are often necessary at nights, and a couple of thick blankets. The rainfall has been systematically kept only since my arrival, but commencing from 1st July, and I append it:—

1899.	Inches.	Rainy days.	Heaviest fall inches.
July	21·30	19	3·40
August	25·48	17	4·30
September	17·31	11	6·00
October	5·05	5	2·00
November	3·52	2	2·72
December	3·55	5	1·58
1900.			
January	3·23	9	1·30
February	1·83	2	·92
March	2·04	5	·72
April	1·30	2	1·00
May	6·80	6	2·50
June	13·83	11	3·75
July	25·51	25	2·77
Aug.	18·94	12	3·15

On the 18th February, the thermometer registered in the office 55° Fahr. at 11·30 a.m., about the lowest it has been since my arrival.

COMMUNICATION all over Mexico is by means of railway, river and tracks. Metalled or unmetalled roads outside the cities (and few even there) do not exist. The rough jungle tracks, worn down by the feet of man and animals, that were in existence in, or perhaps before, Montezuma's time, are the only ones that are available, and as these go up hill and down dale, one can fancy what the travelling is like, especially in wet weather. As far as I am aware, the Government has not even commenced to think about road making. I will confine myself to the Railways serving the tropical portions where plantations are mostly being opened. First there is the line from Vera Cruz to Alvavado, some 40 miles. It now belongs to Sir Weetman Pearson, a bad line, badly managed. Ordinarily it takes four hours to do the journey. Another line runs from Coatzacoalcos to Salina Cruz, across the Isthmus of Tehuantepec, and a branch line from the main line to the San Juan river. Another line is now under construction from Mozorengo to Santa Lucrecia on the Tehuantepec railway. All these are either under the management of Sir Weetman Pearson or are being constructed by him. On paper, this seems to give ample communication, but one has only to look at the map to see what a small portion it serves, especially as there are no roads to serve as feeders. The lines, too, are chiefly strategical ones, as President Diaz does not intend to allow revolutions to grow unchecked. Now as to the rivers. Stern-wheel shallow-draft steamers run all the year round from Alvavado up the Papaloaparm river to Tuxtepec from Tlacotalpam (two hours steaming above Alvavado) up the Tesechoacan river to Tesechoacan, and during the wet season up to and a little above Playa Vicente. There is also regular steamer communication, all the year round up the San Juan river from Tlacotalpam, up the Coatzacoalcos, and some of the other rivers in the more Southern States, but how far the boats can go during wet and dry seasons I do not know. What I do believe is that these rivers only serve a small part of the lands suitable for cultivation, and here again there are no roads as feeders. In the section I am in, during the dry season, we have to depend on canoes for transport, and as the "canoeros" as a body are a drunken lot, we are at their mercy. It has often taken three months to get goods up from Tlacotalpam to where I am (just above Playa Vicente) during the dry season. Freight from Tlacotalpam to here, by canoes, is paid for by the piece of 200 lb. and costs $28 (twenty-eight) the ton up and $17

down if you have return cargo. By steamer it costs from $28 to $31 the ton both ways, the distance by river being about 120 miles. Freight from Tlacotalpam to Vera Cruz has to be added, but I have not the figures by me. There are besides handling and storage charges first at Playa Vicente (12½ct. a package) Tlacotalpam same, perhaps at Alvavado, and finally at Vera Cruz, and I am much better off than the vast majority in this section. The freight from Vera Cruz to London is about the same as from Singapore to London. The next "revolution" has got to come from the Government in the shape of roads, and by that time our grand-children will be old men and women. Private enterprise will, most likely, have to undertake road-making, and pay Government for doing so.

LABOUR.—All who have gone in for Tropical Agriculture in Mexico have, with a strange unanimity, avoided this most important question and for very obvious reasons. First, the large holders have lands for sale, and soon, if I am not mistaken, the small buyers will be sorry they ever bought. There are four classes of labourers employed in estates in Mexico:—1st labourers recruited from Oaxaca, Mexico and other cities and surrounding villages on a 3, 4, 6 or 180 days' contract; 2nd Serranos, 3rd, prisoners, 4th, villagers living in the vicinity of plantations. The 2nd and 4th class are by far the best labourers, but will not go far afield for work, and will only leave their villages for crop time (generally end of October to end of December). In fact unless the estate is in the hills or near their villages this class of labour can only be depended upon for crop, but will not stay and work steadily all the year round. The 3rd class are taken out of the prisons on payment of $5 to $10 a head, and this forms a more or less regular income to certain Government officials, not leaving out the highest in each State. This labour has to be worked literally as prisoners, and as regards treatment, wages, etc., the slave was far better off. They are generally the greatest scoundrels in a country that produces a good many. I have seen them brought up on a steamer, bound together and guarded by armed police. They are invariably locked up at nights and when not working. There is a good deal of this class of labour used on the tobacco plantations. They cost anything from $15 to $35 landed on the estate per head and work from three to 12 months getting 25ct. a day and food, but in the majority of cases get nothing when leaving, and if they do have a balance are given every opportunity to abscond. Personally I have never worked this class in any of the estates under my charge. The 1st class is the one generally employed. My experience is with Oaxaquenos chiefly. They are recruited on a "180 days' work" contract, the longest term they will agree to. This is illegal, as according to the Mexican constitution, no Mexican can contract his time. In practice the law is not enforced, but still it exists. The average advance comes to $16 for a man, and $9 for a woman, all recoverable. The recruiter gets a commission of $10 for a man and $5 for a woman which is not recoverable. Wages: men 37 cts., women 20 cts., boys and girls, 10 to 15 cts., a day, with food. My average rate of wages from June 1899 to end of August this year, works out on all the five estates under my charge to ·6518 cents per working labourer per diem. This includes wages, food, commission, cooks, watchmen, water-carriers, cabos (kanganies) wages and food and loss on absconders. Per contra the credit balances of absconders are also credited to the average. Working with class Nos. 2 and 4, the average would be perhaps 5 cents less, and in the Sierras perhaps 10 to 12 cents less. Nearer the coast the average would come to about 80 cts. As to the labourer himself, I will sum up his chief characteristics—laziness, stupidity, carelessness, drunkenness, callousness, self-conceit and an utter absence of ambition and thrift are the chief, lying and dishonesty coming a good 9th and 10th. When he first arrives, his chief idea is to abscond, but when treated fairly, he soon settles down. I am not judging him from a European standpoint, but in comparison with Tamils, Sinhalese, Chinese, Malays, Javanese, Banjarese and Dyaks, all of whom I have worked during my 21 years in the East. As regards work; in heavy weeding, he will do about 15 per cent more than a Tamil, but not as good work; and in clearing with the "machete," he is as good as the Malay with his "parang;" but in every other respect he is 10 to 50 per cent behind the Tamil as regards estate work. What can be expected from labour 10 per cent of which are field hands, and the balance loafers, gaol birds, tradesmen, artisans, clerks, etc. No wonder they have to be constantly watched, and often as not locked up when not working and at night. Beyond weeding and using the machete, they know nothing about estate work, and by the time you have taught them something of their work, their contract is up and away they go and you have to begin again. By taking advantage of his thriftlessness, I have kept a good many of the best men in the place for a year by advancing them goods from the estate shop, thus keeping them in debt and raising their wage to 50 cents a day. None, however, will stay beyond the end of crop *i. e.* 18 months from date of contract. When they get a craving for change nothing will keep them. Labour, such as it is, is scarce, and some Americans are beginning to introduce Chinese at a cost of $75 to $100 a head and $1 a day wages without food. In the first place they are making a mistake by getting them through the San Francisco "Societies" and unless Planters and Government combine and get Chinese direct from China, they will end by being at the mercy of the "Societies," as the Sumatran planters were; but under existing circumstances such a combination is very unlikely to come about. The present labour is bad, expensive, and insufficient and Chinese are the only ones that can be got. My experience of 18 years with them is that they work splendidly on contract, but on day wages are very unreliable and do as little work as they can.

TAXES.—Mr. Darley says: "Taxes are low enough." This being a country with a Protective Tariff disproves the above. The import duties are heavy, running in some cases to 75 per cent and 100 per cent. This fact makes living expensive, even plain living. But leaving out import duties, the following are the duties we pay in this state,

INCOME TAX on incomes over $15 a month 4·33 per cent per annum.

POLL TAX on labourers (recoverable) 21 cents a month, payable by estate.

TAX ON GROSS SALES ESTATE SHOP 1·90 per cent per annum.

LAND TAX $13 on every $1,000 value improved or unimproved land or other property.

PROPERTY TAX (readjusted every five years.)

CATTLE TAX, if over 10 are kept for breeding purposes. I do not know the tax.

STAMPS ON INVOICES OR BILLS. 3 cts. on every $5 (or part of $5) value of goods bought.

STAMPS ON CHEQUES 5 cts. Do on draft or bills $100 2 cts. $500 5 cts. beyond $500 1 ct. for every $100 or fraction.

STAMPS ON LEDGER $14 95, cash book $9 90, Journal 75 cts, all liable to Government Examination, a very good thing too.

LEGAL RATE OF INTEREST 6 per cent. The usual rate charged is 12 per cent.

EXPORT DUTIES on coffee remitted, cacao nil, Rubber nil, Tobacco nil, Vanilla nil, Sugar nil, and Aguardiente, none.

IMPORT DUTY has to be paid on all Tools, Machinery, Ploughs, Harness, Bags, (if good ones are wanted) etc, that are used on an estate. (See enclosed letter from Mex. Commercial Company).

POLICE.—I maintain that Mexico is not well policed. I except the capital, towns and large villages. The nearest village to me is some 25 miles off and has two policemen. Being in Vera Cruz state, they are useless to me. The capital of this district is about 60 miles off, and takes three days, over a fearful track, to reach. These are the nearest police that I can call upon. Since my arrival there have been four murders (two of which were by my own discharged men) that I have heard of, and one arrest, and this last due entirely to my action. As to minor offences, such as brutal and serious assaults, no notice is taken. Prisons are an absolute disgrace. Hanging is not allowed and imprisonment, no disgrace. The worst punishment is to send a man to the Army. A criminal or absconding labourer has only got to get into another state and is practically free from punishment and arrest. Certainly every estate can have its own police, but has to pay $20 a month per man, feed and house both himself and his horse.

GOVERNMENT.—As in the United States, there is no "covenanted" Civil Service in Mexico, but unlike the United States, though a mock form of voting is gone through. Practically all the Governors of the States, the Federal officials and the members of the Legislature are nominated and appointed by the President, and it is lucky for Mexico that President Diaz still remains at the head of affairs. I consider him the ablest man in America. Every State official is under the thumb of the Governor, and as their appointments only rests on favour, they with few exceptions do his bidding, and all hasten to make "hay while the sun shines." They are all badly paid. Each State is sub-divided into districts at the head of which is the Jéfé Politico and with him the Juez, or Judge, both responsible to the Governor. Each district again is divided into municipalities under an "Alcalde" and "Agente Municipal," who are responsible to the Jéfé and Juez. Until we got our own "Alcalde" and "Agente Municipal," whom, of course, we have to pay, we were under two Indians who could neither read nor write a word of Mexican. I will give two examples of the result. Two of my house servants in a drunken fit, broke into the dispensary and drank some carbolic acid that was in a used whiskey bottle. One died and was buried next day. I notified these officials and three days after they came down, and I was informed by the Secretary that I was liable to a heavy fine for burying him before the officials had seen the body. Backsheesh smoothed everything. Case No. 2. One of my men whilst bathing in the river was drowned, though his wife and several others saw what was happening and never said a word or tried to help. This is not singular, for they all have a dread of anything that has to do with their courts of justice. On Monday evening his body was found half a mile down the river and on Tuesday morning I notified the officials, leaving his body where it was found. Four days after they came down, only to examine a skeleton, as in the meantime the carrion eagle had done the work for which it is protected in this country. The machinery of the law is slow beyond all imagination, and justice, to quote Kipling, is "to him who holds the longer purse" as regards the state courts. I have had a simple case on a pro-note going on now for a year and we are just as we started, the Judge having taken one year to discover that the case was a "civil" and not a "commercial" one, and there is every appearance that this decision was given under instructions. The Supreme Court of the Republic is, I believe, beyond reproach. I quote the words of an influential and well educated Mexican merchant to me:—"In the matter of justice we are far behind in Mexico, and General Diaz seems to be more bent on material progress than upon moral advancement."

PRODUCTS.—Cultivation as understood in the East is quite unknown as yet in Mexico, unless amongst the few men of Eastern experience. From what I have seen, there is a want of even elementary knowledge of planting. Once the plant is planted (often as not "stuck in") three to four weedings or cutting down the weeds with a machete a year is all the cultivation that is given. The soil and climate do the rest. This want of knowledge is due in my opinion to the following causes:—1st. The want of "go" and education amongst the vast majority of Mexican planters. 2nd. The bad and costly labour. 3rd. The richness and productiveness of the soil. Whether in the face of costly transport and the labour conditions, cultivation will pay, remains to be proved. What I do know is that at the present moment there are very few solvent coffee and tobacco planters in Mexico, and a large number of estates of the former have been abandoned and of the latter put out of cultivation. Estimates coming from Mexican or American sources I entirely mistrust; first, because the Mexican as a rule only calculates the amount he spends on labour, and the American estimates come from men with land to sell. Crop estimates are more reliable, but even these should be discounted considerably. I have carefully worked out the cost of properly opening, cultivating and bringing into bearing the following products under existing circumstances in this section and append the same. If I have erred at all it is on the expenditure side, as of course, every planter has his own ideas of how a work should be done. I have taken the acreage of each estate as 500 opened.

COFFEE.—To bring into bearing, say 4th year $300 per acre. Returns in full bearing 8 cwts. the acre, Cost of cultivation $120 the acre. I have seen absolutely no disease.

TOBACCO.—The first year will cost $15 the arroba (25 lb. Spanish) value $18 the arroba. The 2nd year will cost $10 the arroba value $20 to $25 the arroba. Only under expert management. The yield here for the 1st crop is an average 2½ arrobas

per 1,000 plants. The following year 1½ to 2 arrobas. This is far under the Sumatran yield.

RUBBER.—Planted 14' × 14' will cost to bring into bearing (*i.e.* full 8th year) and if regularly weeded $150 the acre.

Yield 8th year 1lb. per tree cost per acre including gathering $95.

Yield 9th year 2lb. per tree, cost per acre including gathering $150.

Yield 10th and following year 3 lb. per tree, cost per acre including gathering $200.

CACAO.—Will cost to bring into bearing $250 the acre. Yield in full bearing 8 cwts. the acre cost $100 per acre.

SUGAR AND AGUARDIENTE.—It is generally calculated that in this part the same field will go on yielding from 10 to 22 years (a pretty wide margin) and the profits range from $600 to $800 the "hectara" (2½ acres). In my opinion, as I know nothing of sugar, a good deal of salt would mix well here.

RICE DRY.—This is a crop that for years to come will pay, I believe, better than any other. Very little labour is required. There is a large local demand and prices are good. Rice costs us here 12 cents the pound.

VANILLA.—This is its home, but I can gather no information about it. It grows wild in the forests here, as does rubber. On the Tobacco lands, crops of Maize and Beans are raised, but I do not approve of this mode. There is a large local demand for CACAO, Mexico even importing it, hence the local high prices which Mr. Darley correctly quotes. There is also a good local demand for sugar, maize, beans, tobacco. The local demand for Aguardiente is enormous as the Mexican mozo or peon cannot do without his one, two or three "copitas" (glasses) a day, and they begin drinking as children and gulp it down almost raw without a wink. It is their one remedy for almost every ill. When, however, this local demand is met, and the planter has to compete in the open markets against countries with cheaper and better labour, cheaper transport and light taxes, how will he fare? Time alone will tell. In the meantime he has magnificent soil in his favour and a large and close market in the United States and Canada. It is true Americans are rushing in and taking up large tracts of lands. There are a few exceptions, but the majority are buying only for a deal. They will dispose of these lands in small blocks to would-be planters, and I prophesy that these will be "left." What Company can deal with 100,000 acres of land and over; certainly not open it themselves? In my immediate vicinity there are 588,000 acres of magnificent land for sale. The truth is there is still a large land boom on in Mexican tropical lands and, what goes hand in hand with land booms, a plethora of exaggerated estimates like the one you published on page 36 of the July *T. A.*

LIFE ON A PLANTATION.—As I have said previously, living, even of the plainest, is very expensive, unless one lives like a Mexican on dry beef, chickens, beans, rice and tortillas and coffee. If you offer a Mexican tea, he will decline saying that he is not ill. Such a thing as a good cook or house servant is not to be found in Mexico, taking the standard of upcountry in Ceylon or in the Malay Peninsula. A plain cook, generally Chinese, will demand $30 to $40 a month and food and a house servant of the same nationality $20 to $30 and food and get it too. Mexican cooks (women) get $12 to $15 and food and house servants $15 to $ 20 and food. The Mexican servant is the most hopeless, lazy, ignorant and dirty brute I have ever come across. He has no idea of waiting, or general house work, and the cook is of the same class. Their worst point is that they will not learn, they have too much self-conceit; and if you get one who is willing to learn, they will not stay long enough to be taught, and if they do, will only learn up to a certain point. I answered a cook's advertisement in the *Mexican Herald* and enclose his reply. $100 a month and food is not bad for a "Mussleman from Conpore" calling himself "Charles Sherman."

The other delights consist of insects called "rodadores" that torment and bite one all the day and all the year round, sandflies that do the same at night during the wet season, and mosquitoes (these only bad in some places). During the dry season one cannot walk through the grass without getting covered more or less with ticks and lice. Of sport of any kind there is none, nor recreation nor society. If one is surrounded only by Mexicans, all idea of civilized society and sociability has to be given up. To compensate for the life one would have to lead, would require larger profits than I am afraid any estate would yield.

For rubber and coconuts, Mexico and adjoining countries will have a formidable rival in the Malay States where labour is from 100 to 125 per cent cheaper and far and away better, transport better and cheaper by at least 100 per cent, taxes 2½ per cent *ad valorem* duty on produce. Any one thinking of investing in Mexico, I should advise first of all to visit British Honduras. I see no reason why British Honduras should be worse than Mexico as regards soil and climate. It is a British colony and labour can be got from India under a five years' agreement and for 50 cts. a day without food, cost landed £10 a head, but irrecoverable.

"PLANTER.."

CASSAVA OR MANIOC.

Matale, Nov. 26.

SIR,—With reference to the poison of the cassava or manioc referred to in your issue of the 25th, the natives hereabouts believe that some of the poison in the cassava is communicated by snakes who are said to be very fond of this vegetable and nibble at the roots whenever opportunity offers. Further as the manioc is planted as a fence tree along with the "endaru" which is supposed to be poisonous, the "endaru" is said to have infected the manioc with its poison. All careful housewives as previously stated, cut out the poisonous part of the cassava before they begin cooking. I understand that manioc is very extensively eaten in the Eastern Province and doubtless some of your correspondents there will be able to give valuable tips about the way to avoid the bad kinds. S.

IMPERIAL FISCAL FEDERATION—FOR COFFEE AND TEA.

United Planters' Association of Southern India, Incorporated.

Madras, Nov. 29.

DEAR SIR,—I beg to enclose for your information and for the favour of such comment as you may deem fit, a copy of a letter that has been despatched to a very large number of

Chambers of Commerce and other bodies concerned with trade in various parts of the British Empire. Trusting that you will view favorably the action that my Association has taken in the hope of bringing a very important subject under discussion,—I am, dear sir, yours faithfully,

HARRY ORMEROD, Secretary.

Madras, 11th Nov. 1900.

DEAR SIR,—At the annual meeting of this Association on 8t August, 1900, the following resolution was unanimously adopted :—

"That considering the critical condition of the tea aud coffee industries, this Association do communicate with the Indiau Tea Association, the Ceylon Planters' Association, the Indian Chambers of Commerce and the leading firms of merchants and brokers interested in tea and cffee, etc., in this country and in England and her colonies with a view to ascertaining whether a movement in favour of a commercial combination of Great Britain and her Colonies and India against the world (which would by a system of differential duties afford some protectiou to British-grown products and manufactures) would receive support."

This resolution may be said to have resulted chiefly from the recent revision of the French Tariff in regard to Imports of produce from (*inter-alia*) India, aud the British Colouics and Depeudencies. You are doubtless aware that the French Parliament, as an act of reprisal against Brazil, voted recently a law doubling the duties on coffee, tea, and spices imported from countries not having Treaties of Commerce with Frauce or not enjoying Most Favoured Nation Treatment, among which are India, the British Colonies and Dependencies (with the exception of Canada). The French and Brazilians have made up their quarrel, but the French Tariff law, which was really directed against Brazil, still subsists. There appears to be reasonable ground for hope that it will not be put into force, but if it should, the consequence would be,—to use the words of the "*Economist*"—that the prohibitory tariff for Colonial produce would only be applied to countries, British Colonies among others, for which it was not intended.

Although it is possible that the French Government may be induced to reconsider the action referred to, yet what has been already done serves as an unmistakable warning of the grave risk to which British trade is at present exposed, and the burdens, it may at auy time be called upon to bear.

It is felt that there is a strong and growing feeling in England and her Dependencies and Colonies, in favour of what may be termed an Imperial Fiscal Federatiou for the protection of British interests as against those of the rest of the world. The Association is desirous of elicitiug your views on the subject, to co-operate for the purpose of submitting memorials to the Home Government and other Governments concerned, and would be glad of your advice as to the precise form such memorials should take.

If you have already made any move in the direction indicated, a copy of your proceedings would be welcome.—I am, dear sir, yours faithfully,

H. PERCIVAL HODSON, Chairman.

Harry Ormerod, Secretary.

GOURAMI FISH AND ITS SUCCESSFUL CULTURE IN CEYLON:

Galle, Dec. 1.

DEAR SIR,—I wrote an account some time ago of the various attempts that have been made to introduce Gourami into Ceylon, but I do not recollect stating that they would only thrive at sea level. I think that they would probably do well up to 1,000 feet in this climate, Nuwara Eliya has been proved to be too cold, as a large consignment of healthy fish died during the first night in their new quarters. This happened in 1893 or 1894.

Of the five fish which arrived last year, three died, mainly, I think, for want of suitable food. Though they fed greedily, they fell off in condition, and eventually died; while the two survivors, when turned out into a small pond where they could find their own food, throve well. I brought these two down to Galle, where, I believe, they are still flourishing. I have written to Mauritius for a further supply; but have had no reply yet. I hope that other attempts will be made to introduce this fish; but it is important that a suitable pond, well protected, and free from other fish, should be ready to receive the new arrivals. The difficulty in finding such a pond in Colombo is greater than would be imagined, and the best way would be to construct one specially for the purpose.—I am, sir, yours faithfully

GEORGE M. FOWLER.

HOW TO CHECK OVERPRODUCTION AND SECURE QUALITY OF TEAS —A PRACTICAL SUGGESTION.

The Laboratory, Hyde Park Corner,
Colombo, Dec. 7.

DEAR SIR,—Might I suggest the following partial remedy to minimise the *present* production, and improve the general quality of the tea coming into the market. It has been long known, and proved, that the young shoots after a medium or heavy pruning contain little material in their sap to produce a good liquor, and this is perhaps equally the case even when manure has been applied, especially if of a forcing character.

By leaving these shoots unplucked for a few extra weeks and then cutting back, the bush would have a much better chance of forming good wood and *root* grown and the temporary loss of leaf would be made up by the steadier flushes of better quality plucked at a later stage. As pruning is being carried out practically during every month of the year, there must be a constant supply of this immature leaf going both to the local and home markets, which can but do harm to the name of Ceylon tea.—Yours faithfully, M. KELWAY BAMBER.

CASSAVA AND ITS POISON.

DEAR SIR,—It would appear that the "poisonous" variety of cassava is harmless enough—and is in fact the better of the two—if properly treated. Dr. Alfred Nicholls, in his text book of Tropical Agriculture, says "sweet cassava may be used as a vegetable without preparation: but bitter cassava contains juice of a very poisonous nature. This poisonous juice, in which there is much hydrocyanic or Prussic Acid is fortunately dissipated by heat, and so the bitter cassava is commonly cultivated as it gives much larger returns than the sweet kind."

The same author goes on to show that there is a use even for the "poison," for he says, "The poisonous juice of the tubers of the bitter variety of the cassava plant should not be thrown away,

as it can be converted into a valuable product known widely as cassareep. The juice is simply boiled down until it becomes of the consistence and appearance of molasses. In this condition it is a powerful antiseptic, and it is capable of preserving all kinds of meat in a fresh condition for considerable periods. It is the basis of many celebrated sauces, and of the well-known *pepper-pot* of the West Indies. Thus by reason of the boiling process, this highly poisonous juice is converted into a wholesome food product, for which there is usually a ready sale in England and elsewhere."

We then have a reference to the carelessness by which deaths are caused through bitter-cassava poison, and the following valuable hint is given: "The Indians of Guiana use red peppers (chillies) steeped in rum as an antidote to the poison."—Yours faithfully, C. D.

"INDIAN TEA FOR INDIA" (AND CEYLON TEA FOR CEYLONESE?).

DEAR SIR,—With over two hundred millions inhabitants, fully seventy-five per cent of whom are capable of being converted into habitual tea drinkers, it seems absurd that India should still go on flooding the London Market with her teas without making any effort to capture the local market. No doubt a few futile attempts have been made by the Indian planters at odd times, but they have always failed for the simple reason that the tea was not presented to the natives in a way to suit their habits and requirements. The common idea seems to be that the natives will only buy the very cheapest low grade teas and these have been presented either in large packages or *not packed at all*, and then people wonder that so little Indian tea is consumed in the country. What is wanted is to study the native character and then to supply the market in the way best suited to their habits.

I remember writing on this subject more than 20 years ago, giving my own personal experience in selling teas amongst the natives in the rural districts, but little or no notice was taken of my letters. At that time, however, India was not turning out much more than half her present crop, and Ceylon had only just commenced to produce tea and the idea of over-production was scoffed at by most, if not all those engaged in the industry; but, now that we are actually face to face with over-production, my words may have greater effect.

If you will allow me the use of your columns I would like once more to give an account of my own attempt to introduce tea into the native bazaars which extended over two seasons and which though productive of very little good at that time, sufficed to convince me that an enormous trade might by done be supplying the article in the way best suited to the wants of the native community; and had I remained in India, and been given the opportunity, I felt sure of success. But let me give me a brief account of my experience and I will then endeavour to show what is needed.

My first attempt was made somewhere in the seventies entirely with black teas; and as cheap travelling was absolutely necessary, my arrangements were of the simplest. After loading several large bullock carts with about 10,000 lb. tea of all grades in one and two lb. packets, 5 and 10 lb. boxes and large quantities of *Bohea*, simply packed in bamboo baskets with paper lining, I hired a small single bullock hackery for myself and set off to traverse the rural districts and purely native towns, merely passing through the larger cities and perhaps halting for a day or two to rest myself and cattle. I generally took advantage of this halt to send a few hundred lb. of tea to an auctioneer (one or more of whom are to be found in every large city in India) and attending the sale myself (unknown even to the auctioneer) I would bid for the tea till it reached a reasonable figure and then step out. This was perhaps a bit of sharp practice and scarcely honourable; but I always stopped bidding as soon as a fair price was reached, and did not often buy in any quantity. Of course, some of the tea sold at these auctions was bought by residents for their own use, but most of it went to the native shop-keeper to retail to their customers. And now for my experience in the purely native districts.

Firstly, I soon found that the idea that natives would only buy the lower grades, was a great mistake. Nearly all the well-to-do native gentlemen would look at nothing but the very best tea, paying R2 per lb for O P rather than buy good *sou* at eight annas or *Bohea* at four annas. 2nd,—One lb. packets were easily disposed of, but 2lb packets were sold with difficulty and at a reduced price, while five and 10lb boxes could only be got rid of by bartering for goods to sell again upcountry. 3rd,—Most of the Muhammadans preferred *green* to black tea. They say that green tea is less heating than black, and therefore better suited for hot weather; how they got this idea I cannot say. Probably from the Afghans and Persians who all drink green tea. Acting on the above information, I took care to have a proportion of green tea the second time, and this sold readily, and I might have sold double the quantity of greens if I had taken it.

To capture this valuable market which might result in more than half the tea produced in India being consumed in the country, all the I P A have to do is to start a Company to make up small paper packets of tea to be retailed at one anna and half annas the best grades at one and the lower grades at half, the quantity of tea in each packet being made to suit the above prices. For instance the best O P could be put up in one-ounce packets to be sold for one anna, and the *Bohea* in two ounces to be retailed for half an anna—the other grades in proportion to their market value. These little packets should be enclosed in lead packets containing one dozen each or in air-tight tins. Then one or more travelling agents should be sent to scour the country and place these packets on commission sale with every respectable native shopkeeper all over the country. The Company should not rest till their packets are on sale in at least 50,000 shops. This would not be a difficult task. In every case where I tried them, I found the Bunniahs always willing to take tea on commission sale and render monthly accounts and write for more tea when they wanted it. They are generally honest enough in these matters and I don't think the Company would suffer much loss through them nor would the business be expensive in other ways, as little or no money need be spent in advertising and as soon as a demand sprang up, no doubt many of the shopkeepers would buy their requirements from the Company rather than take it on commission; but they would not do so at first.

In almost every large city in India, China tea is sold in small paper packets, for a few pice and this constitutes the chief supply, so far as the

natives and Eurasians are concerned, and is the sole reason why China tea still holds its own in the Indian bazaars. Neither the natives nor Eurasians keep tea caddies and object to buying even a lb. of tea at a time, hence the necessity for these small paper packets. And I am positive the Indian market will never be captured in any other way, but a one-anna packet Company worked as suggested above would be sure to succeed and work wonders in a few years.

I give the advice for what it is worth and the I. P. A. must be mad indeed if they do not give it a trial. If Ceylon had had such a promising market at her door we should never have heard of the tea cess or the XXX Committee; but even Ceylon need not send an ounce of dust or fannings out of the country. If a three-cent packet Company was started in Colombo on somewhat similar lines and it would put a stop to the sale of *rubbish* in the harbour, as the Company would naturally get the whole of that trade in their own hands. To start such a Company would not take a large capital and I should say any planter would be glad to take a ten-rupee share in it.—Yours faithfully, G. S.

TEA AND MR. BAMBER'S SUGGESTION.

DEAR SIR,—That was a very sensible letter of Mr. Kelway-Bamber (see page 490.) I agree with him, the temporary loss in manufacturing rubbishy tea from tippings would be more than made up by the extra root growth and good wood for pruning if the bushes were allowed to run. I had practical demonstration of this many years ago in the Kelani Valley when I knew very little about tea, and allowed the bushes (in about thirty to forty acres) to run and then passed the knife over them. The follow-ing year I had splendid wood to prune on and I am sure more than made up for the loss.—Yours faithfully,

WESTERN PROVINCE.

FLOWERS AND FLOWER-GARDEN.

DEAR SIR,—I enclose a cutting from an old *Magazine*, about the "Civilizing Effects of a Taste for Flowers."—Yours truly,

LEISURE HOUR.

Extract from "Civilizing Effects of a Taste of Flowers":—"The Parish of Arncliffe, near Skipton in Yorkshire, situated in a very wild part of the country, and inhabited by a wild and lawless tenantry, had been for many years without a resident clergyman, the living being a very poor one—not over £30 a year. The present incumbent, the Rev. Mr Boyd, determined, however, to set himself down among them, and to use utmost exertions in bettering their condition. To this end he surrounded his house with a fine garden, well stocked with lovely flowers, and induced his peasantry—but with great reluctance, to come in one by one to see and admire his flowers, and to take them home and to cultivate them. Now, for the first time they had light in their dwellings, and ultimately, through the kind and personal care which was bestowed upon them, they have become the most contented and happy set of villagers in all Yorkshire."

NEW GUINEA RUBBER.—I am glad to hear that the natives of New Guinea are beginning to understand the collection of raw rubber. At first they were inclined to cut down the trees in order to obtain the milk. They are, however, doing better now.—*Indiarubber Journal*, Nov. 26.

PLANTING NOTES.

RUBBER IN SANTA CRUZ.—A great discovery of india-rubber forests of vast extent has been made in the Department of Santa Cruz de la Sierra, and on the Magdalena in the Department of Beni, and also some exceedingly rich gold deposits. This confirms the traditions of the Jesuits, who knew something of that region, and who even worked its resources to some extent. In the Province of Caupolican, Department of La Paz, there have also been discovered some splendid forests, in which there have been found some rubber trees of a species not before known. In Bolivia the only species of rubber trees hitherto worked are those known as "Hevea," or "Siphonia Brasiliensis," but lately the species known as "Castilloa," which exists in Mexico, Colombia, Ecuador, Central America, etc., has been discovered. In the Province of Caupolican gutta-percha has been also discovered, which is very important. In order to facilitate shipments for the products of Santa Cruz and Beni, the Government has decided to open a port, with a national custom-house, on Laguna Gaiba, a beautiful creek of the river Paraguay, on its right bank at 17 deg. 48′ S. latitude. The prolongation of the North Central Argentine National Railway from Jujuy to the frontier of Bolivia, and thence to the city of Potosi, is an enterprise which London capitalists might undertake to their advantage, as they could obtain very advantageous concessions from both Governments. —*India-Rubber Journal*, Oct. 15.

BANANA FLOUR.—The banana, which grows in almost all tropical countries, is very nutritive, and forms a nearly perfect food. It contains more than 25 per cent. of assimilable organic matter. According to Humboldt, it is forty-eight times more nutritious than the potato, while Crichton Campbell has stated that the banana is twenty-five times more nutritious than the best wheaten bread. The analysis of Thoms shows the presence in the flour of banana of 9·01 per cent. of nitrogenous matter. The best wheaten flour contains no more than 9 to 11 per cent. It is preferable to manufacture the starch from unripe fruits, because the starch is converted into sugar in ripening. In Venezuela the flour of the banana is given especially to children; it is equally good for aged people, convalescents, nursing women, and is of great service in the feeding of those suffering from complaints of the stomach. In Central America, Columbia, and Venezuela, the banana flour is prepared on a large scale, and sold under the name of Musarina. The flour of the banana may be used in the same way as wheaten flour, except for the preparation of bread, for which it is unsuitable, inasmuch as it contains no gluten. Various formulæ are taken from the *Tropenpflanzer* for preparing banana flour for dietetic use. Thus, a teaspoonful of the flour in a cup of chocolate or cocoa facilitates the digestion of these drinks, and renders them more nutritious. This addition enables cocoa to be taken by those whose stomachs are in a weak state. A sustaining drink may be made by adding a teaspoonful of the flour to an egg yolk beaten up mixed with milk, and sweetened with sugar. The sale of banana flour in London is insignificant, on account of its high price, and the fact that its uses are not yet understood.—*Revue des Cultures Coloniales*.

TEA COMPANIES' REPORTS.

CENTRAL TEA COMPANY OF CEYLON, LIMITED.

The Directors have the pleasure to submit the General Balance Sheet and Profit and Loss Account for the year ending 30th June, 1900, duly audited.

	£.	s.	d.	£.	s.	d.
The net amount at credit of Profit and Loss Account, including the balance brought forward at 30th June, 1899, and after providing for General Expenses, Directors' Fees, Income Tax, &c., is ...				2,867	0	2
Dividends on the 6 per cent preference shares were paid for 1899/1900 (less Income Tax) amounting to	1,299	7	6			
It is proposed to pay a dividend of 6 per cent (less Income Tax) on the Ordinary Shares which will absorb	1,054	10	0			
And to carry forward to next year a balance of ...	513	2	8			
				2,867	0	2

The Directors trust the results of the year's working of the estates will be deemed satisfactory by the shareholders, considering the fall in the market value of tea.

The gross average price realised for the tea was 7·03d per lb. as against 7·87d per lb. last season, and the rate of exchange was 1s 4 31-64d as against 1s 4 13-64d.

The yield of tea was 406,646 lb., being 454 lb. per acre over a plucking area of 895 acres.

The acreages of the estates are as under :—

Estate.	TEA. In bearing.	New clearings.	Cardamoms.	Forest Grass and Waste.	Total acreages.
Kabragalla ...	508	...	49	380	937
Somerset ... (Including Easdale and Loxa)	387	13	...	33	433
Total ...	895	13	49	413	1,370

Under clause No. 24 of the Articles of Association Mr. H. K. Rutherford retires on this occasion from the Board, and being eligible, offers himself for re-election.

THE GANGWARILY ESTATES COMPANY OF CEYLON, LIMITED.

REGISTERED OFFICES :—BILLITER SQUARE BUILDINGS, LONDON, E. C.

DIRECTORS :—Sir John J. Grinlinton, C.E., F.S.A., F.R.G.S., H. L. Tottenham, Esq., Theodore Stretch, Esq.

FOURTH REPORT OF THE DIRECTORS.—To be presented at an Ordinary General Meeting, to be held of the Offices of the Company, Billiter Square Buildings E. C., on Tuesday, the 16th October, 1900, at 3·15 o'clock in the afternoon.

The Directors submit herewith Balance Sheet and Profit and Loss Account for the twelve months ending the 30th June, 1900.

A new clearing of 27 acres has been made on Yelam-Mallai Estate and is being planted with Cardamoms. This will be increased to 40 acres, making the total clearing 100 acres and the cultivated area of all the Company's Estates 1,017 acres.

The crops of all the Estates have been in excess of estimates, but the advantage thus afforded has been almost dissipated by a further fall in prices. The total Tea made in the Season amounted to 499,029 lbs. costing 26 cents. per lb. free on board Colombo.

The total quantity of Tea sold amounted to 527,139 lbs. including 28,110 lbs. of bought leaf. Of this 126,264 lbs. was sold in Colombo at an average of 27¾ cents. and 400,875 lbs. in London at an average of 6·06d per lb.

The Cardamoms on Yelam-Mallai are reported to be growing well and a small picking may be looked for in the new season.

Estimates for the Tea Crops for the twelve months ending 30th June, 1901, point to a yield of 475,000 lbs. Every effort is being made to keep down cost and at the same time maintain the Estates in good cultivation.

The Profit and Loss Account, after paying Dividends on the Preference Shares to 31st December, 1898, shows a balance of £84 17s 9d brought down. The profit for the year, after writing off £382 16s 11d from buildings, machinery, &c., amounts to £974 9s 4d, which added to the above gives an amount of £1,059 7s 1d. Out of this the Directors have paid a half-years' dividend on the Preference Shares to the 30th June, 1899, leaving a balance of £740 17s 6d; they now recommend that a dividend be paid on the Preference Shares to the 30th June 1900, which will absorb £636 19s 2d, and leave a balance of £103 18s 4d to be carried forward. J. J. GRINLINTON, Chairman.

4th October, 1900.

THE CEYLON LAND AND PRODUCE COMPANY, LIMITED.

Report of the Directors, to be submitted to the Sixteenth Annual General Meeting of Shareholder' to be held at the Registered Office of the Company. Nos. 353 and 354, Leadenhall Hall House, 101, Leadenhall Street, in the City of London, on Monday, the 12th day of November, 1900, at 2 o'clock p.m.

Your Directors have the pleasure to submit the Annexed Profit and Loss Account and Balance Sheet for the Crop year ending 30th June, 1900, duly audited.

1,103 shares of £5 each, being part balance of the 6 per cent Cumulative Preference Capital, were allotted during the past year, and the premiums received, less cost of issue, transferred to Reserve Fund in the sum of £675.

The amount at credit of Profit and Loss Account is £8,262 17s 10d, which, with the sum of £986 3s 10d brought forward from last year, leaves £9,249 1s 8d to be distributed.

On the 21st July last an Interim Dividend of 7½ per cent. on the Ordinary Shares and 3 per cent on the Preference Shares was paid, and your Directors now propose to pay on the 15th day of December, 1900, the balance of the fixed Cumulative Dividend on the Preference Shares, 3 per cent, making 6 per cent for the year, and 7½ per cent. on the Ordinary Shares, making 15 per cent. for the year, all free of Income Tax. It is also proposed to transfer £1,825 from Profit and Loss Account to Reserve Fund, increasing that account to £20,000, to set aside the sum of £100 as a provision for possible losses on Coast Advance Account, and carry forward the balances of £1,473 1s 4d, subject to the Directors' remuneration for the year under review and to the payment of Income Tax, &c.

A sum of £1,575 spent upon permanent improvements during the year has been debited to Revenue.

Your Directors are pleased to report that the total Crop of Tea for the year exceeded the Estimates by 64,518 lb.; there were also increases of 64,091 lb. made from purchased leaf, and of 43,486 lb. made for others, the total excess amounting to 172,095 lb. It is a matter for regret, however, that the general

net average of the Company's Teas has fallen from 6.78d. to 6.21d. per lb.; during the same period exchange showed an advance, and Freights were on a par with those of 1898-99.

Your Directors have to report a shortage in the crop of cocoa marketed from the Alloowiharie and North Matale Groups. The estimates framed at the commencement of the season for these properties provided for 2,400 cwts., but the intake therefrom amounted to only 1,436 cwts. This shortage, in the opinion of your board, is mainly attributable to the abnormal weather experienced, but there is no doubt that "canker" is also responsible in a measure. Every precaution is taken to prevent the disease from spreading, and latest advices from the affected properties (North Matale and Alloowiharie) are to the effect that it is becoming less prevalent; the Cocoa on your other properties is, so far, quite free from disease.

During the financial year a total sum of R28,000 has been spent on Manure and its application to Tea and Cocoa, the whole of which expenditure has been charged to Revenue; it is intended to continue generous treatment.

A census of Coconut trees was taken at close of the year, shewing a total number of 40,195 planted amongst other products; this is equal to 530 acres at the rate of 76 trees per acre.

TEA.—The Market opened after the turn of the year, with a good general demand, and steady prices for nearly all descriptions. In the early spring months the Trade were much engaged with clearances, in anticipation of a rise in Duty. This actually took place, to the extent of 2d per lb, in March, after which there was less disposition shewn to purchase, and as supplies at Auction continued abundant, with a large percentage of poor liquoring and and unattractive parcels offering, the average gradually declined until June, when it stood at 6⅝d per lb; by that time the value of common leafy kinds had from January 1st fallen from 6d to 5d per lb, Later on some improvement was discernible in quality, and although Public Sales remained heavy, this, together with actual reduced shipments and smaller telegraphic estimates, somewhat restored confidence, so that the result became gradually more favourable, the average being 7½d per lb for the month just ended.

From 1st January to 31st ultimo 1,111,700 packages of Estate Tea passed through the Mincing Lane Sale Rooms, realising 7¼d. per lb., against 8d. per lb. for 964,500 packages, and 7¾d. per lb. for 984,300 packages, in the corresponding ten months of the two preceding years.

The most noticeable feature presented by the Market throughout a great part of the period under review was the depressed condition of medium grades quotations for which, at times, were but little removed from those current for good common and fair, partly attributable to the unattractive selection sent home. For really choice flavoured invoices there was a good enquiry throughout. In view of the anticipated increase in the year's output to 142 million lb., contrasted with total shipments from the Island in 1899, which were 129 million lb., it is satisfactory to notice that the growing demand from outside quarters has induced larger shipments from London to meet it, and also brought about more direct business from Colombo with Australasia, Russia, and America, the amount sent from the Island to these countries for the first nine months of the year being—

1900.	1899.	1898.
	TO AUSTRALIA.	
12,894,000 lb.	11,967,000 lb.	11,259,000 lb.
	TO RUSSIA.	
6,657,000 lb.	2,719,000 lb.	1,915,000 lb.
	TO AMERICA.	
3,463,000 lb.	2,344,000 lb.	1,870,000 lb.

COCOA.—It is gratifying to report that prices this year have attained a higher level than those of any time since 1893, the advance having been gradual and continuous, mainly attributable to the increasing general demand, and the falling-off in supplies from the island which have been about 40 per cent less than last year, and about 30 per cent less than 1898. The quality has shewn no improvement upon last year's out-turn, parcels of good and fine bright red being again in sm ll proportion to the bulk of the crop, and consequently the attractive lots have realized good prices. A parcel from the Company's Alloowiharie Estate obtained 102s 6d per cwt, being the highest price of the season, and above any secured since 1893. The future of the article appears favourable, consumption shews a continuous improvement, and a further increase in production would not materially affect values.

ACREAGES.—The following Statement shews the approximate acreage of the Company's Properties at date:—

Name of Estate.	Tea. 1 yr.	Tea. 2 yrs.	Tea. 3 yrs.	Tea. Over 3 yrs.	Cocoa. Bearing	Cocoa. Not bearing.
Alloowiharie Group ..	—	—	117½	97	263	84
Andangodde Estate ..	—	—	16¼	160	—	—
Fetteresso Estate ..	5	—	—	405	—	—
New Peradeniya Est.	—	—	1¾	382¾	17½	2
North Matale Group.	—	18	13	376	721	10
Owella Estate ..	—	—	—	—	13	205*
Rickarton Estate ..	2	—	12	526	—	—
Strathisla Group ..	39½	58	48	114	91¾	82¼
Forest Land ..	—	—	—	—	—	—
	46½	76	208½	2,060¾	1.106¼	383¼
		2,391¾			1,489½	

* And Tea.

	Cocoa, Coffee, &c.	Forest, Grass, Chena, abandoned, &c.	Total Acreage.
Alloowiharie Group...	116¼	15	692¾
Andangodde Estate...	—	—	176¼
Fetteresso Estate ..	—	28	438
New Peradeniya Est.	—	54½	458½
North Matale Group..	85	354	1,577
Owella Estate ..	—	239	457
Rickarton Estate ..	—	56	596
Strathisla Group ..	—	5¼	438¾
Forest Land ...	—	430	430
	201¼	1,181¾	5,264¼

N.B.—In the absence of detailed surveys these figures, as mentioned above, are approximate only.

The Estimates for current year provide for a Crop of 945.5 0 lb Tea from the Company's Estates, and 265,000 lb from bought leaf and Tea made for others, totalling 1,210,5 0 lb. The Crop of Cocoa is estimated to be 2,1 5 cwts. At the higher elevations the intake of Tea at date shews a marked falling-off as compared with last year, but your Directors trust the present shortage will be overtaken It is too soon to speak with any certainty regarding Cocoa, but, given favourable weather, it is hoped that a fair Autumn Crop will be harvested.

By Order of the Board, JAMES WILSON, Chairman. ALFRED E. LOCK, Secretary.

PEPPER, COFFEE AND TEA IN THE WYNAAD.

THE WYNAAD TEA COY., LTD.

The ordinary general meeting of the Wynaad Tea Company, Limited, was held at the office of the company, 7, Mincing Lane, E.C., on Monday last. The chair was occupied by Mr: J C Sanderson, chairman of the company.

The CHAIRMAN, in moving the adoption of the report and accounts, said: When the directors had the pleasure of meeting you last year I remember I told you we thought the prospects for the then current season, viz., 1899-1900, were encouraging, and that we looked for a crop of 78,000 lb. of tea, 20 tons of pepper, and 18 to 20 tons of coffee. Unfortunately, these crops were not marketed, so our hopes have been disappointed. Had we secured those crops they would have given us within about £200 to £300 of the working expenses of the season, which was all the board looked for. The pepper and tea crops turned out fairly well, but coffee failed us, and we picked barely ten tons, while the price realised was very low in consequence of the state of the market; hence the deficiency of £1,446 17s 4d, as stated in the accounts. I would, however, like to point out that this deficiency is so large because £1,266 18s 5d has been credited to the block account, being the proceeds for the tea from the acreage which is not yet in full bearing. The latter part of the season was a most trying time for both coffee and tea, as they had the longest drought in the Wynaad experience for many years, which drought injured the coffee trees to such an extent that we picked, as I have already told you, half our estimate, and it was only very late in the season that the board was aware of this serious deficiency. With regard to the tea crop, up to the end of October we were fully 7,000 lb. ahead of the estimate, but the long drought stopped the flushing of the bushes, and the final outturn was about 2,000 lb short of what we had expected. Our pepper crop turned out larger than the previous year, although rather below the estimate. To turn to a more pleasant subject, I am glad to be able to report that the outlook for the current season is so far satisfactory, although the past monsoon has been an exceedingly heavy one, indeed so heavy that some miles of the Ghat (the Government road) was washed away. (This damage has since been repaired.) Mr. R K Walker still considers his estimates are fairly safe. At the date of the last letter from our superintendent, viz, October 13, he reported that the quantity of manufactured tea was 67,453 lb. which was 27,266 lb ahead of last year, thus we have received nearly half our estimate, and we have the heaviest months to come. He said that although some little injury had been done to the pepper vines by the excessive rains, he did not think it necessary to revise that estimate. I have, however, the pleasure to report that we have just sold the crop at the price of 6½d. per lb. being ½d. per lb, more than last year. As to coffee, the latest report is, they were expecting to begin picking the crop about the end of October, and hoped to get the estimate of 35 to 40 tons, but as every coffee grower knows, there are always so many surprises in store for him up to the very last hour of harvesting his crop, that it is quite impossible to depend upon estimate. I do not think the directors will sell this crop for arrival, as prices ruling are so low that it is better to take the chance of the market improving. I should like to call your attention to the fact that we have planted a further fifty acres with tea, making the area now opened up to 630 acers, so that year after year we may expect an increasing yield of this product. Our cost of production is, I am glad to say, very moderate, and compares favourably with other tea-producing countries. At present we estimate we can put our tea, f.o.b., at slightly under 4d per lb, and as the yield per acre increases, that figure will, of course, be further reduced. You will notice from the report that the policy of the board will continue to be the development of this tea industry indeed, we would have liked to have planted a further fifty acres during this season, but, in in face of the deficiency for the working of 1889-1900, the directors decided to await the result of this current year's trading, before any further capital expenditure was authorised. The directors, however, after having consulted Mr. R K Walker, decided to plant, as a catch crop, a certain area of the Adelaide Estate with chillies, and also to put out a small quantity of ledger bark seed which they were able to procure from the Government gardens in Java. The cost of this work will be trivial, so you see, gentlemen, your directors in England, and Mr. R K Walker in India do not allow the grass to grow under their feet; indeed, they watch the welfare of your company with the greatest care, and at the same time endeavour to work the estates with every possible economy compatible with efficient management and sound cultivation. —*Home and Colonial Mail*, Nov. 9.

THE UKUWELA ESTATES COMPANY, LTD.

ANNUAL REPORT.

Report of the Directors, to be submitted to the shareholders at the second annual general meeting to be held at Ingram House, 165, Fenchurch Street, London, E.C., on Friday, the 16th day of November, 1900, at 2-30 p.m. The Directors beg to submit herewith the accounts of the Company and their report for the year ending 30th June, 1900, showing a balance at credit of Trading Account of £2,373 1s 9d.

After payment of Debenture Interest and Establishment charges, there remains a disposable balance, including £37 12s 7d brought from last year, of £1,190 11s 7d, and which the Directors have dealt with as follows:—

	£	s	d
One-third of Preliminary expenses written off ..	£226	15	11
Depreciation of Machinery, Plant, &c. ..	100	0	0
Preference Dividend for Year	567	0	0
Dividend on the Ordinary shares at the rate of 3½ per cent. per annum ..	264	5	0
Balance carried forward to next year ...	32	10	8
	£1,190	11	7

Owing to the very dry weather which prevailed during the greater part of the year, the crop secured amounted to only 273,510 lb. Tea, being equal to 790 lb. Tea per acre over the plucking area of 346 acres (33 acres of which were plucked for the first time), against 927 lb Tea per acre, from 313 acres plucked during the former year.

The net average price of the Tea was 5·02 pence per lb. against 5·12 for last season. Cocoa and other credits amounted to £478 0s. 11d, against £201 3s. 3d. secured last year.

The Trading account shows a working expenditure of £3,710 16s. 8d. This includes a sum of £415 0s. 5d. spent on manuring 166 acres of Tea, and from which little return has been secured during the year under review. The Estate, however, will reap in a larger measure the benefit of same during the current season. The cost of production works out at 3·13 pence per lb. Tea, which includes cost of manuring, also £85 18s. 3d. loss on exchange, but excludes £233 9s. 8d. the amount spent on Cocoa and securing other credits. Last year's cost of production was 2·87 per lb. Tea. The increase arises entirely from the smaller crop secured, as compared with previous year, and the cost of manuring as mentioned above.

The accounts are worked out at an exchange of 1/4 per rupee. The actual rate of exchange averaged 1/4 23-64, thus accounting for the difference of £85 18s. 3d. as per Trading Account.

The prices secured for the Teas during the Autumn and Winter were satisfactory. However, since then there has been a considerable fall and at present prices continue at a low range for common and medium quality Teas.

Your Director in Ceylon estimates for the present season 300,000 lb. of Tea, which should be secured if weather continues of normal, as up to the end of the first quarter of the current year 82,160 lb. Tea had been secured, whilst the amount for corresponding period last year was 56,476 lb. The Cocoa crop is estimated at 90 cwt.

Capital expenditure for year ending 30th June, 1900, amounted to £429 9s 11d; this sum includes cost of a new roller £172 14s 2d, the balance, £256 15s 9d, having been spent on factory and on cultivation of the Tea not yet in bearing.

The present acreage is as follows, viz.:—

Tea in full bearing	..	346 acres.
Do to be plucked during season 1900-1901	..	19 do
Do not in bearing	..	33 do
Cocoa	...	74 do
Grass Land	...	7 do
Reserve Land available for cultivation	..	79 do
Total	..	558 acres.

Mr. W B Anley, Director, retired in June last. Mr. J P B Anley, Director, retires in accordance with the Articles of Association, but being eligible, offers himself for re-election. Messrs. Woodman Tulloch and Edds, the Auditors, retire, but offer themselves for re-election.

F. G AMBROSE and J. P. BENTLEY ANLEY, Directors; T. W. PALMER, Secretary.

London, 7th Nov. 1900.

THE CEYLON AND INDIAN PLANTERS' ASSOCIATION, LTD.

THIRD ANNUAL REPORT, 1899-1900.

The Directors beg to submit their Report and the Audited Accounts for the year closing 30th June last.

TEA.—The crops have exceeded the estimated yield by 67,009 lb., and show an increase over the corresponding twelve months of 135,204 lb. of made Tea. Markets have, however, been lower owing to increased supplies, and no doubt the higher duty has also to some extent had an adverse effect on prices, the result to this Company being that profits earned during the twelve months show a decrease of £631 15s 5d, which, however, is more than counterbalanced by profits on Plumbago, detailed below.

The crop has weighed out 807,009 lb. of made Tea, and the estimates for the current year are 850,000 lb. The Kandaloya Garden still gives a very disappointing result, but the Directors are hopeful that as more Tea comes into bearing this year, returns from this place will be more satisfactory.

The following table gives full information as to cost of production, &c., &c.;—

ANALYSIS OF THE YEAR'S WORKING.

	Total Acreage.	Acreage in bearing and partial.	Acreage planted not in bearing.	Average rate of Exchange	Cost per lb. cts. & sterling (Manure included).	Gross Average Sale price per lb.	Nett average Sale price per lb.	Loss in Weight, Draft, &c.	Profit per Acre in bearing.	Yield per Acre made Tea.	Crop made lb.	Original Estimate 1899-1900 lb.	Estimated Crop 1900-1901 lb.	Estimated cost per lb. Colombo 1900-1901. cents.
Laxapana ..	1021	768	67	1/4 15-32	24·87 Colombo 4.10d	7.01d	6.00d	1.75 %	£3 6 2	422 lb.	323,833	280,000	328,000	26.97
Maha Eliya.	305	263	36	1/4½	27.79 Colombo 4·58d	7.84d	6.82d	2.22 %	£4 3 6	497 lb.	130,526	130,000	137,000	27·68
St. Andrew's	760	592	35	1/4 15-32	26.85 Colombo 4.42d	7.23d	6.20d	1.81 %	£2 10 0	326 lb.	192,976	175,000	205,000	29.40
Kandaloya..	1006	180	110	—	30.89 Colombo 5.09d	Sold in London 6.53d; Sold in Colombo 34.70c.	5.38d; 33.67c.	11,025 lb. 2.39 %; 148,470 lb. 0.21 %	0 9 2	533 lb.	159,674	155,000	180,000	29.43
Total	3092	2103	248	1/4 15·32	27.04 Colombo 4.45	7.13d	6,06d	1.62 %	£2 10 9	384 lb.	807,009	740,000	850,000	

(Continued.)

ANALYSIS OF COSTS F.O.B. COLOMBO.

	Laxa-pana.	Maha Eliya.	St. Andrew's.	Kandal-oya.
Superintendence	2.58	2.87	3.26	4.06
House Coolies	.31	.29	.26	.43
Bungalows	.02	.44	.07	.01
Lines	.06	.02	.15	.33
Factories, &c.	.15	.34	.29	.22
Machinery	.10	.33	.06	.21
Cattle Sheds	—	.15	—	—
Contingencies	.41	.56	.41	.61
Fire Insurance	.18	.25	.33	.35
Water Course	—	.01	.17	—
Visiting Fees	—	.76	—	.31
Supplying	—	—	.01	
Roads, Drains, &c.	.36	.24	.79	.51
Weeding	2.92	2.16	3.39	4.47
Pruning	.88	.69	.86	1.89
Forking	.21	.03	.18	.59
Cost of Manure	1.40	1.67	.62	.40
Application of Manure	.88	.51	.22	.10
Tools	.11	.04	.16	.11
Stock	.16	—	.01	—
Plucking & Baskets	8.65	10.18	9.56	9.18
Manufacture, Packages, &c.	3.46	4.21	3.87	5.14
Transport to Colombo	1.30	1.27	1.47	1.85
Shipping Charges	.69	.69	.69	.04
Sundries	.04	.08	.08	.08
Cost in Cents per lb.	24.87	27.79	26.85	30.89

PLUMBAGO.—The discovery of this mineral on Laxapana, which was notified to the Shareholders under date of the 25th January last, has proved of much importance to the Company, and the Directors are able to add a sum of £1,585 1s 4d to the profits from Plumbago mined and sold up to the 30th June last, and showing the result of seven months' work. Mining is being carried on, and about 15 to 20 tons a month are now coming in. The Company is endeavouring to engage a competent miner so that the works may be developed to the best advantage, for up to the present there has been but little more than surface work done. Mr. George Greig reports that there is evidence of large deposits, and is sanguine that the veins will improve at depth, and that an increased output will be secured during the current season.

The Accounts show that after paying interest on debentures, interest to agents, preference share dividend, and Manager's commission, Directors' fees, etc., there is a balance at credit of Profit and Loss of £2 413 4s 8d. The Directors propose to write off £300 from Machinery Account; £950 from Preliminary Expenses; and £348 16s 3d from Debenture Issue Expenses Account, and to pay a dividend of 2 per cent., free of Income Tax, on the ordinary shares. In appropriating an amount equivalent to more than 3 per cent on the Ordinary Share Capital to the extinction of the two latter accounts, the directors believe that they are acting in the best interests of the Company, and they trust that in future years they may be able to recommend larger dividends.

The directors desire to record their thanks to Mr George Greig and the Staff in Ceylon for their care and attention to the business of the Company during the period under review.

DIGALLA CEYLON TEA ESTATE, CO., LTD.

Report of the Directors to be submitted at the fourth annual ordinary general meeting of shareholders to be held at 20, Eastcheap, E.C., on Tuesday, 4th December, 1900.

The Directors herewith submit the general balance sheet and profit and loss account for the year ending 30th June, 1900 duly audited.

	£ s. d.	£ s. d.
The net amount at Credit of Profit and Loss Account, after providing for General Expenses, Directors' Fees, Income Tax, &c., is ..		500 0 8
Dividends on the six per cent Preference Shares were paid for 1899-0 (less Income Tax) amounting to	346 10 0	
Leaving to carry forward to next year a balance of	153 10 8	
		£500 0 8

The Directors again regret that the year has not been a favourable one on the Digalla estate.

The crop has turned out 8½ per cent under the estimate which was formed at the beginning of the year, but this can be fully accounted for by the fact that the rainfall has been 26 per cent under the average of the past eleven years, the average fluctuation from year to year being only 10 per cent. The shortage of crop has rendered the expense of cultivation much greater than would otherwise have been the case, and this, coupled with a decline in the market value of the produce, places the Directors again in the position of not being able to declare a dividend on the ordinary shares.

The acreage of the Company's property is a follows:—

Tea in bearing	.. ..	550 acres.
Tea not in bearing	... ...	50 do
Jungle	.. ...	151 do
Total	...	751 acres.

The gross average price realized was 6.26d per lb., as against 6.84d per lb. last season, and the rate of exchange 1s 4 15-32d, against 1s 4¼d. The total crop amounted to 201,622 lb. plucked off 550 acres, of which 32 acres are in a partial bearing, giving an average of 366 lb. per acre.

PLANTING NOTES.

CULTIVATION OF EGYPTIAN COTTON IN INDIA.—An experiment which gave definite results in Betul (Central Province of India) during the year, was the cultivation of Egyptian "Abbasi" cotton as an irrigated *rabi* crop. A small crop was raised by one *Motilal, Patel of Badora*. The crop was valued by the Manager, Empress Mills, Nagpur, at R96 per *bhoja*, as against R65 ordinary *bani* The seed was sown at the end of September in light black soil, and watered about once a week till the end of the cold weather, after which it was irrigated once every three or four days. The amount of watering was excessive, and had the effect of shrivelling the bolls so that although the plants were strong and flowered freely, the outturn was small. Farm experience has shown that one, or at the most two, waterings a month are ample for this cotton even in the hottest months. The Deputy Commissioner considers that this cotton can be grown in Betul as a rabi crop with irrigation, and that it would be exceedingly interesting so see the effect of less watering. The Deputy Commissioner is of opinion that if a fair outturn can be obtained, the crop should be of the greatest use to cultivators. This experiment will be prosecuted further.—*Egyptian Gazette*, Nov. 28.

INDIAN CATTLE-BREEDING SCHEME.

THERE is a tendency at the present day to follow the example of India, and even in the case of education Ceylon is about to adopt the Indian system. We should like to see, however, the spirit of liberality and philanthropy, so much in evidence in India, infecting the people of this island. Owing to the appalling loss of cattle in Guzerat there is a great scarcity of animals there for agricultural purposes. In order to supply this want, a scheme (which originated with the Governor of Bombay) has been set on foot for preserving that excellent breed of both draught and milch cattle. The scheme provides for the lease of 2,000 acres of grass land, for the procuring of 400 of the best cows, for ring-fencing the land, for a supply of fresh water and constructing yards and shelter sheds. The farm is to be under a superintendent, and the cattle-keepers of the district who have lost nearly all their animals, will be employed as herdsmen. The male calves will be disposed of as yearlings to the natives for breeding purposes. According to the estimate made, a sum of at least half a lakh is required to start the scheme, and an annual expenditure of R4,000 is anticipated for the first four or five years, after which the farm is expected to be self-supporting. The absence of any expectations of *profit* is indicative of the liberal principles on which the scheme is based. The sordid element of a return in revenue for money expended (an element which, we regret to say, is apparent in nearly every local measure intended for the good of the people) does not mar this scheme, the highest hope of which is that after some years the farm will support itself. The details of the project are in the safe hands of Mr. Mollison and Mr. Leley, and the funds for working the scheme are being provided by voluntary subscriptions, the Governor of Bombay heading the list with R1,500 and a number of others —Civil Servants, Merchants, etc.—following with R1,000 each. It is intended to form a trust for the administration of the fund. A letter signed by the Governor's Private Secretary commends the scheme, on behalf of His Excellency, to the favour of the public. We quote the final paragraph from this communication :—

"His Excellency, in now placing the scheme before the public, is confident that its objects are such that it cannot fail to command widespread sympathy and hearty support. He desires hereby to thank most cordially those gentlemen of Ahmedabad who have in so practical a manner testified to their agreement in the benefits which it is to be hoped will be derived from the scheme and so generously contributed towards its funds, besides agreeing to make over their cows for breeding purposes at less than market rates. His Excellency feels assured that this is a scheme which must appeal most strongly to all who are interested in the welfare of the country, and it will be a matter of the deepest gratification to His Excellency if he can hereafter feel that he has been personally connected with a measure to promote the well-being of a Province which has been so terribly afflicted by the recent famine."

COFFEE PLANTING IN COSTA-RICA. WALKER'S PULPERS.

(By the son of a Ceylon Missionary, born in the island.)

Extract from a letter lately received from archi Costa Rica, Central America:—"It is not too much to repeat my thanks for the 'Coffee Planter's Manual' (Ferguson's) which you sent me. I consider that the mere perusal of the articles relating to artificial manuring, which are really only summaries of planters' experiences in that part of the business, influenced our proprietors to adopt the practice on their estates, the result being that in August, I received a shipment of 30 tons of a well-known coffee fertilizer (Ohlendorffs's) from London, and a confirmation of a previous order to pick up or purchase all such manures as cattle-dung and cane trash that can be got cheap and handy, without limit.

"When the Boston people come down next month, I will draw their attention to Walker's Pulpers and shall be very glad if you will send me one of their catalogues with prices. There is a probability of a further extension of our business operations in the near future in the shape of the introduction of new machinery of larger capacity and greater working power and of making advances to the native farmers for the delivery of their coffee to us. We have lately imported a monster turbine for the—station where improvements on a large scale have been projected."

RIVAL FERTILISERS.

NITRATE OF SODA AND SULPHATE OF AMMONIA.

The rival claims of nitrate of soda and sulphate of ammonia as fertilising substances for agricultural land have for a number of years been the subject of much spirited debate. There are many experienced farmers who pronounce unreservedly for sulphate of ammonia as the best nitrogenous accompaniment to mineral manures, while the majority perhaps hold as firmly to nitrate of soda as the more effectual dressing. This sharp conflict of opinion is not surprising in a sense, for the acute dissension that exists on almost every point connected with the wide subject of manuring is one of the most remarkable features of modern farming. A closer examination of the testimony arrayed on either side of this long-standing debate, however, reveals traces of argument somewhat removed from the region of practical and unbiased evidence. The peculiar circumstance connected with the use of the rival nitrogenous manures is that the respective sides rigidly adhere to the substance of their fancy, whatever may be the character of the crop or of the soil. Unprejudiced discrimination seems to be conspicuously absent, for the two materials seem to be seldom found on the one holding. A searching investigation of the relative merits of the two manures does not confirm the wisdom of the exclusive use of either of the invaluable materials. The substances are really less antagonistic than is usually supposed. They are similar in their chemical contents but essentially different in their fertilising effects, and consequently the one substance is often incapable of economic substitution by the other, as is intelligently shown by Professor Warrington in the paper that appears over his name in the Royal Agricultural Society's journal. Nitrate of soda is, of course, the more speedy in its action, and is thus peculiarly adapted for application as a top dressing when the established plants appear to need encouragement. It is also more effectual in dry seasons than sulphate of

ammonia. The latter, however, is a highly advantageous manure for spring application, along with phosphatic and potassic materials, and while nitrate of soda usually gives the better yield as measured by bulk, sulphate of ammonia is the more efficacious in improving the quality of the crop. The selection of the nitrogenous dressing is distinctly a matter for careful and intelligent discrimination, and not, as is often supposed, one on which the fancy of the individual may be humoured with impunity.—*The Field.*

SUNSPOTS AND RAINFALL.

Among the papers presented at the meeting of the Royal Society, was one by Sir Norman Lockyer and Dr. W. J. S. Lockyer on "Solar changes of temperature and variations in rainfall in the region surrounding the Indian Ocean."

PULSES OF RAINFALL.—The authors' object in studying rainfall was to ascertain whether the *plus* and *minus* temperature pulses in the sun were echoed by *plus* and *minus* pulses of rainfall on the earth.

INDIAN FAMINES.—Unless the pulses either overlapped or became continuous, there would obviously be intervals between the ending of one and the beginning of another. The *plus* and *minus* pulses, to which attention had chiefly been directed, were limited in duration, and when they ceased the quantity of water falling in the Indian area was not sufficient without water storage for the purposes of agriculture. They were followed, therefore, by droughts, and subsequently, at times, by famines. Thus, taking the period from 1877 to 1889, there was rain from the *minus* pulse in 1877-78-79 (part); no rain pulse in 1879 (part)-80-81 (part); rain from *plus* pulse in 1881 (part) 82-83-84 (part); no rain pulse in 1884 (part)-86-87; and rain from the *minus* pulse in 1887 (part) 88-89. All the Indian famines since 1836 had occurred in these intervals, carried back in time on the assumption of an 11 year cycle. Thus, taking 1880 as the central year on the ascending curve, it was itself a year of famine in Madras and the North-West Provinces; also

1880 minus 11=1869, N.W.P. famine (1868-69)
1869 minus 11=1858, N.W.P. famine (1860)
1858 minus 11=1847,
1847 minus 11=1836, Great famine in Upper India (1837-38). Again, taking 1885-1886 as the central years on the descending curve:—

1885-86, Bengal and Madras famines (1884-85)
(1885-86) minus 11=1874-75, N.W.P. famine (1873-74)
Bombay famine (1875-76)
Bombay and Upper India famines (1876-77)
(1874-75) minus 11=1863-64, Madras and Orissa famines (1865-66)
(1863-64) minus 11=1852-53, Madras famine (1854)

It was clear from this table that if as much had been known in 1836 as was known now, the probability of famines at all the subsequent dates indicated might have been foreseen. The dates might also be carried forward from 1880; thus—

1880 plus 11=1891, N.W.P. famine (1890)
Madras, Bombay, and Bengal famines (1891-92)
(1885-86) plus 11=1896-97, General famine

Famine years in India were usually years of low flood in Egypt, and it might be pointed out that the highest Niles followed, at an interval of one or two years, the years of the *plus* and *minus* pulses. As to the great Indian famine of last year, the widened line curves, so far from having crossed in 1897 or 1898, as they ought according to the few precedents available, had not crossed even now; in other words, the condition of ordinary solar mean temperature had not even yet been reached. Now India in a normal cycle was supplied from the southern ocean during the *minimum* sunspot period, and the rain was due to some pressure effect brought about in high southern latitudes by the sun at *minus* temperature. But as this temperature condition was not reached in 1899, as it would have been in a normal year, the rain failed. Thus the only abnormal famine recorded since 1836 occurred precisely at the time when an abnormal effect of an unprecedented *maximum* of solar temperature was revealed by the study of the widened lines.—London *Times*, Nov. 23rd.

INDIAN TEA ON THE CONTINENT.

Turkey.—Mr. George Gatheral has been engaged as the Agent of the Association in Constantinople, as suggested by Mr. Harington. I would suggest consignments be sent to an address I would give in Syra, where the tea would lie in bond, and we would then avoid paying duty and being forced to sell to save such duty while I could direct such sales as made to Trebizonde or Russia.

Holland.—The London Committee have resolved to assist the National Tea Union, as recommended by Mr. Harington, by contributing an equal amount of money to that fund by them for the purpose of advertising in Holland, up to a sum of £300. [Surely this is a mistake! We have always said that the Java tea-planters should exploit Holland and send none of their teas to London.—ED. *C.O.*]

Italy.—The London Committee have authorised Mr. Harington to suggest to Miss Babbington (English Tea Rooms) a grant of a sum of £50 towards advertising and pushing Indian tea in Rome.

Germany.—The London Committee although they fear they cannot start a tea house as proposed by Mr. Harrington, are willing to subsidise a firm which might be prepared to initiate one. The matter is still engaging their attention.

My own wish and aim is—

1. To secure a General Agency in Germany for the Indian Tea Association.
2. To establish an "Indian Tea House" in Berlin where tea can be sold both in cup and packet.
3. This to form a distributing centre for all Germany, opening branch agencies in all chief towns, and being charged with care of extensive advertisement, supervised by myself.
4. The cost of such advertisement up to a sum not exceeding say £500 per annum for a fixed period of three to five years to be paid by the Association, subject to conditions. The founding and first year's cost of the "Tea House" in Berlin also to be borne by the Association up to a lump sum not exceeding £1,500.
5. Supply of tea, chiefly Indian, and in any case British-grown only, to be arranged through myself, who will undertake all working details and be responsible to the Association—

(*a*) For quality of tea supplied submitting sample.

(*b*) For control of advertisement and general supervision in the Association's interest.

I regret that up to the present no arrangements on these lines have been completed; further negotiations can, however, be carried on and may be brought to a practical result in course of time. —*Indian Planters' Gazette.*

SOURCES OF TEA SUPPLY.

(To the Editor of the *New York Herald*).

The news from India of a short rainfall in the tea districts, published and commented upon in the *Herald* is of considerable interest to the public as well as to the trade.

The trouble in China is likely to affect the next season's supply more than it has this year's, as the China season happened to be an early one. The movement of the crop was further accelerated by the troubles, and it was rushed down to the coast ports very early. The pinch will probably come next season, and no doubt the market here will respond before spring.

The other sources of the world's supply of tea are Japan, which last season sent about forty-one million pounds to North America (the amount given in the *Herald* as the entire crop of 1888), and India and Ceylon. The crop in the latter two countries in 1888 was about one-third of the quantity now produced.

India shipped about one hundred and eight million pounds last season and Ceylon about one hundred and thirty million pounds. Increasing quantities of these teas are coming to both the United States and Canada, and if the troubles in China are not soon settled we may see the tea from that country entirely displaced here and to some extent in Russia.

WHITTALL & Co.

New York, Oct. 9th, 1900.

MICA AND GRAPHITE IN ZULULAND.

The following are extracts from an official Geological report, published in the *Natal Mercury* of Nov. 22:—

MICA.

The mica properties in the Nkandhla district, near Fort Yolland, are still held, but no work of importance has recently been done on them.

GRAPHITE.

It will be noticed that the prospecting areas in the Impetyini Forest, in Alfred County, have been given up. The prospectors found they could do nothing with them.

All officers returning from South Africa have received 61 days' leave. *Reuter*—in *Egyptian Gazette.*

NOTES FROM THE STRAITS.

MR. STANLEY ARDEN'S FIRST IMPRESSIONS.

Dec. 6th.

Mr. Stanley Arden, recently appointed Superintendent of Government Experimental Plantations in the Federated Malay States, who stayed a month in Ceylon (chiefly at Peradeniya) on his way out to the Straits, writes as follows to a friend in Ceylon:—"Since my arrival, my time has been taken up with travelling in this and the neighbouring states, so as to gain a knowledge of the chief requirements of local agriculture. Everywhere I have been, coffee is by far the largest crop grown. Its cultivation, however, is being gradually abandoned, not by any means on account of disease, but because of low-prices. Many planters go in largely for rubber planting, which with coconut cultivation is well suited to large portions of land here. In many cases rubber *Hevea* and coconuts may be seen planted among the coffee, thus ousting the latter as did cinchona and tea in Ceylon. Tea would no doubt grow well here on the higher lands, but evidently the present price of labour would not make its cultivation profitable. The Agricultural labourers are nearly all Tamils imported from India, the natives being quite in the shade and devote their time to fishing, boating and other indolent pursuits. The Chinese, who are employed almost exclusively on the tin mines, form by far the largest portion of the population. Tin-mining is at present the chief source of revenue.

I was struck with the excellency of the roads here, which are almost everywhere like cycle tracks. In some places they are metalled with marble, a luxury which not many countries can boast of. The railways are also good, though at present rather disconnected, being in sections which are sometimes separated by lagoons, ravines, etc., over which one has to cross in a boat or otherwise to join a train on the opposite side. In other cases a long gharry ride is necessary from one station to the next. The durian fruit is now in season, and its effluvia seems to pervade everywhere."

PLANTING NOTES.

A FLORAL DISPLAY—of a striking character—is to be seen at present on the very fine specimen of *Alstonia scholaris* in Canella Villa, Turret Road. The tree for height and general appearance is one of the handsomest in Colombo, and its crown and higher sides today have been one mass of greenish-white flowers, highly odoriferous and not at all unpleasant. There ought to be a rich crop of seed after so much blossom. The *Alstonia scholaris* is counted among the rubber-yielding trees; but Trimen does not refer to this. Here is what he says in his "Flora" of Ceylon:—

Lowcountry up to 3,000 ft.; common. Fl. April; greenish-white. In the Eastern Tropics generally. The follicles hang in pendulous clusters, and the whole inflor. falls together. The wood is very light and soft, pale yellowish-white; its principal use is for coffins. The bark is a valuable stringent tonic, much used in fevers; it is an official drug in the Indian Pharmacopœia.

The explanation of the name is as follows:—

Charles Alston was Professor of Botany in Edinburgh University from 1719 till his death in 1760. The *Lignum scholare* of Rumphius, the light wood being used to make 'slates' for school children.

THE THEORY OF MANURING.—Plants required about a dozen chemical elements for their healthy nourishment, but in practice it is only necessary to supply three or four of these in order to make up for the requirements of ordinary crops. The plant food constituents in which soils are most deficient are nitrogen, phosphoric acid, and potash, and it is these which it is the aim of the farmer to supply in such manures as he uses from year to year. The other food constituents required by plants, and including magnesia, lime, iron, chlorine, are usually present in most soils insufficient quantity to supply the requirements of the plants growing therein. It is different, however, with the nitrogen and phosphoric acid and potash. Analysis may show all or some of these to be present in fairly large quantity, but, says the *Farmers' Gazette*, the form or condition in which they exist is such that they are of no practical value to the plant because of the latter's inability to assimilate them. The object of applying manure, therefore, is to supply these constituents in a form in which the plants can soon take advantage of them. The proportion in which these ingredients are required in the soil is, after all, but very small, as is shown by the fact that a ton of farmyard manure supplies only from 9 to 10 or 12 lb. of nitrogen, about the same quantity of potash, and only from 5 to 7 or 8 lb of phosphoric acid.—*Journal of Horticulture.*

SPORT IN B.C.A.

SOME REMINISCENCES OF LEOPARDS IN BRITISH CENTRAL AFRICA.—I.

(*By an ex Ceylon Planter.*)

In 1891 I had the good fortune to possess a donkey who was not much nse to me, for I never rode him; so he was allowed to go about the estate at the freedom of his own will, affording much amusement to the na ives who used to watch him braying in solemn silence and awe, till the last note of music ended, when there was a stampede with shouts of laughter from the much amused crowd. One afternoon about three o'clock my cattle keeper turned up with the information that my donkey was found dead at the river, and that no one had gone near the beast for fear of being blamed for causing the death by witchcraft; this sounded strange for it is said a dead donkey is never found.

I proceeded to the spot and found the animal lying amongst the boulders in the bed of the river quite dead and a piece taken out of his flank; some claw marks were visible on the neck, so I concluded it was

THE WORK OF A LEOPARD.

The carcase was quite warm and the fresh footprints of a large leopard were visible on the sand. I got some men and beat the bush round about to try and get a shot at the leopard but failed; he had evidently cleared right away upon hearing the sound of human voices.

MY PREVIOUS EXPERIENCE

of leopards led me to know that moving the carcase would not prevent him returning for a feed during the night, and as there was danger of the river rising at any hour and carrying the carcases away, I had it dragged above flood level and soon got to work, setting a spring gun with the string attached in such a way as to cover the approach to the carcase. Two friends who were living with me at the time suggested setting a shot gun loaded with No. 5 shot, as the distance was only five yards, and that it would be more certain to bag our game; so I adopted their suggestion and put a shot-cartridge into the gun instead of a bullet. About 8 p.m., bang went the gun and we then, armed with a double ·577 express and a lantern, set off in great haste to see the result of the shot. After a bit of a search however without success, although there was plenty of blood, we retired, deferring further search till the morrow.

After some early tea, soon after dawn, with half-a-dozen natives, we set off in great glee

EXPECTING A GRAND TROPHY

in the sneaking carnivor who killed my donkey. We found upon examination of the spot plenty of blood, and that the leopard after receiving the full charge of No. 5 shot into his side had made one bound of about 20 feet on to the top of a large flat rock where he had evidently stood for some time, and left a pool of blood behind him. Beyond this not a trace of blood was to be seen. After tracking till 9 o'clock we gave up the pursuit, disappointed and disgusted, offering a reward of 10s to any native who would find our game dead or alive. I had not the slightest notion that the leopard would come back to the carcas, but expected hyenas would and set a rifle covering the quarry, about 10 p.m. Off went the gun again; I decided this time however to wait till day-light to make our search in case of accident and, as events will prove, it is as well be did for it is not a nice thing to find a wounded leopard springing upon a person in the dark.

After the first peep of daylight shone through my window, I was up and called W— and M— and off we set to the scene of slaughter, to find the gun had gone off and

LODGED A BULLET SOMEWHERE IN THE ANIMAL

but there was no sign of him anywhere about, dead or alive.

After an hour's search, we discovered by throwing stones into the bush grass, as we followed the blood tracks, the leopard lying in a flat hollow amongst large boulders and thick scrub, evidently alive, for every time a stone was thrown in, he began to growl. Now to oust him out of his lair, came the job, for see him we could not. I had a dog who had often a narrow escape from leopards, and he stood on the top of a rock (right over where the beast was lying) barking most furiously. I managed with the assistance of a nigger to scramble up to where the dog was and I gave the cur a lift with my foot sending him right into where the leopard was. This had the desired effect, for like lightning he

MADE ONE BOUND AND STOOD WITH THE DOG UNDER HIS FORE-PAWS

with his claws firmly set in the neck and ribs. My gun was at my shoulder in a minute and as I saw the snarling mouth and flashing eyes looking the picture of ferocity, I covered the latter and let drive. He let go his victim and made for me but was unable to ascend the rock as his spine was broken, although his fore quarters were strong. My second barrel was discharged at his head as he endeavoured to climb the rock. It was without much effect, for he turned tail to me and made off back to where I roused him from. Being anxious to secure a good skin, not riddled with bullets, I ceased firing and induced a native, rather bolder than the rest, to get on to a small rock close to where the leopard was lying and pelt him with stones, so that he would either die or give me a shot which would not damage the skin. This had the desired effect, although it took a lot of stones. After a tremendous amount of snarling and growling, out the beast rushed, and made straight for the nigger. Both rolled headlong over the other side of the rock and

DISAPPEARED IN THE LONG GRASS

before I had time even to bring my rifle to the shoulder. As quick as my legs could carry me I was on the top of the flat rock and overlooking my prey on the other side, crouching low; covering the poor boy entirely with his long body; snarling and looking savagely at me on the rock. How to shoot the beast without the bullet going through the native, was my study which seemed impossible from my elevated position, and to descend from the rock would be useless, for I could not see the beast without getting right on the top of him; so my only chance was to fire from where I was and risk damaging the boy. So I let go and sent a bullet through his shoulder and had the satisfaction of seeing the leopard let go his hold and sink quietly down beside his quarry,

DEAD.

Neither the dog nor boy was much mauled, and their wounds were soon healed ; they both doubtless owe their life to the badly wounded and weak condition of the leopard. He proved a full-grown male, measuring 6 ft. 10 in. in length and 2 ft. 7 in. in height, weighing 140 lb.

The following night I set a spring-gun again and shot a hyena, standing 2 ft. 10 in. at the shoulder and weighing 150 lb. Leopards are said not to be scavengers, but this I proved not to be the case, for I have known them, take a bait of dead poisoned fowl, and upon this occasion I set a spring-gun over the carcass of the leopard we had secured, and another one came to have a feed off his probable brother and was shot dead. Although the gun was set for hyenas, we secured another fine specimen of a leopard. I have had

VARIED EXPERIENCE OF THE CEYLON AND AFRICAN LEOPARD

and I am satisfied that the African one is by far the most daring of the two, not hesitating to enter a native hut, but through the roof, lifting its occupant in thedead of night or lifting a watchman from the verandah of a house, even after being fired at.

AN AFTER-DINNER ADVENTURE.

One evening about seven o'clock, just as my cook had dished the dinner in the back verandah leaving no one in the kitchen, my two dogs lying near the fire, raised a fearful howling. Thinking it might be a leopard, and as it was bright moonlight I seized my rifle and ran out just in time to see a leopard carrying away one of my dogs. As he was getting up the bank, I fired and hit him, for he dropped the dog and made off with tremendous bounds before I had time to fire another shot. Upon examining the spoor we found blood tracks for some 500 yards up through the garden, but owing to the want of a good lantern, and knowing the danger of following a wounded leopard at night (even with a good moon) we returned to attend to the mauled dog who was found crouching by the dining room fire, evidently suffering from a severe fright if nothing more, for he would not even answer to his name Chekumba (by the way a name given to him by myself as he was captured and taken prisoner at a war against a slave-raiding chief of that name). Upon examination of the wounds we found two holes, one on each side of the neck, and the skin broken on the top of the head, evidently made by the brute's canine teeth. The wounds, however, did not appear to be serious. Hot water was freely used to wash and cleanse the wounds well, after which strong carbolic oil and wadding was pushed well home in the sores, and Chekumba sent to bed with a bowl of milk beside him. My other dog had evidently a narrow escape too, for he was also lying by the kitchen fire at the time the leopard entered, but how he escaped a mauling no one knows ; his voice was however audible enough howling all the way down to the niggers' huts where it seemed impossible to restore him to his natural peace of mind, for he continued barking all night, and never came near the house till daybreak, when he was discovered sneaking into my bed-room with his tail well between his legs. Poor Chekumba next morning began to stagger about with his head down, and at 7 a.m. succumbed to the fatal poison, with a neck swollen to twice the size of his natural one.

ON THE TRACK.

Soon after this we (a party of three), my native overseer, a shikari and myself, set out to track the leopard. From the trail left the beast seemed to be bady wounded, for he was evidenly dragging his tail and hind-quarters on the ground, possibly injured on the spine. Although the African native is not such a good tracker as the Indian shikari, when a white man is behind him with a loaded gun, his natural apathy disappears and the savage can and does track well, notwithstanding his natural inclination to cave in, because he firmly believes that master's gun has got the proper medicine to lay the beast *hors de combat* within 100 yards of the place where he was shot at.

Up to about 11 o'clock, we followed those wearisome footsteps through grass, scrub, and village gardens until the virgin forest was entered and further tracking seemed impossible, and we were just about to return home, wearied and disappointed. After some cold fowl and biscuits and a drink of clear cold icy-water, from the mountain plateau stream, a desperate barking of baboons was heard on some large trees, just behind us, some 300 yards up the valley.

BABOONS.

As the barking of the baboons continued without intermission for about 20 minutes, I asked my men what it all meant, and was told the leopard was the cause of all the row ; and that those fierce members of the monkey tribe always bark when a leopard is in sight, and even go the length of killing their bitter enemy by attacking him in large numbers. This latter part of the yarn, I didn't believe; but the former, I proved beyond a doubt. Off we went to where the noise preceeded from, and found a herd of baboons showing their teeth and making awful faces, bobbing up and down, evidently in a most fearful rage. To stop their row, I fired at the biggest fellow I could see, and brought him down, but off he went as hard as he could scamper, and was out of sight in a minute. I fired at a second and broke his arm ; off he went with his broken limb, dangling in the air, with any quantity of blood spurting down on the leaves of the lower jungle trees. This shooting had the desired effect, and the whole herd made off, leaving us to look after the big fellow who tumbled down. We found him sitting under a huge tree, apparently in the last stage of life, indifferent to all around. In fact, one man ran up to lay hold, but only to find there was still life, and asked me to shoot; I didnt care to do so, if the animal was really dead : but I introduced my gun barrel to his side. Before I could withdraw the weapon, he had it in his teeth and was gripping it like a vice. I pulled the trigger and finished off the monster. To show the powerful canine teeth that a baboon carries, my gun barrel bears the marks (large dents) to this day. After shooting the baboon the second time, and he released my gun, I stood away a little distance and was thunder-struck to see the beast take the blood from his bleeding side with his hand, look at it, and then at me, as much as to say, "You have murdered me," and then expired. I vowed in my own mind, that I would never shoot another baboon, and I have not done so to this day, although I have had many opportunities since. Upon resuming our search for the leopard, I found close by a small cave, where he had evidently lain all night, for there were splotches of blood on the dry ground, but beyond the cave, no trace could be seen. The baboons again began to bark some distance up the hill and we made

tracks in that direction. This time, however, I determined not to fire a shot at the monkeys, but reserved it for better sport. We soon discovered the leopard who seemingly saw us coming, and was skulking away looking over his shoulder at us, but turn round; he would not or give me a decent shot. On the beast went very stiff apparently, with his hind quarters now and again giving way under him. Another rock cave came in sight, and we lost sight of our game for a minute, till we got pretty close up to the entrance.

DONE FOR.

My courage at this instant seemed to fail me, for I stopped dead to think for a minute what I was about. Gaining my presence of mind, I looked back for my tracker with my spare gun, and was not a little surprised to find I was alone. All was quiet and still as night in the dense forest; the baboons even had stopped their hideous noise. I grasped my rifle firmly although my legs were a little shaky. Just at this time, I heard the crackle of dead twigs behind me, which made my heart thump against my side, at a furious rate. Upon looking round I found to my surprise and no little delight my men with the spare gun.

A dozen or more paces forward brought us in full view of a handsome leopard lying on the ground, patiently waiting our approach at the mouth of the cave, just in the same attitude as a cat assumes when watching a rat, before the final spring. The position was a bad one, as I was below the level of the animal, but to go nearer was too risky, for I was only twenty paces or less away; so no time was to be lost, and I fired, aiming right between the eyes. No sooner had my bullet been felt by the brute then he bounded out of his lair right towards us, giving me no time for a second shot. The niggers were gone like a flash of lightning in one direction and in another. I pulled up after reaching the nearest tree and looked round to see if I couldn't get a second shot, and saw my tracker aiming at the leopard about ten yards behind me; the beast had pulled up, whether from exhaustion or funk at being between two guns I don't know; but he had the contents of both my trackers' and my gun simultaneously and rolled over down the hill between us, now and again giving a bound in the air till all signs of life had gone. When we got up to the carcase I found my yesterday's bullet had gone right through his back close to the spine. My shot in the cave had torn a piece out of the side of his head, and my last bullet and my tracker's had both gone clean through his lungs. The overseer was despatched to bring men to carry home our quarry. I was soon at the bungalow, and after a bath and a change, was as fresh as a daisy. The baboons were not heard again that day, although many a time both night and day, too, afterwards I was tempted to go out in search of leopards, presuming that I would get some sport. I never again succeeded in seeing a leopard being bayed by baboons again. I found on one occasion, however, the hind quarters of a baboon that had fallen a prey to a leopard who had just left it on my arrival.

LEOPARDS AND TRAPS.

Leopards are very cunning, and dubious about going into a trap. I have frequently had a trap built of logs with a bait of a goat or dog in it, but never induced one to go in, although they have often enough walked round about the trap. On one occasion I had a dog put in the trap every night for about a month as a bait for a leopard, and the beast often enough walked round about the house and had a look at the dog. One night, however, the leopard, very hungry evidently, began by biting and clawing at the far end of the trap (although the trap door was open he would not enter and be caught) until he managed to introduce his forearm, and frightened the dog, so as to force him to make a most desperate effort to escape—till he did manage it, and came home in the middle of the night in a terrible state. Upon my examination of the surroundings next morning I found the leopard had hunted the poor cur at full speed from the trap to my very door, about half a mile.

The African leopard is not destructive to cattle establishments and I have never heard of one entering a cattle kraal, although often enough a stray calf has fallen a prey to their cunning in the bush without even the herd boy's knowledge. Goats and pigs' houses are often entered by leopards, as also native huts, and the occupants carried away for a midnight meal. When hungry the leopard will eat almost anything, even to mulberries on a road-side, till he nearly dies from diarrhœa. This fact once came under my personal observation with an old leopard of mine.

A TROUBLESOME BEAST.

I was very much troubled by a most daring leopard who baffled all my attempts to capture or destroy by any means in my power. He was always about the neighbourhood, catching stray fowls in the forest, or on the estate round about the buildings, or in the surrounding villages. My dogs also became a prey to this determined robber. Fowls accustomed to be hunted by a leopard are grand watchmen, and make the most awful row you ever heard when their enemy arrives in the vicinity at night, rousing a whole household. One night about 1 o'clock, my fowls made such a row that I thought the leopard had got in amongst them. I seized my Lee-Metford, and a lantern and made tracks for my fowl-house, my dog Dan leading the way, making a rush through the garden gate in front of me. I found upon reaching the fowl-house that all my servants had congregated ready for any sport that might turn up; but, alas, to our disappointment, after a thorough search, no leopard was to be found. Neither was my dog Dan; call as we might, he didn't turn up; so I went off to bed, much disappointed and disgusted. Next morning the dog was nowhere to be found and upon examination of the premises, I discovered that he had been caught and carried away by the leopard just outside the garden gate. We followed the track into the neighbouring forest for about half-a-mile and came upon half my poor dog's carcase, but no leopard could be seen anywhere; so the only thing left for us to do was, after considerable search, to retire and leave him his tit-bit, well primed with arsenic, in case he should return to finish the remainder of his meal during the night. Next morning at dawn all were astir, and trackers with flint-locks and myself with a double ·577 express set off in great haste, each one more eager than the other to get a close view of our troublesome robber. Upon reaching the remains of the dog, we found all the remains were finished except a foot. Silence and diligent search was made all round the spot till we found that the arsenic had taken effect: about 100 yards off. Vomiting of dog meat, and much rolling about, was evidence of the arsenic causing much pain and trouble in several places, but the leopard was no-

where to be seen, and it was evident he got away after discharging the contents of his stomach, the dose of poison having been too much. He lived to give us some more annoyance as the following yarn will show. [Strychnine is a much safer poison than arsenic to administer to an animal as they never vomit it.]

FEEDING ON FOWLS.

My fowl-house being well built with strong logs of timber,—in fact a regular American log house that no animal could get through, was a puzzle to Master Spots for many a day when he was on his midnight rounds. His footprints bore evidence of his having many a look through at the Kukus fowls, he was so anxious to reach, but could not. Although many a stray fowl sitting on eggs, as was their wont, fell to his lot in the surrounding bush, he seemed to fail to enter the house where the herd of hundreds were visible.

One night, after everybody had retired to rest, a fearful racket got up amongst the fowls, each one trying to croak louder than another, like so many huge frogs at work. All the household were soon on the move, and tracks made to the house to see what was the matter, all making sure the leopard was apparently killing Kukus by the dozen inside. Upon mustering at the door, cook, house-boys and everybody else were very brave, but to go inside and shoot the leopard was more than their feelings would stand; so the door was most carefully opened a bit, and the lantern introduced to see what could be seen. I, holding my rifle half in at the door, expecting a charge every minute, determined to do for the beast. I was much disappointed to find a hole in the thatched roof with the moonlight shining in on the floor, where the leopard had evidently gone in by, for a lunch, sneaked a Kuku or two and evidently made his exit at the same hole, for search in every nook and corner failed to find him. Upon searching outside we discovered footprints quite deep in the earth where he had jumped off the roof with his prey.

ON THE WATCH.

Judging that one or even two fowls, which was as many as could be carried away at that time, would not suffice for a meal but quite enough to prepare an appetite for a substantial meal, I offered a reward of 5s to anyone who would sit up and watch for the leopard, and shoot him, as I felt sure he would return later on in the night. My cook and another domestic volunteered to sit in the adjoining room, partitioned off from the fowl-house. The dividing wall only being six feet high the leopard could be seen and shot when entering his hole in the roof without much danger of a personal attack upon the watchers who considered themselves pretty safe and were quite jubilant at the prospect of being considered by all the neighbouring people brave, lion-hearted men who were brave and courageous enough to shoot a leopard which had a reputation not only for killing domestic animals but human beings also; for it was known to have the daring to carry away a boy and kill and eat him in broad daylight.

About 9 30 p.m., just as all the household were retiring for the night, the shot of a rifle was heard and out everybody bolted to see the result. Upon interviewing the watchmen and examining the hole in the roof and outside of the shed for some distance around we concluded that Somewa, the cook, had missed; for there was neither blood nor leopard to be seen anywhere about. How the watcher could have missed the animal (who according to his own story, was half through the hole in the roof when he fired) seemed a mystery to all. The leopard, however, left marks of his having been there beyond a doubt.

WANTING TO CATCH MEN.

All the household had gone to rest again and were sound in the arms of Nod, when all were roused at 12·30 a.m. by the loud report of a gun, the hoarse growling of the leopard and the yelling of men, as if a fierce battle was raging between man and beast. I could hear distinctly "Mpalugwe afmia cughura enza,"—"leopard wants to catch men." Of course, no time was lost in seizing my rifle and hastening to the spot to find no one any the worse of the scare. So I may as well tell my readers in my cook's own words what actually transpired.

We were dosing, but not actually asleep when my companion roused me up with a nudge on the side with his fist; and upon looking up, I saw the leopard's head and neck through the hole in the roof. (Not a Kuku was on the "prareh" for him to seize, for they had been all knocked down on to the floor during the previous attack and were as quiet as mice, not being able to smell the leopard in his elevated position.) I let him get in his fore-arm and fired. No sooner had I done so than he made a dive through the hole on to the fowl rack, and one spring right into the room where we were lighting in the middle and just as he reached the ground, my friend and I plunged through the door, both leopard and ourselves, howling our very hardest; both of us fell heels overhead outside the door, and to the right of it the leopard followed like lightning, but fortunately for us turned to the left and left us alive, and—well, this is all I know!

I examined my men who were more frightened than hurt, and found some spots of blood on one of their cloths and on the side of the door some leopard's hair and blood, evidence of the beast being severely wounded; but how the nigger escaped without a scratch seemed to me a mystery. Well, upon following up blood marks on the ground, we found that the brute had gone right through a well-secured double bango end fence across our tennis ground, and through the fence on the other side, leaving ample evidence, in bloodstains and hair, on the fence to show that he was mortally wounded. A little further on about 100 yards, in all, from the fowl house, groaning was heard, and my dogs began to bark furiously. I knew by this time, if the leopard had strength enough left in him, he would go for the dogs, so we got torches of dry grass and approached the spot where the groans were heard, to find the beast lying on his side, breathing hard, but making no effort to move. He gave one or two kicks and my rifle was up to shoot. But I didn't—he was dead in a second, and I was not called upon to spoil the skin with more bullet holes.

I have not related half the depredations of this scourge of a leopard, for fear of wearying my readers, but suffice it to say that he was the most daring, impudent beast I have ever heard of and my reward was paid, and my cook who shot the brute was never afterwards called chicken-hearted. My readers may be surprised that I had not courage enough to sit up for the animal myself. My reason for not doing so was because my wife was ill with a severe attack of pleurisy, and it would not be right for me to do so under the circumstances. It would not be the first leopard I sat up for and shot however.

The daring of the beast to return a couple of hours after having been fired at within 10 paces, seems incredible.—H. B.

HOW TO DEAL WITH "TEA" NOT FITTED FOR EXPORTATION?

We are reminded by an upcountry correspondent that when rinderpest was bad in Scotland (and we suppose in England) a fund was formed, whereby the owners of any cattle that had to be slaughtered, were indemnified for their loss. The question is, can the principle be adopted and a fund formed to deal with teas which ought not to be exported from this island to the detriment of the good name of Ceylon teas and to the injury of the London market? Naturally, and equitably, the money to form such a fund should come out of the Tea Cess; but for the present all the available collection has been voted away. Nevertheless, if any feasible scheme were formulated for buying up what are talked of here as "rubbishy" teas—all produce sold below a certain fixed limit and thereby considered to be unsuited for exportation—we cannot believe that the Government would make much difficulty in allowing the Cess collection to be forestalled in order to deal with an emergency like that which has been disturbing the Tea Market lately. At the same time, it is possible such a lesson has already been taught and learned that the crisis may be said to be over, and that a continuance of 10 cents-a-lb. teas is not to be feared in the local market. We should like to be assured of such produce and prices being things of the past. But wise men should act against the risk of recurrence, and in order to prevent any possible chance of the further exportation to London, Australia, America—in fact, to any of our customers—of anything like 10 cents-a lb. tea. The parallel of "rinderpest" would point to the destruction of the condemned tea; but might it not be dealt with chemically to some useful purpose for the extraction of the tannin and perhaps of a useful dye? If this could not be done in Ceylon, some precaution would have to be taken to ensure that only for chemical (and not for food) purposes was such tea sent out of the island.

PRODUCE AND PLANTING.

TEA AND COFFEE.—Some interesting and suggestive facts are contained in the Board of Trade report on tea and coffee just published. The English people and peoples of English descent are still tho greatest consumers of tea among the Western nations. The avsrage consumption of the home-staying Englishman is six pounds a year, while the Australian colonist oonsumes as much as seven and a half pounds. Why the fragrant leaf is less popular in the United States it is not easy to say. The Americans and the Russians are conservative in their taste, and continue to prefer China tea, but the work of pushing British-grown tea goes on steadily. The tea consumed in England is neatly all grown in India and Ceylon. The production of coffee, like that of tea, is largely increasing, and may be said, speaking generally, to have doubled in the last ten years. The chief producing countries are all in America, Mexico being the most northern and Paraquay the most southern of the countries of that continent where coffee is produced. The chief countries of production, in the order named, are Brazil, Venezuela, the United States of Colombia, Mexico, Costa Rica, Guatemala, and Hayti. The United States holds a very similar place in the coffee trade to that held by the United Kngdom in the tea trade, the relative consumption in each case exceeding that of all the other countries of the civilised world put together. The coffee trade of the United States, therefore, may be said to virtually control the trade, as well as to a certain extent the prices, of coffee throughout the world.

FIJI AND ITS PRODUCE.—A paper on "The Islands and the People of Fiji" was read before the Royal Colonial Institute on Tuesday by Mr. Morgan L. Finucane, Provincial Inspector of the Provinces of Tarlever and Ra, and medical officer of the colony. Referring to the industries of the colony, Mr. Finucane pointed out that the wealth and future prosperity of the colony undoubtedly depend on the output of sugar, and it has been shown that in the Fiji Islands sugar-cane is capable of high cultivation and growth in nearly every district with profit to the cultivator in spite of the falling prices in raw sugar. The sugar industry is entirely in the hands of the wealthy Colonial Sugar Refining Company, who possess practically the monopoly for the supply of sugar in the whole of Australasia, and are even now sending Fijian grown sugar into Canada. The system adopted is that of local planters —European, Indian, and Fijian—cultivating areas of cane land and selling the product to the central mills of the company; proper cultivation of the land is brought about by the terms in the company's contracts with growers by which they are paid, not in accordance with the quantity of cane grown and delivered to the mills, but on the percentage of raw sugar obtained by analysis of the cane supplied with a sliding scale. Coffee grows well in Fiji, both the Liberian and Arabian varieties, and does best in shaded mountainous districts, such as are found in the upper reaches of the Wai-ni-Buka in Viti Levu; large areas have been put in by the Fijians as an addition in future years for the payment of their taxes and self-betterment. Vanilla grows well, and has realised good prices in the open market. Tobacco, ramie fibre, cocoa, cinchona, tea, and india-rubber are all to be found in Fiji. Tea does exceedingly well, and has a delicious flavour, says Mr. Finucane: There were, when I went to the colony, two flourishing estates with a perfect soil and altitude for the growth of this beverage: at present the local consumption of the product is entirely drawn from the group, and it is also exported to New Zealand and Australia.

ABYSSINIAN COFFEE.—A Consular report from Harrar says: "The Harrari coffee is of a very good quality, known in the London market as 'Moka long berry,' where it is preferred to the real Moka. Occasionally its price in London is higher than that of Moka. Plantations of coffee are increasing slowly, because the natives prefer to cultivate the Kiatt (Celastrus edulis) as more lucrative, 1 lb. of leaves of which are sold for 1 dol., and sometimes 2 dol.; the natives, as in Arabia, are eating these leaves. Nevetheless, more than 150,000 coffee trees have recently been planted, especially in the districts of Chercher and Itto."—*H. and C. Mail*, Nov. 30.

SPORT IN BRITISH CENTRAL AFRICA.—The second letter of the interesting series of letters we have been publishing on leopard-shooting in B.C.A. appears on page 501. The sport appears to be full of variety, the article describing the despatch of a leopard that raided a fowl-house through the roof and made its exit by the same route! We look forward to further "experiences" from "H.B," whose adopted country evidently abounds in sport of a hazardous nature.

FROM A FRENCH HORTICULTURIST.

TO THE EDITOR OF THE "INDIA RUBBER WORLD."

I have read in your instructive journal several times references to the extraction of rubber by pressure from young Calisaya elastica plants. I do not know what this means. I have twice sent one of my agents to America for the purpose of studying the extraction of rubber from the leaves of plants, but gained little information thereby. I believe that this is something to be developed in the remote future, if ever.

But the extraction of rubber from the barks of trees I consider more practicable. I have been successful, it is true, with one American species, Hancornia speciosa, or "Mangabeira" rubber, which is the easiest of all sorts to try by my process. Its bark is very friable, like sugar so that it is easily disintegrated. Ficus sorts from the Guianas give rubber, but in small quantity. How many species there may be that I have overlooked I am unable to say. But, curious to say, I could do nothing with Hevea or Castilloa, though these are precisely the species in which my agent was interested.

Forsteronia gracilis, of British Guiana, is a member of the same family as Landolphia, Vahea, Urceola, etc., which proves its richness in rubber, and it should be susceptitble to treatment of the bark for rubber. What a beautiful climber, by the way, is this Forsteronia! My agent brought home only stems without any roots, but after six weeks I had stems two and half yards high.

Success ought to be attained in tropical America with the Landolphia Hendelotii, which thrives in a sandy soil as well as loam, and yields a good rubber. Landolphia Owariensis, L. Klanei, and L. Kirkii, want more water and shade. These and various other creepers or climbers producing rubber ought to be grown in America with more profit than anywhere else, as experience will prove. They are easily propagated by cuttings and be utilised for rubber far earlier than any American species.

Can you tell me what is the plant from southern California, yielding a good rubber from stems which can be cut yearly like asparagus? I have several stems, which look like Euphorbia, but I believe these are composite.

A. GODEFROY-LEBEUF.

Establissement d'Horticulture, Paris, Sept. 13, 1900.

LAGERSTRŒMIA INDICA.—Among the many tropical and subtropical plants which are said to make a very fine display in their native places many prove disappointing when grown under glass in this country. This, however, cannot be laid to the charge of the plant under notice, for it is said to flower quite as well here as in India, where it is one of the most favoured garden shrubs. To grow it well it should be planted in an intermediate house in loam, given a sunny position, and dried off in winter. On the approach of spring all the previous year's wood should be shortened to get good strong young shoots. If a lot of growths are made, all the weak ones should be removed when a few inches long, by which means the inflorescences will be greatly improved. Flowering will commence about the end of July, every shoot being terminated with large panicles of pretty fringed blossoms. The flowers of the typical plant are pink, but variation may be had by growing the purple, deep red, and white varieties. It can be readily rooted from cuttings of half-ripe wood, and can be grown and flowered as a pot plant. If grown in the latter way it must be well fed and thinned to encourage strong shoots.—D.—*Journal of Horticulture.*

SHARE LIST.

(Not made up during Holidays.)

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)
Colombo, Jany. 8th, 1901.

COFFEE :—	
Estate Parchment per bushel	None
Chetty do do	Nil.
Native Coffee per cwt.	Nil.
do F. O. B per cwt.	Nil.
Liberian coffee:—per bushel	Nil.
do cleaned coffee:—per cwt	Nil.
Cocoa unpicked:—per cwt	R41·00 to 44·00
do cleaned do	R44·00 to 52·00
Cardamoms Malabar per lb	R1·20 to 1·30
do Mysore do	R1·70 to 2·00
RICE :—	
Soolai per bag of 164 lb. nett	R9·15 to 9·27
1st quality:—per bushel	R3·50 to 3·55
Soolai 2 & 3rd. do do	R3·38 to 3·48
Coast Calunda	none available.
Coast Kara	R3·90 to 4·00
Kazala	R3·30 to 3·35
Muttusamba Ordinary	R5·75 to 6·00
Cinnamon per lb No 1 to 4	00·53 to 00 54
do do 1 and 2	00·61 to 00 62
do Chips per candy	R90·00 to 92·50
Coconuts Ordinary per thousand	R35·00 to 38·00
do Selected do	R36·00 to 39·00
Coconut Oil per cwt	R14·12½ to 14·50
do do F. O B. per ton	R282·50 to 290·00 nominal.
POONAC :—	
Gingelly per ton	R100·00
Coconut Chekku do	R90 00
do Mill (retail) do	R85·00
Cotton Seed per ton	R80·00
Copra per candy	
Kalpitiya do	R45·50 to 46 75
Marawilla do (Boat)	R44·00 to 46·50
Cart Copra do	R36·00 to 44·00
Satinwood per cubic feet.	R2 00 to 2·25
do Flowered do	R5·00 to 6·00
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R75·00 to 175·00
Kitul fibre per cwt	R30·00 to 32·00
Palmyra do do	R6·00 to 14·00
Jaffna Black Cleaned per cwt	R13·00 to 14·00
do mixed do	R11·00 to 2·00
Indian do	R6·00 to 12·00
do Cleaned do	R8·00 to 12·00
Sapanwood per ton	R45·00 to 47·50
Kerosene oil American per cases,	R7·00 to 7·25
do bulk Russian, per tin	R3·12 to 3·15
do Russian per cases	R6·30 to 6·40
Nux Vomica per cwt	R2·00 to 6·50
Croton Seed per cwt	R20·00 to 22·00
Kapok cleaned f o b per cwt	R24·00
do uncleaned do	R5·50
Plumbago per ton, according to grade — Large lumps	R400·00 to 650·00
Plumbago per ton, according to grade — Ordinary size lumps	R200·00 to 600·00
Plumbago per ton, according to grade — Chips	R125·00 to 400·00
Plumbago per ton, according to grade — Dust	R75·00 to 225·00

RAINFALL RETURN FOR COLOMBO.

(Supplied by the Surveyor-General.)

	1896.	1897.	1898.	1899.	Av of 30yrs.	1900	1901
	Inch	Inch	Inch	Inch.	Inch.	Inch.	Inch.
January ..	2·92	3·81	2·32	6·98	3·22	3·72	4·42*
February ..	0·35	1·68	1·98	2·78	1·93	0·63	
March ..	5·64	3·66	4·21	0·88	4·78	3·71	
April ..	5·93	10·97	22·81	6·66	11·31	15·12	
May ..	9·31	8·30	5·80	17·73	12·09	10·63	
June ..	8·37	10·14	10·94	9·23	8·37	7·83	
July	2·85	5·24	6·15	1·11	4·38	6·77	
August ..	6·35	9·09	0·97	0·62	3·67	7·35	
September	10·99	4·58	6·90	1·48	5·01	4·00	
October ..	16·78	4·71	20·60	12 99	14·52	9·47	
November..	19.81	11·66	17·38	8·58	12·66	9·25	
December..	11·76	8·89	3-05	4·44	6·39	5·20	
Total..	101·06	82·73	103·11	73·48	88·33	83·68	4·42*

* From 1st to 8th Jan. 4·42 inches, that is up to 9·30 a.m. on the 8th Jan.—ED. *C.O.*]

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS FOR Nov 1900.—We append the Monthly Return of rain from which it will be seen that the highest fall in Nov. was at Pallai in the Northern Province 32·90 inches, and the lowest at Tangalla in the Southern Province, 2·07 inches.

WESTERN PROVINCE

Negombo, Mr. Bucknall (6) ... 11·15
Kalutara Mr. Emerson (36) .. 11 06
Labugama, Mr. Bond (369) ... 13·75
Henaratgoda, Mr. Silva (33) .. 15·92

CENTRAL PROVINCE.

Katugastota, Mr. Morgan (1,500) ... 17·90
New Valley. (Dikoya) Mr. Waddell (3,700) .. 18 71
Helboda (Pussellawa) Mr. Gosset (3,300) .. 20·21
Yarrow Estate. .. Mr. Padwick (3,400) 20·51
Peradeniya Not received (1,540) ... —
Duckwari, Mr. Edwin (3,300) ... 13·00
Caledonia, Not received (4,273) .. —
Pussellawa, do (3,000) .. —
Hakgala, Mr. .. Nock (5,581) ... 16·14
S. Wanarajah Estate, Mr. Tatham (3,700) .. 15·53
Padupola, Mr. Waddel (1,636) ... 11 78
Mylapitiya, Mr. Fletcher (1,707) ... 2·48
Aluta Mr. Daly Winter 14 78

NORTHERN PROVINCE.

Mullaittivu, Mr. Ebert (12) .. 12·63
Jaffna Mr. Macdonnel (8) 18·06
Mankulam, (N. Road) Not received (167) ... —
Elephant Pass, Mr .. Silva (7) .. 15 23
Vangalachettykulam, Mr. Oorloff (179) .. 5·20
Point Pedro Mr. Chita mpalam (24) ... 11·51
Jaffna College, Mr. Hastings (9) ... 20·58
Kayts, Mr. Kretser (8) .. 13·77
Kankesanturai, Mr. Parara-chasinghe (10) .. 19·14
Pallai, Mr. Silva (24) .. 32 90
Murlkandy, (North-Central Road) Mr. Silva (7) 22·56
Nedunkeni, Mr. Ebert (122) ... 25·20
Chavakachcheri, Mr. Silva (16) ... 20·08
Udupiddi, Mr. Brown (35) .. 14·15
Marichchukaddi, Mr. Tampue (14) 6·44
Murungan, Mr. Walker (52) 11·95
Vavunlya Mr. Ebert (318) 10 01

SOUTHERN PROVINCE.

Ella Vella Mr. Caldicott (262) 13·46
Kekanadura, do (150) 3·70
Denagama, do (286) 8·24
Udukiriwila Mr. Lourensz (235) .. 6·16
Kirama, Mr. Lorensz (260) 9·40
Hali-ela Mr. Caldicott (200) 11·25
Tissa Mr. Silva (75) 11 83
Matara Mr. Caldicott (15) .. 13·80
Pandeniya, do (157) 12·1
Urubokka, Mr. Caldicott (890) 26·49
Tangalla Mr. Russell (94) 2·07
Mamadola, Mr. Doole (56) .. 9·24

EASTERN PROVINCE.

Irrakkamam, Mr. Bower (42) ... 15·44
Devilana, Mr. Vanderstraaten (136) 14·60
Sagamata, Mr. Bower (40) ... 16·49
Ambare, do (65) 19·58
Kanthalai, Mr. Carte (150) 5·28
Allai, Mr. Carte (95) 21·28
Rukam, Mr. Vanderstraten (120) ... 13 80
Periyakulam, Mr. Carte (20) ... 21·48
Chadaiyantalawa, Mr. Goodman (57) 22·63
Kalmunai, do (12) 17·63
Rotewewa, Mr Bower (30) 13 58
Lahugala, do (70) 8·46
Naulla, do (30) 8·98
Andankulam, Mr. Carte (41) ... 22·27
Manalpaddy, Mr. Vanderstraaten (21) 26·79
Maha-Oya-Tank, Mr. Vanderstraaten (190) 19·83
Potuvil, Mr Sinnayah (10) 12·51
Vakaneri Mr. Watts, (8) .. 13·51

N.-W. PROVINCE.

Magalawewa, Mr. Crabb (176) .. 6·14
Maha Uswewa tank, Mr. Adams (160) ... 2·45
Tenepitiya. Mr. Churchill (8) ... 8·75
Batalagoda, Mr. Madahapola — 10·88

N.-C. PROVINCE.

Kalawewa, Mr. Chellappah (268) 13·59
Maradankadawala, Mr. Emerson (443) ... 5·99
Mihintale, Mr. MacBride (354) .. 6·50
Horowapotana, Mr. MacBride (217) .. 14·80
Madawachchiya, Not received (285) .. —
Topare, Mr. Jayewardane (200) .. 16·06
Minneriya Mr. Eves —13 98

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) 18·60
Haldummulla, Mr. Viramuttoo (3,160) 31·85
Kumbukan, Not received (446) —
Koslanda, Mr. Edge (2,258) ... 23 32
Tanamalwila, Not received (550) .. —
Bibile, Mr. Silva (680) 16·94
Taldena, Mr. Fernando (1,100) .. 18 06
Alutnuwara—Mr. Leembruggen (300) 15·86

SABARAGAMUWA.

Ambanpitiya, Mr. Gregson (729) 19·61
Pelmadulla, Mr. Bingham (480) 17·68
Kolonna Korale (Hulanda-oya) Not received (203) —
Avisawella, Mr. Clarke (105 .. 12·21

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 31st Dec. 1900.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·90
Do. dull medium do. 1·50
Special assortment, 0 and 1 only do. 2·25
Seeds do. 1·40

CINCHONA BARK:—
Per unit of Sulphate of Quinine 9c—For 1½ to 3 o/o.

CINNAMON :—
Ordinary assortment per lb. 57c.
Nos. 1 and 2 only per lb. 62c.
Nos. 3 and 4 only per lb. 54c.

CINNAMON CHIPS :—
Per candy of 560 lb R92·50

COCOA :—
Finest estate red; unpicked per cwt R58
Medium do do R54
Bright native, unpicked and undried R52
Ordinary do do do R44

COCONUTS—(husked).
Selected per thousand R50·00
Ordinary " R39·00
Smalls " R30·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R78·75
Do in bags None

COCONUT (Desiccated).
Assorted all grades per lb 14½c

COCONUT OIL—
Dealers' Oil per cwt R14·50
Coconut Oil in ordinary packages f. o. b. per ton R325·00.—Nominal.

COFFEE.—
Plantation Estate Parchment on the spot per bus. R8 50
Plantation Estate Coffee f.o.b. (ready) per cwt - None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb. 65c.

COPRA—
Boat Copra per candy of 560 lb. R46·50
Calpentyn Copra do do R46·75
Cart do do do R42·00
Estate do do do R46·75

CROTON SEED per cwt None

EBONY—
Sound per ton at Govt. depot—R230.
Inferior R155. Govt. sales of 3rd December.

FIBRES—
Coconut Bristle No. 1 per cwt R10·50
Do " 2 " None
Do mattress " 1 " 4·00
Do " 2 " 3 00
Coir Yarn, Kogalla " 1 to 8 18·00
Do Colombo " 1 to 8 16·00
Kitool all sizes " None
Palmyrah " None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R650 }
Ordinary lumps do 600 }
Chips do 400 } Market dull.
Dust do 225 }
Do (Flying) 125 }

SAPANWOOD— per ton None

SATINWOOD (ordinary) per cubic ft. R7.50; Slightly flowered—Govt. sales of 3rd December.
Do per cubic ft. R19·50; Well flowered—Govt. sales of 3rd December.

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	52	39	28
Orange Pekoe do	55	36	29
Pekoe do	45	32	24
Pekoe Souchong do	32	27	18
Pekoe Fannings do	25	20	14
Broken mixed—dust, &c per lb	21	16	16

MARKET RATES FOR OLD AND NEW PRODUTS

(From Lewis & Peat's Fortnightly Prices Current, London, December 19th, 1900.

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt,		
Zanzibar & Bombay White ,,	Good to fine	£6 a £7 10s
Zanzibar & Bombay Yellow ,,	Fair ,,	£6 5s a £6 15s
Madagascar ,,	Dark to good palish	£6 a £6 10s
CAMPHOR, China ,,	Fair average quality	182s 6d
Japan ,,	,, ,, ,,	192s 6d
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 3d a 2s 4d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s 6d a 4s 3d
	Seeds .	2s 6d a 2s 8d
,, Telli Cherry ,,	Good to fine ..	2s 11d a 3s
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	25d a 3s 4d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4d a 4½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s a 46s
CINCHONA BARK.—lb. Ceylon	Ledgeriana Orig. Stem	3¾d a 6¾d
	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅜d a 5⅜d
	Renewed	5¾d a 7½d
	Root	2¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	11d a 1s 8d
2nds	,, ,,	10d a 1s 6d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	3½d a 8d
CLOVES, Penang lb.	Dull to fine bright bold	6d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar and Pemba	Good and fine bright	4d a 4½d
	Common dull to fair	4d a 4⅝ 6d
Stems ..	Fair	1⅝d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	100s a 110s
	Middling to fine mid ..	85s a 97s 6d
	Low mid. and low grown	75s a 82s 6d
	Smalls	55s a 75s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	36s a 42s 6d
COCOA, Ceylon ,,	Bold to fine bold	90s a 100s
	Medium and fair	80s a 87s
	Native	63s a 72s 6d
COLOMBO ROOT ,,	Middling to good	12s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£ 0 a £29
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	30s a 40s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	3‥s
Calicut, Cut A ,,	Good to fine bold	80s a 100s
B & C ,,	Small and medium	33s a 77s 6d
Cochin Rough ,,	Common to fine bold	28s a 34s
	Small and D's	26s a 30s
Japan ,,	Unsplit	28s a 30s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red ..	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		65s a 80s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 85s
	Ord. stony and blocky	6s a 25s
KINO ,,	Fine bright	1s a 1s 3d
MYRRH, picked ,,	Fair to fine pale	90s a 107s 6d
Aden sorts ,,	Middling to good	50s a 60s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 0½d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS
INDIARUBBER, (Contd).		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s 3d
Mozambique ,,	Good to fine Ball ...	2s 8d a 3s 4d
	Ordinary to fair Ball..	2s a 2s 10¾d
	Low sandy Ball ..	1s 3d a 1s 7d
	Sausage, fair to good...	2s 6d a 3s 1d
	Liver and livery Ball	2s 4d a 3s 1½d
Nyassaland ..	Fair to fine ball .	3s a 3s 2d
Madagascar ,,	Fr to fine pinky & white	3s a 3s 1d
	Fair to good black .	2s a 2s 10d
	Niggers, low to fine ..	11d a 2s 4d
INDIGO, E.I. ,,	Bengal—	
	Shipping mid to gd violet	3s 4d a 4s 4d
	Consuming mid. to gd.	2s 9d a 3s 2d
	Ordinary to mid.	2s 4d a 2s 8d
	Mid. to good Kurpah	2s 2d a 2s 8d
	Low to ordinary	1s 10d a 2s 1d
	Mid. to good Madras	1s 6d a 2s 8d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bbimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 1½d a 2s 6d
Bombay & Penang ,,	110's to 65's	11½d a 2s 1d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable	5s 6d a 5s 9d
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	3d
NUTMEG ,,	Dingy to white	3d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1/0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ..	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicberry	Fair to bold heavy ..	6¼d a 6 5-16d
Singapore ..	Fair	6¼d
Acheen & W. C. Penang	Dull to fine	5¾d a 6¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	35s a 40s
	Middling to good small	20s a 32s
chips ,,	Dull to fine bright ..	10s a 20s
dust ,,	Ordinary to fine bright	5s a 10s
SAFFLOWER ,,	Good to fine pinky ..	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth..	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	51s 6d a 59s 6d
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair middling medium	4d a 5½d
	Common dark and small	1¼d a 3½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	£3 17/6 a £4 17/6
	D's and B's	
	Small ...	
Mergui ,,	Small to bold ..	£5 12/6 a £7 10s
Mussel ,,	Small to bold ...	22s a 57s 6d
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	15s a 16s
per cwt. Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	16s a 21s
TURMERIC, Bengal cwt.	Fair ...	28s nom.
Madras ,,	Finger fair to fine bold bright	25s a 27s 6d
Do. ,,	Bulbs ..	20s a 21s
Cochin ,,	Finger ..	24s
	Bulbs ..	7s 6d
VANILLOES— lb.		
Mauritius ... 1sts	Gd. crysallized 3½ a 9 in	16/ a 24/
Bourbon ... 2nds	Foxy & reddish 4½ a 8 ,,	15/ a 18/
Seychelles 3rds	Lean and inferior ...	8/ a 13/
VERMILION lb.	Fine, pure, bright ...	3s 3d
WAX, Japan, squares cwt	Good white hard ...	33s 6d

The TROPICAL AGRICULTURIST

MONTHLY.

XX. COLOMBO, FEBRUARY 1st, 1901. No. 8.

CEYLON: ITS BOTANIC GARDENS; VEGETATION AND SHORT REPORT ON A JOURNEY TO CEYLON.*

As above mentioned, I was afforded the opportunity in the year under report of an official journey to Deli and Ceylon, in the company of the hortulan.

After a ten days' stay on the East coast [of Sumatra], we crossed over to Penang,......in order, after a short delay there, to embark on board one of the P. & O. steamers bound for Ceylon.

The visit to Ceylon had quite a different object from that to Deli. Agronomic questions were only of secondary importance: the main object being a proper acquaintanceship with the organization and working of the botanical establishments of Ceylon, consisting of the famed garden at Peradeniya—four miles from Kandy—and its four branch-establishments.

In the afternoon of 22nd June we steamed alongside the island in squally cloudy weather. About sunset the vivid lightning over the land reminded us of the old stories according to which the Arabian mariners sailing in those waters considered the incessant lightning as a sure sign that they were near Ceylon. At about half past one a. m. we were in the harbour of Colombo.

Scarcely had we landed the following morning when we were agreeably surprised to find that Mr. J. C. Willis, Director of the Botanical Establishments of Ceylon, had taken the trouble of undertaking a fairly long railway journey from Peradeniya to the low-country to welcome us at once on our arrival in Colombo.

During our whole stay in Ceylon Mr. Willis always had the kindness to spare no pains in arranging to make our journey as instructive, profitable and pleasant as possible. This is therefore also the place to warmly repeat our gratitude to him, the assurance of which, of course, we had before given him verbally. We desire further to tender our thanks to Mr. MacMillan, the Curator of Peradeniya Gardens, and Mr. Nock, Superintendent of the Hakgala Garden, for all they did for us.

Mr. Willis returned at noon to Peradeniya, where we were to follow him the next morning, having spent the night in Colombo, about which place, so far as they are appropriate in a report of this kind, will be found a few remarks at the end of this paper.

If there is no call to deal here in detail with the capital of Ceylon, it were right to begin by considering for a moment the climatic conditions of the island and the nature of its soil. This is necessary to a good understanding of what follows, as also to make a comparison between the conditions of primitive vegetation and husbandry in Ceylon, on the one hand, and Java on the other.

In the centre of the lowest and broadest portion of Ceylon one meets with a great network of mountains running pretty steeply to the South, and more to a level to the North, and quite flat in the Northern half of the island and the South-Eastern parts of it. The south-west monsoon which lasts during four or five months of the year, especially in May, June and July, brings with it much rain. On account of the configuration of the island these rains however affect only the south-western part of the island. When once the Monsoon winds have passed over the tops of the hills (7,000 feet, and higher) they are robbed of their moisture and changed into dry winds which cause, during the south-west Monsoon months, the northern and south-eastern parts of the island to suffer from terrible drought. Indeed in the mountain regions situated behind the high lops and ridges the drought is severely felt.

* Translated from *Verslag omtrent den Staat van's Lands Plantentuin te Buitenzorg over het Jaar 1898 by* Advocate F. H. de Vos and Donald Ferguson,

In October, November and December there is the north-east monsoon which causes rain all over the island, so that there are two rainy seasons a year in the south-western parts of the island. During these mouths of the north-east Monsoon the rainfall at a time is so heavy in the north-west and east of the island that there is relatively little profit to vegetation thereby, the country being completely under water for a few weeks and parched with drought for the remainder of the year, as Dr. Trimen, the late Director of Peradeniya Gardens, who died some two years ago, puts it.* Therefore one has, as Trimen says, to distinguish between a wet and dry Ceylon. The wet portion, which is specially regarded in cultivation, of any importance, is indeed the best known, but it only includes on an average a third part of the island, and the dry part—generally adopted for the cultivation of products of little value—the other two-third parts. By this alone it can at once be explained how it is that Ceylon, with an area of about one-half of that of Java, has only 3 million inhabitants against the 25 millions of Java. There can be also really no analogy between dry Ceylon and the central and eastern parts of Java where a pronounced period of drought is felt.

Not less great are the differences between the soil of the two islands. The entire country of Ceylon consists of ironstone, chiefly gneiss. The weathering product of this hard sort of rock has a peculiar copper or almost tile-red colour which caused the ancient Sinhalese to call this island "Copperland"†. Although here and there, rarely, hot springs are found in Ceylon, yet nowhere is the brittle volcanic stones found—a stone which generally provides in Java a soil with such favourable physical qualities. Finally it appears to me, that—although in a much less degree than both the other factors—the violence of the winds in Ceylon as compared with those of Java, must be regarded. That these winds must be often heavy there, is apparent, in view of the lay of the island from a glance at the chart. If one stands on the high cliffs from which Point de Galle derives its name (*Gala* in Sinhalese is hill or rock‡) between that high-standing place and the distant unknown regions which surround the South Pole no more land is to be found.

Although, especially on a brief visit, from the nature of the case, one does not at once perceive the influence of these violent winds on plantations, yet in this connection may be mentioned the large number of wind-breaks which they are obliged to plant in many places between the tea, for which purpose the *grevillea robusta* is generally used.

This influence, as it seems to me at least, is more apparent on the primitive vegetation of the hills. As I desire to avoid the reproach of being led by passing, and therefore false impressions made on me by this vegetation, let me again cite Trimen in his remarks on vegetation at the altitude of 5,000 ft. and above. With the exception of certain grassy tracts......all the hills are forest-clad over their summits—so he says. "The climate is generally very wet, and the forest has special characteristics. All the trees are evergreen, *for the most part rather small*, hard wooded and of very slow growth; they stand close together and form a very dark jungle"——The dense under-growth is very largely made of gregarious plants known by the Sinhalese under the name of *nilu*. These are a species of Strobilanthes.

* H Trimen, "On the Flora of Ceylon; especially as affected by climate." *Journal of Botany*, Vol 24, 1886.

† See the introduction to that splendid work of Messrs. Sarasin, *Eagebnisse naturwissen-schaftlicher Forshungen auf Ceylon*, Wiesbaden 1893.

‡ But the Sinhalese name is *Gálla*, not *Gala*, and has nothing to do with rocks.—*D.F.*

The hypothesis seems to me not too hazardous that the character of these Ceylon hill jungles, so different from similar high-lying virgin forests of most of our Javanese hills, must be attributed to, not only, the difference in the soil, but partly also to the frequent heavy winds that rage there. Setting aside this hypothesis, it is a fact, that, on tho hills, *even of the most humid parts of Ceylon* no vegetation is to be met which can be compared with that on our Javanese hill-tops in moist districts at an elevation between 5,000 and 6,500 feet. This great difference in character strikes one forcibly, coming from here, especially on account of the dearth of the large number of huge high trunks found in our, as regards humidity, similar hill forests. As a whole it lacks further the peculiar *cachet* of equational luxuriousness so very characteristic of most of our hill-tops, at least of West Java. On the other hand, indeed, the same characteristic appears in the primitive forests of the low lands of the south-west wet Ceylon. This appears clearly from the description of Trimen at p. 328 (*loc. cit.*) of such jungle.

On 24th June early in the morning we set out on our journey to Peradeniya, which is 3½ hours' journey by rail. Going to the Fort station, situated in the centre of the city, we made two observations, which may be incidentally set down here. The first is that Colombo creates a much pleasanter, one might say a homelier, impression than Penang or Singapore, because in both these, as it were improvised cities, the original native population is supplanted by others, whilst in Colombo, as in our Dutch-Indian cities, they hold their own. The second is that the Chinese element is entirely absent, not, as it was told to us, because the Chinese are systematically kept out, but as traders they cannot cope with the specially cunning "Moormen," the descendants of the Arabs and natives. The absence of Chinese artizans is not however explained by this reason.

For the first three stations, Heneratgoda amongst them (of which hereafter), one continues in the flat country. Only after 40 miles by rail the country begins to be hilly. Small hills appear covered with vegetation from top to bottom. After this one arrives in a more and more beautiful and grand mountain district, and one climbs over a mountain pass of about 1,700 feet in elevation to descend again to Peradeniya about 180 feet. Although very fine and often indeed impressive the character of this landscape is quite different from that along one line of hills in the Preanger-Regencies. Instead of the relatively great and broad foreground surrounded from behind by high volcanoes with their peculiar shapes, not only are the shapes of the mountains and hills yonder different—fantastic and often cupola-shaped—but there is a lack of much foreground generally when once one gets into the mountain districts, since the levelling process is so much more gradual than with us. The smallest hills are so many hard masses of gneiss which require ages and ages to experience any deterioraton of consequence by the gradual weathering. It will strike anyone who knows the *Sawahs* of Java how much lower is the state of rice cultivation in Ceylon. The rice-fields seem to be badly cared for, in disorder and generally poor. The reason is chiefly because no nursery beds are used, but the grain is sown direct on the field. But in other respects there is by far not that trouble bestowed on rice-fields which our natives take over their *Sawahs*. The Ceylon Government has taken enough trouble for the improvement of rice culture, it has however not succeeded in overcoming the peculiar psychical bond that exists between husbandry and the conservative proclivities in the Sinhalese husbandman.

There is another matter, and that is to our eyes the relatively little significance attached to the bamboo Almost exclusively one sees the yellow variety o

Bambuse vulgaris, which is considered there to furnish only moderate building material. Indeed bamboo, as such, does not by any means play that important part in Ceylon which it does with us. This is one of the reasons why the native villages there, appear so dirty and unsightly. As regards cleanliness and neatness they cannot compare with our West Java villages.

Having got out at Peradeniya station at 11 o'clock, we were, a few minutes later, hospitably entertained by Mr. Willis in his house.

We owe a double debt of gratitude to Mr. Wills and his wife for their friendly hospitality, as Peradeniya is indeed a station but no town; there is only the little native village Iriagama on the other side of the river directly one crosses the satin-wood bridge. There are no lodgings to be had there for the public ; and had it not been for the very much appreciated hospitality extended to us we should have been obliged to have often been on the run between Peradeniya and Kandy, a distance of about four miles.

The Botanical Garden at Peradeniya was established in 1821, thus only four years later than ours at Buitenzorg, and managed by A. Moon, who was an ardent student of Ceylon flora, and in 1824, published a catalogue of Ceylon plants. Unluckily Moon died in 1825 of fever.

For Twenty years the institution was left to take care of itself, and coffee, breadfruit and coconut were cultivated for the Government, "whilst botanical science was completely neglected." It is difficult to avoid the reflection in passing, in how many respects the history of the garden at Peradeniya is similar to that of our establishment at Buitenzorg: similar conditions resembling each other have had most prejudicial results at the beginning. In 1844 there was much improvement in the condition of Peradeniya by the appointment of Gardner, a capable botanist and energetic traveller, who went all over the island and, as a result of his travels, obtained a number of new plants for the garden. After Gardner's death in 1849 Dr. Thwaites was appointed Director. It was under the directorship of Thwaites, extending over a period of thirty years, that a series of improvements were introduced, and the institution acquired not only the necessary stability but a world-wide reputation. With his great merits, Thwaites had however also peculiarities in the catalogue of his time not quite inexplicable—of which I received assurances some years ago from very trustworthy sources. Himself thorougly knowing Ceylon plants, he thought that what was not serviceable to him was of no use to others, and labels on plants in the garden were considered quite unnecessary. Moreover he had conceived the idea, more inexplicable, that a botanical garden in the tropics ought to be a small edition of the primitive vegetation with all its capricious varieties of forms. As a result of this way of viewing the matter, he not only did not strive to follow the principle of arranging all plants resembling each other according to the natural system, but purposely rejected the same. During this period we entertained and carried out diametrically opposed ideas.

Although there perhaps lurks just a spark of exaggeration in this proposition, it is certain that Dr. H. Trimen, who succeeded Thwaites, as Director, found it necessary in 1880—when the undersigned came to Buitenzorg—to cause some modification in both these said views, and many improvements were also introduced by him. When this amiable savant honoured us with a visit to Buitenzong some years ago, he was suffering with deafness ; but we had then no idea that this was only the premonitory symptom of a serious illness, which ended in total deafness and partial paralysis, and a couple of years later brought this excellent and highly-qualified man to the grave. If the garden at Peradeniya is under a debt of gratitude to him, he has moreover built a lasting monument to botanical science by the compilation of his *Flora of Ceylon*, of which the greater part was published during his life-time. The publication of the rest of the work was due to the zeal of Sir James Hooker. Our hospitable host, Mr. J. C. Willis, M.A., succeeded Dr. Trimen.

The choice of a site for founding the garden at Peradeniya was specially fortunate. On three sides it is bounded by the windings of the Mahaweliganga, the broadest river of Ceylon, which forms as it were an eye in which the garden is enclosed. The banks of this splended river, in comparison with which our Tjiliwong is a little mountain stream, are for the most part planted with a luxurious growth of bamboos and create a deep and regal impression, especially when seen from the satinwood Bridge (a, from a technical point of view, fairly long suspension bridge built entirely of wood) on the south-west side of the garden.

On entering the "Royal Botanic Gardens" of Peradeniya one passes round a beautiful grove of palms and reaches the commencement of a long straight road which runs to almost the back of the garden. The first part of this road is adorned on both sides with a large variety of bushes and low flower-plants, standing partly along-side and partly under various fine trees. The attentive upkeep of this approach at once creates an agreeable impression.

About half-way up the road it runs right through a very large lawn with a collection of palms in the centre surrounded by a circular path: "the great arch." The whole of this lawn and its surroundings are laid out in the well-known broad English park-style. Conceived in the same spirit, but still prettier are the surroundings of the "monument road" (loading to the "Gardner monument") with fine specimens of various trees (*Pometia eximia, Terminalia Belerie, Terminalia Catappa, Ficus Saccifera.*) Between this "Monument Road" and the aforesaid "great arch" but closer to the latter there are the places which serve as the office, museum, herbarium, library and laboratory. The herbarium is of course of much value especially for the original specimens of Ceylon plants which it contains ; there is besides a very intertesting and beautifully executed collection of coloured drawings of plants made in the institution itself. For the rest, to one from Buitenzorg, as regards the appointments there is not much to be said. It would be a break of that courtesy which demands that a guest should be no critic, to say that the arrangements as regards the laboratory were wholly inadequate, so that at the instance of Mr. Willis it was intended to build a special and properly equipped laboratory which probably is now in use. It is not without a feeling of perhaps well-grounded satisfaction, that one sees the idea, carried out in Buitenzorg 15 years ago, to have laboratories attached to the garden, adopted now in another botanical garden in the tropics.

As the part of the garden where a systematic grouping of plants is adopted is still new and not extensive (behind the Director's residence), and as in the greatest portion of the garden such an arrangement is not adopted—as appears from what has been said already—the principles followed at the foundation call for no special remarks. This is not the place to give a list of plant-names taken from our notes or from the "Hand-guide to the Royal Botanic Gardens, Peradeniya." However we ought to mention some strikingly interesting or specially well-developed specimens, and especially, in the first place, a male specimen in flower of *Lodoicea Sechellarum*, somewhat older than ours, and flowering and fruit bearing species of *Couroupita Guyanensis*, the remarkable West-Indian cannon-ball-tree which quite recently blossomed in our garden for the first time. Among the really fine specimens found in Peradeniya must be mentioned *Pterocarpus indica, Amherstea nobilis, Schleichera trojuga, Artocarpus nobilis* and *Pericops Mooniane.* The same remarks applies to the remarkably large and robust collection of Burmese giant-bamboos, *Dendrocalamus giganteus* (the same kind of which a

large and small specimen are to be found at the entrance to our botanical gardens), which being present in large numbers constitute one of the beauties of the garden at Peradeniya. Finally I cannot leave unmentioned a peculiarly pretty, although not long, lane of relatively still young specimens of *Corypha umbraculifera*, the justly famed *Taliput* palm.

Although the nurseries have been lately improved they are as yet not to be compared with what one sees at Penang and Singapore: From that part where the nurseries are, when one goes along the broad way which runs right through the garden parallel to the river, one comes on to a plot that is specially set apart for *culture plants*. To us with our extensive culture-garden at Tijkenment, this gives no occasion for a special visit inside. It should only be remarked, as regard *Cephaelis Ipecacuanha*,—as lately attention has been directed to the cultivation of this plant—that its cultivation in Ceylon has not been attended with much result as the *Ipecacuanha* plant, according to the statements of Mr. Willis, "seems to need some special conditions of soil or climate". That the land cannot be successfully cultivated in the open ground has been repeatedly demonstrated first in Java and lately again in the Straits Settlements. It is only by garden culture in covered plots as evidenced by practical experience that any results can be expected. It is evident that the portion of ground reserved for culture-plants now in Peradeniya cannot be compared with a large garden specially set apart for cultivation. There appears to be however in this respect a project of great and interesting changes now in contemplation. During the latter portion of our stay in Ceylon, rumours reached us of a serious intention to transfer the seat of a languishing Agricultural College now in Colombo, to a large tract of ground close to Peradeniya, to serve as an experimental garden and place for instruction in agriculture. At the same time, so the rumour ran, the arrangements devoted to pure and experimental botany and its allied branches should together form a special branch of the service—an "Agricultural Department" in the spirit of the homologous establishments working under expert direction and with a specially trained expert staff, such as work so usefully in the other British colonies, and especially in North America.

How far these remours will become definite plans, and what are the chances that these in their turn will reach fulfilment, the writer of this, speaking of his own knowledge, cannot say. Should the plans however be carried out, they would create a *rôle* of great importance at Peradeniya, of much use to agriculture in a colony where, just as in ours, though it may be in a somewhat less degree and certainly on a very much smaller scale, agriculture is the chief source of revenue.

The botanic garden at Peradeniya issues annually a detailed report of its operations, besides, at indefinite periods, according as occasion demands, small "Circulars." The little *brochures*, the publication of which was begun by Mr. Willis (they are somewhat like our "Korte berichten uitgaande van den directeur van's Lands Plantentium" which are published in *Teysmannia*), relate exclusively to practical experiments of value to the colony.

The annual reports also include the reports of the "Honorary Entomologist," Mr. Green, who in a general way by his meritorious publications on the injurious insects of Ceylon had already been able to furnish very useful advice to agriculture there.

On 27 June we set out on a journey, with the object of going to visit, under the guidance of Mr. Willis, one of the four branch establishments of Peradeniya, namely Badulla. For that purpose we had to travel by rail until evening as far as Bandarawella, where the night was passed, in order to reach Badulla by the mail coach the following morning. In this expedition we had the pleasure of being accompained by Mr. J. Parkin, a young English botanist, who was engaged at Peradeniya in very interesting experiments with caoutchouc.

In spite of the fact, that all the lower and medium sized mountains that one passes are equally entirely denuded of jungle on behalf of cultivation, this railway journey is nevertheless from the point of view of natural beauty really astonishing. Again and again the eye is struck by the frequently impressive beauty of the environment. To attempt, from a tourist's standpoint, to give some idea of the landscape, would be a very difficult task, and one that in any case would be out of place here. The two principal impressions of those made upon us during this journey belong however to categories *certainly* coming within the scope of this report. The one is of an agronomic, the other of a botanics nature.

Everyone acquainted with Ceylon knows that by the influence on agronomic grounds can only be meant the extent and importance of the tea culture.

The tea district begins near Peradeniya. Immediately opposite to the garden, at a distance of a couple of paces, are the gardens of the "New Peradeniya" estate, which yields about one per cent of the whole tea product of Ceylon.

Shortly after leaving the station of Peradeniya Junction, as far as and even above the station of Nanuoya situated at 5,300 feet, one rides literally continuously through tea plantations. I do not believe that one will anywhere else—unless indeed in the wine-growing districts—meet with a culture, carried on upon so large a scale, predominating so greatly in a whole stretch of country.

When one considers, that, as I found stated, in 1875 only 282 pounds of tea were exported from the whote of Ceylon, and the export in 1898 amounted to nearly 120 million pounds, then one must have great respect for the energy of the Ceylon planters. The more so when one also knows that just in those districts great losses were suffered through the coffee-leaf disease. On many places where tea now stands coffee was earlier found, and partly also cinchona; in addition many waste lands were also cleared and planted with tea. It was originally attempted to obtain these lands at as high an elevation as possible, it being known that a high situation above the sea has a favourable influence upon the quality of the product. Estates are even met with going up to 7,000 feet; among others a well-known estate above Nuwara Eliya famed for its good product. During the past few years the Government have, in order to prevent further devastation of the forest jungle, given no more permission to denude lands situated higher than 5,000 feet of jungle and bring them under cultivation.

When one sees tea planted everywhere and everywhere, from the immediate neighbourhood of the railway to as far as the eye can reach, on mountain and in valley, upon the steepest slopes and the most unlikely-looking places, there involuntarily arises, with all respect for the strength of spirit developed by the Ceylon planters, the question, whether the praiseworthy energy has always gone accompained by a corresponding caution; and whether, with falling prices, by means of increasing competition and other operative factors, the plantations formed on less favourable lands will, in comparison with the favourably situated estates, not have a very hard struggle. In very many places the soil of the tea gardens possesses extremely little humus, belonging in general to what one calls a poor soil. According to what Mr. Willis told me, this is met by some by means of manuring with able manure and guano.

Whilst those persons living in Java who have a direct concern in tea cultivation are naturally in the highest degree interested in Ceylon tea statistics, it is at the same time perhaps not unimportant to refer to

the really enormous increase that the export of tea from Ceylon to Russia has undergone in *one* year. In 1897 that export amounted to 439,349 pounds and in 1898 2,714,005 pounds: thus nearly seven-fold. This in truth agrees with what I learned four years ago more than once in Russia, and what has since been repeatedly asserted to me by Russian visitors here, namely, that the non-Chinese teas will find a great sale in Russia.

Before concluding these short incidental remarks regarding the tea culture, there is yet another question that deserves to be touched upon, even though it be with a single word. It is that of labor. The person engaged in agriculture in Ceylon does not find as do his colleagues in Java (excepting the employment of Madurese labor in East Java) the needful laborers amongst the population of the island itself. As a rule there is no Sinhalese labor, but Tamil coolies obtained from British India, from the Madras Residency.* According to what I was told, these coolies are mostly easily to be obtained, at wages of 30 to 37 (as maximum) rupee-cents per diem. If the fact that the indigenous population counts for nothing or at any rate for very little as a labor force, does not seem to cause the European agriculturists very much trouble and loss, it must certainly be without the condition of injury to the country itself. The Tamil coolies however—not to be confounded with the Tamil families living in Ceylon (comprising some 440,000 souls) in the north in and near Jaffna, and in the east in the region of Batticaloa—do not remain in Ceylon, but generally return after a pretty short time to their houses in British-India. The earned and saved sums of money, reaching, as I was assured to pretty considerable amounts, are carried home with them, or are often sent from time to time by post. All this money leaves the country and thus does not contribute to the increase of the welfare of the population in the districts where the European agriculturists carry on their occupation. This evil, there unavoidable, is not to be reckoned too lightly; let one only think—to make a comparison with an equal tea-growing region of Java—of the evident welfare in our villages in the Preanger Regencies where the people work on and for the tea estates.

Between the Nanuoya station and the small stopping place situated at the highest point of the railway (6,300 feet) the land under cultivation becomes steadily more infrequent and the natural vegetation in direct ratio comes more and more, and at last entirely, into the foreground. And it is in that sphere that the great botanic—or more strictly speaking vegetogeographical—peculiarity falls to be noticed to which reference was made above.

The mountain slopes are only partially covered with jungle. Among the woods, forming large complexes and strips, and bordering immediately upon them, one sees grass-covered lands, which either form great bays in the jungles, or in the fashion of broad passages separate extensive forest-complexes from each other to assume elsewhere the character of enormous accidented grass-fields. These lands, whose prominent characteristic is, whatever in addition their form may be, that they are so remarkably sharply divided from the neighbouring pieces covered with jungle, bear the name of "patana." Looking at a distance like rather short-kept lawns, these patanas are in reality formed of pretty high and coarse grasses (species: *Andropogon, Arthistiria, Pollinia, Garnotia, Arundinella*), amongst which occurs a peculiar flora, consisting of pretty numerous ground-orchids, immortelles (*Anaphalis* and *Helichrysum*), gentians, wahlenbergias, &c; besides some low-growing bushes of the families of the Leguminosae, Rubiaceae and melastomaceae. As a further peculiarity of these patanas it is to be noted, that, at least in the high-lying ones, literally only *one* variety of tree occurs, namely *Rhododendron arboreum*. Very scattered in the large grass-plains, standing alone, these rather low trees with short, mostly crooked, branches have as such no handsome appearance; covered, however, with masses of large blood-red rhododendron flowers they form so many brilliant bouquets standing out gloriously from the monotonous brown-green under-layer of grass.

The whole landscape in the high patana region is *so* singular and the demarcation between grass and jungle so abrupt and always *so* sharp, that one can hardly believe that one sees before one the work of nature alone, and one is constantly inclined to ask who can have been the genial designer, who had the audacity to cover the mountain slopes and tops with a park on a gigantic scale, wherein woods and enormous *pelouses* [lawns] leaving open bold perspectives, alternate with one another.

Rightly says Trimen, in his article already quoted from on the flora of Ceylon: "A curious phenomenon, which strikes every traveller in the mountains, is the very abrupt line of demarcation between the patana and the forest; so sharply defined is this that it is hard to persuade oneself that nature alone has had a hand in it. The explanation appears to be that in the course of vast ages a perfect equilibrium between the two floras has been arrived at, so that now neither can encroach on the other: the patana plants are unable to exist in the dense shady forest, whilst the seeds of the forest trees never get a chance even of germination in the closely occupied grass-land, so far as can be observed, this balance is now maintained without change."

That the equilibrium is formed and at the same time, so far as one can judge, maintains itself unaltered is a fact that is indisputable. Nevertheless it is quite enigmatic *how* it has arisen and also to a certain extent how it endures. Especially is this an enigma, for the time being totally insoluble as it appears to me, since the patanas certainly are found rather on the dry side of the mountain range, but by no means exclusively. On the wet side of the mountains they also occupy large stretches; it was just there that we saw them for the first time, going up from Nanuoya. In this relative independence of the climatological conditions the patanas differ from the llanos of Venezuela and the savannas of Guiana, to which they otherwise have a resemblance.

It was certainly wet enough at 6,000 feet elevation. Clouds, mist and rain all together, caused cold shivers, to run through one's limbs.

But, in the strict sense, as by the stroke of a magician's wand, all was changed.

A few moments after one has passed the highest point, one comes through a long tunnel, followed by several smaller ones, and suddenly one is in dry Ceylon. By the landscape, by the uniform tints, by the feeling, in short by everything one recognizes, that one has been at once transported into a district as dry as a cork. And that, when only half-an-hour previously one's teeth were chattering. This extremely remarkable contrast also forms not one of the least of the surprises in which this journey so rich.

The brief details given above, having reference to the chief causes that distinguish the climate of Ceylon, makes the rapid transition intelligible; only a personal view, however, can convey a just conception of the striking effect of this unprecedented change of climate between the two sides of one and the same mountain range.

Before the falling of the evening we reached the terminal station Bandarawela; under the impression of the selfsame panorama formed by hundreds of hills and mountain tops, all shining in those uniform red tints peculiar to arid and dry regions of

* *Sic.—D.F.*

warm countries. And notwithstanding one finds ourself in the midst of a tropical island lying seven degrees from the equator.

At Bandarawela we spent the night at a small but well-arranged hotel. It is thought of making of the place a kind of sanatorium later on, just on account of the drynesss of the climate. If the place is to become really habitable then the great difficulty of the production of shade will first have to be overcome. As it is now——we experienced it the following morning during a little botanizing expedition on the patana—although one is at a height of about 4,400 feet, after eight o'clock in the morning it is so scorching hot, that one hastens to flee indoors, where the cold, in contrast with the terrible heat outside, does not feel pleasant, as being too great a contrast.

By a difficult but excellently-made mountain road a mail coach brought us, over a distance of 18 miles, from Bandarawela to Badulla, the identical first object of our expedition.

The garden at Badulla, or rather the gardenette, since the surface comprises not more than 11 acres, was founded in 1886 by the former Director, Trimen, with the object of there trying tho cultivation of various useful plants, in order to find out which of those plants were adopted for the particular climatological condition of the province of Uva, of which Badulla is the capital.

(*To be concluded.*)

SUGAR ITEMS.

During the past seven years Queensland has sold sugar to the value of £6,500,000. Last year £1,163,010 was paid into the colony for this single article of produce. The loss to the working classes by the destruction of this industry would amount to the wages at the fifty-eight mills and ten juice-extracts plants alone, of nearly 4,000 white men. There are in addition some 3,000 farmers, who grow cane for the mills. Probably 8,000 Europeans are employed outside the factories pretty well all the year round, besides some 10,000 indirectly engaged in the industry. Thus they are actually some 25,000 white men employed to 9,000 kanakas, the labour of one of the latter enabling employers to employ nearly three whites. The 9,000 kanakas are employed in the field, but it is with great difficulty that the number can be kept up to the figure.

In 1899 Queensland exported 109,045 tons of sugar to Europe, the Australasian colonies, China, and Japan, &c. Does it ever strike any of those who cry aloud again black labour to try and calculate how many white men earn bread for their wives and families by means of this annual output of sugar? Do they ever consider the operatives in British factories who make the linen for the bags, the twine and the needles, the men who navigate the ships which carry it, the engineers who make the machinery—worth in Queensland probably some three millions? Again do they consider the numbers of horses and teamsters employed in the industry both on plantations and in the cities? Wharf labourers have to haudle very once of sugar. How many comfortable homes are the direct result of the sugar industry? For every coloured labourer sweating in the canefields there are a dozen white men and women earning good wages, which they would not be able to earn where it not that there employers enaled to pay them those wages through the means of these reliable, yet not too cheap, coloured workers. Every ton of sugar produced in the colony is worth from £4 10s. to £6 to the cane-producers, mostly hard-working men who, by sugar-growing alone, provide comfortable homes for their wives and families, and indirectly for thousands of wharf labourers, teamsters, and draymen's families.

Such an industry is well worth fostering, not by bonuses, but by assistance to introduce superior methods of cultivation by which heavier crops and a higher sugar content may be obtained. During the present season a Fine engaged in sugar-growing took 70 tons of cane off 1 acre of his land, where others were only getting from 17 to 20 tons. It may be presumed that the land was rich, new, scrub land; but is it not within the power of science to put even worn-out land into the same condition by means at once cheap and effective? This is what it is hoped that Dr. Maxwell will bring to pass. He will be here by the time this *Journal* goes to press, and he arrives at the right time to at once put existing and intending planters on the right atrack. Should his work have the result of increasing the sugar output by 9 tons of cane or 1 ton of sugar, the black labour question would cease from troubling. It would gradually die out, especially if it should come to pass that the work of "trasbing" is found to be superfluous, and an effective cane-cutting machine be invented. We have seen in the introduction of a very useful cane-planting machine, and there is little doubt that ere long some inventive genius will discover a means of mechanically cutting and tropping cane plants in whatever condition the crop may be, whether uneven in height blown over by the wind. When that comes to pass the need for the kanaka will pass away, and the Northern canefields will no longer be the terror of the white man.—*Queensland Agricultural Jounral.*

HOW MUCH SEED TO USE

Last month we gave the quantities of seed o various crops required per acre broadcast or in drills. To this list we may add the quantities required per acre in hills:—

Maize, 8 to 10 quarts; cucumbers, 2 to 3 lb, climbing beans, 8 to 10 quarts: rock-melons, 2 to 3 lb.; squash 2 to 3 lb. pumpkins, 2 to 3 lb.; water-melons, 4 to 5 lb.

The quantity of seed required to furnish a certain number of plants, approximately, and allowing for seeds which do not germinate, is—Asparagus, 1 oz. to 500 plants; cabbage, 1 oz. to 1,500 plants; cauliflower, 1 oz. to 1,000 plants. celery, 1 oz. to 2,000 plants; egg-plant, 1 oz. to 1,000 plants; endive, 1 oz. to 3,000 plants; leek, 1 oz. to 1,500 plants; lettuce, 1 oz. to 3,000 plants: pepper, 1 oz. to 1,000 plants; tomato, 1 oz. to 1,500 plants.

Quantity of seed required for a given number of hills—Maize, 1 quart to 200 hills; cucumber, 1 oz. to 125 hills; musk-melon, 1 oz. to 60 hills; climbing beans, Lima, beans, 1 quart to 100 hills; climbing beans, wax, 1 quart to 150 hills; pumpkin, 1 oz to 50 hills; squash. 1 oz. to 50 hills; water-melons, 1 oz. to 30 hills.

Quantity of seed required for a given length of drill—Asparagus, 1 oz. to 60 feet of drill: beets. 1 oz. to 50 feet of drill; beans, dwarf, 1 quart to 100 feet of drill; carrot, 1 oz. to 100 feet of drill; endive, 1 oz, to 100 feet of drill; okra, 2 oz. to 40 feet of drill; onion, 1 oz. to 100 feet of drill; onion sets, 1 quart to 50 feet of drill; parsley, 1 oz. to 125 feet of drill: parsnips, 1 oz. to 200 feet of drill; peas, 1 quart to 75 feet of drill; radish, 1 oz. to 100 feet of drill; salisify 1 oz. to 70 feet of drill, spinach, 1 oz. to 100 feet of drill; turnips, 1 oz. to 150 feet of drill.—*Queensland Agricultural Journal.*

POLISHING RICE.—There is a great deal in the style in which any product of the soil or manufactured article of food is got up for market. Coffee, rice, arrowroot, honey, ginger, preserves, and many other articles produced and manufactured in Queensland, have often suffered in competitive markets in consequence of being either carelessly prepared or badly packed, or put up in unsightly vessels and packets. The *Grocer*, an authority on such matters, says that fashion demands a bright lustre in rice, and this is secured by rubbing off a dull outer coating of the grain, which has been shown to have a food

value nearly twice as great as the rice grain after polishing. The polishing process, however, greatly improves the appearance of the grain, and it is now almost universally practised in cases where the rice is intended for occidental markets. The material scoured off is preserved and sold under the name of rice flour. The polishing is effected by friction against the rice of pieces of moose hide or sheepskin, tanned and worked to a wonderful degree of softness, loosely tacked around a double revolving cylinder of wood and wire gauze. From the polishers the rice goes to the separating screens, composed of different sizes of gauze, where it is divided into its appropriate grades. The rice is then packed in barrels or sacks and is ready for the market.—*Ibid.*

DESTRUCTION OF MOTHS.—At Aigle (Switzerland) little boys armed with glued rackets go at dusk into the vineyards and catch the night moths, the eggs of which would produce the devouring worms which cause there such havoc amongst the grape-vine leaves (*Chochylis*). This new way of hunting was quite successful. In a few days, and on a few acres only over 20,000 moths were caught, representing millions of eggs and worms. [We believe that the experiment of catching fruit-flies by means of butterfly-nets was tried with good results by Mr. C. S. Voller. How would the sticky racket answer, fixed to handle?—Ed. *Q.A.J.*

THE EFFECT OF SCIENTIFIC INVESTIGATION UPON AGRICULTURE.

The *art* of agriculture is as old as man, but the *science* of agriculture has not yet completed its first century. It seems at first thought impossible to believe that, before the nineteeth century dawned, agricultural science was, to even the most advanced scientific workers and explorer, a—"dark continent." In 1804, De Saussure published a work entitled, "Recherches sur la Vegetation," in which he gave the analysis of the ashes of many plants, and contended that they were absolutely essential to the growth of the plant, that they must be derived from the soil, and that probably these ash or mineral constituents that the plant derived from the soil were the source of those found in the animals which fed upon the plants. From 1802 to 1812 Sir Humphrey Davy delivered several series of lectures, which he published in 1813, under the title "Elements of agricultural Chemistry." To him is due the credit of making the first attempt to reduce agricultural knowledge and investigation to a scientific basis. The work of these two men, together with that of Thaer, Sprengel, and Boussingault, prepared the way for the magnificent work of Liebig, whose publications appeared in 1840 and 1842, since which time many of the brightest minds in Europe and America have been investigating the composition of the soil, plant, and animal, and their relation to one another.

Davy said. "Discoveries made in the cultivation of the earth are not merely for the time and country in which they are developed, but they may be considered as extending to future ages, and as ultimately tending to benefit the whole race, as affording subsistence for generations to come; as multiplying life; and not only multiplying life, but likewise providing for its enjoyment."

Liebig, in one of his productions, wrote: "I shall be happy if I succeed in attracting the attention of men of science to a subject which so well merits to engage their talents and energies. Perfect agriculture is the true foundation of trade and industry—it is the foundation of the riches of states."

Chemistry was the first science that came to the assistance of agriculture, and ever since agricultural science has been largely built uodn agricultural chemistry as a foundation.

Its application in connection with soils and fertilisers, foods and feeding, and with dairyings is readily comprehended. A large portion of the work in other sciences could not be carried on without the assistance of the agricultural chemist. Perhaps one illustration of the value of ehemistry may be sufficient for our present purpose. The beet sugar product in Germany has increased from 360,000 tons in 1876 to 1,620,000 tons in 1896. The average product of beetroot is about 10 tons to the acre. In 1876 the 10 tons produced less than 2,000 lb. of sugar, whereas in 1896 the same weight produced 3,000 lb; in other words, the beet-root of to-day contains over 50 per cent. more sugar than it did twenty years ago. To the agricultural chemist belongs the large proportion of the credit for this marked improvement.

Botanists are at work studying the plants of the world, and helping in the production of new varieties and the improvement of old varieties. Let me give you but one example of the value of this. About 6,500,000 acres in Ontario are devoted to grain-growing. If by selection and cross fertilising we ceuld obtain seed grain that would add only one bushel per acre to the crops, the annual grain product would be increased by 6,5000,000 bushels. The grain crops, of Ontario in 1897 were worth over $50,000,000. An improvement to the extent of 25 per cent. is quite within the range of possibility. The President of the Agricultural College, in his report for 1897, referring to this work in improving varieties of grain, says:—"In this way some excellent foreign varieties have been introduced, tested, and distributed throughout the province—varieties which yield from 6 to 8 bushels per acre more than any varieties previously grown. In oats and barley alone, the varieties introduced and distributed by the experiment stations have, within the past four or five years, paid to the province a good deal more than the entire cost of the College for the last ten years."

Entomologists are studying the thousand-and-one insects and diseases affecting our grains and fruits. One practical example will perhaps best illustrate the value of Entomology. About ten years ago the complete destruction of the orange groves of California was threatened by the spread of an insect known as the "cottony-cushion scale." The vitality was being sucked out of the trees by millions of tiny insects that literally covered them. The pests got completely beyond the control of the fruitgrowers of that country, and in their despair they appealed for help to somebody or anybody. Professor Riley, who was in charge of the Entomological Department at Washington and who unfortunately met his death in 1895—one of the greatest benefactors the American people has ever known—at once began the investigation of that question. Being an expert entomologist, he knew practically every country in the world where that scale insect was common, and he knew that the place from which it had most likely come was Australia. It had probably been introduced, some twenty years before that, in bringing fruit trees or vines. He, however, knew it had never become a pest in Australia. Now if it is found in Australia and later found in California and had not become a

pest in Australia, he concluded there must be something in Australia that will stop it, so he despatched two assistants to Australia to investigate it, and they sent back consignments of lady-bug beetles or lady-bugs as they are commonly known. You have seen these running back and forth over the leaves and branches of the fruit trees, doing great destruction to the other insects. Within a very short time, less than a year, although these scale insects had been increasing for twenty years and practically had the product of California by the throat, and, in fact, had taken possession of the country; in less than a year, this little lady-bug had increased to such numbers that it swept the scales out of existence, or got it into such control, that the fruit interests of California were saved. I do not suppose that anybody could sit down and readily figure up the amount of money that was saved or made for the United States, by that simple little insect brought in by a man known to very few present. You do not see his name prominent in the newspapers. The fact was not heralded broadcast in great flaming type. He was not given any great ovation. It is a question whether any monument will be erected to him by the United States, yet it is doubtful whether the United States has had any greater benefactor than that man and his associates. The importance of economic entomology to the farmer is thus referred to by the late Professor Panton, of our Agricultural College, in an article contributed to the Farmer's Institute report for 1896-7 ;—

"The study of insects in relation to man has of late years commanded much attention, and is usually referred to as economic entomology. While there are some insects beneficial to man there are many injurious. Some destroy his food, some injure his clothing, and others attack the animals that are of use to him. Nearly 100 species have been found preying upon his grain and forage crops; upwards of 40 upon his vegetables ; 50 upon the grape; 75 upon the apple. The pine has 125 species as enemies ; the oak, 300 ; the elm, 80 ; the hickory 170 ; the maple, 75 ; the beech, 150 ; while the unfortunate willow battles against 400 insect foes. The following statistics show what an immense loss is sustained by man from insects :—

1854—The United States lost $15,000,000 by wheat midge.
1857—Canada lost $8,000,000 by the wheat midge.
1864—The United States lost $75,000,000 by the chinch-bug.
1870—New York State lost $5,000,000 by the cabbage worm.
1873—The Southern States lost $25,000,000 by the cotton worm.
1874—United States lost $356,000,000 by the grasshopper.
1884—Canada lost $5,000000 by the clover midge.

The average loss of the United States from insects during 1884 is calculated to have been $400,000,000, and for 1891 $300,000,000. With such figures before us, in most cases under the mark, we must conclude that the study of a subject that will enable us to lessen this loss is of great importance."

The biologist is studying the microscopic forms of life that produce plant food in the soil, that bring about the changes in stored foods, that control the fermentation in milk, butter, and cheese, and that cause the many diseases in our live stock. The debt that the whole world owes to the great Pasteur should not be forgotten. He established the principles of winemaking, and saved the vineyards of France ; he laid the foundations for dairy bacteriology ; he mastered anthrax, the terrible disease that threatened the annihilation of the herds, not of France alone, but of all Europe as well. He was one of the greatest geniuses that the world has ever known, and agricultural science received a wonderful impetus from the labour of his head and hands and heart.

So important is scientific research in connection with agriculture that one noble-minded Englishman set apart a great estate in England for that work, and endowed it with £100,000. For about half-a-century the work has been carried on at Rothamsted, and the Queen has recognised it by knighting its donor and assistants. Sir John Bennett Laws and Sir Joseph Gilbert are familiar names in the higher agriculture of the whole world.

One of the hopeful signs of the times is that agricultural scientific investigation is attracting more and more attention on the part of our Governments, young men of promise are being drawn into its ranks, splendid opportunities for research are being provided in many countries, and we may confidently look forward to a great advancement in the next quarter of a century. The probable effect upon agricultural life of the application of scientific investigations and discoveries may well attract your careful attention —*From Appendix, Ontario Bureau of Industries.*

SIR JOSEPH HOOKER has been elected one of the Foreign Associates of the French Academy of Sciences, Institute of France.—*Gardeners' Chronicle.*

LINNEAN SOCIETY.—The last meeting of the Society was held on Thursday, December 20, at 8 P.M., when the following papers were read :—Mr. ARNOLD T. WATSON, F.L S., "On the Structure and Habits of the Ammocharidæ ;" Mr. I. H. BURKILL, M.A., F,L.S., "The Flora of Vavau, one of the Tonga Islands ;" Prof. POULTON M.A., F.R.S., "On warning Colours in Insects." Exhibitions—Dr. J. W. CORNWALL, F.L.S., two photographs of composite flower which appeared on a white Foxglove growing in a garden near Godalming; Mr. B. DAYDON JACKSON, Sec. L.S. two editions of Hills *Flora Britannica* with a note on the species of Statice included in them.—*Ibid.*

THEY NEVER DRINK.—An exchange says:—There are hundreds of horses and thousands of cattle in the Hawaiian Islands which never take a drink of water throughout the whole course of their lives. On all the islands the upper altitudes of the mountains are given up to cattle ranges. The cattle run wild from the time they are born until they are sent to the slaughter-house. Except possibly two or three months in the rainy-season, there are no streams or pools of water in any parts where the cattle range, but everywhere there grows a recumbent, jointed grass known by he name of maninia. This is both food and drink. Horses and cattle grazing on it neither require water, nor drink it when offered.—*Journal of Western Australia.*

CANNA OR INDIAN SHOT.*

General Characters.—Canna is a genus of the natural order Scitamineæ, to which belong the Plantain or Banana, the Cardamoms, Arrowroot, &c. It contains upwards of sixty species and innumerable varieties. The great majority of the former are natives of South America, only one species, *Canna indica* ("Butsarana" of the Sinhalese), being indigenous in Ceylon. Ordinarily they are characterized by a tuberous perennial root-stock; herbaceous leafy stems, 3 to 6 feet high; large oblong Plantain-like sheathing leaves, green or bronze, with a strong mid-rib and prominent parallel veins; the inflorescence being a spike or raceme produced at the apex of the stem. The flower includes three small greenish sepals which remain attached to the fruit or ovary after the rest of the flower falls away; three narrow petals which are somewhat showier than the former, and within these again a number (one, three, four, or even more†) of other petal-like brightly-coloured leaves, which constitute the most showy part of the flower. One of these bears an anther and is the stamen of the flower; the others have no anther, and as they are usually supposed to have been derived from stamens which, as in double roses, have lost their anthers and become petals, they are often called staminodes. The only fertile (anther-bearing) stamen is situated in the middle of the flower, next to the petal-like stigma, the anther being attached down its edge. From this petaloid character of the stamens the flower may be considered to be naturally "double." The fruit, persisting on the flower-stalk, is round and oblong, with a warty surface; in the young or ovary state it contains many ovules (potential seeds), but even when growing wild only one or two of these become developed into fertile seeds. The latter when ripe are round, black, of the size of a pea, and very hard: hence the name "Indian Shot." The disposition to produce seed is still less in cultivated varieties, and, in the case of the "Orchid-flowering" class and some others, seed is seldom or never yielded. Thus the increase gained by the hybridist in size and brilliancy of flower may be said to be at the expense of the reproductive functions.

Barrenness in the fruit may however arise from other causes. Seeds never seem to be produced here by *Canna edulis* ("Butsarana"), this being no doubt due to long cultivation and to the practice of propagating the plant exclusively by means of its underground tubers.

As regards modes of propagation, infertility in Cannas may not be considered a disadvantage, except from the hybridist's point of view, as the quickest and best means of increase is by division of the crowns ("stools"), the seeds being so hard that, even if steeped for some time in boiling water previous to sowing, they usually take several months to germinate; consequently filing the outer coat of the seeds is occasionally resorted to, whilst burying them for six months in a manure pit is also recommended.

The beauty of these plants is not their only feature of interest, for some are also of economic importance on account of their underground tubers which yield an article of food, being ground and made into a flour. The well-known arrowroot "Tous-les-mois" is furnished by *C. edulis*, a native of the West Indies, but introduced and cultivated in most tropical countries. Of less utilitarian value, however, is *C. indica*, the real "Butsarana" of the Sinhalese, who gave it this name, which means "help from God," on account of the seeds being used in rosaries by Buddhist worshippers.

History.—The introduction of the first Canna (*C. indica*) into Europe dates back to about 1570. With the exception of this no other species seems to have attracted notice until about the beginning of the 19th century, when several species were introduced for the first time into European gardens. At that time these were grown chiefly for the beauty of their foliage, and on this account became, and are now, much in favour in temperate countries for planting out in groups in the open during the summer months for sub-tropical effect. Therefore the larger and more robust the plants the more effective were they for this as well as general decorative purposes where foliage only is concerned, and clumps growing 10 to 12 feet high were no uncommon occurrence. Consequently any improvement attempted by the cultivator was directed towards the increase in size of stems and foliage. Since 1863 a great gain in size and brilliancy of flower has been gradually gained by the hybridist, which has resulted in the modern varieties of Cannas—a most showy class of "flowering plants," very different in the form and appearance of floral characters from those of their progenitors. Few productions of recent times have created more general interest than the advent of these, or have proved a more valuable acquisition to floriculture. Robust growth of foliage may now be regarded rather as a disadvantage than otherwise, as plants of a dwarfish habit are the most satisfactory for general purposes. In the Tropics, where Cannas have their natural home, probably the most popular class at present are the "Orchid-flowered" forms, a designation which has been applied on account of the general resemblance of the flowers to those of a Cattleya. They are readily distinguished by their large and usually widely expanded and flat-surfaced flowers, which have invariably a rich velvety tint. These date their origin from 1893, being the result of crosses obtained by Messrs. Dammann & Co., of Naples, between *Canna flaccida* (a red flowered species of the Southern United States) and garden varieties. Many of the older so-called "Gladiolus-flowered" type are not however to be despised, and in some respects are even preferable to their more recent congeners, especially for use as cut-flowers or for growing in pots or boxes.

Cultivation.—Few plants are more easily grown than Cannas, or more satisfactorily repay cultivation for ornamental purposes. Their evergreen foliage and perpetual habit of flowering render them exceptionally useful, particularly in tropical gardens, where the variety of suitable-sized and showy flowering plants is comparatively limited. Though in Europe Cannas have an enforced period of rest in the winter months, during which time their tubers are stored away and kept dry, here they can be grown all the year round, especially at elevations below 4,000 feet. They are naturally suited to a hot moist climate, and it is under these conditions that their ornamental character is best developed. Their cultivation is very simple, the chief requirements being rich open soil and a liberal supply of farmyard manure. In this they do well, and require but little attention beyond watering in dry weather and occasional mulching and forking up of the surface of the soil. Before planting, the ground should be deeply dug or trenched and heavily manured near the surface, Cannas being essentially surface-feeding plants young off-shoots or small divisions of the crowns ("stools") may then be planted out 2 to 3 feet apart. Any portion of the crown will grow and rapidly form new plants, provided it is furnished with a bud or a short tuberous root-like structure; this is really an underground stem, bearing rudimentary scale-like leaves, and will in due course develop into an ordinary stem with foliage, &c. In about six weeks after planting, the plants will begin to yield a display of flowers, which will be continued for several months. They quickly form clumps and gradually spread over the ground, becoming in time overcrowded; they exhaust themselves, so to speak

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* Circular Royal Botanic Gardens, Ceylon December, 1900.

† Usually fine in cultivated varieties.—Curator.

the flowering stalks becoming tall and bare by their continuous habit of flowering, and the flowers smaller and scanty. It is therefore advisable to lift the plants at least once a year, replanting them as already advised, the process of digging and manuring being repeated each time. When grown in pots or boxes the plants should be allowed as much light and air as possible, as otherwise they will become too tall and lanky. Those most suitable for such culture are probably the "Gladiolus-flowered" varieties, which are included under Class II.

Cannas will thrive at practically all elevations in Ceylon, though they are best adapted for the low-country, where, up to 3,000 feet altitude, their flowers will be larger as well as more plentiful and effective.

As regards arrangement in planting out this is entirely dependent on local conditions and individual taste. Cannas are, however, especially adapted for planting in groups or masses, or at the back of borders; whilst they are also effective when planted amongst a mixed border or against a background of shrubbery; but in pots, tins, or boxes they are seldom satisfactory except as "foliage plants" when in healthy growth. The bronze or purple-leaved kinds, apart from their flowers, may be made to afford a pleasant contrast with green or variegated foliage, and are worth growing on this account alone. It may be stated that an open, sunny situation, away from the shade of trees, is the most conducive to a floriferous habit.

CLASSIFICATION.—For botanical purposes Cannas are divided into four sub-genera, based on scientific distinctions in which the average grower is not much interested; nor are these really of importance from a horticultural stand-point. In any case, with the garden varieties it is practically impossible to follow specific distinctions and, it being difficult to place these plants in any order of merit, an arrangement in accordance with the purpose they fulfil in the garden will be of the most practical guidance to persons making a selection. Thus considered, height of stems with foliage is probably of the first importance, next to this being respectively colour of leaves and flowers. The "Orchid-flowered" class are easily distinguished, as already stated. They have large and usually flat-surfaced flowers, borne on spikes which become very elongated, and are generally coloured with rich velvety tints. In the purple-leaved section of these the flowers are generally smaller and more or less funnel-shaped.

The "Gladiolus-flowered" varieties however do not seem to be so well defined. These are generally of a more compact habit of growth than the former, their form of inflorescence (usually a branched raceme) also being shorter, but more spreading, and forming round heads. Though these include some of the best of the newer varieties raised, most of the older varieties which are not of the Orchid-flower-type may also, apparently, be classed under the same head.

In regard to the following order, in which the different varieties are arranged according to height and colour of leaves, it must be remembered that only the height of the foliage is taken into account; even this will be found to vary in different soils and under dissimilar conditions, so that the figures given should be considered only as an approximation. In the case of colours—which most people describe differently—these are given in accordance with the opinion of the writer. The following selection includes what are considered the most distinct and best varieties at Peradeniya, where, however, several more are grown. When known the date of origin or introduction to horticulture is given in brackets after each variety.

Royal Botanic Gardens, H. F. MACMILLAN.
Peradeniya, November 15, 1900. Curator.

(Lists of varieties &c., are omitted.—ED. *T.A.*)

ORANGE-CULTURE IN SOUTH CALIFORNIA.

By D. WINGATE.

The following excellent article on citrus fruit culture in California is taken from *Chambers's Journal*, and may *ipso facto* be taken as authoritative. We have frequently been indebted to that journal for reliable information on various subjects, which are obtained from the best sources, and are treated in a manner at once clear and intelligible to all interested in the subjects dealt with:—

The culture of the orange-tree has greatly increased in South California within the last few years, despite the many difficulties the growers have had to contend with. Florida was once the largest orange-producing State in the Union; Riverside, a county in South California, is now the largest orange-producing district in the world. Even Covina, a comparatively new orange section, also in South California, last season (1899) shipped 100,000 boxes more than the whole State of Florida. Given suitable soil and plenty of sunshine, irrigation and cultivation have done the rest; and the result to-day is thousands of acres of beautiful trees in bearing, averaging about a hundred trees to the acre.

The celebrated "seedless navel orange," first produced in Riverside, practically gave South California its world-wide reputation for orange-growing; and this orange has completely thrown into the shade other varieties—such as Mediterranean Sweet, Valencia, Ruby and Malta Bloods, St. Michael's, and others less known. Growers have discovered that, for size, flavour, and steady bearing, no other orange can compete with it.

The first year of the orange-tree's life in the orchard is a most critical period in its existence, because it has just been transplanted from the nursery, in which, during its growth for three or four years from the seed, it has been carefully nurtured, and is then worth from 50 cents to 1 dollar—that is, 2s. to 4s. The young trees are planted in the orchard in rows accurately measured off, 18 by 20 feet apart.

The Washington navel orange-tree fruits the first year in the orchard, but it is only said to be in bearing the third year; and from that time it must be fed and watered with the greatest care if, at the age of twelve years, it is to produce 700 lb. or 800 lb. of fruit. Many of the most successful groves are of comparatively old growth, planted some twenty-two to twenty-five years ago; but the health and productiveness of these trees have been maintained by the generous expenditure of fertilisers—often amounting from 1 ton to 1½ tons to the acre, consisting of guano with necessary proportions of potash and sulphate of iron—and also by the regular irrigation in summer every thirty days, and by incessant cultivation or breaking up of the soil which is so apt to become baked by the sun. In the first instance the virgin soil is extremely fertile, but it cannot be drawn upon year after year with impunity; and the pioneers discover this, to their loss, when the decadence of their orange-trees become evident. Young orchards pay while the soil is virgin: but it is no economy to spare either water or manure after the first year or two of bearing, if the orchardist wishes his trees to maintain their productiveness. Some growers state that slight blemishes on oranges denote too rich feeding of the trees; but I believe this opinion is held only by a minority.

The grower has practically nothing further to do with the oranges after they leave his orchard; the sorting, cleaning, grading, and final packing for the market, are in the hands of the association packing-houses—unless, of course, the grower himself has been able to establish a brand and a packing-house of his own. Usually the grower is supplied with boxes by the association, and into them the oranges are loosely packed by his pickers, piled up on wagons, and taken into the packing-house. There the teamster

receives a cheque or credit note for the the owner, and these are kept three or four months, and used to check the amount then receivable from the association. The price depends upon the kind of season, also upon the grade of orange, and runs from about 90 cents (3s. 7d.) cr 1 dollar (4s.) up to 2 dollars 50 cents (9s.) a box, the average being 1 dollar 15 cents (4s. 7d.).

The first process at the packing-house is to weigh the fruit, and label it with the name of the owner, then put it aside for the brushers. In large houses the brushing is done by a machine; in smaller houses by boys and girls, who use small hand-brushes. Generally the packing machine is conveniently placed so that the oranges roll down an incline to the sorters' table. Here imperfections only are noted, the quick and critical eye of the sorter rapidly rejecting the "culls" as thoy are called—namely, those oranges even slightly discoloured or blemished. Great piles of these "culls" may be seen in labelled bins ready to be sold to the peddler for 10,25, or even 50 cents (5d., 1s., 2s.) a box; if totally unsaleable they are returned to the owner, and scattered over the orchard and ploughed in as a fertiliser. The next process is that of grading, by which the oranges are sorted according to size. The grader is a somewhat intricate machine. From the hopper at one end, the oranges roll down an incline] by the side of the revolving cylinder, along each side of which are two long slits widening towards the bottom, each size falling through its own special chute into a box below. The three grades of marketable oranges are the fancy, the choice, and the standard. After being graded, the oranges next come nto the hands of the packers, who are marvellously dexterous in their handling. They stand in front of the box to be packed, with the bin of oranges on the right and a bunch of tissue-paper wrappers on the left. Swiftly the right hand takes an orange, simultaneously the left hand seizes a wrapper, a sound of crumpled paper, and—hey, presto!—the orange is in the box. The last layer is left slightly protruding above the side of the box; over this are nailed three or four thin laths, with a space between so that the air may have free access; and from the nailer the box goes direct to the railroad car. Many houses have a siding to the warehouse door. About 360 boxes, weighing 13 tons, are piled carefully into a car; the car is then sealed up, ventilators only being open; a large ticket is tacked to the side to tell where the fruit came from; and at last the oranges are ready for the swift freight train to carry them eastward.

The packing-house are extremely interesting, and in many instances have cost from 10,000 dollars to 15,000 dollars (£2 500 to £3,750) each, being equiped with the the latest machinery, run by electricity, gasoline, or steam-power.

Quoting from the annual midwinter number of the *Los Angelos Times*: "Last spring the assessment returned 2,072,417 bearing orange-trees and 1,227,397 trees in their first year's growth. These citrus trees produced in 1897, in car-loads of 336 boxes each, 7550; 15,1 2 car-loads in 1898, and 10,350 car-loads in 1899. The value of the output of 1899 is given by the Chamber of Commerce as 7,000,000 dollars."

Lemons are always included in these assessments, as the railroad lines make no difference between the two shipments when reporting for the trade; as a rule tho shipment of oranges is nearly double that of lemons. To the uninitiated there is little difference at a first glance between an orange orchard and a lemon orchard; there is the same precision in planting, the same glossy leaves, the same fragrant white blossom; but, unlike the orange, rarely does one see the lemon in its yellow rind, for it is picked green, and thus the tree is divested of its beauty, for the green lemon is an insignificant object. Latterly the orange, owing to the rivalry among the growers to be the first to ship oranges from California, has been gathered unripe but theso early shipments have brought so little profit to the growers that the fruit is generally allowed to remain three months longer until it is ripe and luscious for tho table. Lemons are picked every month in the year; while oranges blossom in April, and the fruit ripens and is shipped from December of that year to June of the following year.

As yet nothing has been done to utilise the large numbers of "culls," but as in France and Italy, manufactories will, no doubt, be started to obtain acids and essential oils from these "culls," when the enormous water-power available in tho mountains, at whose feet so many orchards lie, has been fully developed.

Many difficulties have been encountered in the orange-culture of South California, of which not the least has been the white scale, an insect pest which threatened at ono time the entire destruction of the orchard. Hundreds of acres were ruined; the trees seemed to bo covered with snow, so greatly infected had they become. The climax was reached in 1388 89, when meetings were held by the growers, and the idea was mooted that some parasitic insect should be found to wage war upon this white scale. Half-a-dozen ladybird beetles were imported from Australia by the Agricultural Department, and liberated in an orchard, and in about a year the white scale totally disappeared. Other scales have caused trouble, but to no great extent. Fumigation is successfully resorted to each tree being covered with a tent, inside which is liberated cyanogen gas. Tho fumigation is done at night to prevent ecomposition of the fumes by the sunlight. It is a curious sight to see a whole orchard enveloped in these coverings, like a huge encampment on a field of battle. Frost, too, is an always expected danger, but it is not experienced to the same extent as by the Florida growers, and frequently two or three years will pass without any damage being done. Wind is almost as great an enemy as frost, for the waving of the branches causes friction between the leaves and the oranges, the latter being more or less scarred thereby. Great loss, too, is caused by the windfalls, hundreds of oranges being lost to the grower before they have come to perfection. Frost, however, may be considered an insidious enemy, and on that account it is more difficult to fight, for its effects are not immediately apparent, instances have occured in which the oranges have actually been shipped eastwards in good condition even to the eye of the grower and the packer, only to be declared unsaleable, as, on being cut open, the pulp was found almost rotten. An experiment to obviate the action of wind and frost has been tried—to house the treef collectively under one immense frame-work of wooden laths, so placed at intervals as to admit sunlight and air, but sufficient to break the force of the wind. This scheme has been carried out successfully on the Everest Ranche, Riverside County, with such good results that the production of 17 acres thus covered in has far exceeded that of any previous year. The more common expedient is to plant eucalyptus trees in long rows across the general direction of the wind, thus forming a breakwind, much in the same way as the tea and coffee plants in Ceylon are protected.

Notwithstanding all drawbacks, orange-growing is a pleasant and lucrative occupation, especially when carried on in such a health-giving and equable climate as that of South California.—*Queensland, Agricultural Journal.*

THE MANURE HEAP.

WHAT MAY BE LOST BY INCOMPETENT MANAGEMENT.

It is of the utmost importance to retain all the fertilising elements of the manure heap. In spite of the knowledge gained by experiment of the losses which accrue from an ill-protected manure heap

it is to be feared that much yet remains to be done before farmers are brought to a knowledge of the appalling loss that takes place annually through careless and indifferent management. Experiments have been made to compare exposed and unexposed manures. It was demonstrated that there is a greater loss of nitrogen and organic matter from exposed manure than from that protected. The former lost one-third of its nitrogen and the latter about one-fifth. Ten per cent more organic matter was destroyed in the exposed than in the protected manure There is practically no loss of potash and phosphoric acid from protected manure. Exposed manure that is rotting may lose about one-sixth of its phosphoric acid, and somewhat more than one-third of its potash. The chief changes, due to fermentation, take place within the first months of rotting, and experiments show that there is no apparent benefit in rotting the manure longer than for a period of three months. When gypsum was used, 3 tons of horse and cattle manure, mixed in equal proportions, were allowed to ferment without the addition of any preservative, by way of comparison with an equal weight of the same kind of manure intimately mixed with ground gypsum (land plaster) at the rate of 50 lb. of gypsum to every ton of manure. These lots were fermented at the same time, in separate bins, inside of a building, the manure being fresh and compacted as closely as possible, being undisturbed for four months (July to November), when they were weighed and analysed. The results showed that gypsum retarded, to a certain extent, the destruction of animal matter. The amounts of nitrogen in both lots were the same, no useful result from the application of gypsum being observed. The proper place to use gypsum is in the stable, as it is in the stable that a great loss of ammonia occurs.

MANAGING THE HEAP.

When manure is kept moist, the loss of potash cannot be prevented without a water-tight, non-absorbent floor, but when the manure heap is kept compact and moist there is not any considerable loss of ammonia. It is evident that if manure is exposed to rains, no matter what the absorbent materials may be, the water cannot pass down without carrying soluble matter with it, and when the water reaches he bottom it must either go down into the ground or flow off in some direction. Whatever substance has been dissolved out of the manure remains in the water and passes off with it. The remaining materials of the heap may be almost worthless, but they receive just as much attention, and as much abonr is bestowed in hauling and spreading the snbstances as though the loss of soluble matter had not occurred. It has been shown that when manure is compacted, and the air kept out, the fermentation of the mass is not so rapid, but when loosened and the air admitted, fermentation begins, because the oxygen of the air influences chemical action. When manure is under shelter the rains do not dissolve the plant food from the heap, and when the liquid manure is thrown upon the solid portions by pumping or otherwise, the solids become absorbent and assist in retaining the liquids. All locations for manure should have water-tight bottoms, for then any accumulations of liquids can be retained and added again to the heap, and tanks should be arranged into which all liquids from the stable should flow, so as to save the soluble matter. If the heap is then too wet, more absorbent material of some kind should be added.—*Farmer and Stockbreeder.*

COOK ISLANDS.

In a recent report on the trade prospects and social condition of the Cook Islands, the British Resident, Lieut.-Colonel N. E. Gudgeon, says that during his late visit to the outlying islands of the Federation, he found it necessary to comment in strong terms on the fact that at least two-thirds of the area of the group was practically unproductive, owing to the owners of the soil having neglected to plant the coral formation with cocoanuts, and to their having done comparatively little to improve even the most fertile lands. He also pointed out that, in the event of a hurricane, many of the old cocoanut trees would be destoryed, and therefore the islands would have absolutely no export for the ensuing eight or ten years, since they had no young trees planted to take the place of those that would be destroyed. He could not say that he expected any good result would follow his remarks, inasmuch as the Cook Islanders were too easy-going to take into consideration prospective privations or benefits. But he was now in a position to report that his view of the situation had impressed the native owners of the soil to this extent, that they were planting both cocoanuts and bananas in very large quantities, and therefore there was a prospect that at no very distant date the trade of these islands with New Zealand would be very largely increased, for there was no reason why the export should not be fivefold the present quantity.

He regretted that he had to report that the coffee crop of last year, which at one period bade fair to be abundant, had proved almost a failure. Late in the season the trees were attacked by the Ceylon leaf blight, which it would seem was introduced by a Mr. Dodge, who, about the year 1896, imported several hundred coffee plants to this Island ; the result had been that Raratonga was not likely to appear as an exporter of coffee for many years to come, since the whole of the old trees had been entirely killed. Fortunately, this blight had not reached the Islands of Mangaia or Aitutaki, but that was of small moment as compared with Raratonga, since the last-named island had always exported ten times the weight of coffee produced by the two former. The failure of this important item of export had made it imperative that copra should as much as possible take its place, and, therefore, that coconut planting should be encouraged.

There was at present every prospect of a very large orange crop, and he confidently anticipated that the amount available for export would be at least twice that of last year. That was a position which might easily be maintained or exceeded, if the native owners could only be brought to see the necessity for pruning and artificial manures. At the present moment the natural impression on the mind of any stranger would be that orange trees were grown in Raratonga not so much for their fruit as fo timber purposes.—*Imperial Institute Journa*

THE RUBBER INDUSTRY OF SIERRA LEONE.

The Kewattia, or rubber tree of West Africa, is one of the most beautiful trees of the forest, growing usually to the height of from forty to sixty feet. Its leaves are from four to nine inches in length by from one to three inches in width, oblong and tapering towards the ends, supported by a stem from eight to nine inches long. There are several species of vines which yield a grade of rubber inferior in some respects to that obtained from the trees ; however, when gathered with care, this commands a ready sale. The United States Consul in Sierra Leone says that the supply of Freetown market for the most part comes from the hinterlands of Sierra Leone and from the Foulah country in the French protectorate farther in the interior. That which come from the Foulah country is limited, owing

to the export tax of about three half-pence per pound placed by the French upon all rubber sold by natives outside their protectorate. Notwithstanding this prohibitory restriction upon the native rubber vendors, there are several regular traders who furnish to the market a good quantity of Foulah rubber every season. This rubber is almost invariably adulterated with clay, yet it grades well in the local market, and brings a better price. In former years Freetown was a better depot for rubber than at present, but since the establishment of the French protectorate, which controls the output of the valleys of the adjacent northern rivers, the trade has been directed to the French port of Konakry, seventy-two miles distant from Freetown. The dry season from November until May is the gathering season. Native chiefs supervise and control the sale of the output of their respective territories.

The method of gathering the sap is very simple. The body of the tree is tapped and the juice flows until it is exhausted; later, new incisions are made. The juice is usually caught in cups or calabashes attached to the tree, so as to prevent impurities appearing in the rubber. The neglect of this precaution is responsible for a percentage of the incidental adulterations, of otherwise good rubber, frequently found in the local market. The native, in his efforts to increase his stock, frequently bleeds the root as well as the body of the tree; this is fatal to the tree. The product is known as "root rubber," and, besides containing large quantities of impurities, is very inferior to any grade of tree rubber, and would be refused altogether by local buyers in order to discourage the destruction of the forests, were it not for the sharp competition for export trade. The rubber is brought to market overland by caravans of natives, or most frequently by canoes. These cargoes are generally consigned to some particular agent, though they are often sold to the one making the best offer. For convenience rubber is arranged in three classes or grades, known as No. 1, No. 2, and No. 3, the character of the tissues and freedom from impurities being the determining factors, as well as the kind of adulterants. Considerable ability on the part of the agent is necessary to enable him to properly assort and select the rubber and to detect adulterations. There are two classes of these—incidental and intentional. The former is the result of carelessness on the part of the gatherers who do not use proper receptacles for the juice. Intentional adulterations are due to efforts to increase volume and weight by use of dirt, sand, bark, and sometimes stones. Another species of fraud is the mixture of other non-elastic gummy substances with pure juice; still another is to soak rubber by placing it in pits close to the water for a long time. Rubber so treated is seriously injured in quality, and at the same time increased in bulk and weight.

The Colonial authorities, as well as the Chambers of Commerce, are endeavouring, by proper instructions to those concerned, to discourage these abuses and to emphasize in every way possible the importance of improving the quality of the rubber brought to Freetown market. There is being inaugurated by the Governor and officials a plan to foster the planting of rubber trees and vines in the colony. To this end they have caused to be issued pamphlets of instructions in regard to seeding, transplanting, etc., through the departments of agriculture and horticulture. It is hoped that there will be a decided improvement in the quality and quantity of the exports in the near future. The value of the rubber exported from Sierra Leone in 1898 was about £51,000, of which the amount shipped to Germany was £6,700. The remainder went to England.—*Imperial Institute Journal.*

THE SUGAR INDUSTRY IN INDIA.

[THE PROFITS OF SUGAR-CANE CULTIVATION AND OF CANE-SUGAR MANUFACTURE IN INDIA BY F.N.G. GILL.]

Now that the indigo industry of India is in such a depressed condition, and it has become a question with the planters of adopting cane cultivation more or less, the writer's experience may be of interest to them and others owning suitable land.

The sugar planter's business should be separate from that of the manufacturer, and where it is not it would be well if the planter treated the two branches of the business as separate businesses, each with its own account. In the present paper this course will be adopted.

Making jaggery will not pay if the planter can sell his cane to a central factory on the basis of R16-8 per 500 lbs. of jaggery yielded by it. Results of ryots' milling in South-Arcot was found to be 72 tons of cane crushed by two mills in twenty-four hours and obtained 18,744 lb. of jaggery, equal to 3 75 candies of 500 lb. (11·62 per cent on cane):—

	Rs.	A.
3·75 candies of jaggery at R16-8	61	14
Feed of 12 pairs of bullocks at 6 as ..	4	8
15 candies firewood at R1-4	18	12
4 men to mill, 8 men to boil, 2 men to collect bagasse, and 2 sundry men, day and night working	3	0
12 gunnies at 3as 3p	2	7
Sundries, repairs and interest on capital say	4	7
	R95	0

making cost on spot R25 5-3 per candy of 500 lb.

And to make the concrete with large steam mill, crushing one ton of cane in four minutes, and Fryer's concretor, the writer found the cost of the concrete R24 per 500 lb. bagged and on the spot. The ryots' working shown above is unnecessarily wasteful in fuel, even for open boiling; but as the jaggery in quantity would probably not fetch more than R18 to R22 on the spot, there is little hope of a margin in any case in such system of work.

The following are the results for 18 years 1879 to 1896, of cane cultivation in the South Arcot district of the Madras Presidency, obtained by native ryots with "Ribbon" cane grown under channel irrigation, and manured chiefly with ground-nut oil-cake, and by the richer ryots with indigo trash. The cane suffered considerably from water logging through neighbouring paddy cultivation, and its seasons of planting and cutting were forced into unfavourable seasons of the year by the requirements of paddy cultivation. The whole of the cane of the area of cultivation referred to was sold to the sugar-mills on the basis of the weight of jaggery (concreted juice) yielded by the cane. It might be good or it might be indifferent—really bad cane

was rejected—jaggery, but the system was very much better than that of buying the cane outright, as it gave the ryot a strong, though not a perfect all-round, interest in the quality of his cane. The juice of each ryot's cane was accurately measured, and 15 gallons of it were boiled down to concrete over an open fire, in the country fashion, and the weight of concrete obtained, together with the gallons of juice measured, afforded all the data required for the settlement of the party's account. Such a system as this, however, would not go far enough with European sugar planters, even though they were the owners—as they should be—of the central factory. Nothing short of the measurement of the juice and its polarization (to arrive at the quotient of purity or per cent of sugar in apparent solids) would be found to be satisfactory to all interests

Results of Cane Cultivation in South Arcot for 18 years during which the extent of the cultivation and the results varied :—

	From	To	And averaged
Extent of cultivation ...	129 acres	1.728	806½
Density of juice ...	9 Baumé	10·2	9·4
Cane crushed per acre ...	9 8 tons	18·2	15·0
Jaggery, concreted juice per acre	1·167 tons	2,189	1·754
	5·23 candies	9·80	7·86
Jaggery, per cent on cane	11·9	11·6	11·7

The weight of cane shown above is a closely approximate figure, arrived at on the basis of the jaggery being 11·7 per cent of the weight of the cane, the juice being of a density of 9·38 Baumé and being obtained at the rate of 140 gallon per ton of cane, equal to 66·7 per cent of juice.

If R 16-8 per 500 lbs., say R74 per ton, be received for the jaggery in the cane, the gross proceeds per acre, it is seen may vary from R 86-6 to R162 with R129-12 as an average. What the cost of cultivation, cutting and carting-of the crop are, and thence what the profit is, must depend entirely on local circumstances of distance of the cultivation from the factory, cost of land-rent &c., labour, manure, and seeds. On the average, cane cultivation pays well if the jaggery in the cane can be sold for R16-8 per 500 lbs. delivered in the factory, supposing that the cartage to the factory does not cost too much. With yield of 11·7 per cent jaggery on the cane, the ton of cane will give only 262 lbs. jaggery, and therefore 4 annas per cart load, and with three cart-loads to the ton, will make a cost of R1 per 500 lbs. of jaggery, or R7-14 per acre of average cultivation. The profits of the central factory should be very considerable, buying the cane from the planters on the above, or somewhat analogous terms; and working with multiple effect evaporators, vacuum pans, crystallizers in movement and quick-speed centrifugals, and with the factory designed for the conditions of the country. For a factory capable of dealing with 400 tons of cane a day and working for 100 days, equal to 2,666 acres of cultivation cleared in the season, probably 5 lakhs of rupees capital for building and machinery would be sufficient, and such a factory working an inferior cane with a refining value of the contained jaggery of 62·3 would turn out the bagged dry sugars at about R34 per 500 lbs.; valuing the treacle made at R6 per 500lbs. and allowing 7 per cent on the capital for interest and depreciation, and including cost of permanent establishment for the remaining 265 days of the year. The cost would run out:—13,083 candies sugar, and 7,560 candies treacle.

	Rs.	A.
Materials (21,000 candies jaggery) R16-8 and yield 62·3 per cent ...	26	8
Repairs and renewals	0	8
Establishment	2	0
Fuel	2	6
Gunnies, inner-bags and twine ...	1	3
Filter-bags and sheaths	0	2
Oil and sundries	0	4
Charring	0	8
Permanent establishment (in slack season) and insurance	1	5
Interest (5 per cent) and depreciation 2 per cent on R5,00,000 at 7 per cent	2	11
	37	7
Less 1,560 candies treacle at R6 ...	3	7
Net cost...	R34	0

The sugars would realise on the spot a minimum average price of R48 per 500 lbs., leaving a profit of R14 on 13,083 candies equal to R1,83,162. The realisation of the treacle, however, is a difficult matter, and is generally impossible in the working of an inferior cane without a distillery, which to deal with the 7,560 candies treacle would have to be capable of turning out about 20,000 gallons proof-spirit a month, and an outlet for this spririt would have to be found. The alternative, which would still leave a very good profit, of throwing away the treacle, in part or in whole, is not always possible, as there may very well be no place into which treacle in quantity can be run without causing a nuisance. If a distillery can be worked it can make its own profit out of the R6 per 500 lbs. treacle paid the sugar house, the spirit costing only between 6 annas and 7 annas per gallon proof, including 10 per cent 5 per cent depreciation, as it would work all the year round interest and depreciation on 1½ lakhs of distillery building and plant.

If the "Ribton" cane be not water-logged, be planted seasonably in favourable soil, and be sparingly manured, its jaggery contents may have a refining value of over 74 per cent as also may the "Dikchan" Dr. Leather's analyses of Shahjahanpur, and the soft green cane turning mellow-yellow when dead ripe of Coimbatore; and then while the weight of cane per acre may be considerably less than more stimulated growth the greater value of the jaggery contents would permit of the central factory paying a proportionate price for it. Thus: 15,540 candies sugar and 5,040 candies:—

Gross cost would be—

		Rs. A. P.
R37-7@ × 62·3	..	31 8
74·0		

And treacle credit—

7,560 × 6		
15,540	...	2 14 8
Nett cost ...		Rs. 29 9 7

The difference between this and R48, R19-6-5 would be the profit per candy of sugar working the better cane—

		Rs.
15,540 cds. of sugar at Rs. 19 6-5 ...		3,01,491
5,040 cds. of treacle at Rs. 6 ..		30,240
		3,31,731
13,083 cds. of sugar at R14 ...	R1,83,190	
7,560 cds. of treacle at R6 ...	45,360	
		2,28,550
Difference ...		R1,03,181

equal to R4-14-7 per candy of the 21,000 candies of jaggery which the sugar works can afford to pay the planter for such cane.

On the other hand, the planter can afford to grow as little as an average of 11 tons of cane per acre at R21-6-7 per candy of jaggery, as against 15 tons with the jaggery at R16 8.

There is another possibility with the better cane—that of working the treacle for its sugar through a preliminary treatment of the cane juice and a final treatment of the treacle, and so being entirely independent of a distillery for the realisation of the treacle. As regards the preliminary treatment, the writer has not worked it on cane juice, but has worked it on several thousand tons of jaggery in refinery blow up and scum liquors and with glucose content of 4 and 5 in the 100 apparent solids, equivalent to, in the case of ordinary constituted cane juice, ¾ to 1 per cent glucose in the juice, and with the result that the treacle contained only 1·4 glucose in the 100 solids, or 1·2 per cent and accordingly quite fit to be treated by the final—the Steffen Lime Separation—process. The writer has not worked this process but he went to Germany to inquire about it in 1885, and in 1891 he went to Europe specially to go into the question of the advisability of its adoption in consequence of the oppression and vexation to which the business was subjected by officials through the distillery. The result was that the writer could not recommend the immediate adoption of the process which would have involved the outlay of 1½ to 2 lakhs of capital, and with a distillery already on hand; and when, too, it was found that what was urgent was the adoption of crystallisation in movement. In the end this view was not justified and with his experience now the writer would not recommend the investment of capital, under any circumstances, in a business dependent on official sufferance in India, where the revenue official of heterogeneous origin and early training is invested with absolute power in anomalous capacities and is free from the restraints of public opinion.

From the foregoing it follows that the writer would strongly recommend the adoption of the Steffen separation process in sugar making in India, where possible. Applied to sugar-cane juice with the preliminary destruction of glucose referred to, the position would be as follows, working the better cane with juice containing a maximum of one per cent glucose.

Crushing 400 tons a day and obtaining 66·7 per cent juice* containing 1 per cent glucose there would be obtained 8 7 tons of treated treacle, requiring 5·6 tons of lime for its treatment, and giving in the saccharate formed—and which would be used for the destruction of the glucose in the following day's cane juice—rather more than twice the lime required for such purpose. Under the circumstances the lime expense is limited to the treatment of the treacle.

The following would be the cost of treating a day's out-turn of treacle:—

		Rs.	A.	P.
39 candies treacle at R6 ...		234	0	0
Establishment: 30 men at 3as. R5 10				
Supervision	10 0			
		15	10	
Fuel, 10 cwt. coal (only pumping, stirring and lime-grinding required, decomposing the saccharate in the cane juice) at R15... ..		7	8	0
Filter-bags		9	0	0
Lighting and repairing		10	14	0
Lime, 5·6 tons at R11-8		64	6	0
40 I. H. P. for cooling machine, at 4lbs. coal per hour, for 10 hours		10	11	5
Labour, oil, and sundries ...		4	8	0
Fitting etc.		1	8	0
Interest and depreciation (7 per cent on R10,000)		70	0	0
	Rs.	428	1	5
Value of 16 candies rough sugar in the cane, which if separated would have an average polarisation of 94 7, at Rs. 35-8 ...		568	0	0
Value of 5 candies of treacle, say, nothing				
	Rs.	139	14	7

or, say, R140 per day, R14,000 for the the season, but from which has to be deducted the cost of the preliminary process of the destruction of the glucose in the juice, beyond the cost of the lime met in the final process. Plant, consisting of two large gas pumping engines (to take this boiler-flue gases), and gas-scrubbers, three large tanks pipes &c., and more filters would be required, involving a capital expenditure of about R30,000 which at 7 per cent is equal to R2,100 debt which on 15,540 candies of sugar.=R0-2-3; and labour, fluel for gas-pumping, and more filter-bag wear, R0-3 0; per candy or R2,913 12, making a nett profit on the process of R14,000 less, say, R2,814. equal to R11,086.

The Steffen separation process, it may be mentioned, consists in combining the sugar of the molasses with lime to make an insoluble saccharate which can be washed free from impurities in a filter press. It necessitates the employment in the tropics of an ice machine, used simply as a cooling machine for keeping the temperatures of the liquors and water in use within 60° **Fahr**, but as ice machines are at present made this is not a serious matter, and the cost of it has been fully provided for in the above statement.

It will be noticed that a large quantity of lime is required. Further, the limestone burned must be very pure, and it must be burned on the spot. A very good source of lime would be cockle or such shells, washing them before burning if sea shells.

Summary of profits: Working 400 tons cane a day for 100 days

1 Taking the inferior cane with its contained jaggery of 62·3 refining value, costing R16-8 and (*a*) Supposing the whole of the treacle is worked

* This was the yield ascribed with a density of juice of 9 3° B, but the juice of the better, non-stimulated growth of cane would have a considerably greater density, and hence, probably, the yield of juice would be greater; but this is a detail that need not be considered.

in a distillery, and the spirit sold at 1 anna profit per gallon proof, equal to a selling price on the spot of, say 8 annas.

(*b*) Supposing there is no distillery, and that the treacle can be, and is, thrown away.

	(*a*)	(*b*)
13,083 cds. sugar at R14	R1,83,190	R1,83,190
216,000 gals proof spirit at 1 anna	13,500	..
Less value of 7,560 cds. treacle credited	...	45360
	R1,96 690	R1,37,830
On capital of 6½ lakhs	=30 2%	5 =27 5%

2 Taking the superior cane with its contained jaggery of 74 refining value, and supposing that the treacle is worked by the Steffen process as described :—

(*a*) Paying R16·8 for the jaggery in the cane.
(*b*) Paying R21-6-7 for the jaggery in the cane.

	(*a*)	(*b*)
15,540 cds. sugar at R19·65	R3.01,491	R3,01,491
Profit of the Steffen process ...	11,006	,, 11,086
	3,12,577	3,12,577
Less R4-14-7 more paid on 31,000 cds. ...	...	1,03,181
	R3,12,557	R2.09,396
On a capital of R6,30,000 ...	49·6%	,, 33·2%

It is a question whether, in regard to the profits shown in working the Steffen process, if the treacle ultimately left would not have a considerable value for manurial purposes, and certainly the lime sludges (and wash waters) under favourable conditions of elevation of factory in respect to neighbouring cultivation would have such a value beyond the cost of their distribution.

All said and done, however, no process for the profitable absorption of treacle can beat that of the human stomach and it would be of immense value to the sugar industry of India; and to the working classes of India, if the popular consumption of treacle could be brought about: Cane treacle at 5 pies a seer (2·05 lbs) on the spot, would be a remarkably cheap food stuff, and would give a realisation to the sugar works of R6-8 per 500lbs. for its treacle.—*The Indian Agriculturist.*

ARROWROOT.

The plant is propagated by division of the tubers, or by means of seeds. The sets are planted in rows 3 feet or 4 feet apart and 3 feet apart in rows; the drills 6 inches deep. The crop matures, say, in ten months. The bulbs may, however, be left in the ground for a moderate time without losing their qualities, but if to left too long, especially if rain has fallen, the plants begin to grow, and from that time onwards the quantity and quality of the arrowroot obtainable from bulbs then used may be expected to diminish. The land should be ploughed and subsoiled and thoroughly tilled, for though very easily grown, like many other economic plants, the better the treatment it receives the better are the eventual results. The manner of treating the tubers is to firstly place them in a large revolving washer so constructed that the tubers are always gradually passing onwards to a grater, from whence the material passes into a long shoot, the bottom of which is practically a long sieve, being constructed of fine wire meshes. As the material passes along with the running water, the starch or arrowroot is gradually falling through this sieve on to a sloping wooden shoot below, whereby it is gradually run off into wooden troughs and allowed to settle. As the arrowroot settles, the dirty water is run off, and fresh, clean water run into the troughs, in which the arrowroot is again stirred up. This process is repeated several times until the arrowroot is sufficiently clean and white. It is then taken from the troughs and laid out on calica dryers in the sunlight, and here it remains until completely dry and fit to bag as marketable arrowroot. Ordinarily, it takes two days of good sunshine and wind to dry the product, which is not spread too thickly on the dryers. Troughs of galvanised iron should not be used if bright, white, marketable arrowroot is desired. On 26th August, 1897, a small area was planted with *Canna edulis*, at farm in New South Wales. The plants appeared above ground on 18th September, 1897, and grew vigorously from that time until harvested on the 8th August, 1898. The crop raised was equivalent to a return of 33 tons per acre of tubers. One ton of these tubers was taken to the mill and there treated, the result being 240lb. of good, clean, white arrowroot. Some growers of arrowroot do not attempt any deep cultivation for the arrowroot plant. In the case of the experiment mentioned, the land was subsoiled and deeply ploughed, and the bulbs were cleaner, heavier, and larger than tubers ever seen elsewhere locally, and contained more starch, judging by the amount of arrowroot abtained. Probably, it is a satisfactory and payable crop where the methods are modern and complete, not crude makeshifts, especially in the matter of washing and drying the arrowroot. The result of this experimental crop would work out as follows :—

33 tons tubers to the acre. One ton of tubers gave under treatment, 2 cwt. 0qrs. 16lb.

33 tons of tubers equal 3 tons 10 cwt. 2qrs. 24lb., which, at £14 per ton, is equal to the sum of £49 10s. per acre.

So far as Jamaica is concerned, it would all lie in the making of a fine enough and white enough arrowroot that people might try as being at least as good as St. Vincent or any other arrowroot imported here *Journal of the Jamaica Agricultuarl Society.*

EXTRACTION OF RUBBER.—A novel process was described recently before the Society of Civil Engineers of France for the extraction of india-rubber from the tree. The bark and roots are cut up and soaked in dilute sulphuric acid. The effect of this is to decompose the woody portions without affecting the india-rubber. In this way a division is made between the valuable rubber and the rest of the bark and roots, and it is claimed that the rubber so produced it quite pure. It was stated by the author that 1 lb. of india-rubber could be produced by the process at a cost of about 2½ l.—*Engineer*. Two French chemists have discovered a process by which rubber may be obtained from Landolfia vine, which grows wild and luxuriantly in all parts of Africa The process of tapping the Landolfia is impracticable, as the flow of rubber hardens too quickly. By the process of M, M, Arnand and Verneuil, the vine is crushed in hot water, by which means all the rubber which it contains is extracted —*Queensland Agricultural Journal,*

OUR PEARL FIRHERIES :

MR, SAVILLE-KENT, F.L.S., F.Z.S., TO THE RESCUE.

We direct attention to the long and interesting letter (on page 541) with which Mr. Saville-Kent has favoured us by a late mail. It explains the circumstances under which his telegram was forwarded to our office ; and we are glad to see that he had previously addressed the Governor, sending His Excellency full particulars of his capabilities and experience with reference to the undertaking of an enquiry into, and, if possible, resuscitation of, the Ceylon Pearl Fisheries. There can be no doubt of the unequalled position held by Mr. Saville-Kent in reference to exploration in this direction (Pearl-yielding and Pearl-shell oysters) outside of the United Kingdom and of Europe. No other scientist of the day—English or foreign—has had the same experience. This is testified to by the couple of elaborate and splendidly illustrated folio volumes issued by Mr. Saville-Kent giving the result of his labours, these being entitled :—"The Great Barrier Reef of Australia" (a copy of which is in the Colombo Museum) and "The Naturalist in Australia" (a copy of which is possessed by Mr. Oliver Collett, of Watawala, and also by ourselves). We suppose that the scientific world fully admit the great value of these two books and of the prolonged abours, keen observations and successful experiments recorded in them in connection with Pearl and other oysters. Why then, it may be asked, was Mr. Saville-Kent's name not forwarded to the Secretary of State by Professor Ray-Lankester? This, we think, is partly explained in the letter before us, and it is for that reason that we have thought it wise to give certain particulars which the writer intended more especially for our own information ; but which we think, in Mr. Saville-Kent's own interests, had much better be made known, since already we had heard remarks made about his having fallen out of sight in the scientific world of late years. This is explained by his unfortunate connection with a syndicate started for commercial purposes to exploit a portion of the Australian Pearl Banks—which project, after much trouble and expense to Mr. Saville-Kent, entirely collapsed —and also to the fact that the younger generation of scientists are not so well-acquainted with him and his work as were Sir Wm. Flower and Mr. Huxley, both, of course, deceased. It seems to us that Mr. Saville-Kent has a plain, straightforward story to tell us, and that it will be a pity if his claims to service in the Ceylon Pearl Oyster Enquiry were put entirely on one side. At the same time, we are by no means blind to the special qualifications and great scientific authority of Professor Herdman of Liverpool ; and in the interests of the Colony we should feel quite safe if he were offered, and accepted, the appointment. But there are certainly two points to bear in mind :—(1) that Professor Herdman has had no previous experience of the Pearl-Yielding Oyster or of Oyster Fisheries outside of Europe ; and (2) that he is not likely to be able with his other engagements, to give continuous time or attention to the Enquiry in Ceylon. In other words, he cannot give up his University duties which occupy, perhaps, six months of each year, apart from other engagements. It is quite possible, therefore, if Mr. Saville-Kent be eager for the Ceylon appointment—as after his Australian experience, he may well be expected to be—and will make known his claims in the proper quarters at home, as he has already done to the Governor of Ceylon,—that Professor Herdman would himself support the appointment, or withdraw in favour, of the gentleman who has made a name as the "Naturalist in Australia."

It will be seen that Mr. Saville-Kent is prepared at once to apply his past experience to the work required and feels sanguine that fisheries of the larger Australian mother-of-pearl oysters (which often contain valuable pearls) could be established in our waters ; while he has also dealt successfully with the smaller oyster, *M. imbricata*, which is closely allied to our *M. fucata*. We have suggested the shores of the outer harbour at Trincomalee—or Tamblegam Bay—as a suitable spot for experiments in Pearl Oyster culture. But Mr. Saville-Kent's practised eye, in conjunction with the great local experience of Capt. Donnan, would speedily decide which was the best site, whether in the Gulf of Mannar or on the Eastern side of the island.

It only remains to mention that if, as we suggested at the local Asiatic Society's meeting, the Indian authorities would agree to join with the Ceylon Government in this Pearl-Oyster Enquiry and Experimental Culture, it might be possible to secure the counsel and aid of both Professor Herdman and Mr. Saville-Kent,—to have the former as Consulting Naturalist, coming out for a few months each year ; while Mr. Saville-Kent remained continuously in charge of the work undertaken. We think the interests at stake would fully warrant such a course. Ceylon has had as much revenue as R860,000 nett in one year from her "harvest" of pearl oysters, and that so recently as 1891 ; and India has also had handsome returns in the past ; while there are incipient fisheries at more than one point, besides the Gulf of Mannar, in her wide-extending coast between Kurrachee and the Malay Peninsula. Indian trade also benefits by the Pearl fisheries in the Persian Gulf and any good results from the proposed Scientific Enquiry could be freely utilised. If his Excellency the Governor can only succeed in interesting Lord Curzon in the matter, an investigation on the wider and more satisfactory scale might well be arranged for ; and there can be no doubt that conclusions arrived at by Professor Herdman and Mr. Saville-Kent in conjunction, would be accepted by the whole scientific world as well as by the Governments concerned, as final—more especially as, we should hope, these results or conclusions would justify the outlay incurred by pointing to a revival of prosperous Pearl-oyster fisheries in Gulf of Mannar and at other points.

IVORY CARVING IN ASSAM.

Mr. James Donald, I.C.S., Assistant Commissioner, Golaghat, in the course of an interesting monograph on this subject says :—Once an important art in the days of the Ahom rajas, ivory carving has since Assam came under British rule gradually declined. In those past times industry throve, the workers patronised by the rajas and leading men of the court reserved, as a return for their work, free grants of land and labour. In consideration for these privileges, a special class of workers known as Khanikars worked solely for the rajas. This would seem to indicate that the work in those days was much valued.

In 1891, the census showed four ivory carvers in the whole of Assam, three in Kamrup, one in Sibsagar, while the Deputy Commissioner of Sylhet now states—"Ivory carving is a practically extinct art now in Sylhet."

Bringing the information up to date we might safely say that there is but one man in the whole of Assam whose occupation can be described as "Ivory carver," Fiznur, Mussalman, of Jorhat. From an important flourishing and honourable industry, it has, in the space of 70 to 80 years, been reduced to the work of one man, and that spasmodic.

But there are others who, while dependent for their living on other occupations, still possess a knowledge of the art. In the case of all, however, the work is spasmodic, and entirely dependent on occasional orders received—generally from Europeans—which orders they do not always take the trouble to execute. The ivory carver in Sylhet (his principal occupation is that of "goldsmith") whose speciality is fans, has received but one order for fans during the last ten years. No other order has he received either from Europeans or Natives. And the others are in a similar position, although in the case of one or two more frequent demands have been made for their work.

The number of persons in Assam, who are acquainted with ivory carving, may be roughly put down at fifty. Of these about forty depend for their living on agriculture, while the others have become carpenters or brass-workers.

The nature of the articles turned out depends on the demand. Practically the whole of the work done is the result of special orders, and generally any article ordered can be executed, The representative of the industry in Sylhet makes a speciality of fans, while the Jorhat worker has a preference for salad spoons and forks and back-scratchers. The latter carver, however, confines himself slavishly to these three articles and will not execute orders for other than these. Small boxes, paper knives, dice, chessmen, combs, handles for knives, umbrellas, &c., bracelets, rings, and models of animals represent the general nature of the work. In these articles there is generally some ornamentation. Figures of animals as elephants and fish, and drawings of creepers and flowers, are common objects of ornamentation. Rubies and emeralds of a cheap nature adorn many articles as spoons, forks and bracelets and are used for eyes in the case of animals. Silver and gold, and brass, too are occasionally employed. In Fiznur's case there is little or no variety in the ornamentation.

Ivory carving once flourished because nurtured and, as I have pointed out, because not altogether an optional industry. It decayed when both these influences ceased. It has now reached the point of extinction, not so much because there is no demand, but rather because the workers, from want of energy or material, have so hidden their talents, that but few know of their existence.—*Pioneer*, Dec. 12.

PLANTING IN PERU:

COFFEE AND OTHER PRODUCTS.

(*From a Planting Correspondent.*)

Oct. 27th, 1900.

We are fully 4,000 feet above sea level, with a perfect climate ; neither wind nor great droughts to contend against. The roads are pretty good and are improving and a railway is expected to be laid soon to come within a short distance of this valley. To the European markets we have very low freights, and as Peruvian coffee has taken second place in name, and first price in the German markets, and first place and first price in London, namely, an average of 70s. per quintal (100 to 112 lb.) this gives general satisfaction. Also by this mail came *from the Paris Exhibition—2* awards of gold medals to the Haciends, *La Perla and St. Olaya*, on either side of this one. These are now in their sixth year, giving full crops of 1,000 quintals. This estate is in its third year, and great expectations may be realized if the weather keeps favourable, such as we now are enjoying. There are many questions I would like to ask, but especially these two :—Have you seen the results of the trial of Jadoo fibre, and is it such a marvellous factor ? I would like to see a Company formed to take up land just here, or alongside of the Peruvian Corporation. Their land is a day's journey farther inland. It would open up this country, as labour is cheap and sufficient, and the Indians and Cholos are strong, healthy and active, and very peaceable, and with the courtesy of the Spaniard. Their daily pay is 50 and 60 centavos; all, or nearly all, are contracted by regular contractists (engauched) whose commission is 10c per tarea that they contract to work. We will employ from 15 to 40 men and 20 to 30 women during harvest.

Readers of the *Tropical Agriculturist* might and it to their advantage, to come and invest in this neighbourhood again.

BAMBOO MANNA.

One of the last numbers of the Agricultural Ledger contains an interesting description, by Mr. D. Hooker, of bamboo manna, and a report by Mr. A. E. Lawrie, a Forest Officer in Chanda, of its discovery in the Central Provinces. Mr. Hooper points out that bamboo manna has been known for many years among native physicians in India, but the term is generally accepted to represent the silicious concretion found in the culms of the bamboo and called *banslochan* or *tabashir*. This, he adds, "is a peculiar substance, and its origin is not satisfactorily determined. It occurs inside the stems of various species of bamboo, either in thin fragments or in masses about an inch thick. It is often mixed with dead insects in the stems, but when calcined it becomes opaline or pure white. Extraordinary properties have been attributed to it, and it is said to be tonic, cooling, aphrodisiac and pectoral, but from its composition it would

appear to be quite inert as a medicinal agent. At any rate, the trade in the drug has decreased within the last few years, and its collection by wild tribes is not by any means so active as it formerly was." The Sanskrit name for *tabashir* is *trakkschera*, or bark milk, an exudation on the outside of, whereas *tabashir* is always found inside the stem. Besides *tabashir* is quite tasteless, whereas the bark milk is sweet, so that the two substances are not identical, the confusion, Mr. Hooper suggests, being due, probably, to *tabashir* being called *saccharon* by Dioscorides and Pliny, the substance to which the ancients gave this name having none of the properties of sugar, and being used in quite a different connection, especially as a medicine. The bark milk exudes from the modes of certain species of bamboo and becomes solidified into pure sugar. Mr. Hooper adds that "Indian travellers, and the most recent writers on the subject of bamboo, have never recorded the spontaneous excretion of a substance similar to manna appearing on the stem." Mr. Lawrie, in his report, states that in November last the entire bamboo (*Dendro calamus strictus*) areas of forest for some miles along the Wardha river flowered, and shed ripe seed from early in January, a very unusual occurrence. This seed—which has been known to sell for 40 to 50 seers per rupee while wheat was selling for 12 seers—was a great source of food for thousands of poor people during the famine, and kept them alive for about three months. In February, Mr. Lawrie noticed that the culms of the clumps of bamboos growing in poor soil in the drier portions of the forests were streaked all the way down with what appeared to be a white, brittle gum, similar to what which exudes from *Odina Wodier*. The Gonds had never seen it before, so Mr. Lawrie collected some, and tasting it found it to be perfectly sweet. "On reaching camp, I got hold of a number of villagers, both Gonds and others, and on enquiry they told me they had never seen or heard of this gum. I passed through a number of similar stretches in which the bamboos were covered with the gum. This sugary deposit only extended for about five feet along the culms and was entirely absent towards the tops. It was found both at the nodes of the bamboo as well as on the stems between the nodes." Some of this manna was sent to Mr. Hooper, who found on analysis that it contained 95·63 per cent of sugar related to, if not identical with, cane-sugar, was quite wholesome, and might with impunity be used for cooking or making sweetmeats in the place of ordinary sugar. Similar saccharine exudations are afforded by many other trees in the East, while three descriptions of manna are imported into Bombay, one obtained from the camelthorn, one from the tamarisk, and one from the shrub *Cotoneaster nummularia*, all of which grow in Persia. Manna is also obtained from the *Eucalyptus viminalis*, which grows on the Nilgiris.—*Madras Mail*, Dec, 14.

SEYCHELLES AND MAURITIUS TRADE.

The prosperity of the Seychelles, as is well known, practically depends on vanilla, the exports of which to Great Britain in 1899 were valued at 873,728r, against 460,320r in 1898; France, 464,992r, against 271,320r in 1898. A rough estimate places the area of land under Vanilla at about 2,000 acres. Nearly all the vanilla is now cured in properly constructed drying-rooms heated with hot air. The French method of steaming the freshly picked pods has been tried, but the boiling water process is generally adopted. In 1899 fine prepared pods fetched 16r to 18r per pound (1r equal to 1s 4d). This year the price is from 14r to 16r. Green pods are now being sold at 10r per one hundred pods. The Administrator gives some hints concerning the method of planting, but similar information will be found in recent volumes of the *Chemist and Druggist*. The exports of vanilla from Mauritius in 1899 were 3,709 kilos, against 4,042 kilos in 1898, or a decrease of 303 kilos.—*Chemist and Druggist*, Nov. 24.

PROFESSOR KOCH ON MALARIA.

FINAL REPORT ON THE GERMAN EXPEDITION.

[TRANSLATED FOR THE *Pioneer* WITH HIS CONSENT.]

On the 6th of August, 1900, we left Herbertshöhe (in New Guinea) for home. The North German Lloyd's new line of steamers, plying between Sydney, New Guinea and Hongkong, and touching at the Caroline and Mariana Islands afforded us an opportunity of visiting these islands and obtaining, so far as the shortness of our stay permitted, a glimpse of their hygienic conditions. Mainly for this reason I chose this line for the voyage home, and was able to make investigations in Ponape on the 12th and 13th of August, and in Saipan on the 17th, in which I was assisted by Dr. Girschner, a medical man in the service of the Government.

In Ponape (in the Carolines) we examined 79 children, some of whom were from Colonia (the seat of the Government), the rest from six other places, some of which are pretty distant from there. In none of them did we find the swollen spleen and the malaria-parasites in the blood which are the characteristic symptoms of malaria. This proves beyond doubt that the island of Ponape is free of malaria. A case of dysentery was said to have occurred a good while ago. From what Dr. Girschner told me I judge that the skin-diseases which are so extremely frequent in the South Sea, and the disease called yaws, which is often mistaken for syphilis, play no great part in the island.

In Saipan (one of the Mariana Islands) 24 children were examined, and neither swelling of the spleen nor malaria-parasites were found; whence we may infer that this island too is free of malaria. Among the many other people who were shown to me as suffering from syphilis, lupus, and leprosy there was not a single one who really was suffering from one of these diseases. Their disease was framboesia, which the English also call yaws. It seems to be very frequent in Saipan, and is extremely widely diffused in the South Sea. I have seen places in the Bismark Archipelago, where almost all the children had it; and it is said that the children of Europeans are sometimes attacked by it too. It is often mistaken for syphilis by non-medical and also by medical men, and I am inclined to believe that the statements about the wide prevalence of syphilis in the South Sea and particularly in the German Colonies there, are due to this fact. It is highly desirable that a physician well acquainted with syphillis and diseases of the skin (a specialist, if possible) be sent to German New Guinea to make a more exact study of these diseases.

A peculiar disease was said to occur at Saipan, the course of which, with fever and lasting paralysis of certain limbs, could not but awaken the suspicion that it was beriberi. Of the patients of this kind who were shown to me one was suffering from hemiplegia, others from articular or muscular rheumatism. There was not a single indubitable case of beriberi. On the whole I got the impression that, as the islands of Ponape and Saipan are free of malaria and also of other tropical diseases except yaws, their hygienic condition is very good. From Hongkong we went by the main line of the North German Lloyd to Suez, where we broke our journey, in order to make a short stay in Egypt. The purpose of our visit to Egypt was to find some explanation of the contradictory reports about the malaria there. This purpose was partly gained, for we found in Alexandria several cases of malaria which had indubitably originated in or near that city, and genuine foci of endemic malaria at Heluan near Cairo and at Wadi Natrun, west of the Delta, in the midst of the desert. According to the last news I have received from Stephansort, dated the 8th of August, the favourable state of malaria there described in my reports had remained unaltered. In order to pave the way for the repetition in Germany of the experiment that succeeded so well in New Guinea, Professor Frosch, who was at one time a member of the malaria expedition, has visited many apparently suitable districts in North Germany, and made careful investigations with a view to ascertaining whether there is any malaria there. He found everywhere that malaria is rapidly dying out. At many places which used to be notorious malaria-foci the disease has almost entirely vanished; at others (in the marshy lands on the North Sea coast for instance) only isolated cases occur; nowhere could a malaria-focus suitable for my purposes be found.

Under these circumstances nothing remained but to conclude the work of the malaria expedition for the present.

Berlin, Nov. 17.—On the 15th instant Professor Robert Koch spoke to the Berlin and Charlottenburg section of the German Colonial Society on the results of the malaria expedition sent out by the German Empire. The meeting took place in the hall of the Kaiserhof (one of the biggest hotels in Berlin), and consisted largely of medical men, officials of the Colonial Department and officers of the army and navy. Koch was welcomed with loud applause. He began by thanking the Colonial Society for suggesting the malaria expeditions, and then stated what is now known about malaria. The gist of his lecture was this:

The germ of malaria, first seen by Laveran, is an animal organism, which lives in the blood of the malaria-patient and is so characteristic that the discovery of even one such parasite in a person's blood justifies the opinion that he has malaria. There is a whole group of malaria-parasites, and a corresponding group of malarial diseases. Germany has two kinds of malaria, Italy three, and a fourth kind, tropical malaria, is found in the tropics. The parasite can live long in a human body. Malaria reveals itself in a series of attacks each of which is the consequence of a fresh proliferation of germs. The violence of the attacks diminishes in the course of the disease, but relapses take place, sometimes even after the lapse of years. The question how the parasites get into the blood used to be answered in several very different ways. Now it is known that they are conveyed from one human body to another by gnats. This discovery is due to an observation of Ross, who demonstrated that the germs of malaria undergo a long process of development in the stomachs of gnats. The microscope shows that the developed germs meet in the poison-gland of the gnat. When a gnat sucks a human being's blood it empties its poison-gland, and thus introduces the parasites into his blood. In August, 1898, a German expedition was sent to Italy to test Ross's statements, and was soon able to confirm them. It was also ascertained that the apparently different Italian forms of malaria are really one, that Italian malaria is identical with tropical malaria, and that, apart from quartian and tertian which occur among ourselves there really is only one form of malaria, namely tropical malaria.

In the spring of 1899 the German expedition went to Italy again, and took up its abode at Grosset, in the Tuscan Maremmae. Spring was chosen, because it is in spring that malaria breaks out afresh in Italy. At first there were few cases, and these were relapses of cases of the year before. Not till the weather became warmer did the first fresh cases occur, but then their number increased very rapidly. They were uncommonly severe too, but the patients were taken to the hospital so promptly that the systematic treatment with quinine could begin in good time, and consequently the number of deaths was comparatively small. In autumn, after raging for four months, the malaria died out. Now, why is it that no fresh cases of malaria occur in Italy in winter, though there are gnats there in winter too? The reason is that the real home of malaria-germs is the body of a malaria-patient; they winter there. But the human body is not only the real home of malaria-parasites, it is also their only home. In the blood of monkeys, birds, and bats, indeed, organisms strongly resembling malaria-parasites are found, but closer examination shows that they differ from them. That the malaria-parasite thrives only in the human body is also proved by the fact that malaria is not transferable to anthropomorphous apes. The way in which malaria is propagated is this: a human being with malaria-parasites is stung by a gnat, which thus imbibes malaria-germs, which then develop in it, and are introduced into the blood of another person whom it stings. The anopheles is the chief bearer of malaria-parasites, but it is probable that other kinds of gnats (the pulex for instance) play a part in the business. It follows that in the battle with malaria the point of attack must be the malaria-patient.

The expedition then went to Java, and from there to New Guinea. Notwithstanding the great resemblance between the physical and biological conditions of those two islands, they differ most strikingly. Wherever you go in Java you see the fruits of prosperous human labour; in New Guinea hardly a trace of it. But the history of Java teaches that New Guinea too may be made to blossom like the rose. All that is necessary is the judiciously managed colonisation of the country, and the only hindrance (but it is a most formidable one)

is malaria, which sweeps away men, women, and children. One most important hint for the combating of malaria is furnished by the discovery made by the expedition in New Guinea that malaria is at bottom a children's disease. If you examine the children at a place where malaria is endemic, you find every one of them under the age of two suffering from malaria. In the older children, up to the age of ten, malaria parasites are found but not so frequently. The best way to ascertain whether a place has malaria is to examine the children. This method was employed in New Guinea and in the neighbouring islands, and it was found that there is only one point on the coast free of malaria, and that some of the islands are free, others not. The combating of malaria must begin with the children, but it is also of paramount importance to attack all mild or latent cases. The latent cases play the same part in the combating of malaria as in the combating of cholera.

That this is not mere theory was signally proved by a practical experiment made by the expedition on the plantations at Stephansort. Of the 700 inhabitants 137 were ill of malaria and all but a few isolated cases were cured. Special attention was paid to all new born and newly arrived children. Those children arrived remained in good health, whereas till then it had been impossible to keep children alive there. The experiment which succeeded there on a small scale will succeed elsewhere on a large, The great decrease of malaria in Germany is significant in this connection. The draining of the swamps alone does not account for it. Gnats, and in particular the various kinds of anopheles, are everywhere to be found. The real reason is that quinine has become accessible even to the poor. In the marshy lands of North-West Germany everybody now keeps quinine in his house, but thirty years ago a doctor had to think twice before prescribing quinine for a poor patient. The dying out of malaria in Germany is strikingly reflected in the statistics of the army. In 1869 the number of cases in the army was 13,500, in 1879 9,000, in 1889 1,500, and in 1896 only 230.

How is it with other proposals for the combating of malaria? One of them is to annihilate the gnats. Here and there perhaps this may be done by pouring petroleum into swamps, but on a great scale it is impracticable. Another proposal is to protect people against gnats by means of ethereal oils; but the effect of such oils lasts only a short time, Another means of protection is the mosquito-net; but such nets are seldom worn after sunset, and they often let mosquitoes through. The mosquito-proof house is open to similar objections. All attempts to confer immunity from malaria have hitherto failed. The prophylactic treatment with quinine, on the other hand, is of value, but it cannot be carried out generally and long.

How, then is malaria to be combated in our colonies? We must send out medical men trained to work with the microscope, and follow the example of the Dutch Colonial administration in giving the people quinine gratis. The first thing necessary is to send some medical men, especially to New Guinea and South-West Africa, as malaria-doctors. This measure, based on the new knowledge we have gained of the manner in which malaria spreads, would afford the prospect of our getting the upper hand of malaria ere long in the colonies, which is the preliminary condition of their prosperity. Professor Koach's lecture was received with loud applause and Professor Gerhardt (one of the medical luminaries of Berlin) delivered a short speech, in which he praised Koch as an investigator who not only brought new facts to light, but also taught how to turn them to practical account.—*Pioneer*, Dec. 23.

THE DATE PALM IN SOUTH ALGERIA.

I have been reading a little pamphlet in French on the cultivation of the Date Palm in South Algeria by the Agriculture and Industrial Society of South Algeria. They have been exhibiting dates, and also *Eau-de-vie* made from dates at the Paris Exhibition. As the French mode of cultivation may interest anyone in India who may be inclined to try date plantations, I give herewith a translation of their method.

The pamphlet says that when date seeds are sown they produce a preponderance of males and inferior varieties, although sometimes new varieties occur. *En passant* one might note that the trees which now produce the finest dates in the world could not have originated *except from seeds.* In Algeria they plant the offsets of the best sorts of secure the same kind of fine date trees. The nativte plant their offsets out at once, but this method gives usually only 40 to 45 per cent that strike and grow. The South Algerian Society have adopted another method, which is the following:—They plant the offsets in manured soil in pots about 15 inches in diameter and as deep. Then they plunge the pots in a nursery, where they can be easily tended and irrigated. When they root, they are lifted out of the pots with their ball of roots, and planted in the form of a plantation. While the tree are growing, they take catch-crops from between the rows, such as lucerne, barley and other low crops. Great attention is paid to the date palms by regular irrigation from artesian wells. By this method of striking the offsets, they secure from 90 to 95 per cent of rooted plants. Their best sort is called *deglet nour.* They have also what are called *dry* dates, I suppose similar to those brought down to India by Afghan traders under the name of *chohara.* The latter sorts never ripen into the transparent sweetmeaty sorts, such as those we see in the London shops. E BONAVIA, M D.

London, 28th Nov. 1900.—*Indian Gardening.*

DR. WATT'S LATEST ON TEA PESTS.

Dr. Geo. Watt, Reporter on Economic Products to the Government of India, who, with Mr. Harold H Mann, has been on a tour through the tea districts, has returned to Calcutta, and has brought away with him a very large mass of material in the shape of specimens of pests and blights which attack the tea bush, and which will require much time and labour to investigate and identify. Dr. Watt's *Pests and Blights of the Tea Plant* will have to be revised and considerably enlarged after he has worked up all the specimens he has brought away with him. It should be noted that the specimens he has now brought with him, and which are being added to almost daily by Mr. Mann (who is still touring in the tea districts) are nearly all new. During Dr. Watt's travels among the tea gardens of Assam he found himself on one estate on which a certain kind of caterpillar was devastating the entire garden. The Manager told him that he had been capturing these caterpillars at the rate of *eight* "Acme" chestsful every day. and on counting up his bag, found he had slaughtered 2,700,000 of them! Had he not done this little

bit of *shikarring* on his own account, he would, at a moderate computation, have had to contend against 90,000,000 of these pests next year, with the result that his tea bushes would have been wiped out, and would have gone to manure the land on which they stood. The caterpillar is a peculiarly destructive one, and cunning, for it builds itself a round cocoon of the size and shape of an ordinary marble, and buries it in the soil, where it remains, and comes out in due course as a moth, which in its turn lays its eggs, which hatch out into the little caterpillars. Dr. Watt has brought away a number of these marble cocoons, and is cultivating them in the soil in which he found them, and will thus be able to study their life-history. Dr. Watt also found the little brown bug, that devastated the Ceylon coffee bushes, on a jungle creeper. The bug has commenced to attack the tea bush, and we have now to learn what it will do if allowed to increased and multiply. It is as destructive to tea as it proved itself to coffee. Truly, the tea bush is proving itself a veritable host to all sorts and conditions of insect and fungoid pests; yet it flourishes and "over-production" is the watch-word of tea men just at present. There is yet another interesting discovery made by Dr. Watt. He has found that several of the scale insects are attacked by certain fungi, and killed. He thinks that in such cases the fungi should be employed to inoculate the scale insects, and thus destroy them. He is therefore making cultures of these fungi, and we may expect some nteresting results from his investigations.—*Indian Gardening and Planting*, Dec. 20.

RUBBER AND ITS PRODUCERS.

We direct attention to another interesting letter from Mr. Godefroy-Lebeuf of Paris, on this subject. Our correspondent writes wonderfully good English,—we only wish we could write French as well—and if he would only make all botanical and unusual terms very clear, the printers would rejoice in his letters. The bark we sent him from a planter, we understood to be from young "Para" trees?—but we may learn more about this. Meantime, there is a good deal of interesting information in the letter before us; and in regard to the "Sapium" we quote as follows from the "Treasury of Botany":—

SAPIUM.—A genus containing about a score of trees or shrubs of the order Euphorbiaceæ, found in the tropics of both hemispheres, and all of them yielding a milky juice, which in some is very acrid and even poisonous. The leaves resemble those of the willow, the poplar, or the laurel, and at their point of union with the stalk are furnished with two round glands; while the small greenish flowers are disposed in terminal spikes, the lower portion bearing the fertile, the upper the sterile flowers.

S. indicum, a widely distributed eastern species, is known under the name of Boroo, where, according to Mr. Motley, the leaves are largely used for dyeing and staining rotang of a dark colour. The acrid milky juice produces a burning sensation like that from a capsicum. The young fruit is acid and eaten as a condiment, while at the same time the fruit is one of the ingredients used for poisoning alligators. The ripe fruits are woody trilobed capsules, about an inch across, with three cells, and one oily seed in each.

The Milkwood of Jamaica, S. laurifolium, receives its name from the milky juice which abounds in the stem, and is a source of annoyance to sawyers and others when the wood is green. S. salicifolium affords in Paraguay a bark which is used instead of that of oak for tanning. Most modern authors unite this genus with Stillingia, from which there are no reliable characters to distinguish it.

If anything is to be done with "Chonemorpha" for rubber purposes, we may be sure the Director of our Botanic Gardens will see to it:—

CHONEMORPHA.—A genus of Apocynaceæ, closely allied to Echites, and differing from it principally in the funnel shaped corolla. The species are, moreover, Indian not American. The root and leaves of C. malabarica, a plant of Malabar, are used medicinally by the natives

FIBRE EXTRACTION.

Bahamas—The factory for extracting and preparing the fibre of the pita plant or agave sisalsna contains machinery driven by an oil or gas engine and the press for baling. The machine is placed at one of the extremities of the building with free communication to the outside, where there is a mound or raised stand from which the operator feeds the machine, a continuous thin stream of water being conducted to and flowing into the machine, so that the fibre is washed clean during the process of extraction. The leaves are carried by strong "grip" chains to large scutching wheels, which have brass knives passing across the periphery, and these knives scrape the vegetable matter from the fibre against brass or wood curves. At the other end of the machine, and inside the factory an operator is seated to receive the fibre as it emerges white and clean and from thence it is carried by other working hands to the outside, and is there hung out to dry in the sun across posts and rails erected for the purpose. When thoroughly dried, the fibre is brought back to the factory and packed in bales by means of a press exactly similar to a wool press, care being taken to turn in the ends of the fibre so as to give a smooth exterior surface to the bale when it is turned out of the press. Uniformity in weight is not attempted, they vary from 350 lb. to 500 lb. The maximum capacity of the best machine is about one ton of fibre per day. The following is a list of the machines which are or have been in general use:—*Prieto*.—A machine made in Barcelona and in use in Yucatan. *Todd*.—An American patent. Several of these machines are in use in the Bahamas; it may be consider fairly satisfactory, but not so good as the Villamor, of which patent there is one in use in the Island of New Providence. *Villamor*.—A better machine than the Todd in the amount of work done, and is not so liable to break down. It is an American machine, but is not being made at present. It has hitherto been used a great deal in Yucatan. *Torvella*.—A machine made by the same American firm that brought out the Villamor. The Torvella is now replacing the Villamor in Yucatan, and is very highly esteemed there. *Stephens or Theband*.—This is a large and expensive American machine. It is reported that a new machine is coming out on a new principle and probably cheaper.—*Colonial Office Report from the Bahamas.*

TOBACCO CULTIVATION IN JAFFNA.—In some places the planting of the fragrant weed has commenced, while in others the preparing of the soil and manuring it are going on preparatory to planting. All kinds of manures have gone up considerably in value. The area which will be under tobacco cultivation this time will be much larger than it was in previous years.—*Hindu Organ*, Dec. 19.

THE SCIENTIFIC CULTURE OF TEA AND ITS CRITICS.

It is extremely like "teaching ones grandmother how to suck eggs," to find our evening contemporary attempting to instruct veteran planters and visiting agents in the rudiments of their profession! The process also of trying to discredit and repress scientific cultivation in respect of our Tea planting industry, so frequently attempted in the same columns, bears a close resemblance to Dame Partington's vain attempts to drive back the Atlantic! Cultivation according to scientific principles is acknowleged to be the only means to maintain and render permanent—rather than to injure or destroy—an agricultural industry. The existence of Rothamstead and the life-history of Sir John Lawes and Sir Henry Gilbert testify to this fact, and it is eminently satisfactory to know that Mr. Joseph Fraser has returned from his visits to Rothamstead and from interviews with the greatest agricultural authorities of the age with a clearer grasp of the principles and means to be followed; but without any conviction as to mistakes in the past, such as Mr. G. A. albot supposed he had discovered. It is abundantly evident that tea on old coffee land may as well be abandoned if it is not liberally supplied with fertilizers and nutriment; while it is quite as evident that tea on many younger estates with poor soil, must be aided judiciously and scientifically if its heart is to be maintained.

That means the use of "forcing manures" according to the ordinary but ignorant critic. "Give a dog a bad name and you may at once hang him" is the equivalent vulgar adage. But by following scientific teaching and at the same time watching the result of experiments—"science with practice" in other words—the planter can settle for himself what is best for his plantation, his tea bush and his pocket. This is exactly what has been done, for instance, on Damboolagalla and Pitakande. These estates are, we suppose, open for inspection—we write without any communication from Mr. Fraser who has a far greater stake in the permanent health and prosperity of the Ceylon Tea Industry than most of his critics, and who has verified again and again the truth of the adage that "the proof of the pudding is in the eating thereof," while he can show his tea to be in better heart and greater vigour now than when he commenced his operations.

But does all this not mean an encouragement to overproduction, and especially to the overproduction of cheap teas? We answer by enquiring who can be more interested in doing the right thing for himself, or for his employers or Directors, than the average Ceylon planter. He is by no means the shortsighted worker or downright idiot that some people would think him to be. Last year, it paid well to manufacture an abundance of tea of a cheap grade; and this year the same course being followed, a similar good return might have been experienced, were it not that Indian planters (see the editorial from a Calcutta authority we gave yesterday) abandoned their usual course and, thinking to follow the example of Ceylon, rushed at the supply of cheap teas, so that the market was entirely overdone, and the finer teas have become scarce in proportion to demand. Now, there is the risk of another swing of the pendulum; but the average Ceylon planter has a level head and he will give due consideration to the best course for him to pursue as to "plucking" and "manufacture," while keeping up cultivation and utterly ignoring the ignorant or prejudiced cry about "forcing manures." Even for returns of 450 to 600 lb. an acre, Ceylon tea requires a regular supply of fertilizers if the bushes are to be kept in heart and not worn out prematurely, and we suppose not all the critics in the world—even though led by a contemporary who knows nothing of planting and backed by Mr. G. A. Talbot—would keep the Directors and Manager of Mariawatte—to take only one instance—from following the same course of liberal cultivation which they have proved to be right, as well as successful, in giving handsome financial returns, for the past eighteen years; and we trow that in point of health and vigour, Mariawatte tea will compare with any in the island?

THE FUTURE OF TEA:

HOW TO DEAL WITH THE RISK OF OVER-PRODUCTION.

The proceedings of the Planters' Association in Kandy last month may for once be criticised by onlookers as more of academic than of practical interest. "What is the use," we may be told, "of agitating for the removal or reduction of an Imperial duty when Sir Michael Hicks-Beach has just been assuring a Deputation that there was more likelihood of it being increased rather than reduced?" Nevertheless, we consider Mr. Metcalfe (whom we congratulate on a first appearance and an able maiden speech), Mr. Westland and their supporters most amply justified in the course they have pursued. In the first place, the very best way to destroy the least chance of an increase in the tea duty is to send on Saturday's Resolution urging a reduction; and in the second place, even in the present House of Commons, we are not sure if the question of reduction were taken up on next Budget by some good speaker and leader, that the division would not show a very respectable if not considerable minority. But most important of all is it to begin an agitation now, and to continue it at intervals, if fruit is to be borne in the Budget of fifteen months hence, or in March 1902 when the impost should be reduced not to 4d, but to 3d per lb. So mote it be.

But now to turn from the speeches given elsewhere with their serious tone as to the risk of over-production and of non-paying prices, we direct attention to the deliverance of the Chairman of the Planters'

Association as to the best remedy for an admitted evil, which is contained in the letter he has addressed to us (see page 544). This letter will be read with the greatest possible interest both here and in India. It proposes a heroic measure, and Mr. Rosling deserves a high degree of credit for coming forward at this juncture with what must be regarded as a self-denying ordinance. For, we think there will be no difference of opinion as to the greater part of any loss falling on the higher districts and estates if Mr. Rosling's proposal takes effect. In many of the older and lower districts, it is not too much to say that in a number of cases, not 10 but 20 per cent of the cultivated area might well be given a rest with advantage to the purse of the proprietor; while even with the present reduced grade of prices, ten per cent less of plucking in the higher districts must mean a real loss in itself to owners. Still, there are cases where "the common good" calls for united action, and it is very commendable that the Chairman of the Association should make himself the mouthpiece of the community and come forward with a proposal to deal with an admitted evil, which is practicable and sufficient on the face of it, *if* only unanimity and a sense of honour in its support could be calculated on to prevail throughout the Tea Districts of India as well as of Ceylon. There lies the difficulty. Did the issue depend on Ceylon alone, Mr. Rosling could make quite sure at once of his 80—nay 90—per cent. But how is it possible, in view of past experience, to expect any such result in the case of India? Surely, a far simpler demand on the Indian tea garden owners was the call for subscriptions to the fund for winning new countries to the consumption of their teas. But although this has been pressed year after year in the most urgent fashion and by incontroversible arguments, have 80 per cent. of the owners been gathered in as supporters of the Fund? We trow not. We doubt if one-half, or at most 60 per cent, of the estate owners have responded; and that would lead us to fear an even less proportion of responses to the present appeal. Nevertheless, we think it only reasonable and prudent that such an appeal should be made. If the failure be as we fear, in India, it will more and more show where the blame lies of doing nothing to prevent a crisis. First, Indian proprietors have never moved as they might and ought to secure the imposition of a Tea Cess after the pattern set in Ceylon. Secondly, they have failed to subscribe voluntarily to a Fund, the utility and advantage of which have been universally admitted; and now, thirdly let us see what they have to say to Mr. Rosling's appeal? To bring it formally before the Calcutta Tea Association and the various district bodies throughout India, would it not be well for the appeal to bear the *imprimatur* (as a passed Resolution, say) of the parent Planters' Association in Ceylon. Perhaps, this is Mr. Rosling's intention and that his letter in the first instance is put forward as a "feeler," to educe the opinions of representative men among the planters?

PLANTING NOTES.

MR. SAVILLE-KENT'S recent address at the Royal Colonial Institute in regard to Westralian Pearl Oysters and Pearl Shell and other Fisheries is given in full on another page, and makes good and interesting reading. We have a letter by this mail in regard to the Ceylon Pearl Fisheries from Mr. Stanley Gardiner, the Naturalist from Cambridge University, who has done so much work in regard to coral reefs, etc., in the South Seas, Maldives, etc. It will appear in an early issue.

VOLATILE OILS.—We have received with the compliments of the world-wide-known firm of Messrs. Schimmel & Co., Leipzig, a copy of a beautifully-printed, well-bound volume * on this subject. There are several maps indicating the pathways of commerce (grocery and spices especially) in ancient, middle age and modern times. There is also a map of Sicily and Calabria showing the Districts of Production of Orange, Lemon and Bergamot Essences in Southern Italy, Calabria and Sicily. There is a chapter on "the Oils of Ceylon (Cinnamon), oil of Cinnamon leaves and root" and of course the oils from grasses—citronella oil, etc.—are largely dealt with, a map of our Southern Province with the Citronella Oil Districts being given.

* The Volatile Oils, by E. Gildemeister, Leipzig, and F. R. Hoffman, Berlin, written under the auspices of the firm of Schimmel & Co., Leipzig. Authorized translation by Edward Kremers, Madison, Wis. With four maps and numerous illustrations. Milwaukee, Pharmaceutical Review Publ. Co., 1900.

THE SISAL INDUSTRY IN THE BAHAMAS.—The Colonial Secretary of the Bahamas, reporting on the pita plant, or *Agave sisalana* of the Bahamas, says it is not identical with the agave, or henegnen of Yucatan, though closely allied to it. The henegnen has long been known in various West Indian islands as the dagger plant, and has been used for hedges and by the country people for making rope for domestic use. The Bahamas plant is generally unknown in the West Indies. Six years ago it was imported to St. Kitts, and was planted in the island of Anguilla, where there were large areas of waste land. It is not known when it was introduced to the Bahamas; it is certain that it is not indigenous there. It is superior to the Yucatan plant, and in the hands of Bahamas planters gives fibre of better quality and greater market value, while possessing all the powers henegnen to withstand drought, its hardihood, immense fecundity, and small demands on the labour and care of the grower. The name Sisal seems to be derived from the port in Yucatan from which henegnen was formerly exported. The Bahamas plant is of a darker green hue, and there are no thorns along the edges of the leaf, but in other respects it resembles the Yucatan variety. The most suitable land in the Bahamas is that called coppice land, which is chiefly vegetable mould deposited over soft limestone on which the plant feeds largely. After four years' growth, or less in very favourable conditions the leaves are fit for cutting. They weigh from 1 lb to $2\frac{1}{2}$ lb, and are scraped by machines which take off all the vegetable matter, leaving only the fibre, which emerges white and clean and is hung out across posts and rails to dry in the sun. When thoroughly dried it is placed under pressure and packed in bales 350 lb to 500 lb in weight, and is then ready for export. The quantity of the fibre exported last year from the Bahamas amounted to 1,358,682 lb., valued at £16,942. There are about 14,400 acres under the plant, and factories for extracting the fibre are on all the small estates.—*London Times.*

REPORT ON THE RESULTS OF TECHNICAL TESTS OF THREE PLANKS SUPPLIED BY THE GOVERNMENT OF CEYLON TO THE IMPERIAL INSTITUTE.

(In continuation of the report published in the Imperial Institute Journal, Vol. VI., p. 124. *By* Herbert Stone, Esq., F.L.S., *one of the Expert Referees of the Institute*)

DEL. *Artocarpus nobilis, Thw.* A large tree belonging to the Artocarpaceæ or Nettle and Bread-fruit tribe, confined to Ceylon. There is another Indian tree bearing the vernacular name of Dél, *i.e. Bombax malabaricum*, D.C., the Cotton tree, but the anatomical structure of the wood is so different that there can be no question that our sample is Artocarpus nobilis.

The plank was in a bad condition. Decay had commenced in the heart and the sapwood was quite rotten. The heartwood, which was hardly distinguishable from the sap except by a greater depth of colour, had a beautiful metallic green colour, which shows in vertical patches where the wood is hard, but, as there are alternate strips of hard and very soft wood, the appearance is not beautiful. The pores are very striking, being large and filled with a white substance. The wood saws moderately easily, but will not plane in any direction, as the soft parts "pick up" in large furry patches with which nothing can be done. It turns a little better but only the hard parts cut smooth, and the softer ones, even after being well glass-papered, are unsatisfactory. The same may be said of it when turned in the machine. A good finish can be obtained upon small pieces free from soft wood; as the latter keeps absorbing the polish it is extremely troublesome and presents a poor appearance under the best conditions. The characteristic green colour becomes changed to yellow when polished. In Ceylon it is employed for furniture and canoe-making. Weight 39·3 lb per cubic foot.

JAK. This is the jak-fruit tree, *artocarpus integrifolia, Linn.* A large and important tree belonging to the same genus as the foregoing. It is cultivated in India generally, except in the north. The wood is used for carpentry boxes, and furniture, and is exported to Europe for cabinet work, turning and brush-backs (Gamble). It yields a yellow dye which is used to dye priests' robes. I have not heard of its use in England and presume it has not succeeded in gaining a footing in our market. If the present sample is a fair one it scarcely appears to merit a place among furniture woods, though it might have other virtues which would make it useful for building or engineering work. This wood works in almost every respect like Del, but not quite so bad. Before going into the question of its scientific name I was much struck by the similarity in the working of the two, and suspected their relationship. The colour of jakwood is brown, otherwise its structure and physical characters are very much like those of Del.

The sample plank was very sound both as regards decay and cracks. The wood, according to Watts, is of a yellow or yellowish brown colour darkening on exposure. He considers it one of the handsomest furniture woods of India, an opinion which is scarcely borne out by our specimens. Weight 38·5 lb. per cubic foot.

SATIN-WOOD. *Chloroxylon Swietenia, D.C.* A moderate sized tree of the Mahogany Family (*Meliaceæ*) growing abundantly in Central and Southern India, the Deccan, Ceylon and Coromandel. This is so well known in England that it is almost superfluous to enter into detail concerning it, unless the sample planks are more characteristic of the Ceylon-grown Satinwood than of East India Satinwood generally.

There were three planks of this species. Two were of a bright canary yellow colour with the characteristic smell of coconut when being sawn, sound and in good condition; the third, a badly shattered plank, was rich yellow in colour and had a less agreeable smell. Although there was no other evidence of decay I conclude that this latter plank was partly gone. All three planks cut up readily and well with the saw, but planed execrably, worse even than Del, the soft bands being very broad and rough. It yielded, however, to glass-paper, and smoothed fairly well. The wood turned very well indeed by hand and machine, and took an excellent polish without trouble. Compared with the Satin-woods commonly met with here, these samples are decidedly inferior to either the East India (as commonly known) or Tamil Satin-wood, having none of the beautiful mottle or fire of these, but it is very much like the West India wood. According to Watts it is very durable and stands well under water. The Peradeniya bridge of Ceylon, which has a single span of 205 feet, is made of this wood. Weight 56·5 lb. per cubic foot.

It is much to be regretted that more care was not exercised in selecting and seasoning these specimens. If an examination of a species of timber is intended to assist possible users in the choice of woods for special purposes, it is a matter of primary importance that the samples should be average specimens, sound and in good condition when felled, and treated with the utmost care possible, having regard to the peculiarities of each species. Some will stand exposure to sun or damp which may be ruinous to others, and I strongly suspect that when these various series were got together they were practically subjected to identical conditions, hence the large proportion of decayed or shaken logs. Except in the case of those which have been reported sound, the tests merely amount to a criticism of a number of individual logs which may not have the least bearing upon the timber they represent. I trust that if the agents of any of our Colonial Governments have similar tasks to perform in future they will observe this simple rule:—Let the timber be properly seasoned before it is shipped.—*Imperial Institute Journal.*

PLANTING IN NYSSALAND.

(By Mr. Henry Brown.)

DIFFERENT PRODUCTS.

There are several products well suited for cultivation in B. C. A., other than coffee, such as sugar, tobacco, arrowroot, ginger, turmeric, cotton, chillies, etc. These I dispose of (although they may pay very well) because the land requires to be prepared for them every time a new crop is required, and they are not permanent products.

From what I know of cacao cultivation, and judging from the appearance of the solitary plant as far as I know in existence in B. C. A. at Lauderdale estate, Mlanje, this tree is not to

succeed well in Nyasaland. The plant at Lauderdale is now about five years old, about four feet high, with a diameter of about three feet. A cacao tree in its proper climate should be from six to eight feet in height with a spread of branches about five or six feet and in partial bearing at five years of age. For cacao Nyasaland has too great extremes of cold and heat to thrive well. During the winter months the tree looks wretched and suffers much from cold and during the dry season from September to December the air appears too dry for the tree to flower freely or set any fruit.

Cinchona being a drug the market can be flooded any day, and the price reduced to a non-paying level.

Rubber.—It is long before the tree yields enough to pay and a cheap substitute is likely to be found which will reduce the price.

Vanilla and Pepper.—Although permanent occupiers of the land the consumption is limited, and they for various reasons are better suited to native gardens or small cultivators.

For the reasons given above I select tea as the most suitable product other than coffee for the consideration of planters, as it is in my opinion the best suited for European cultivation, being a permanent occupier of the land. Consumption is likely to keep pace with the production and the price cannot go below that which will yield a profit to the cultivator; otherwise the production must be reduced, when the natural consequence of higher prices would ensue as it is consumed by the masses.

The general opinion of planters whom I have met in B. C. A. is that tea requires a heavier rainfall than we have here. To dispel this idea, however, I would point out that tea has a wider range of cultivation and can be grown under more varied conditions of climate than any other product. Further, tea is grown as far north as the Caucasus in Russia and in Natal, our near neighbour in the South, and in both countries the cultivation of the plant has passed the experimental stage.

Natal where tea has been successfully grown has a similar rainfall to the drier parts of Nyasaland, viz., from 40 to 48 inches per annum. In winter the temperature is at 6 a.m. from 50 to 56 degrees Fahr. and at 11 a.m. rises to 80 and 84 degrees. In summer at sunrise 64 degrees to 70 degrees are registered and at 11 a.m. 92 to 96 degrees, which is very similar to our own climate. Some of the Indian districts where tea pays well have a very limited rainfall and badly distributed, as there are four to five months during which no rain falls at all. From official reports in the following tea districts the average for five years is as follows:—Dhubri, 70·37; Ganhabong 59·26 inches and Nowgong 77·68.

The elevation at which tea can be grown is from sea level to 5,000 and 6,000 feet. At extreme elevations a comparatively dry climate is an advantage.

A period of rest for tea such as some of the Indian districts, Natal and Nyasaland have during the cold season (three to four months), when pruning can be done, is considered beneficial.

Experience of tropical agriculture in other countries as well as here should lead one to the conviction that B.C.A., judging from its soil and climate, is more suited to be a tea than a coffee-producing country chiefly because there is a very limited area fit for coffee growing. Coffee requires either primeval forest or very rich virgin soil to prove a paying investment, with even greater advantages in cheap land and labour than we possess. . . . . Any soil in B.C.A. that would produce leaf may be reckoned good enough for tea. Tea does not suffer much from weeds and bad cultivation. I have known tea clearings abandoned for a year or more and when cleaned up the tea seemed to have grown apace with the scrub and had only to be cut down and the flushes plucked as if nothing had happened to retard its growth. Indeed I see nothing to hinder Nyasaland from taking a place amongst the tea-producing countries of the world.

PRODUCE AND PLANTING.

SHAREHOLDERS AND THEIR GRIEVANCES.—We have received a letter from an Indian subscriber of many years standing who, in calling attention to the apathy prevailing amongst shareholders in tea companies, and advocating certain reforms in the management of these concerns incidentally frames an indictment against the agency system. His charges amount to this—viz., that owing to the apathy of shareholders who fail to attend meetings, those who have the financial control of tea companies are able to do as they please. He quotes an instance in India where managing agents have charged commission upon gross expenditure, have supplied stores which were not ordered, while drawing agency salaries and directors' fees. He asks how long shareholders will be content to suffer these things. So far as the apathy of shareholders is concerned, we may remark that when joint stock companies are prosperous shareholders in them are usually indifferent about details, accepting their dividends as a matter of course and taking very little interest in the proceedings which led up to the profitable result and we fear, caring less. When times are bad they clamour for reforms, condemn the management and are generally on the rampage. Shareholders in tea companies are not exceptional in this respect as some directors can testify and they can cry out about over-capitalisation and false promises with sufficient emphasis to create an impression. There are some things in connection with the tea enterprise which certainly need reforming. If we may judge by correspondence in the Indian and Ceylon newspapers the condition of the industry demands numerous reforms, but so far we have seen few practical suggestions on the subject. Amongst such reforms should certainly be included the effacement of all managing officials who act in the manner described by our correspondent. But we presume that he does not imply that the abuse of the system in the particular instance he mentions is a good and sufficient reason for promoting an agitation against managing agents generally or endeavouring to introduce a system which would mean the risk of (to use the expression of one of Mr. Kipling's heroes) a "blooming republic" in tea. Such conduct as that referred to by our correspondent is surely quite exceptional. As a rule tea companies are managed by those responsible with unusual care, attention, and integrity. If abuses have crept into the managerial system of any particular company conducted on the joint stock system, either in London or Calcutta, the shareholders have it in their power to look into them, and they are not backward in demanding investigation, especially when dividends are not forthcoming. Shareholders in tea companies, we take it, are not specially lacking in common sense, and are as capable as any other body of shareholders of looking after their own interests. When they have quite settled amongst themselves the direction reform should take, their apathy will doubtless give way to a lively interest in the whole situation. They will then set themselves to earnestly consider the importance of those adverse factors so frequently referred to by experts, which are mainly responsible for glutted markets and the inevitable depression which ensues,

THE LATEST TEA ROLLER.

TRIAL OF PERMAN'S EXPRESS.

There was quite a large muster of gentlemen interested in the tea industry, who were courteously invited at noon on Saturday by Messrs. McLeod and Company to witness a public trial at Messrs. Jessop & Company's Works in Clive Street of Perman's "Express" roller. Among those present were Mr. Ormiston, of Messrs. Balmer Laurie & Co.; Mr. Macdonald, of Messrs. Duncan Brothers & Co.; Mr. Walker, Mr. Milne and Mr. Horne, of Messrs. Finlay, Muir & Co.; Mr. Danby, of the Planters' Stores; Mr. Kingsley, of Messrs. Shaw Wallace & Co.; Mr. Traill of Messrs. Octavius Steel & Co.; Mr. G F Playfair and Mr. F H E Lamb, of Messrs. Barry & Co,; Mr. Hall, of the South Sylhet Tea Co.; Mr. G Jamieson, Mr. Staples, of the Carron Tea Estate, and numerous other planters. Perman's "Express" roller claims to be the latest and most improved addition to tea machinery. The special advantages claimed for it are that it is simple in construction and easy to work efficiently, rolls 300 lb. of leaf in twenty to thirty minutes, occupies small space in the factory, and requires little driving power and attendance. Perman's "Express" roller has been designed by a well-known Assam Planter Engineer, and it is justly claimed by the Inventor, after series of exhaustive trials, to be the only machine on the market, which combines rapidity of work, a perfect roll and a moderate cost. The whole construction is extremely simple, merely consisting of a stationary table, to which is bolted a circular leaf box, the bottom of the latter is a revolving disc, and at right angles to same there is a fluted cone. The leaf on being emptied into the box from the top is immediately carried round by the revolving disc, the cone in the centre which, turning in an opposite direction, causes the leaf to climb the middle and side of the box and to fall again to the bottom, keeping up a continual ebullition, by which means the leaf is thoroughly aerated and heating effectually avoided. No pressure cap is required, as the weight of the leaf naturally causes it to fall to the bottom of the box where the diameter of the fluted cone is greatest, and thereby gives the necessary twist and pressure effectually breaking the cells of the leaf, the most important function in rolling. The "Express" does not "ball" the leaf, consequently the above object is attained completely. The time occupied in rolling is from 20 to 30 minutes, thereby enabling one roll extra to be completed within the hour. The leaf is readily discharged from the door on the side of the leaf box. The roller has been inspected by Planters of repute, and in all cases results proved most satisfactory, the machine giving the leaf a good twist in a shorter time than is taken by other machines now on the market, costing nearly double the price of an "Express." The trial on Saturday proved eminently satisfactory, and several questions put by the gentlemen present anent the working of this new and latest machinery elicited a ready response by the inventor. Two hundred and twenty pounds of leaf were emptied into the box, and within half an hour were turned out with a pucca twist and quite cool. Considering that the leaf had to be brought from the Dooars, and that it was hardly in condition for rolling, the trial was very satisfactory indeed under the circumstances.—*Indian Daily News*, Nov. 19, 1900. [Messrs. Brown & Co. have been appointed agents for the above roller which will shortly be on view at Hatton—ED. *T.A.*]

TEA AND CACAO ESTATES COMPANY.

COOPER, COOPER & JOHNSON, LTD.

DIRECTORS.—Hector F Monro (Chairman), Hamilton A Hancock and William Johnson. Managing Director: Edward H Hancock.

REPORT OF THE DIRECTORS

to be submitted to the Ordinary Annual General Meeting to be held at 2 o'clock on Thursday, 20th December, 1901. at Winchester House, Old Broad Street :—

The Directors beg to submit to the Shareholders the Report and Balance Sheet, together with profit and loss account for the year ending 30th June, 1900, also the revised accounts to 30th June, 1899. They much regret that the results are so disappointing, but they feel confident not only that the revenue should not be taken as an index of future profits, but that the expenditure also will be very materially reduced. With regard to the estates, the crop of tea, which is about 2,450,000 lb., has exceeded the estimate of 2,322,000 lb., and is about 350,000 lb. more than that of the previous year ; it has also been produced at a less cost than the estimate of 28 cents per lb. and at about ½d per lb. less than the previous year. It is anticipated that the production for the current year will be 2,550,000 lb. at a further reduced cost. Shareholders are, of course, aware that prices have been abnormally low, probably lower than they have ever ruled before, and when it is pointed out that 1d per lb. means £10,000 to the Company, it will be seen how much depends upon the expected improvement in the market. The cocoa crop was not a heavy one, and the board are advised that larger results are already assured for the current year. The same applies to coffee and other products. Fresh arrangements have been temporarily made for the management of the wholesale and retail departments, and the Board are advised and believe that, if further capital is provided to extend these businesses, substantial profits will bb released. The Directors have also re-sold to Mr. Johnson the greater part of the business purchased from Messrs, Johnson, Dodds & Co., they have closed the American business, and have sold the Irish Branch, both of which were purchased from Cooper Cooper & Co. The above changes in these departments have been made with the approval of the Committee, and they not only do away with the recurrent heavy losses, but they have also given the opportunity of effecting very considerable economies in the working. There is no doubt that Trading Charges, as well as the Establishment Charges, will be very materially reduced in the future. In September the Board and Committee asked Messrs. Jackson, Pixley & Co. to investigate the books from the inauguration of the Company; they have in consequence prepared amended accounts ror he period ending 30th June, 1899, which they think show more accurately the position of the Company on that date, the chief differences being on technical questions (whereby £9,830 3s 10d is brought forward to the debit of Profit and Loss Account instead of £2,005 4s 3d to the credit) relating to purchases of businesses acquired—which will be explained to the share-

holders at the meeting. In the arbitration with Messrs. Vanderspar, an award was given in their favour. The cost of this action appears in the accounts. The Directors are now consulting with the principal shareholders and with those interested in the Company, to devise a scheme for placing the Company's finances upon a sound basis, which must necessarily be taken in hand at once. This would have been proposed before had it been possible to have the revised accounts earlier. Mr. G L Davies has retired from the board since the last meeting. Mr. William Johnson retires in rotation and offers himself for re-election. Messrs. Jackson, Pixley & Co., who were appointed Auditors, offer themselves for election.—By order of the Board.

HECTOR F. MONRO, Chairman.

London, E.C, Dec, 10th.

PEARL SHELLS AND OYSTERS OFF WESTERN AUSTRALIA.

At the meeting of the Royal Colonial Institute where Sir Gerard Smith read a paper on "Recent Observations in Western Australia,"—(at which among others Mr. R. B. Heinekey, Mr. G. B. Leechman, Sir Walter Sendall, G.C.M.G., and Sir E. Noel Walker, K.C.M.G., were present,) the following speech was delivered :—

Mr. W, SAVILLE-KENT, F.L.S., F.Z.S.:—While some few years of residence and travel in the country enables me to endorse much that Colonel Sir Gerard Smith has deposed to and described in his admirable address concerning the natural and industrial wealth of Western Australia, I must honestly admit that I should find myself very much "at sea" if I were to attempt to enter into an elaborate criticism or enlargement of the facts and figures that he has so lucidly brought before us. On the other hand—if I may be pardoned the Hibernianism —I shall feel very much more on *terra firma* if I may be permitted to supplement Sir Gerard Smith's discourse with a few words concerning both the actual and unearned increment of wealth that awaits exploitation and development in the waters that intersect and lave the Western Australian coast-line. Colonel Sir Gerard Smith has incidentally, and by quotation only, mentioned pearl shell as being included among other articles of export. As a matter of fact, that marine product represents one of the most valuable assets of the colony. Even worked on the primitive lines of simply collecting it from the natural fishing-grounds, pearl shells to the value of from £60,000 to £100,000 are raised and annually shipped from the Western Australian ports. There can be but little doubt, however, that in the near future the systematic cultivation of pearl shell on lines parallel to those pursued in connection with ordinary commercial oysters will become a yet vaster and far more valuable industry. During those years in which I enjoyed the privilege of acting as Commissioner of Fisheries to the Queensland and Western Australian Governments experiments were initiated by me with the object of proving that this shell, like the ordinary oyster, was amenable to artificial cultivation. These experiments were successful, and as an outcome of them the systematic commercial cultivation of this valuable shell has already been established, but most notably in Queensland. Furthermore, at the instigation of that progressive statesman, Sir John Forrest, experiments were successfully made by me in the direction of acclimatising this valuable pearl shell considerably to the south of its natural habitat, that is, outside tropical waters. This means that very extensive areas on the Western Australian coast-line can be devoted to this industry with the advantage of its prosecutors being free from that stress and strain upon the Anglo-Saxon constitution that is almost inseparable from prolonged labour within the tropics. As an indication of the intrinsic value that would be attached to such a suggested industry, it is sufficient to mention that the cultivation of ordinary commercial oysters, as prosecuted in British waters, yields highly remunerative returns upon a capital that must be assessed at several millions sterling. These commercial oysters, having a gastronomic value only, obtain a maximum wholesale price of no more than one or two shillings per dozen—mostly much less. The Australian pearl oysters, on the other hand, while propagating as abundantly, and in ever-increasing demand for the manufacture of all articles composed of mother-of-pearl, realise in the wholesale market no less a price than from £7 to £10 per cwt., or on an average, say, thirty to forty shillings per dozen for well matured shell. It is obvious, I think, from this brief reference to the subject, that a big and prosperous future awaits the scientific development of the pearl-shell cultivation industry in Western Australian waters. Now, in the matter of ordinary oysters, Western Australia, in company with other of the Australasian Colonies, originally possessed what, with due care, would have constituted an inexhaustible stock of an oyster indistinguishable from our own world-famed British native. Over-fishing, however, with no provision of reserves for future propagation, has almost, if not altogether, exterminated that much-esteemed species. Time was when the Swan River estuary upon which Perth is built was one vast oyster-bed. The salt water, however, has retreated, leaving the oyster defunct, and high and dry in such abundance that, at the time of my last stay in Perth, some four or five years since, they were being extensively employed for the groundwork of the new roads and streets that were being so rapidly constructed. With the completion of the new harbour works at Fremantle, and the clearance of the river's mouth by extensive dredging, it is quite possible that conditions may be again made favourable for the growth of oysters in the Swan River estuary. And at all events a very favourable area for the re-establishment of extensive oyster fisheries exists in the neighbourhoods of Albany and King's Sound, where they formerly abounded. Ordinary descriptions of commercial fish teem in Western Australian waters, and I will merely draw attention here to the circumstance that a species of pilchard and other members of the herring tribe are included among them. It has been referred to as a matter of reproach by Sir Gerard Smith that both butter and cheese have still to be annually imported into Western Australia to the extent of several millions of pounds. The same reproach must be attached to the fact that, with the live fish in vast shoals on their coast-line, preserved herrings, sardines, and anchovies are likewise annually imported in increasing quantities from Europe. And this reproach applies not only to Western Australia but to all other of the Australasian Colonies. With the newly-accomplished federation of the Australian States, we may now, however, hopefully look forward to an immense impetus being given to the fisheries, agricultural, and all other industrial enterprises

throughout the Commonwealth in general and in Western Australia in particular, since the levelling of the Customs schedules, and of the high and uneven labour rates that have hitherto prevailed, cannot but exert a most beneficial influence on all the indigenous industries. I may, finally, mention that much has been done already in Western Australia towards providing attraction to the sporting and leisured classes in connection with the fresh water fisheries. The Colony possesses but few indigenous fresh water fish of any value within its southern and more thickly populated districts. Certain of the rivers, however, such as the Preston, Collie, Blackwood, and others, were recognised by me as possessing conditions that were apparently favourable for the introduction of English trout and other desirable varieties. Here, again, Sir John Forrest took the initiative by providing a suitable location for a trout hatchery on his estate at Bunbury, and the fry hatched from ova imported from Tasmania have now been distributed throughout a very considerable area, with the prospects of yielding very gratifying returns in future years. Murray cod, perch, silver eels, and other species have likewise been in a similar manner imported to, and distributed among other rivers of the Colony. These were mostly transported by myself from the Murray River in South Australia as small immature fish, special accommodation being provided for them for their thousand miles voyage from Adelaide to Albany on the Orient and Peninsular and Oriental mail-boats; and, according to the latest intelligence to hand, these fish have already established themselves and commenced to propagate. These few remarks will, I trust, conduce towards endorsing and further emphasising the conspicuous merits and advantages that are so amply possessed by Western Australia, and that have been so ably championed by Colonel Sir Gerard Smith in the lecture we have listened to with so much interest."

CHINA TEAS IN LONDON.

(From a Correspondent.)

I enclose a cutting from the Army and Navy Stores' list. Note what they say *re* China tea. Their sales are very large, and you might pass this on to 'Thirty Committee :–

"In calling attention to the following, Members are reminded that the use of of China Tea is *Strongly Recommended* by the Medical Profession, in preference to the Strong and Pungent teas now so much advertised.

PLANTING IN PERU.—A couple of Scots are busily engaged as planters in the valley beyond the Andes in Peru. which was reported on by Messrs. Arthur Sinclair, the late Alex. Ross and Mr. D. Clark, of Balangoda; and one of them sends us a brief letter given elsewhere, showing that great progress has been made and that coffee crops are satisfactory. There is plenty of good land ready to be opened up, and we are told labour is cheap; but our correspondent should tell us the cost per day in the equivalent of English money? Is the "centrado" a hundred reis and how stands exchange? Then what is charged for land and how are the taxes? Are there any forests of rubber-yielding trees near?

MARIAWATTE ESTATE, CEYLON.

THE HEAVIEST YIELDING TEA-GARDEN IN THE WORLD!

1900 A FAVOURABLE YEAR.

A YIELD OF 1,357 LB.—OR OVER 16 MAUNDS—MADE TEA PER ACRE!

We are much indebted to Mr. Salmond, Superintendent of Mariawatte, for a statement showing the yield of the estate to the end of 1900. As Mr. Salmond says, last year has been an unusually favourable one, the yield being (with the exception of 1890's) the maximum one in the record. We embody Mr. Salmond's figures with those given in our "Handbook and Directory," so as to make the return complete:—

MARIAWATTE ESTATE.

YIELD FOR THE WHOLE ESTATE.

Actual area in bearing: 458a. 1r. 17p.

Year.	Rainfall.	lb.
*1892	95·74	643 per acre.
1893	86·22	817 "
1894	72·00	750 "
1895	100 28	886 "
1896	115·41	896 "
1897	111·25	926 "
1898	79·90	738 "
1899	106·81	749 "
1900	114·63	996 "

Average for above nine years 822 lb. per acre.

(Oldest and Special field:—Yield of 101¼ acres of tea: N. B.—Plucking began in October, 1880.)

Year.	Made tea. lb.	Yield per acre. lb.
1880	911	8
1881	10,451	100
1882	3[illegible],207	300
1883	55,031	529

Statement of Yield of Mariawatte old tea from 1884 to 1900 showing average per acre:—

1884	109 230	1,078
1885	117 842	1,163
1886	105 925	1,046
1887	115,996	1,145
1888	106,410	1,050
1889	113,834	1,124
1890	140,144	1,384
1891	120,366	1,188
1892	119,909	1,184
1893	115,440	1,140
1894	110,448	1 090
1895	118,560	1,170
1896	113,360	1,119
1897	105,729	1,044
1898	108,423	1,073
1899	11[illegible],987	1,108
1900	137,066	1,357

D. M. SALMOND, Superintendent.

Mariawatte Estate,
Gampola, 3rd Jan. 1901.

[Average for 17 years from 1884 = 1,144 lb.]

It will be observed that over the whole estate of less than 458½ acres, the crop last year is the largest per acre—996 lb. made tea—ever gathered! It is in fact not only a "record" for Ceylon, but also

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* Atgalla crops having been included; prior to 1892 figures are not available.

for "the world." Nowhere in India or Java, we suppose have 996 lb. (nearly 12 maunds) made tea, been harvested over so large an area as 458 acres? If we turn to the oldest field of Mariawatte, planted in 1879 and therefore in its 22nd year, we find the crop shews a large increase on the previous year, reaching the almost unprecedented figure of 1,357 lb. per acre for the 101¼ acres, against an average for 17 years of 1,144 lb. The average for nine years over the whole estate is 822 lb.

THE TEA TRADE.

IMPORT AND CONSUMPTION—CEYLON PLANTERS' ENTERPRISE.

[BY AN EXPERT CORRESPONDENT.]

INCREASE IN CEYLON YIELD.

As regards Ceylon, owing to favourable flushing weather during October and November there will be a small further increase in this year's crop. The import, it will be seen, is 9,500,000 lb. over the eleven months of last year. On the other hand, home consumption and export account for 8,500,000 lb. of this, leaving the small surplus in production over consumption of 1,000,000 lb. As I have said before, England will this year receive its maximum share of the Ceylon crops, because it is probable our colonies and foreign countries will take direct from Colombo all the increase that may be expected from newly-planted lands. For instance, according to "Ferguson's Directory," there were in 1897 350,000 acres planted, the whole of which will be in full bearing next year; and as the average Ceylon yield per acre is 425 lb. the 1901 crop will be about 148,000,000 lb. Of this our colonies and other nations will take direct 38,000,000 lb. calculated on the present rate of progress, leaving for export to England 110,000,000 lb. In 1898 the planted area was increased to 364,000 acres. The crop in 1902 will, therefore, probably be 154,000 000 lb. and the direct export to places other than England may be taken at 44,000,000 lb. Ten years ago, if any person had predicted that the export from Colombo to other countries than England would add up to 32 000,000 lb. he would have been put down as a lunatic: yet shipments to this extent will be a fact by the end of this month. It is now generally admitted that when consumers acquire the taste of Indian and Ceylon they case to appreciate the peculiar flavour of Chinese tea.

DEVELOPMENT OF FOREIGN BUSINESS.

Australians, following the example of the British, have almost ceased to use the latter, and now the Russians are beginning to try the former. This year they have taken from Colombo 8,000,000 lb. as samples. Ceylon planters have for some years past, as is well known, spent much money in trying to induce Americans to use their tea. Wearied at length with their tortoise rate of progress, they are trying to force the pace by manufacturing and shipping green tea to compete with the Japanese, and, to encourage the business, are paying substantial bounties on its manufacture. If previous experiments in the same direction did not succeed when the relative conditions of the two producing countries were equal, how can they expect to be able to undersell the Japanese now that they are handicapped with a 30 per cent. difference in the exchange, when the bounty funds come to an end? I think the tortoise pace is, as in the fable, the one to win the race. By the Board of Trade Returns it will also be seen that this country has secured 10,500,000 lb less from China this year, and has exported 6,500,000 lb. more. Home consumption has dwindled down to 12,500,000 lb. As far as we are concerned, it would be a matter of indifference if we did not get any more tea from China, but to the British planter the duration of the present deadlock is of vast importance. If it lasts a few months longer Russian dealers may have to take precautions against being left in the lurch. Where will they get what they require?—*Financial Times*, Dec. 14.

PLANT LIFE CURIOSITIES.

(ABERDEEN DIOCESAN ASSOCIATION.)

There was a very large attendance at the weekly meeting of the Diocesan Association last night the large hall of Kennaway's rooms, being crowded in every part. The lecturer was Mr Arthur Sinclair, F L S, Oults, and the subject of his lecture "Some Curiosities of Plant Life" was one on which he spoke from personal observation while travelling in Ceylon, the valley of the Amazon, etc. The chair was occupied by Bishop Douglas, who breefly introduced the lecturer. At the outset Mr Sinclair spoke of the importance of a knowledge of botany especially in these days of globe-trotting; and remarked that the ignorance of that subject which was a characteristic of Scotch children, was not found in Eastern lands. The youngest Hindoo child knows the name of every plant and flower around him; the Aberdeen child if asked the name of the commonest plant would probably say, "I dinna ken, an' I'm nae carin'!" The luxuriousness of the tropical vegetation, might to a certain extent account for that The Hindoo children were brought up in the open air, and cradled among the plants and flowers, and very soon became aware what plants and fruits were poisoned, and which were wholesome. Speaking of the effects of a want of botanical knowledge, Mr. Sinclair said tons of good food were lost by the neglect of mushrooms, caused by the inability to distinguish between the real wholesome mushrooms and the poisonous toadstool. He went on o speak of fungus, and described the coffee blight in Ceylon and the fungus on the potato, adding some general rules by which poisonous fungi might be avoided. He spoke in passing of the greenhouse plants imported from the tropics, and now familiar in our gardens and greenhouses, and described some huge tropical trees, pointing out that a very high value is placed by the Indian on the coconut palm and the plantain or banana trees. The bread-fruit tree and milk-tree were also described, and the lecturer said that a few of these trees would support families of natives, who sought no other food. The same class includes the famous upas tree, which, he said, was now proved innocent of the many baneful qualities once attributed to it. From the valley of the Amazon comes the rubber and the gutta-percha, the uses of the former steadily increasing, while without the latter, Mr. Sinclair said, ocean telegraphy would have been well-nigh impossible. To see nature in all her glory, it was necessary to go to the tropics, and especially to the western tropics, where the luxuriance was oppressive. He spoke of the dangers and diseases to which orchid hunters were subject, and extolled the merits of cinchona bark or quinine as a remedy for malaria, referring to the fact that that dread disease was now proved to be caused by the mosquito. The strange flowers of tropical lands were graphically described, and, speaking of the "Venus Fly Trap," and the "Pitcher Plant" which is also a fly trap, he mentioned the "Sun-dew," which is found in abundance in our own marshes at Scotston, Belhelvie, and which is a well-known fly-catcher. Mr. Sinclair, who enlivened his lecture with anecdotes and personal ex-

periences, was listened to with rapt attention, and at the close was warmly thanked for his most interesting lecture on the motion of the chairman, who, in the course of his remarks, spoke of the value of mushrooms as food, and said he had in vain tried to persuade the inhabitants of Orkney and Shetland to use the multitudes of mushrooms growing in their fields as a change from the monotony of their daily menu. In Russia, he said, mushrooms grew luxuriantly immediately after the melting of the snow, and were eaten with avidity by the natives. Dr. Ogilvie, in seconding the vote of thanks, spoke of the great value of the discovery that mosquitos caused malaria, and said it ought to be of special interest to Aberdonians, because Dr. Manson, who discovered it, was an Aberdonian. The lecture was illustrated by beautiful lantern slides, supplied by Mr. Sinclair.—*Aberdeen Free Press*, Dec. 18.

GAME PRESERVATION ON THE NILGIRIS.

(*From a Correspondent.*)

I referred the other day to the trout breeding experiments of the Nilgiri Game and Fish Preservation Association, but the Association's operations were not confined to these during the past year, a good deal having also been done by way of protecting and increasing game.

The local magistracy appear to have supplemented the efforts of the Association in this respect by inflicting substantial penalties when cases of illegal shooting were prosecuted. For instance, a fine of R50 was levied for a flagrant violation of the rule against trespass in a reserve, and R30 in the case of shooting a doe ibex. Illegal fishing was let off with moderate punishment, never in any case exceeding a fine of R10. The Association attribute success in carrying so many cases to conviction to the appointment of two competent game watchers at the foot of the Nilgiris, but they acknowledge, at the same time, that a great deal remains to be done on the plateau to stop poaching among some of the hill tribes, more especially the Bodagus and Kurumbas who inhabit remote and unfrequented parts of the district.

The destruction of vermin, as a means of game protection, has not been neglected. Jungle cats, mongooses, and wild dogs are great enemies of game and play much havoc among them. Sportsmen will therefore, be glad to learn that no less than 279 cats, 65 mongooses and 13 dogs were accounted for during the twelve months ending on June 30th last. The Game Association have a difficulty to contend with, when they give good rewards for vermin destroyed, as these rewards tempt persons to go outside the limits of the Association's jurisdiction, kill the animals where they have no value, and bring them to the office of the Association and claim the reward. During the year under notice, this difficulty was still experienced, but it is hoped surmounted by the *bona fides* of each applicant for a reward being examined before it was paid. Eagles, which destroyed large amount of feathered game, and others which catch and devour imported fish, when they can get them—were also disposed of in numbers.

A very useful record, which the Association have been labouring to set on foot for some considerable time past, was started during the year. This is the Nilgiri Game Bag, to which the local taxidermist is almost exclusively the contributor on the present occasion. Mr. Van Ingen supplied what licensees were backward in communicating, and informed the Association that 11 sambur were killed, seven on the Kundahs and two on the slopes, which proved to be the largest, the spread of their horns measuring 34 inches each. The biggest Kundah sambur measured an inch less. One spotted deer fell to the gun of a sportsman on the Westbury Estate, which lies on the northern slopes of the Nilgiris overlooking the Mysore plateau, two black bucks were also shot in the unfrequented forests conserved between the Nilgiris and the highlands in the north of the Coimbatore district. Among dangerous carnivora Mr. Van Ingen states that three tigers, two males and a female, and four panthers, all males, had been killed, five bears, all males, were also shot. The two male tigers measured 9 feet each from tip of tail to nose while the female was only three inches shorter. The largest panther was killed in the Westbury Estate, while the biggest bear was met with in Wynaad. Although hyænas are known to abound on the Nilgiris only one was destroyed and that a male at Kotagiri.

With the very limited resources at the disposal of the Association, falling short annually of R3,000, it is very satisfactory to find that more than a third of that sum was spent in rewards for vermin killed, and as much as half the rest was laid out in experiments with imported fish.

It cannot be denied that the measures of protection already adopted by the Game Association have had a most beneficial effect in preserving game, and that the future visitor to the Sanitarium may look upon good sport as certain, if he will only seek for it in likely places, when he goes to the Hills for a holiday.—*Pioneer*, Jan. 3.

CARBIDE OF CALCIUM AND ACETYLENE GAS.

A gentleman, who seems to be well up in the subject, writes to us by last mail from home:—

"I am amazed to see Carbide of Calcium pronounced by His Excellency the Governor in Executive Council to be a dangerous article on account of its being *explosive*, and therefore classed with dynamite and gunpowder! It is an article of domestic and everyday use here, and is destined within a short time to revolutionise the lighting of towns, houses, factories, etc., etc. The Germans are making rapid strides with it, see British Consular Report from Stuttgart. I fancy your Executive will hear more on this subject before long.

"*Re* Acetylene Gas from Carbide of Calcium, see the lectures by Prof. Lewis at the Society of Arts. This article should be brought very prominently to the notice of the Ceylon public as being of great utility, as soon as the mischievous notions of the Executive of this *highly dangerous explosive*(!) have been dispelled."

Acetylene gas we see very highly praised for isolated installations, such as Railway stations, and the like. Should not Mr. Pearce give it a trial?

From *Indian Engineering*, Dec. 29, we quote as follows:—

Carbide of Calcium is now being retailed in India at the rate of four annas the pound, or about half the price it can be bought at in this country. Inasmuch as India at present produces no carbide, it would be interesting to know where this supply comes from. The English Company cannot be suspected of any rash enterprise in that direction since it takes it all its time to attend to its own British customers. But the field in India for acetylene lighting is such an immense one that it may possibly have occurred to some German producers of the chemical to attempt its cultivation and to spread acetylene lighting by delivering quantities of carbide upon the market at a price that would offer what are naturally a very conservative class of buyers some inducement to experiment with it,

RUBBER IN BRAZIL.

Remarking upon the steady increase in recen, years in the production of india-rubber in Brazil *La Gazette Commerciale* casts strong doubt upon the need for any further increase for a long time to come. The total quantity exported in the year ended June 30th, 1897, was, says *La Gazette Commerciale*, 22,216 metric tons of 2,205 lb. each; in 1897-8 it was 23,439 tons, in 1898 9 24,000 tons, and in the ten months ended April 30th last 23,439 tons. Probably, therefore, the exports for the whole of 1899-1900 will reach 26,000 tons at least, and they may substantially exceed this amount. Any further increase of moment is, however, very doubtful. No doubt the forests from which the gum is derived are still of vast extent, and on the score of available supply it is admitted that there is no calculable limit to the production of india-rubber in Brazil. The practice of exhausting and destroying the trees which prevails is not, therefore, for the present likely to have any effect upon the supply. But it is to be hoped, having regard to the future, that steps will be taken, even in Brazil, to provide for replanting. The important consideration in so far as the immediately prospective production is concerned, lies in the limited quantity of labour available for gathering the gum. Trained labourers are very scarce owing to the unhealthiness of the forests and the difficulty of the work, which puts a limit to the number of natives willing to undertake it. As for European immigrants, they are not to be looked for, because they are even less capable than are the natives of sustaining the fatigue and the risk of malarial disease incident to the climate.—*India-rubber and Gutta percha Trades' Journal*, Dec. 10.

RUBBER.

The German consul in Payta Piara (Peru) reports the discovery of large rubber forests on the Niera river, a branch of the Amazon, which can be reached from the middle of the tobacco plantations by eight days' journey. Several German firms organzed a large expedition to start for the interior and to secure the right to collect the rubber. As the natives are very poor, it is expected that cheap native labour will facilitate the collection. A special road is projected, which will touch Iquitos, by way of which town it is considered best to send all material, as it would be difficult to find a route which is shorter through the Piara district.—*N. Y. Journal of Commerce*, Oct. 18.

COFFEE CULTURE ON THE CLARENCE, N. S. WALES.

Mr. John Ball of Chatsworth Island, reports that his coffee crop this year is a great success. His last crop returned 1,694 pounds, which sold at 1s to 1s 3d per pound. This year the crop is expected to amount to something like 6,000 lb. Mr Ball has mastered the manufacture of coffee of the highest quality, and finds a good demand for it. His trouble is to secure sufficient quantities of beans. In reply to inquiries made of Mr Holmes, a planter in Fiji, Mr Ball has been informed that, owing to unsatisfactory price offering in Sydney for the Fijian bean, the growers there were abandoning coffee-growing, Mr Holmes forwarded Mr Ball some seeds of the Liberia coffee, which is a sturdy-growing tree with deep tap root, and which bears a larger berry than the ordinary Arabian variety. In Fiji, even at the extremely low prices (3d to 5d per pound) paid for the beans, this variety returned 4s 7d per tree. Mr Ball finds that he can pay ten pence a pound for good beans. His harvesting is done by lads who are table to earn 15s a week at the work.—*Agricultural Gazette* of New South Wales, Dec. 1900.

BRAZIL COFFEE NOTES.

The Municipality of Cravinhos is small, but it is very fertile and favourable for coffee production. It posseses eight millions of trees under production, and three millions of young plants, and has produced an average of 151 arrobas (4,880·32 pounds) per thousand trees. This is equivalent to 4 88 pounds per tree, which is considerably above any average we have thus far seen.—*Rio News*, Nov. 27.

PLANTING NOTES.

Coconut Oil Scarce and Higher—is the heading of an article in the latest "New York Oil Reporter":—

The soap trade has been quite active this fall. The consumption of coconut oil has been steady offerings have been light and short interests have been called upon to cover. The market from these very natural causes has reached a most interesting stage. It is so bare on spot as to cause considerable anxiety on the part of consumers and to those importers unfortunate enough to be on the short side. A fair estimate of available Ceylon oil at the time of writing places the stock at but fifteen tons. There is considerably more Cochin, probably one hundred and twenty-five tons, but this is barely sufficient to keep a fair parity of price between the two grades.

Bolivia is a country of vast latent resources, possessing even at the present time a very considerable trade. Its products, exported through Chilian, Peruvian, Brazilian, or Argentine ports, are generally credited to one or other of those States; as a silver-producing country it ranks third as a tin producer second; its output of indiarubber—a comparatively new industry—was valued in 1898 at £1,300,000; it possesses valuable copper mines and borax deposits, while the gold mines of Tipuani are probably not inferior in richness to those of Klondike. As a consequence its import trade is by no means insignificant, but, under existing conditions, it has a tendency to drift into the hands of our German competitors, who are more alive to its importance, and who leave no stone unturned to extend their influence and their mercantile operations. —London *Times*, Dec. 19.

Inferior Seeds—A strong light has been thrown on the preparations now being made by unscrupulous merchants in Germany and America for supplying the simple-minded peasants of South Africa "with shiploads of the veriest rubbish imaginable" as soon as the war is over. A contemporary says:—"Articles of such vital importance as grain for sowing and vegetable and other seeds have been manipulated by the German adulterant in a shameful manner. Husks, dirt-sweepings, weed seeds, and every conceivable kind of refuse have been done up into packets with a sprinkling of the genuine seed, packed in covers printed in the English language, and labelled in a cruelly sarcastic manner, 'Specially selected for South African cultivation.' Fertilisers, composed principally of coal dust; ready made clothes, rotten with dye; hunting knives made of scrap iron; gilt clocks, warranted; German concertinas with paper bellows, are a few of the other articles which are to flood our newly-acquired territory as opportunity may offer.—*Commercial Intelligence*.

Correspondence.

To the Editor.

THE CEYLON PEARL FISHERIES AND THEIR RESTORATION.

The Elms, Croydon, Surrey, England, Dec 6.

DEAR SIR,—I am, presumably, indebted to you for the copy of the *Ceylon Observer* of October 29th, containing a very interesting and important leading article on the subject of the Ceylon Pearl Fisheries, and in which you have been pleased to make sundry references to my work and experiences connected with cognate industries. I anticipate that it was your desire in forwarding me this copy to elicit my opinion regarding the prospects of resuscitating the depleted fisheries of the indigenous pearl-producing shell *meleagrina fucata*.

I have much pleasure in stating that I consider that it would be perfectly feasible to establish, as you have suggested, fisheries of the larger and more valuable Australian mother-of-pearl shell, *meleagrina margaretifera*, in Cingalese waters. Respecting the resuscitation of those of the indigenous species, I should feel scarcely justified in pronouncing a decided opinion without having a personal acquaintance with the conditions and environments under which that pearl-shell grows upon your coasts. At the same time the species is so closely allied to one of the smaller Australian varieties, *M. imbricata*, with which I have successfully dealt in the matter of re-establishing depleted fisheries, that I should anticipate no very serious obstacles in the accomplishment of the task.

It would afford me the greatest pleasure to contribute some practical assistance towards the restoration of your fisheries and I greatly regret I was not made aware earlier of the existing position of affairs. I gather from your leading article that negotiations are in progress if not completed for securing the assistance of Dr. Herdman of Liverpool to investigate and report as to the best plans to pursue. As indicated in your leader Dr. Herdman, should he come, will approach the subject as an entirely new one and will be dependent, for preliminary information concerning it, on the recorded experiences of the very few previous workers in this field and notably my own. In consequence, moreover, of Dr. Herdman's important University engagements he will be unable to devote more than a limited time to his investigations and it will necessarily have to be left to others to carry out the most desirable subsequent operations that may be decided on.

It has occurred to me that under such circumstances the Ceylon Government might like to avail itself of the opportunity of my assistance and practical experience towards the realisation of the objects in view. In anticipation of such a contingency I have addressed a communication to Sir West Ridgeway stating that I should be pleased to place my services at the Government's disposal and have at the same time remitted to His Excellency copies of my reports made to the various Australian Colonial Governments and other pamphlets testifying to my practical acquaintance with the subjects of Pearl and Pearl-shell Fisheries. I have also referred more particularly to my two published volumes, "The Great Barrier Reef of Australia" and "The Naturalist in Australia," in each of which I have included a chapter specially devoted to these important subjects. These volumes being too ponderous to transmit by post I have suggested that they will be found in the Colombo Public Library or in that associated with the Museum.

In the event of my services being engaged, I may add that my familiarity with the Australasian Pearl-shell grounds and past relationship with the several Australian Governments would prove of material assistance towards obtaining supplies of the larger and more valuable Australian shell for the establishment of fisheries of the species in Ceylon waters. I may remark finally that my previous inurement to, and predilection for, a tropical climate should serve me in good stead and greatly facilitate the execution of the work that may by confided to me.

I have no doubt, in conclusion, that the communication and documents I have addressed to Sir West Ridgeway will come under general notice, and if in addition there are any points in this letter that you may like to, and think desirable to, make use of, you are welcome to do so.

Thanking you again for the copy of your paper and its interesting and important contents, I remain, Yours very faithfully,

W SAVILLE-KENT, F.L.S, F.Z.S.

Late Commissioner of Fisheries, Tasmania, Victoria, Queensland, and Western Australia.

P.S.—Since writing the foregoing letter, I have made the discovery, that in addition to your leading article, your paper contains a full account of the meeting of the Royal Asiatic Society, at which this most important question of the Pearl Fisheries was discussed. His Excellency's speech clearly sets forth that no definite arrangements had been arrived at with Prof. Ray Lankester or Dr. Herdman, Prof. Ray Lankester, in fact, having, as H E. put it, "opened his mouth too wide." The chances of my being permitted the opportunity of coming to your assistance are consequently increased, and I have deemed it worth while to cable out a few words to you intimating that I am at liberty and prepared to take up the work. A year or so ago when my great friend, Sir William Flower, was at the head of the Natural History Museum (to which I was originally attached) the matter would have been referred to him and he would, I think, have indicated myself as the one man possessing the practical knowledge and acquaintance with the subject of Pearl-shell cultivation that could most naturally assist you at the present juncture. Unfortunately, both he and Prof. Huxley—my original teacher and scientific sponsor who sent me out to Australia—have passed away and those new to power are either Pharaohs that "knew not Joseph" or have other views. I am enclosing you in separate packet a few duplicate and additional reprints of my reports and papers that have turned up since I despatched my batch to Sir West Ridgeway. One of these—"The Oysters and Oyster Fisheries of Queensland"—is rather scarce and in demand. Please have it placed with the others. It would no doubt be welcome, after service, at the museum Library.

Though to some extent lost sight of during the past two years, I have been by no means idle. The fascinations of the newly-developed science of Natural Colour Photography and its application to Natural History subjects, has "commandeered" much of my time with grati-

fying results and I shall hope to make some important scientific use of the process it afforded the opportunity of its practical utilisation amid tropical surroundings. I have also in hand a scientific description or revision of the many species of commercial pearl and mother-of-pearl shells, concerning the correct identification and nomenclature of which there is almost inextricable confusion even in the most widely-accepted text-books and well-appointed museums. Another circumstance, however, has more particularly tied my hands and compelled me, like Brer Fox, to lay low this past couple of years. A syndicate of would-be company promoters approached me with the object of obtaining large concessions of suitable pearl shell cultivating areas on the Western Australian coast line, and of which they wished me to undertake the scientific direction. I went to the trouble of using my influence with the W. A. Government to get a special Act passed (which did not exist) and have paid several hundred pounds out of pocket in securing the requisite leases, etc., and now after letting the matter drag on for all this time, they have failed to raise the capital which they said they could command, and left me with all the time and trouble wasted in addition to the cash.

RUBBER:—PRODUCERS AND NEW SOURCES.

Paris, Dec. 7.

Dear Sir,—I am very obliged to you, because you open so liberally your columns to my bad English and my worse writing. I am nearly sure that all—readers, collaborators, printers, etc.—obliged by duty to make the light shine through my prose will, in a better life, receive superior encouragement!

I send you one fruit of Castilloa Tunu * and you will see that all the seeds are sunk in the support. In Castilloa elastica the seeds are exerted. I do not know if you understand well what I write! I will ask for a botanical analysis to M. Posijor from museums and send to you.

With same post I send you a little part of a young stem of Chonemorpha Macrophylla which is an Indian plant. If you look at one end of this you will find a little part of rubber and very fine rubber! Certainly, it is not much, but the stem is a very little part of the plant and the plant is a very robust one. Why don't you pay any attention to so good a producer of rubber? In many plants rubber is found between the bark and the wood, or more properly in the inner part of the bark. In Chonemorpha the rubber is found in the marrow.

New sources of rubber are discovered every day. I have just received from a friend two tons of a rubber from one particular species of Sapium from Ecuador. I know that the plant is similar to Sapium biglandulosum var. Solimanæ, but I have heard such fantastic reports of that last plant that I cannot believe it is the same.

Consul Patin, the introductor of Sapium Solimanæ, says that that tree gives up to 40 English pounds of rubber every year!!! Mine from Ecuador gives four to six pounds and the tree must be felled (cut down). The sap begins to flow, only two or three days after. My friend has collected this year 13 tons of rubber in the country; but the trees are so abundant that nobody can say when the rubber has been taken. In the main country lives the black rubber, Castilloa species. I do not know exactly the name. The rubber badly prepared does not reach so good a price as Sapium rubber or white rubber; but gives regularly by tapping.

About tapping (*saignée*) my friend told me a thing that I have heard from others. The tapping must be made quickly, several cuts at once, for after four or five cuts made in the tree, the sap does not flow, the tree retains its sap!

Sapium biglandulosum is a very common plant on all the American continent; you can find it from Mexico to the Argentine Republic; but the form varies considerably; therefore the two plants which have motived the name *biglandulosum* are more or less apparent. In some parts as in Ecuador, Columbia and Peru, the rubber is good; in other parts it is considered to be very bad. The good rubber plant is always found at 2,000 feet high. I wait for enough from cooler countries.

Did you hear of rubber made from sage bush from Mexico? This plant is extremely common in all the dry region of San Luiz Potosi, and an American Company has started a manufacture. It is a small ligneous plant, two feet high. The rubber is obtained by a very curious process. The plant is boiled with soda? But I will be soon in a situation to give you particular information about the botanical name and the process.

The bark I received from you does not contain any rubber: kindly tell this to your correspondent. I have always been unsuccessful with Euphhorbeaceous plants, but you will see by the different sorts of barks I send you by this mail how rich are the barks of Mascarenhosia, Landolphia and Hancornia. Break the parts and you will see the rubber very apparent.—Believe me, Sir, your most truly servant,

A. GODEFROY-LEBEUF.

* Not yet received.—Ed, *T.A.*

"FOXINESS" IN COFFEE.

Fairlands, Sidapur, Coorg, Dec. 29th, 1900.

Dear Sir,—Can you inform me of any publication dealing with the foxiness in coffee, and would you kindly insert the following in an early issue of your valuable journal, and send me a copy and also further copies by V. P. P. should any answers appear.

Can you, or any of the numerous readers of your valuable journal, give me any information regarding the cause, prevention, or cure of "foxiness" in coffee.—I am, dear sir, yours faithfully,

PERCY G TIPPING.

[We can find no reference to "foxiness": does it not mean a deficiency in the beans, due to drought, poor soil, or some such cause?—Ed. *T.A.*]

REH AND IRRIGATED LANDS.

30th Dec.

Dear Sir,—With reference to an article of yours on irrigation, I believe you have taken too serious a view of the matter, regarding which I have reason to think that you are mistaken in supposing that the condition referred to is due to exhaustion of the soil. For instance, I have seen lands that have been under cultivation for ten and twelve years giving good crops as a result

of irrigation; while in the case of other lands that have developed, irrigation, after three or four crops, was discontinued. As I mentioned in my previous letter, it is the position of the channel and the soil that it runs through, that has great influence in producing this condition. I believe I can accurately say whether, after a channel has been cut, the land below it would be affected or not. Besides, irrigation is not necessary for the production of *reh*, as I will point out. There are many sheets of water in this district called "wilas" and "kalapus" and in every case the banks of these sheets of water have *reh*. I shall send you by next post the *only* plant that grows on lands affected, and which the Sinhalese call "Lunu-palá" or salt herb. The leaves are made into a curry, but they have to be well boiled and the juice expressed or it would be too saltish for the palate. I have eaten the boiled article and even then found much salt in it. This plant also grows on the edges of salt pans, and, I believe, nowhere else. It would be beneficial indeed to the goiyas of this district if Mr. Elliott had a few of his numerous acres affected by *reh*, as in that case, you may be sure he will not be long in consulting a scientist and finding out its cause and cure.—Yours faithfully, A. D.

THE TEA PLANTING INDUSTRY AND OVERPRODUCTION: SUGGESTION TO GIVE A TWO YEARS' REST TO 10 PER CENT. OF THE PLANTED ACREAGE.

DEAR SIR,—It is generally admitted that the present position of the Tea Planting Industry is, owing to overproduction, very unsatisfactory; and unless some action is taken to curtail supplies, we must see the painful and prolonged process, "The survival of the fittest," gradually force some of the poorer properties out of cultivation.

This process must necessarily be a prolonged one as there are many estates which can just pay their way and which will continue to produce so long as there is no actual loss.

It has been suggested by certain gentlemen, amongst others Mr. A. Thomson, of Messrrs. Whittall & Co., that, in view of the enormous quantities of tea being produced, we should endeavour to from a combination by which the requirements of the various markets may be met, without making any one of them the dumping ground for our surplus crops.

It is necessary that any steps taken by Ceylon should receive the full support of India otherwise curtailment of shipments from here would merely allow of increased exports from Calcutta.

The three possible methods suggested for reducing our crops are :—

(1) Finer plucking which would tend to reduce the output whilst giving a better quality of tea.

(2) Making a certain percentage into green teas.

(3) Resting a certain percentage of the acreage in bearing.

The objection to No. 1 is that we should probably have too much fine tea produced with a corresponding fall in its value; and directly the better and poorer classes of tea approximated in value, there would be a tendency to pluck coarse again.

The objections to No. 2 are (*a*) the green tea market is not as yet sufficiently developed to afford material relief, and (*b*) the difficulty of making both black and green teas in the same factory.

The advantages of No. 3 are that if you do not pluck a field for a certain number of months, you rest your bushes and you can hardly bring them into plucking again without pruning, thus doing away to a certain extent with a possible temptation to break out of the combination. The net result would be a reduced yield and improved bushes.

I propose that all estate proprietors or their agents in Ceylon and india be asked to rest 10 per cent of their acreage in bearing for two years from the 1st April, 1901, to 31st March, 1903. This arrangement to be subject *to at least* 80 per cent of the acreage in both countries, agreeing to it in writing.

An arrangement such as this should ensure a reduction of from 15 to 20 million lb. and I feel convinced that with this quantity taken off the market the rise in price would more than compensate for the amount of leaf lost.

At the end of two years the green tea market should be largely developed, and in the black tea market consumption may have once more overtaken production.—Yours faithfully,

EDWARD ROSLING.

TEA OVER-PRODUCTION:

RE MR. E. ROSLING'S LETTER OF THE 29TH DECEMBER

SIR,—The success of Mr. Rosling's proposition to curtail supply is entirely dependent upon the "full support of India." A very large order!

Few Ceylon men nowadays belong to "the fugitive, flying community" and members, as we all are of one central, integral Planters' Association, and resident in a small island, it is perhaps a little hard for some of us to understand the extreme difficulties ot united action among tea proprietors in India. The vast distances, extending from the extreme north of one Indian Presidency to the south of another, separating even one tea district from another; and the varying conditions and capacities of each district, have only to be realised to be appreciated. The apparent supine lack of combination amongst Indian Tea Planters, in such matters as voluntary assessment, exploitation of new markets, &c., must, in my mind, be attribusable to geographical disability. It would be hard to comprehend that a body of British colonists could otherwise be satisfied with so suicidal a policy as that of inaction during the past and the present. What Indian men have failed to accomplish for themselves, would, I imagine, be an *ultra vires* task for Ceylon, On the above premises, the success of an appeal from Ceylon to disunited India, would, I fear, be very dubious. Combination with India is in my opinion chimerical.

The present "very unsatisfactory" condition of the tea industry, *taken as a whole*, demands however that any agitation, the

larger it is supported the better, that will convince British tea-growers of the necessity for concerted action, for the common good, is most desirable.

Such an agitation would also sustain our right to relief, in reduction of the Home Tea Duty, and in Ceylon, of surplus revenues *i.e.* of railway rates, of upkeep of grant-in-aid roads, &c., &c.

Were finer plucking generally adopted, the higher cost of production, consequent on a lower yield, would partly equalize the possible extra profit per acre. Supposing, however, a glut of fine teas on our markets, prices for such would certainly come toppling down and further minimise such looked-for profit. Nonconforming members to a general scheme would then score heavily by supplying the demand for common teas.

High estates should now at least, with advantage to themselves, be able to adopt a policy of finer plucking. Medium to low estates, where teas with any special point cannot be turned out, would not, I believe, secure any much better price by plucking finer. It would be insufficient to compensate for the loss in yield and the extra cost. In other words, finer plucking, is not I think a remedy for the bulk of Ceylon.

Green tea manufacture appears to me to be the present solution to this very difficult problem. The development of the green tea market is what we should devote our energies to. I would suggest that approximate statistics be obtained and a tabulated statement be published of the green tea consumption of the world: 1, Name of country, amount of consumption. At present supplied by. 2, Standard samples, methods of manufacture of such. Prices, equivalents in sterling, &c. 3. Freights, dues, duties, &c., and any other information which would lead Ceylon and Indian men to see the possible scope that may exist for an invasion of the green tea market. This, however, would take time to accomplish. It does not afford any immediate relief.

My experience of "resting" a certain proportion of an estate would lead me to expect a subsequent *increased* yield. Supposing a 10th of our acreage were rested for twelve months, then brought into bearing, another 10th in the following year and so *ad infinitum*, the result in the third year and on would I believe be an increased yield and the last state of the colony would then be worse than the present. Estates would certainly rest their weakest tea first. Would then the reduction in supply amount to 15 or 20 million lb.? and *would* such curtailment, by India and Ceylon combined, ensure a sufficient, compensating rise in price?

But Mr. Rosling suggests, as a palliative only, an absolute rest of ten per cent of an acreage for two years, to enable us to tide over our present difficulties by curtailing supply. This is only possible, as he says, with the "full support of India." How to ensure unanimity and a sense of honour in such support is the question.

R. K. C.

II.

Hiralouvah, Haldummulla, Jan. 2.

DEAR SIR,—I was very glad to see in your paper of 31st, how energetically the subject of over-production was being taken up, and that the remedy I suggested in my letter to your paper dated June 29th. "That all planters should not pluck from a certain acreage each year, say one-eighth or whatever amount would be considered best, so as to reduce export by 13 million pounds or so,"—is considered the best method of improving our position. A tenth will no doubt be better than one-eighth and I hope Mr. Rosling will be well supported in his scheme by all proprietors and agents. I should think the Indian Planters would be only too ready to join a plan, so certain to be of benefit to the majority of them, especially when we can show them that we in Ceylon are practically unanimous.

The only pity is, that it was not begun earlier.—Your faithfully, H. H. KIRBY.

III.

DEAR SIR,—I am very glad to see by letters in *Observer* lately, that the Chairman Parent P. A, has taken up the suggestion I made in June last, in mine to you; only, as stated before, there must be some inducement, such as a refund of the individual estates contribution towards the tea cess, *i.e.* pay back the 10 ct. per 100 lb. or say for an estate producing 100,000 lb. tea pay the proprietor who stops plucking 10 per cent of his average in bearing, R100 per annum, which would practically cover half cost of weeding that portion of the estate resting. What would that leave our American Commissioner? Not much, I fear; but, if we raise prices by my suggestion it would pay us—if India will only join—to increase the cess so as to keep our good friend W Mck. going. Either that, or reduce his advertising bill for a couple of years and get him to push his own hobby, Ceylon Green Teas.—Yours faithfully,

SYN AR DY HUN.

P.S.—How much longer are we to keep on advertising in America in the face of an actual falling-off in the consumption of our teas there?

IV.

Jan. 3.

DEAR SIR,—Mr. Rosling's letter is good, but he should, when he went in for yearly letting slide one-tenth of tea area, have gone further and written one-fourth. One-tenth will not make sufficient impression. One-fourth would at once establish a large reduction and bring the buyers to their senses. India has been too hard hit in 1900, to go in for coarse plucking again, and no increase of tea area would arise, as capitalists would know Ceylon had the one fourth of her area up her sleeve as it were, to pour in extra tea three months after pruning down their area allowed to go fallow.

The cornering crew will, of course, object to Mr. Rosling's views as their wish is to let the weak go to the wall: a most cruel and abominable course to pursue either as against India or Ceylon. Why should not

the man who made his R30 an acre be allowed to live because the man who makes R70 wishes to make it R100?

LIVE AND LET LIVE.

NO. V.

Jan. 3,

DEAR SIR,—If I was quite sure it was Over-production that was all the mischief, Rosling's proposal would appeal to me more. At any rate I hope his letter will do good.

ANOTHER V. A.

PLANTING NOTES.

THE FAUNA OF BRITISH INDIA, including Ceylon and Burma.—We have to acknowledge receipt of a copy of the volume "Arachnida," by R. I. Pocock, published under the authority of the Secretary of State for India in Council, edited by W. T. Blanford. (London: Taylor and Francis, Red Lion Court, Fleet Street; Calcutta: Thacker, Spink & Co.; Bombay: Thacker & Co., Ltd.) —It is a most useful compilation with numerous illustrations.

BANANAS AS SICK DIET IN TYPHOID CASES. —An American doctor—says the *British and Colonial Druggist*, Nov. 30th—has lately confirmed the belief, accepted in some medical quarters, in the value of the banana as a food for typhoid patients. It is now positively asserted that the banana is both safe and beneficial, the stomach practically absorbing the fruit owing to its nature. It contains only about 5 per cent of waste matter, 95 per cent possessing nutritive properties.

TEA GROWING IN BURMA.—A very interesting note concerning the tea grown by Kachins in the Myitkyina sub-division of Burma is supplied by the Deputy Commissioner to the last Report of the Department of Land Records and Agriculture, Burma. We learn that tea is grown in three hills Mangin, Watu, and Paule, in the Sinlu circle. The seeds are dried and stored in September, and after the jungle has been cleared are sown in nurseries in May. Holes are drilled about four feet from one another and two or three seeds on germinating are dropped into each hole. Germination is said to take about one month. The plantation is carefully weeded and, after a lapse of three years, in the month of April the tender leaves are plucked. The leaves are either boiled or steamed. Steaming is only practised by those who have the necessary steaming-pots, called in Burmese, *panug gyaung*. After the above process, which softens and imparts a yellow tint to the leaf, the leaves are taken out and spread on a mat for a night; next morning they are put into bamboo tubes or in baskets lined with green leaves. The above tea is known as pickled or wet tea, and is sold at R2 per 10 viss. If the tea leaves are not sufficiently softened by boiling or steaming, they are rolled by hand on a mat before being put into the basket. To make dry tea, the leaves, after being boiled or steamed, are pounded tight into a green bamboo tube. The thickness of the latter is then reduced as nicely as possible, and the tube is kept over a slow fire. Dried tea sells at R1 per four tubes, each weighing from 20 to 25 ticals. The Deputy Commissioner, Myitkyina, estimates that 300 to 400 square miles are available for tea cultivation in his district.—*Pioneer*, Dec. 1.

RUBBER ESTATES OF PARA.—Those who entertain ideas respecting the collection of raw rubber should (say the *India-Rubber and Gutta-Percha Journal*, December 24th,) study the report and the statements of the chairman of the Rubber Estates of Para, Limited, respecting the working of the company which was formed in April, 1898. During this time the company had only carried on business for about eighteen months, but had succeeded in sustaining a loss of nearly £24,000. Some of this, as the Chairman explained, should really be placed to capital account, as the business necessitated getting a number of labourers on to the estates and establishing factories, workshops, etc. The return of rubber for the past twelve months of the report amounted to 27 tons, against 11 tons 12 cwt. in 1889, more rubber having come into the possession of the company, although the number of collectors had been reduced from 250 or 300 to 170 or 180. The collectors had, of course, advances and stores to be afterwards paid for, but found that when they got into debt, they could collect their rubber and sell it elsewhere, so that the amount advanced was lost as well as the rubber, but Mr. Jacques hoped that this robbery had now been stopped; so that we cannot altogether say that india-rubber collecting is a bed of roses.

THE EUCALPYTUS: AMONG THE BERBERS OF ALGERIA: By Anthony Wilkins.—Here is a striking passage from this book according to the *Spectator*. Around Constantine the eucalyptus had been introduced about seven years back from Australia:—

"Already magnificent groves of these quaint yet graceful trees had grown up as if by magic. Last winter came the snow,—heavy and deep. It blocked the railway not once nor twice, and trains had to be dug out. It killed every gum-tree and every cactus for fifty miles round. All are bare and dead, and the groves are littered with the sawn limbs and logs of young giants, who have thus disappointed the hopes of those who have striven—not without success in less bleak provinces—to acclimatise them in a strange hemisphere. These trees come from a land which contains a British population, a good part of which is nearly four generations old, and a population which has begun to count itself by millions. Constantine was too cold for the trees of this land. How shall the French say that Algeria is too hot for them and for their children?

The French make bad colonists; that is a truth which Mr. Wilkin recognises, and he indicates readily its causes,—the limitation of progeny, and also the *nostalgie du boulevard*, that craving for the familiar social life of the café which is in every Frenchman's bones, but not a whit more strongly than in the bones of Cicero and every Roman of his day. In spite of it, Rome made an Empire by utilising other populations; and Frenchmen are, as Mr. Wilkin emphasises, excellent administrators. In Algeria they have cleaned up an Augean stable; in West Africa, as Miss Mary Kingsley testified, their work compares very favourably with ours. For the moment, and possibly for an abiding future, progress in the centres of commercial life is checked by the madness of Anti-Semitism, concerning which Mr. Wilkin is eloquent; but take the French where their work is merely in ruling a half-subdued and alien people, and they are admirable.

THE TEA CRISIS:
OVER-PRODUCTION AND THE REMEDY.

From one of the most experienced Inspectors of Estates in the island, wa have the following:—

"Mr. Rosling's proposal to 'rest' ten per cent. of the bearing tea on every estate for a couple of years should be dismissed for the reason that it would be impossible to get it carried out in practice. In many instances the poorest fields on the estate would be selected for such treatment, and probably any loss of crop that might thus be sustained would be made up the better cultivation and manuring ot the balance. Others might select young tea just coming into bearing, and in both cases subsequent returns would be all the heavier. Another and very serions objection to 'resting' teas is that the further the bushes get away from pruning, the more liable they are to blight, and we should see this made the excuse for cutting down the tea before due date

"My view of things is that both here and in India it will resolve itself into a question of the 'survival of the fittest,' and rightly so too. It is not the smallest use taking any *general* steps for the purpose of bolstering up rotten concerns. The sooner they gc, the better for the enterprise though not perhaps for the individual. Philanthropy is all very well in its way, but it is not business. Why should a proprietor of a good estate sacrifice his yield because his neighbour has got hold of the dirty end of the stick and planted tea on unsuitable land? It is contrary to nature to expect him to do anything of the kind, and does away at once with all the principles of competition. If my neighbour is fortunate enough to be on the back of a winning horse in a race, would he pull up in order to give a broken-down old crock on three legs a change? Tea estates which do not pay, and cannot be made to pay, must in time drop out of cultivation; it will be a tedious process, but the sooner it *commences*, the better for those who are associated with sound concerns.

"When coffee went down in price many years ago to figures which made it impossible to work a number of estates to a profit, the acreage under cultivation was lessened, and production increased again with more prosperous times. So it will be with tea, and any attempt to interfere with the laws which govern supply and demand will, in my humble judgment, result in failure."

The above letter and that of Mr. Melville White, elsewhere, following up that of the Chairman, C. P. A., provide much food for thought and—action? Further correspondence and our comment on the same must be held over for the present.

PEARL OYSTERS AND PEARL FISHERIES OF CEYLON.

We direct attention to the following useful contribution to the subject of a development of our Pearl Fisheries, with remarks on pearl and pearl-shell oysters. Coming as it does from a Cambridge scientist, Mr. J. Stanley Gardiner, whose recent valuable investigations at the Maldives have aroused much interest and whose work upon the results of these will occupy a space of four or five years, we need hardly express the hope that his words will receive due notice.

Mr. Gardiner commences with reference to the three species of pearl oyster fished for in the tropics. Two of these, pearl-shell oysters, have a steady market, but fetch poor prices as compared with the third, the true pearl oyster—valueless for its shell, but fished for its pearls. With regard to Ceylon Mr. Gardiner agrees with Captain Donnan as to the importance of currents and would support the plea for selection of sheltered reefs, if actual experiments are to be undertaken here; if these are found, Mr. Gardiner is of opinion that the cultivation of the pearl oyster could be successfully pursued. The conditions attaching to the formation of pearls in the oyster around the coast of Ceylon require to be somewhat more carefully considered than off Westralia, for instance; and we have little doubt that the risk of unsatisfactory results can be reduced to a minimum. Meanwhile we urge upon Government that there should be the least possible delay in securing the services of some duly qualified scientist—Professor Herdman's name was uppermost at the end of October last—to undertake the organisation of the work, in order that local experience may be availed of to the full, as Mr. Gardiner points out. This should be preceded, we are told, by one, two or three years' survey of the coastline by a competent marine zoologist. Whether by themselves or in conjunction with South Indian and Westralian experiments, we hope that the Ceylon pearl fisheries which have proved so remunerative to the Ceylon Government in the past, are not to undergo a very much more extended period of unjustifiable neglect.

PEARL OYSTERS AND PEARL FISHERIES OF CEYLON.

Dear Sir,—A report of a meeting of the Ceylon branch of the Royal Asiatic Society held on Oct. 27., reprinted from the *Ceylon Observer*, has recently been placed in my hands. The paper of the evening was by Mr. Collett on "Pearl Oysters and Pearl Fisheries," a subject in which I in common with all marine zoologists am much interested. Indeed the economic importance of the pearl industry in the eyes of man adds a great dignity and anthropological interest to the subject, which will always preserve it from the sneers of true men of science,

In view of my work round the coasts of Ceylon, the Maldives, Australia and various island groups in the Pacific Ocean, I have been asked to send to you any comments I may have to make on the subject of general interest. So far as I am aware there are three species of pearl oysters largely fished in the tropics:—

1. The true pearl-shell oyster of Torres Straits, characterised by its large size, edge or lip of shell, colourless inside or slightly yellow.

2. The black-lipped pearl-shell oyster of almost universal distribution in the tropics; size same as the last, but differing from it as its name implies by having a markedly black edge or lip to the shell,

3. The pearl oyster of the Ceylon fishery, almost valueless for its shell, but fished for its pearls. Marketable pearls are found also in the two pearl-shell oysters. They are, however, seldom as lustrous as those of the true pearl oyster, and indeed are merely a bye-product, the shell being the chief thing.

The value of the shell varies considerably, good shell of the first or true shell species fetching about £100 per ton. This is a fairly constant price, as the demand for white buttons scarcely alters. At present the black lipped species is worth rather more, as fashion now demands a button of a mixed colour. Its average price is perhaps £80 per ton. The true pearl oyster of the Ceylon banks is worth from £2 to £5 a ton for its shell, but the market is very small. The value of the oyster banks depends on the value of the pearls obtained, and while varying with the market must always be very much greater than that of either of the shell species. This result is very largely due to the fact that the pearl oyster is a social bea-t, *i.e.* that thousands and even millions attach themselves to a single reef, while the two pearl-shell oysters are found scattered here and there, never, except formerly in a few areas of Torres Straits, in any very great quantity on any single area. It would be obvious however that the cultivation of either of the above three species would be, even if but very partially successful, extremely profitable, and from my experiences elsewhere, there would seem to be no good reason why it should not be quite successful on Ceylon reefs. I have indeed seen very many reefs round the coast of Ceylon, apparently absolutely identical in their physical conditions with reefs in the Pacific Ocean, and in the Maldive Group on which the black-lipped pearl shell abounds. Many quite protected shoals also to the north, east and south of Ceylon, appear to me eminently suitable for the growth of the true pearl oyster.

In Ceylon I had the pleasure on several occasions of discussing the matter with Capt. Donnan. My experience agrees with his as to the immense importance of the currents of any area. Indeed, in considering the fauna of any single reef in reference to neighbouring ones, the physical conditions are the most important factors to be taken into consideration. I would suggest, then, that the first thing to be done is to have made a thorough survey for 12, 24 or even 36 months, if necessary, of the physical conditions of the reefs in the Gulf of Manaar by a competent, practical and, if possible, experienced zoologist. The life history of the oyster can then be thoroughly worked out. The effects of currents, silt, etc., will be known as also the physical conditions of the reefs. Suitable reefs in more protected situations could then be searched for round the coast of Ceylon. On these, cultivation on a large scale could be tried, and I have little doubt would be successful. Further the reefs and waters of Ceylon have immense possibilities for the cultivation of the two pearl-shell oysters. Great areas are exceptionally favourable for sponge planting, an industry, as experiments in the Adriatic have shown, not attended with any great difficulties.

Capt. Donnan has immense, long-continued and unique experience of the pearl industry of Ceylon. Should there be any intention to appoint a scientific man to the work, it should be done without delay, so that he may have the benefit of Capt. Donnan's knowledge to the very fullest extent. He should, too, be in close relation to the museum, as he would doubtless require to refer to it constantly for literature and special information as to the fauna.

I may take this opportunity to thank all, with whom I came into contact in Ceylon, for their courtesy, kindliness and sympathy.—I am, sir, yours obediently,

J. STANLEY GARDINER.

Cambridge University, Dec. 16.

RUBBER IN EAST AFRICA.

Mr. Marsden, the British Vice-Consul for the East African Protectorate, in his report on the trade of the country, again emphasises his conviction, previously expressed that there is money for the private individual and for the Government if the rubber industry in the Protectorate were more systematically worked. "Rubber," he says, "shows an advance of 40 per cent on the previous year, but is still far below what it should be and what the country is capable of producing. This is due in a large measure, to this industry being left to take care of itself, and no properly disciplined or organised effort made to assist it. In times of drought and bad harvests the natives fall back on the rubber-collecting industry to keep themselves from starvation, but in times of plenty the industry is more or less neglected, and only vines which grow in those places easiest of approach are tapped, and in many case ruined by being cut to the ground instead of tapped. It is somewhat surprising that the attention of planters has not been previously drawn to the systematic cultivation of the rubber vines. Through out the territory the soil is sufficiently rich to grow rubber vines in perfection without artificial aid, the only requisite being water, and on the banks of the Tana and Sabaki rivers that can be obtained all the year round. With irrigation and under proper management the results should be as satisfactory as coffee growing."—*India-rubber Trades' Journal*, Nov. 26

INDIA-RUBBER PROPAGATION.

Colonel A. Bloomfield, writing to the *Pioneer* (Dec. 20) about the propagation of the India-rubber tree, remarks that the simplest method of propagation is to strike cuttings made of a leaf of the tree cut off with about an inch of the twig above and below. Every leaf will strike readily. All the piece of twig must be underground.

OUR TEA EXPORTS.—A Calcutta merchant in a private letter to the Editor of the *Tropical Agriculturist*, writes:—"I have been indebted during the past two years to your annual supplement for the figures giving the Monthly Exports of Tea to Great Britain and elsewhere. These cannot, however, be tabulated during the course of the year owing to the way in which the export statistics are published *viz*: to week ends instead of for the calendar month. I feel sure that, were the export statistics published in some such form as annexed, they would be of added interest and value to many who like myself try to follow the development of our Indian and Ceylon Tea Trade; and I trust it may be possible for you to give them in the suggested form."—We referred this letter to a member of the Chamber's Committee and we are glad to learn that it has been agreed to adopt the suggestion for the present year.

RUBBER ESTATES OF PARA.

STRANGE EXPERIENCES.

The ordinary general meeting of the Rubber Estates of Para, Limited, was held on the 17th inst., at Winchester House, London, E.C., the Hon. John de Grey, the chairman of the company, presided. In moving the adoption of the report, which included complete accounts from the inception of the company down to June 30th, 1900, since the total loss, as stated in the accounts amounts to £23,769 12s 3d. This, the Chairman explained, should not be treated as a total loss, because, by the initial expenditure, they had established 170 to 180 men permanently upon the estates, so that a considerably amount of the apparent loss might be reasonably called capital invested in putting the estates in working order, and establishing rubber collectors upon them, which expense would not have to be incurred again. Turning to the result of the first season's working, the Chairman had to deplore that it was of a most unsatisfactory nature, and the board, since the last meeting of the company on June 1st, had given the matter its most earnest attention, with a view to ascertaining the cause which had led to that state of things and remedy them so far as lay in their power. The report stated that Mr. Milne, the Estates Manager, had resigned, and there was little doubt that he had tendered his resignation because he had found himself unable to cope with the difficult problems that he found in managing the estates. Mr. Jacques, the Para agent of the company, had been asked to proceed to the estates and report fully upon the situation and had been appointed general manager. The Chairman stated that Mr. Jacques had given the board entire satisfaction, and had furnished them with a most valuable report upon the property and the business, which shows he has a full grasp of the situation.

In proceeding to summarise the difficulties to be encountered, first the indebtedness of collectors; secondly, robbery by them to avoid paying their debts, and also robbery by private boats; thirdly, and most important of all—the badness of the labour system.

Mr. Jacques reported as follows:—

"Admitted on all hands to be one of the wealthiest in the district," and which, he says, worked by suitable labourers, would be worth a fabulous sum, and would give ample employment to 1,200 hands, capable of producing 100 and 150 rubber trees, where it only produces one at present. "Solve," says he, "the labour question, and the company can be made a prosperous one indeed." He says also that he considers that apart from rubber, cocoa, sugar cane, bananas and plantains, timber and wood could be cultivated with good results; indeed, that there are no tropical trees or fruits but can be readily cultivated on the estates. These are all matters to which we shall direct our attention with a view to future developments. (Hear, hear.) Turning back to the balance-sheet, under profit and loss I should like to show you what economies we have been able to effect up to the present time. You will find put down in the second part of the profit and loss account, from March 25th to June 30th, 1900—taking these two dates—the salary of the London manager, £2,200; that was at the rate of £1,200 a year, so I have put it down in my notes as salary, £1,200; at the present date that is wiped out altogether. Then secretary and rent of offices appears at the rate of £550; that has been reduced to £450. Directors' fees appear as at the rate of £1,400; that has been reduced to £550, and it will interest the shareholders to know that since the meeting of June 1st, the directors have not drawn any fees, because they wished to delay doing that until the company is in a better position. (Hear, hear.) Then salaries of estate manager, accountant and inspectors were at the rate of £1,836 (£3,367); they are now reduced to £1,500 a year. The special remuneration to Para agents, £650, comes out altogether. Then with regard to the Para agents' commission, that would come under the second item of estates trading account, consumable and general stores, and we estimate that to have been about £2,000 a year; against that we have by our own Para establishment, under Mr. Jacques, a total expenditure which, including office and clerk, comes to £1,000.

REDUCTION IN ESTATES MANAGEMENT.

Then there is that very heavy item of estates management, £11,478 for eighteen months. Now, that would be at the rate of £7,600 a year, and we estimate—I cannot give you this figure exactly, but we know that great reductions have been made, and as nearly as we have been able to estimate them, they amount to £4,000, against £7,600 a year. I should now like to call your attention to the returns of rubber. The total returns of the whole season, so far as we have gone, to December 19th, are 27 tons, and last year they were 21 tons, and when you come to think that the collectors at the same date last year numbered between 250 and 300, and this year they are between 170 and 180, you will see that with a much less number, the directors have got considerably more satisfactory returns. Then I should like to mention that at this time last year we had received no remittances of the moneys of the estates, but this year, either in hand or on the sea in the shape of rubber coming to us, we have a total amount of £1,200, which is sufficient to pay one year's interest on our debentures, the first half-year of which will be due in January. I should also like to read you a telegram which we received on December 15th from Mr. Jacques. He says: "Shareholders will be glad to hear that we do not give any further credit." The meaning of that is that he has been able to stop that detestable system of indebtedness which has been—I will not say the ruin, but which has militated very greatly against the success of the company. You know that according to the system which has prevailed up to the present, when you sent a man up to the estate as a collector, you were asked to equip him with stores, cash and various advances. I do not know whether it will be possible, from what has taken place, to completely change that system, but at any rate, it can be greatly modified, because our great cause of trouble up to the present time has been that collectors great advances far in excess of what they should do, and when they become so indebted, rather than liquidate their indebtedness by giving their rubber to the company to reduce it, they sell it elsewhere. Mr. Jacques is endeavouring to do away with that system altogether, and that telegram means that he is not going to make any further advances. In conclusion, I will only repeat what I said on June 1st, 1900, and which I think is borne out by what I have now stated to you. I said on that occasion:"We are not going to try and make a large profit in the first season. We do not want to run any risks. We want to confine our efforts to building up a proper system of management which shall bear fruit in the future, so that by gradually extending our operations in future seasons we may develop the undoubted resources of our property." It is our confident hope that in time we may be able to carry out that policy with success.

Questions on details of the accounts were put by Mr. Wilkinson and replied to by the Chairman, after which the motion was put and carried.

The retiring directors, the Hon. John de Grey and Mr. E. T. Wolseley, were re-elected on the motion of Count de Torre Diaz, seconded by Mr. H. M. Baker.

Messrs. F. Davies, Meredith & Co. having been reappointed auditors,

Mr. Leach Barrett moved a vote of thanks to the chairman and directors for the able manner in which they had conducted the business of the company.

The motion was seconded by Mr. Woodrow and carried unanimously, and, after a brief acknowledgment from the Chairman, the proceedings closed. —*The India-Rubber and Gutta-Percha Trades Journal*, Dec. 24,

CAMPHOR MANUFACTURE.

Formosa.—The so-called "camphor factory" built by the Government at the capital, Taihoku (Taipeh) is the most imposing in appearance of any of Formosa's industrial establishments. It consists of one main building containing the distilling apparatus for grade A camphor, one building equipped with the necessary apparatus for the extracting of camphor from camphor oil, a large warehouse for storing the drug, a packing house and numerous out-houses, including barrack-like quarters for the labourers, and neat little cottages for the skilled workmen, officers, &c., connected with the factory. The factory buildings are big, solid structures of brick and stone, and provided with not only the latest hydraulic and steam-pressing machinery, but with much apparatus specially designed for the work. The grounds and buildings are illuminated by electricity supplied by the factory's own plant. The buildings impress one as having been erected with the idea of permanency, and the Formosa Government evidently hopes to control the camphor situation for many years. The preparation of the two grades, A and B (crude) camphor, is as follows:—The camphor is obtained by steaming camphor-wood chips in roughly built furnaces set up on the hill districts. A vapour arises from the steaming wood, and condenses in cooled wooden receptacles forming a snow-like deposit of camphor, containing, however, some quantity of oil. After removing the camphor from the condenser, it is allowed to drain in tubs, until a considerable portion of the oil has run off. The camphor is then packed in canvas bags, and transported to the central office at the capital. The camphor destined for shipment as crude is not subject to further treatment after leaving the country districts. For shipment it is packed by hand in zinc-lined cases, holding about 1 picul (133 pounds). This grade is similar in form to the crude camphor exported prior to the establishment of the monopoly, although the Government has been able to improve it somewhat in quality. The camphor for grade A blocks is treated at the factory described above. The plant possesses six large distilling furnaces measuring some 24 by 12 by 5 feet, and two crystallization chambers some 30 by 24 by 24 feet. Several thousand pounds of the crude camphor are placed in one of the large iron retorts, and, after the openings in the latter have been closed and sealed, air is forced in to hasten evaporation. For the first forty-eight hours a slow fire is maintained, which is sufficient, however, to drive off the water and oil, these passing through a pipe leading from the top of the retort into a tank cooled by water. The heat is now increased, and the above pipe having been shut off and a second one opened, the camphor fumes pass through the latter into the crystallization chamber the roof of which is cooled by running water. Here it crystallizes as flowers of camphor. The camphor is now ready for pressing. This is accomplished by first shaping the camphor into the form of a block by the use of wooden moulds. The block is then pressed by steam power, and, lastly, is subjected to a very high hydraulic pressure. The result is a hard, almost opaque bric of practically pure camphor, weighing 10 kin (13⅓ pounds). These blocks are now wrapped in oiled paper, and packed in zinc-lined boxes holding ten, and, after receiving the Government label of "crude camphor, pressed by the Formosa Government," are handed over to the selling agents. The Government factory has at present a yearly capacity of some 2,700,000 pounds of grade A. The total Formosa Government expenses, including cost of camphor, are given in the Budget for 1900 as 2,127,611 yen ($1,063,805), and the receipts as 3,455,035 yen ($1,727,512). This leaves a profit of 1,327,424 yen ($663,712), or about 34 (yen $17) a picul (133 pounds). This is taking the maximum production for the year at 39,000 piculs (5,187,000 pounds). Some 2,000,000 pounds of camphor are consumed in the United States yearly.—*United States Consul ta Formosa.*

COFFEE NOTES.

Less than five years ago the first coffee seeds were introduced into Uganda by missionaries. Now there are extensive crops under cultivation. Last year 100 tons were exported from Uganda, and this year this amount will be greatly exceeded. The quality of Blantyre coffee is said to be the best in the world, superior even to the famous Mocha.—*Commercial Intelligence.*

The heavy receipts of coffee at the port of Santos in Brazil are attracting attention in the trade, as well they may. Notwithstanding that the arrivals are much below the normal volume, the total for the two ports is not far below the figures a year ago, when prices were at about their lowest point. The effect of these heavy receipts on prices has been helped by the receipt of estimates pointing to a liberal crop of Rio and Santos coffee the coming season.—*Merchants' Review*, October 5.

INDIA AND FRENCH IMPORT DUTIES.

Calcutta, Dec. 22.—A Press *Communiqué* issued here today by the Finance Department, states that the enhancement of French Import Duties on Indian coffee, pepper, etc., has been postponed for six months, till the end of June, 1901.—*Madras Mail*, Dece. 24.

MICA.

The mining community is much exercised at he determination of the Bengal Government to enforce the rule for the exaction of a royalty of 2½ per cent on all rough mica taken from the mines. The royalty clause has always been inserted in the leases, but hitherto it has remained a dead letter, owing to the difficulty in determining the precise output of the mines. Not long ago Mr. Wild, the Conservator of Forests, Bengal, was round inspecting the mica properties within the forest area with a view of settling this question, and later on Mr. Grundy, the Inspector of Mines, made an exhaustive examination of all the mines now being worked and collected data regarding the output of rough and dressed mica, average value of merchantable mica etc.; and it is believed that his report will embody the opinions of the chief owners as to the manner in which the royalty should be levied. The consensus of opinion is against the royalty being levied on the gross output, since much of the mica that comes to the surface is thrown away as being useless, and it is unfair to demand royalty on what is of no value. The better plan would be to exact a royalty on all mica conveyed to the dressing floors. The amount and value could easily be arrived at, as it is well known that each maund of rough mica yields only one third of a maund of dressed mica. The average price of mica (big and small) is R60 a maund in Calcutta. The cost of dressing and transport may be set down at R10, which would leave R50 as the net value of one maund of dressed, or three maunds of rough, mica at the pit's mouth. This would mean a royalty of 7½ per cent on each maund of dressed mica despatched from the mines. —*Indian Agriculturist*, Dec. 1.

BURMESE GOVERNMENT'S RUBBER PLANTATION.—The Government of Burma proposes starting shortly an extensive rubber plantation on King's Island, the principal island of the Mergui Archipelago.—*Hongkong Weekly Press*, Dec. 29.

THE CORPORATION LIMITED.

(OF CEYLON).

Directors.—Alfred Bull, Cyril Gurney, E H Hancock, T J Lawrance, R R G Norman, V H Smith.

Managing Director in Ceylon, Frederick Tatham.

London Agents, Antony Gibbs & Sons.

Report of the Directors, and Accounts for the year ending 30th June, 1890, to be submitted to the Annual General Meeting of Shareholders on the 6th December, 1900.

The Directors beg to submit herewith the Accounts of the Corporation for the year ending 30th June, 1900, which, they are sorry to say, do not show the results reasonably anticipated, owing to the abnormally low prices which have prevailed in the tea market for a considerable time past.

The following figures indicate the results during the past three years:—

	Crop. lb.	Cost of Production.	Average Sale Price Nett.
1897-98...	1,112,606	31 cents per lb.	5d.
1898-99...	1,234,442	26·10 ,,	5 15-16d.
1899-00...	1,276,139	25·60 ,,	5 3-16d.

From these particulars it will be seen that the estimate for the past year, 1,250,000 lb., has been more than secured at a reduced cost; only normal prices are required to enable the Company to show much more substantial profits.

In view of the present relations of supply and demand, it has been decided not to develop the propert on the lines roughly sketched in the last report.

Economies have been effected by a reduction in the agency charges and in management; the inclusive London charges on the tea are now considerably under 1d per lb.

The total profit for the year is £6,037 6s 10d. After deduction of Debenture Interest, London expenses, etc., there remains a balance of £1,646 14s 9d.

The Directors have paid a further half-yearly dividend on the Preference Shares in addition to that mentioned in the last report as having been paid on 1st August, 1899, and regret their inability to further reduce the overdue Preference dividend at present.

Mr. Tatham hopes to secure about 1,300,000 lb of tea for the current year at about 26 cents per lb and advises the Board that a fair cocoa crop is practically assured.

Forty tons of plumbago have been won during the year. The Directors have employed an Engineer to advise upon and assist in the mining operations, and much had been done by the 30th June. Since that date there has been a substantial output, and it is hoped that a further profit may be shown this year after writing off a considerable portion of the amount which at present stands in a suspense account.

VITICULTURE IN TRANSCAUCASIA.

According to official figures supplied by the Department of Agriculture at St. Petersburg, the area of land under cultivation of the vine, and the production of wine in Transcaucasia are as follows:—The Government of Tiflis 65,516 acres, and 6,750,000 gals.; the district of Zakatal 1,938 acres, and 22,000 gallons; the Government of Kutais 94,277 acres, and 4,050,000 gallons; the Government of Elizaretpol 33,701 acres, and 2,700,000 gallons; the Government of Baku 27,283 acres, and 2,160,000 gallons; the Government of Erivan 19.926 acres, and 675,000 gallons; the Government of Daghestan 6,420 acres, and 540,000 gallons; the Government of Tchernomoria 1,493 acres, and 135,000 gallons· and the district of Kars 121 acres, and 11,000 gallons, making a total area under cultivation of 250,675 acres, and a production 17,043,000 gallons. The figures given above according to Consul Stevens do not include the grapes grown for sale in the markets of the Caucasus, and the quantities consumed by the distilleries, the total of which amount was as near as possible 108,900 tons. Although viticulture in the Transcaucasus is by no means a new industry, it has, nevertheless, not yet been able to reach that state of prosperity which could entitle it to be classed amongst the industries of the country that form one of the mainstays of the population. This, of course, is due in a great measure, to the ignorance of the inhabitants, and the lack of the knowledge necessary to carry on the cultivation of the grape in a systematic manner, and on principles which would be more or less in keeping with the climatic conditions and varied soils of the different altitudes at which the vineyards are situated. Grapes grow in a wild state almost throughout the Caucasus, and with a little pains there is no doubt that the industry might be raised to a state of efficiency which would considerably enhance the revenues of a large majority of the population of the Caucasus, and thereby increase the prosperity of the country. Although the production of wine has attained figures of fairly large proportions, most of the wine is consumed in the country, and only a very small quantity finds its way to St. Petersburg and other Northern Russian markets. The greater part of the wine made is very inferior in quality, and in most cases is "heavy" and "heady." With a very few exceptions, owing to the poverty-stricken condition of the wine growers who have no possibility of keeping their wines for any length of time, it is sold and consumed as soon as it is made. This, in itself, does not give an opportunity of properly testing the wine, which, if kept long enough, would doubtless undergo a complete change for the better, as has been proved by the wine made on the estates of the Imperial Domains and those belonging to the wealthier wine-growers of the Caucasus. Other drawbacks in the shape of phylloxera, black-root, oidium, mildew, and the diseases of a fungoid nature which have become chronic, continue to cause havoc among the vines, and are a constant source of trouble and anxiety to grape-growers. In many parts of the Caucasus severe local rain and hail-storms have also ruined extensive areas of vineyards.—*Journal of the Society of Arts.*

PARIS EXHIBITION: SECTION OF CEYLON.

MUSEUMS AND NATIONAL INSTITUTIONS TO WHICH EXHIBITS HAVE BEEN PRESENTED IN THE NAME OF THEIR EXHIBITORS.

1.—PHILADELPHIA COMMERCIAL MUSEUM, U. S. A.—Plumbago, Mr J W C De Soysa; Cinnamon, Mr Jacob de Mel; coconut products, Messrs Vavasseur & Co.; coconut oil, Mr Arnold Dias; tanning products, Mr W D Carolis; coffee and cacao, Lipton Ltd.; coffee, Mr Gibson; coffee, Mr G H Barber; cardamoms, Mr J Westland; cardamoms, Mr J A Spence; bixa

seed and paste, Anatto Dye Works; banana flour, Mr C Stouter; white pepper and cloves, Messrs Darley, Butler & Co.; arecanuts, Mr J H Meedeniya, R. M.; nutmegs, Government of Ceylon; pepper, Government of Ceylon; copra, Government of Ceylon; rubber, Government of Ceylon; cardamoms, Government of Ceylon; wild fibres and ropes, Government of Ceylon.

2.—Stadisches Museum Bremen.—All the following exhibits of Messrs Darley, Butler & Co.:—Plumbago (in case), coconut oil, poonac, copra, fibre and yarn, kitul fibre, palmyra fibre, cinnamon, essential oils, Mr Jacob de Mel; mica, Mr Kuruppu.

3.—Jardin Colonial, Paris.—Coconut and copra, Mr W H Wright; plumbago (part of), Mr U D S Goonesekera; cinnamon (part of), Mr Jacob de Mel; coconut oil, Mr A P Goonatilleke,

4.—Agricultural Museum, Berlin.—Plumbago (part of), Mr Jacob de Mel; collection of wild fibres, Government; collection of medicinal plants, Government; coconut fibre and cord, Messrs C P Hayley & Co.; cardamoms, cocao, &c., Mr J H Renton.

5.—Field Colombian Museum, Chicago.—Plumbago (part of), Mr U D S Goonsekera.

6.—Museum d' Histoire Naturelle, Paris.—Plumbago (part of), Mr U D S Gunasekera; plumbago (part of), Mr Jacob de Mel; Fauna collection, Government; elephant and skeleton, peacock, 14½ pairs of birds indigeuous to Ceylon, two wild boar, one axis deer, one cobra, one ticpolonga, five flying foxes, group of wanderoo monkeys, two flamingo, and two juule fowl.

7.—Australian Imperial Museum.—Plumbago, Messrs Clark, Young & Co,; fibre, Horrekelle Estate Co.; cinnamon, Mr Jacob de Mel.

8.—Musee des Collections, Manufacture Nationale Severs.—Seven pieces Kandyan pottery, Government.

9.—Imperial and Royal National Museum of Hungary, at Buda Pesth.—Five life-size figures in plaster, Government; Model of a Tamil house, Government.

10.—Musee Industriel, Rouen.—Plumbago (part of), Mr U D S Gunasekera; cinnamon (part of), Messrs Miller and Branwell.

11.—Musee Industriel, Lyons.—Plumbago, Mr H B Fernando; cinnamon, Messrs Miller and Branwell.

12.—Royal Botanic Gardens, Kew.—Sample of tea, furnished by Mr J H Renton; coffee, cacao, coffee and cardamoms, specimens of medicinal plants, Government.

13.—State Museum, Hamburg.—Plumbago, Mr L B A de Silva; fibre, Mr U D S Gunasekera; Cinnamon (part of), Mr J de Mel; coconut oil, Mr G C Warr.

14.—Industrial Museum, Bonn.—Plumbago (part of), Mr Jacob de Mel; mica dust, Mr W Kuruppu; coconuts, Messrs Murdoch and Branwell.

15.—British Chamber of Commerce at Paris.—Plumbago, Messrs Delmege, Forsyth & Co.; mica, Government collection; mica dust, Mr W Kuruppu; all pamphlets and reports available on Ceylon Tea and other industries, from the Chamber of Commerce and the Planters' Association.

16.—Imperial Art Galleries, Vienna, (Dr. Eder.)—Two landscapes, Mr W D Bosanquet.

17.—Imperial Institute, London.—Collection of products of the coconut palm, Messrs G and W Leechman; cardamoms, Mr J A Spence; cinnamon, Mr. J W C De Soysa; vanilla (part of), Mr Vander Poorten; cinchona, Mr F G A Lane; cinchona, Mr G S Anderson: cinchona, Mr G B Christie; arrack (collection) (with model still), Mr Arnold Dias; plautain flour, Mrs Arnold Dias; anatto (complete collection), Mr A VanStarrex; plaintain flour, Mr W D Carolis; various flours, Government; pepper and cloves, Messrs Darley, Butler & Co.; sugar, Jayasinha Mudaliyar; resin (collection of), Government; various preserves, Ponnan Nendali and K A Perera; bêche de mer, Government; metal cleaning-powder, D Johannes; dubbing, J Baptist.

KOKARI FISHING IN THE ANDAMAN ISLANDS.

By Major G. Massy.

(*Badminton Magazine*, January.)

A somewhat novel methods of handline fishing may frequently be seen in the Andaman Islands by those whom fortune (or misfortune) should take to that little-known penal settlement in the Bengal Ocean. The fishing is carried on during fine weather by certain native convicts of 'self-supporting' class, *i.e.*, men on a short of ticket of leave, who earn their own livelihood; and, as they can generally get a ready sale for their fish, the pursuit is a fairly profitable one. They fish from dug-out canoes, in handling which they are very expert. The crew, as a rule, consists of a steersman, one paddler, and the fisherman, who sits in the bow and is in command of the boat. They carry a good-sized casting-net, similar to those used in England, for catching bait with, and a large wicker basket for keeping live bait in. When required for use, this is slung overboard, and is provided with a canvas flap over the top of it, to prevent the bait from jumping out. It corresponds to the 'courage' which is employed for a similar purpose in sea fishing on some parts of our coast. In lieu of a gaff, a long-handled spear, with a small barbed head, is carried. The fishermen say that it is much easier to use than a gaff; and certainly I never saw one of them miss a fish with one.

The handline, which is a fine one, made principally of silk, is about 150 yards long, and is kept carefully wound round a stick or in a ball, to ensure its running easily when playing a fish. I believe these lines are procured from the east coast of Madras. A medium-sized hook completes the tackle. From this it will be seen that, though a hand line is used, it is no means the pull-and-haul kind of business one generally associates with that kind of sport. Far from it. The line being very fine, a light hand and considerable skill are required to ensure success.

This fishing is usually carried on near the jetty on Ross Island. The water there is deep, and, except, of course, during bad weather, of crystal clearness. Standing on the jetty, one can see countless numbers of fish of all kinds in every direction, and in the clear water every moment can be distinctly traced. Large shoals of sardines disport themselves on the surface, occasionally making frantic dashes for safety under the wooden piles of the jetty, as the hungry kokari pursue them and reduce their num-

bers; other enemies, too, are on the look-out for them—amongst them being barracouta, garfish and horse-mackerel; and further out to sea seer-fish—but the kokari are the most numerous. But here come some of the fishing-boats, paddling as if for dear life now that they see the fish are on the feed—so we will watch one of them at work. Arrived near the jetty, the fisherman slings his basket over the side of the boat, prepares his net for a cast, and looks out for a good shoal of sardines. As the sea is teeming with them this does not take long, and in a few minutes the net is hauled on board with a goodly supply in its meshes; these are quickly transferred to the basket, all hands working busily at the job. One or two more judicious casts, enough live baits have been caught to enable a start to be made, and our fisherman begins business. Squatting down in the bows, he uncoils some twenty yards of line, and baits his hook with a live sardine by hooking it carefully under the back fin. Keeping his baited hook in the water alongside him, he throws out two or three sardines about twenty yards from the boat to attract the kokari. These are taken almost immediately, and out go a few more, followed this time by the hooked one, which is dexterously cast into the midst of the others; there are several boils and splashes on the water, then the line tautens, our friend strikes, but is too late, and his bait is gone. He hauls in the line with feverish haste and repeats his cast; this time with more success, and is at once fast in a good fish which dashes madly out to sea as fast as it can go.

The canoe follows as quickly as the paddlers can make it travel. The fisherman, holding his hand well up, lets the line slip through his fingers, feeling his fish all the time, and not letting him take out line too easily. At the same time he excitedly screams contradictory directions to his crew, and curses them freely for not going fast enough. His object is to peep over his fish as much as possible. After going about a couple of hundred yards or so he gets a pull at his fish, and begins to recover some of his line, the boat still following every movement of the quarry, and, when skilfully handled, doing half the work of killing it. After another good run or two the fish shows signs of being done, and he is gradually brought gasping to the surface. The man in the centre of the boat drops his paddle and takes up the spear—a sharp stab and a hoist, and the fish lies quivering in the bottom of the boat . . . a grand fish he is, too, close on 20lb. weight. Locally called a kokari, he belongs to the Caranx family, has a large deep head and powerful jaw armed with numerous teeth; he is deep and somewhat flat-sided in the body. His pectoral fins are peculiar, being long and curved, and shaped somewhat like a sickle; he fines off very much towards the tail, which terminates in a large fork, and in some species the root of the tail is armed on either side with a sort of sharp bony ridge. The colour varies, a silvery hue predominating, but some are of the most beautiful ultramarine blue. Altogether he presents a very game and handsome appearance, which as far as his fighting qualities go he does not belie, as harder running fish it would be difficult to find.

The boat is soon back at the jetty again ready to recommence operations, and with decent luck our friend will have two or three more fine fish before he leaves off, varying in size for 7 to 20 lb. It was very entertaining to watch them at work on a day when the fish were taking well, and I need hardly say that some of us who were keen fishermen were not content with watching only, but soon followed their example, using rods instead of handlines, but otherwise fishing in the same manner; and very good sport we frequently had, which made amends for being stationed in such an out-of-the-way part of the world.

COFFEE PLANTING IN SUMATRA.

We are always pleased to hear from our old friend "W. T. McK." who, after leaving troops of friends behind in Ceylon, has been so many years now in Sumatra without making a fortune. He sends us as usual a graphic letter (given in our daily and *Tropical Agriculturist*) with some useful statistics, showing that his district of "Serdang" has about 10,000 acres under Liberian coffee. The photograph he sends, shows magnificent giant coffee trees (backed by Albizzias) laden with crop; for, of course, the soil is superior to anything we have in Ceylon. But then the market price of "coffee" has, for a long time, been even more disappointing than that of tea!

ELEPHANTS IN BURMA.

The year 1899 was a most disastrous one for the Government elephants in Burma, numbers of which died from an outbreak of a disease believed to be anthrax; contractors and others suffered similarly, and elephants to replace losses cannot now be easily purchased. Several officers have therefore suggested instituting Keddah operations in Burma and the Local Government is now in correspondence on the matter with the Suprintendent of Keddah Operations in India. It seems clear, however, that operations in Burma will not be easy to arrange as there is no chance of success, unless trained men are employed on the work and money liberally spent.

The Forest Officer in charge of the Mu Division writes:—

"The Bombay-Burma Trading Corporation, Limited, increased their stock of elephants in the division to almost 100 beasts. Contractors and licensees, however, are unprovided with these useful beasts, and cannot always pay R3,500 for a tusker and R2,500 for a cow, which are the present prices. Advances might do something in improving extraction, but one looks with longing at the three or four herds of from 40 to 80 beasts each which roam over the division, and which are rapidly being shot down by Burman hunters for the sake of a few rupees worth of flesh. Kheddah work, too, would be especially easy in this division, as for instance in the Thaw basin, where heavy forest is not continuous and the herds are often restricted to small isolated areas."—*Forest Administration in Burma for the year* 1898-99,

OUR EXPORT IMPORT AND SHIPPING TRADE FOR 1900.

The Export trade of 1900 compared with 1899 must be recorded as not altogether satisfactory. For some products, prices were maintained; for a few prices were dearer; but against this, two of our most important exports fell seriously in value, and one further fell off in volume considerably.

Cardamoms.—The export to India increased last year 100 per cent, but prices generally were lower both locally and in London. A slightly firmer tendency was noticeable as the year closed. The total exports exceeded those for 1899 by 37,496 lb. More land is coming into bearing and a heavier export must be looked for in 1901.

Cinnamon.—The crops for 1900 were good, the result being an increase in export of quills to the extent of 163,080 lb and of chips to the extent of 34,279 lb. Prices, notwithstanding the increased production, have been maintained. Quills (taking usual assortment as average) have not fluctuated locally during the year more than 1½ cent per lb and values in London have not shown much rise or fall. Chips have fluctuated between R87·50 and R92·50 per candy. Both quills and chips are more and more being shipped direct to the consuming countries, and the result of getting at the consumer direct is very clearly shown by a perusal of the following figures:—

	Quills lb.	Chips. lb:
In 1890 the exports were:—	1,894,514	441,447
1900 ,, ,,	2,678,111	1,863,406
Increase	783,597	1'421,959

In 1890 usual assortment was worth 30 cents per lb. Chips R60 per candy.

In 1900 usual assortment was worth 57½ cents per lb. Chips. R90 per candy.

Notwithstanding that during the decade we have increased our exports of quills by 35 per cent and quadrupled our export of chips, the value of quills has advanced nearly 100 per cent and chips about 35 per cent.

The export of wild cinnamon, which for a short time threatened to injure sales of plantation and garden cinnamon, has now practically ceased. The value of wild cinnamon in London is barely sufficient to pay the freight and dock charges there. In one or two instances wild cinnamon chips have been mixed to a small extent with usual chips, and exporters will have to very closely watch deliveries.

Cinchona.—This bark continues to decrease as regards quantity harvested and shipped; and some years must elapse before recent plantings, tell.

Cocoa.—The export for 1900 (33,476 cwts compared with 42,745 in 1899) shows the lowest record in volume since 1896. Prices in Europe ran high for good bright beans, and for really fine bright bold beans extreme prices were realised, the latter were worth R57·50 per cwt. locally at the close of the year, compared with R47 at the same time 1899. It is hoped this year's crop will be a larger and a better one.

Coconut Palm Products.—All the products of the coconut palm:—coconut oil, copra, poonac, desiccated coconut, coconuts, coir rope, yarn and fibre exported—show a material increase in volume and prices have been fully maintained. Everything points to a continued good demand for these products, and coconut land may be looked upon as one of the soundest local investments.

A., Coconut Oil did not fluctuate as much as usual during the year, prices in Colombo varying from R315 to R330 per ton f. o. b. Shippers have practically ceased sending oil to London and New York for "spot" sales, and the almost entire absence of unsold stocks at these ports has kept exporters in Ceylon well supplied with orders. Exports show an increase of 2,149 tons over 1899, the increase being principally for U K and India. As the year closed, value of f.o.b. oil was R325 per ton. 1892 still remains the record year for export of coconut oil.

B., Copra.—The increase in export for 1900 was 1,853 tons, principally for Germany, Austria and Italy. Russia and United Kingdom show a falling-off. Prices generally have been good, and during the last three months of the year ran very high, the arrivals not meeting the demand for export. Extreme prices led to eagerness on part of growers to get copra into Colombo before reaction set in. This led to imperfectly dried copra arriving, the loss in weight on which must be a serious item for shippers.

C., Poonac.—With an increased export of oil, we must of course, be prepared for an increase in shipments of coconut cake. The export for 1900 was 9,299 tons against 8,739 tons for 1899. Prices dropped during the last six months of the year from R80 to R70 and the outlook for 1901 was not very promising.

D., Desiccated Coconut.—The export for 1900 was 13,604,913 lb. against 13,571,084 lb. for 1899.

E., Coconuts.—A large increase in nuts exported took place last year, the figures being for 1900, 14,995,909 nuts against 11,723,392 nuts for 1899, the increase being practically divided between U. K. and Egypt.

F., Coir Rope, Yarn and Fibre.—All these show an increase in volume exported, and prices have also been well maintained.

Coffee.—This product in 1899 had improved somewhat over 1898, but figures for 1900 show even smaller exports than for 1898.

Essential Oils.—There is not much change to record in these oils.

Plumbago.—The fall in values indicated as taking place at the close of 1899 continued steadily during last year, notwithstanding a large decrease in quantity exported. In 1899, 30,819 tons were exported against only 19,167 last year. The principal decline in offtake was to U. K. 2,821 tons, Germany 1,159 tons and America 6,905 tons. The restricted local demand led some dealers to consign portions of their stocks to London and elsewhere for sale, a course of action more than any other calculated to depress the market and force prices down. Shipments of an article like plumbago

unsold, generally mean sacrifice, and only form a lever for buyers to force down prices. Values still paid locally are, however, good when compared with those ruling some three and four years ago, and many pit owners must still be getting good returns.

The extreme prices paid for plumbago towards the close of 1899 and early in 1900 led to a rush after plumbago land, resulting in absurdly high prices being paid for land and leases, and to pits being opened up recklessly. In many cases efforts have not only been unsatisfactory, but in some instances have had disastrous financial results. Quite a number of pits were abandoned during the latter half of 1900.

The following comparative table of quantities and prices at close of last two decades are interesting :—

In 1890 exports aggregated 19,287 tons, in 1900 19,167 tons and the following were respective values per ton.

	In Dec. 1890	In Dec. 1900
Large lumps	R170 to R250	R400 to 650
Ordinary lump	125 to 225	200 to 600
Chips lump	60 to 130	125 to 400
Dust lump	30 to 85	75 to 225

TEA.—This staple article is kept so constantly in print, that all our readers must feel well nourished so far as "facts and figures" are concerned. A return to better teas from medium and low-country estates will, in course of time, remedy the disastrous state of affairs ruling as the year closed. Closer supervision is wanted in many factories as the samples of "estate bulking" go to prove. If one portion of the factory work is not carried out properly, it is natural to conclude the manufacture of the tea is not receiving proper supervision.

The following are Exports for the year 1890 and for the past three years :—

	U. K.	Continent.
1890 ...	43,756,912 ..	92,839
1898 ...	96,133,833 ...	3,591,106
1899 ..	103,948,124 ...	4,835,938
1900 ..	113,760,193 ..	10,213,169

	Australia.	America.	Other ports.
1890 ..	2,559,901	204,223	287,679
1898 ...	15,126,891	2,180,188	2,737,053
1899 ...	15,606,833	3,080,002	2,423,259
1900 ...	17,606,912	3,980,680	2,870,685

	Total.
1890 ..	46,901,554
1898 ...	119,769,071
1899 ...	129,894,156
1900 ..	148,431,639

Exchange did not fluctuate suddenly during the year. The following is range of quotations.

6 m/s credits	1/4 23-32	1/4 1-4
3 m/s do	1/4 5-16	1/4 5-32
3 m/s D. P. Bills	1/4 5-8	1/4 7-32

IMPORTS.

Exchange fluctuated to some extent during the past year, demand remittances ranging from 1/3 15-16 to 1/4 5-16 and 30 d/s paper London on Colombo ranging from 1/3¾ to 1/3 7-8. Money was easy most of the year, local discounts ranging from 4 per cent to 9 per cent. As the year closed discounts were firming up and with large crops to finance in India and Burma during the next few months, we may expect money locally to be very dear.

Cotton Goods.—The American cotton crop of 1900 fell far short of expectations, resulting in dear cotton all through the year. Mid Uplands ranged from 4d 13-32 per lb in January to 7d 3 8 in September. As the year closed, the price had gone back to 5½d per lb. Dear cotton means dear cloth, and prices for all grey, white and coloured goods advanced with the rise in cotton. The higher the price, the more restricted the off-take, and 1900 was no exception to this rule. Only 3,088 packages cotton goods were entered for home consumption during the first eleven months last year, compared with 3,821 during the corresponding period of 1899. Locally, prices were generally unsatisfactory compared with costs laid down at Colombo.

The following figures show the importation for the first eleven months of 1900 and 1899 :—

	1899.	1900.
Grey cottons, bales & cases ...	2,628	5,198
White do do ...	2,259	4,135
Printed do do ...	1,142	835
Dyed do do ...	91	1,720
Coloured woven do ...	9,572	7,441
Sundry ...	112	81
Yarns, plain ...	1	30
do dyed ...	171	102
	15,976	19,542

Woollen Goods.—There is a growing tendency among the European as well as among the better-off Natives and Burghers to discard the time-honoured white drill suits for flannel clothes. This change has led to a large importation of coloured flannel. The initial cost to the buyer is greater, but in the end the flannel suit is perhaps the more economical and the better.

Tobacco.—The importation of manufactured tobacco has increased considerably, due no doubt to a great extent to the influx of Boer prisoners and their guard.

Malt Liquor and Spirits —The following figures show the quantities bonded and entered for home consumption during the first 11 months of last year compared with 1899.

Bonded.	In 1899.	In 1900.
Malt Liquor, in wood, h'hds ..	1,615	1,223
do glass, cases & casks ...	545	130
Brandy cases ...	1,962	1,741
Gin do ...	7,296	5,986
Whisky do ...	5,671	5,437
Entered for consumption :—		
Malt Liquor, in wood, h'hds ...	1,692	875
do glass, cases ...	205	482
Brandy cases ...	2,055	1,881
Gin do ...	6,056	5,349
Whisky do ..	5,362	4,255

It will be gratifying to those who are interested in temperance movements to note the large decrease in quantities of all spirits entered for consumption last year compared with 1899. The free consignments of cheap unmatured whiskies which were made some years back are gradually being liquidated, and whisky exporters of any standing are devoting their energies to the sale of the better brands.

Matches.—The quantity imported last year exceeded requirements and prices obtained locally were frequently under laid down cost,

CEMENT.—Owing to rise in freights from Europe eastward, prices of cement advanced about 1s per cask. With an article like cement freight is perhaps the chief factor in quotations.

METALS.—A fair business has to be recorded in most of the standard importations. Prices gave away considerably for all iron and steel goods, chiefly due to drop in prices in U.K. following an exceptional output in the United States. The following show some of the chief fluctuations in prices laid down Colombo Harbour.

	Jany.	July.	Dec.
Scotch iron	R165	175	150
4 oz. tea lead	,, 370	375	380
Hoop iron	,, 240	230	220

RICE.—Prices ruled high during last year. In January good Soolye could be got for R3 to R3-10 per bushel, but prices rose gradually, and as the year closed the value of this rice was from R3-50 to R3 75 per bushel. Bumper rice crops are expected in Burmah, and Bengal, and if anticipations are realised prices will become easier. Cheap rice will be welcomed by all Tea Estates, many of which cannot now afford to write off monthly "losses on rice."

COALS.—The "Chinese Embroglio" led to a large number of warships and transports from Europe calling at Colombo to coal last year. The extra demand coupled with a rise in value at home led to exceptional prices being paid for ready local delivery. Prices eased off towards the close of the year and are now quiet but steady. The imports of Indian coal still continue to increase. In 1899 there were 151,468 tons of Indian coal shipped from 1st January to 30th November from Calcutta to Ceylon, whereas last year for the corresponding 11 months the quantity was 297,803 tons, showing an increase of nearly 100 per cent in one year.

SHIPPING.

CEYLON EXPORTS IN RELATION TO FREIGHT AND TONNAGE—1890-1900.

The following figures—compiled from the Chamber of Commerce annual returns of exports and shipping—give the quantities of cargo exported from Ceylon, and the number of vessels by which this cargo was shipped. The figures for cargo exported are however reduced to "shipping tons" according to the Ceylon Tonnage Scale.

Readers will bear in mind that cargo transhipped at Ceylon is not included in these returns.

In	Vessels cleared with cargo.	Shipping tons cargo taken.	Average tons taken per vessel.
1890	698	156,159	223
1891	872	174,316	200
1892	871	200,986	230
1893	848	197,823	233
1894	808	200,489	248
1895	784	213,843	272
1896	830	216,844	261
1897	756	245,830	325
1898	773	297,211	384
1899	856	293,507	343
1900	826	316,004	382

The net increase in shipping tons of cargo exported last year over 1899 and 1898 was 22,497 tons and 18,793 tons respectively. It is gratifying to note that since 1890 the tonnage of cargo exported has increased by 100 per cent. The following are the more noticeable fluctuations last year compared with 1899:—

		Tons.
Tea	shows an increase of	18,537
Coconut oil	do	3,070
Copra	do	3,088
Coconuts	do	3,273
Coir rope, yarn and fibre	do	5,958
Cocoa	shows a decrease of	659
Plumbago	do	11,652

Grouping together the products of the coconut palm—coconut oil, copra, desiccated coconut, coconuts, poonac, coir rope, yarn and fibre—we find last year shows an increase of 15,983 tons, and the figures following are those for the last decade:—

	Tons.		Tons.
1891	69,879	1896	80,570
1892	94,550	1897	100,614
1893	79,935	1898	139,334
1894	85,711	1899	119,154
1895	84,567	1900	135,137

Of the total exports last year—

Tea gives	47 per cent. of shipping tons		
Products of the Coconut palm	43	do	do.
Other products	10	do	do.

These figures very clearly show how important the Tea and Coconut plants are for the shipping of Ceylon. If the Planting community have suffered from over-production of teas, they have provided shipping with a large increase of fine cargo.

The number of vessels which cleared *with cargo* last year was 826 compared with 856 in 1899. The supply of tonnage has been ample during the year to all countries, with the exception of Australasia. The carrying capacity of vessels running on regular lines touching at Ceylon continues to increase as new steamers replace those taken off.

Freights ruled low all the year round except to Australasia, as will be seen from the following table:—

	Rough Cargo Max. rate	Rough Cargo Min. rate	Tea. Max. rate	Tea. Min. rate
	s	s	s	s
London	25	15	30	25
Antwerp	20	15	30	20
Hamburg	22-6	17-6	30	20
Marseilles	20	12-6	30	20
Genoa	25	20	25	20
Trieste	27-6	25	30	30
Odessa	40	35	40	40
New York	35	32-6	37-6	35
Melbourne	R50	R40	R50	R40

The raising of rate of freight from R40 to R50, combined with want of regular space available to the main Australian ports, has had a depressing effect on many of the local tea sales. Australian markets require Ceylon tea to arrive regularly, not occasionally in excessive quantities. Every effort should be made by exporters to secure a resumption of regular tonnage for tea to Australia. The following are fluctuations in rate of freight on tea to London during the last decade:—

	Max.	Min.			Max.	Min.
1891	45	27·6	..	1896	25	7 6
1892	35	15	..	1897	35	10
1893	30	12·6	..	1898	40	20
1894	35	20	..	1899	30	25
1895	30	17·6	..	1900	30	25

Native vessels and vessels which cleared without cargo from Ceylon are not included in these returns.

EXTENSIVE COCONUT PLANTING IN THE MALAY STATES.

Messrs. Price, Boustead & Co., of London, who have taken up 5,000 acres of land at Kuala Pahang for coconut planting, have had a large area cleared and nurseries laid for 20,000 plants. —*Perak Pioneer*, Jan. 3rd.

THE RIVAL CLAIMS OF TEA CHFS TS.

The following is the full text of the letter addressed by the Tea-buyers' Association, London, to the Indian Tea Association, London, relating to Patent Tea Boxes :—

I am instructed by my committee to call the attention of your Committee to the very undesirable packages in which Indian and Ceylon teas are being packed.

They believe that arrangements are now being, or are about to be, made by the gardens for next season's crop, and they feel that now is the time to put on record their opinion as to the most desirable package.

No doubt merchants are entitled to pack their teas in any kind of package they like but, nevertheless, my Committee think that buyers are entitled to say what in their opinion is the most suitable.

At present there are several kinds of package in use, viz , wooden chests with leaden linings, Venesta chests, Colinda chests, Esma Colinda chests, and Acme metal and Acme veneer chests. There may be others. Of these mentioned my Committee are of opinion that the old wooden chest, with a good lead lining, is the best. None of the others are free from serious objection. Metal chests, they consider, are the most unsatisfactory. It is a well-known fact that metal is a good conductor of heat and cold, and tea packed in metal chests is subject to every change of temperature. There is a certain condensation on the meta flt times which tends to give the tea a weathery flavour.

The tops and bottoms of these metal chests are very easily knocked out and; very frequently, buyers find several pounds of tea wasted in their vans. Neither are they good for repacking, and they cannot be cut down, or made smaller.

The Acme Veneer chest has, my Committee believe, been condemned, and will not be used after this season, but they understand those who are using it at present propose using the Acme metal chest instead.

The Venesta, Colinda, and Esma Colinda are very much alike, being made of three Plywood and having a thin lead lining. They are much too weak, and are easily broken and punctured. If they were made of stouter material and stiffened at the corners with battens inside, they would be much better. The leads used are frequently so thin, as to be of no protection, and my Committee are confident that the interests of the importers are considerably damaged by the use of such.

The reason why merchants are using these patent packages is, my Committee believe, because of the difficulty of getting wood ; but they are assured that an unlimited supply can be obtained from Sweden, and it would cost no more than the patent packages.

I therefore desire to reiterate that the most satisfactory package is the old wooden chest with sufficiently thick lead lining, and some members of this Association have informed the Committee that they will not buy tea packed in any patent package, if they can possibly avoid it.—(Signed) J A BROWN, Secretary.

UNITED STATES TEA EXPERIMENT.

For three-quarters of a century, attempts have been made to make tea-growing a profitable industry in the United States. At the South Carolina Experiment Station, Doctor Shephard is endeavouring to utilize the labor of idle colored folk, including children, with fair success. In his annual report to Congress, Secretary of Agriculture states that the experiments so far conducted have shown that tea may be produced in the United states in two ways: First, by families in their gardens, as was demonstrated years ago to be entirely feasible ; second, on a commercial scale, after the manner followed by the British East Indian tea establishments and the beet-sugar industry.

In the future special attention will be given to manufacture of pure green tea. This subject is now claiming the attention of both inventors and planters in the British Colonies, as they begin to realize the hopelessness of bringing American tea drinkers to use the black tea instead of the green. The manufacture of green tea in the United States can be made successful only by the invention of machinery which shall take the place of expensive hand labor and prevent the waste which accompanies the latter. The questions are all being investigated by the Department, and, in addition, it is giving special attention to a study of the conditions in various parts of the South, with reference to determining the localities where tea can be grown to best advantage. Experiments have been inaugurated by some of the experiment stations, and plants distributed with a view of putting the work on a substantial basis. Much need is felt for young men capable of taking up this important problem, and it would be well for the agricultural colleges of the South to bear this matter in mind.—*American Grocer*. *Dec.* 12.

GOOD WISHES FROM A PLNTER AT HOME.

Glasgow, Dec. 6.—I see by the weekly *Observer* which reached me a couple of days ago, that you have been celebrating your 40th year of work in Ceylon, and that appreciative notices have appeared in the local press. I am not a whit behind anyone in my high estimate of the value of these services, and though late in the day would desire to add my voice to the general acclaim. A lot of the time you have been in the island I also cover, and all during that period I have always held that the *Observer* whose, free public life-work is most prominent has been consistently a high-class paper—with a conductor that had a conscience. May you have many more years ahead of you to continue your good work for the public weal, and may the public appreciate it in the form of supporting the journal—as it ought to do.

SPORT IN THE SOUDAN.

NOTABLE HUNTERS GOING OUT AFTER BIG GAME.

Paris, Dec. 28. Now that the Soudanese Government have afforded facilities for transport to Khartoum, several noted sportsmen are preparing expeditions to hunt and shoot over the territory bordering the White and Blue Nile. Big game such as elephants, rhinoceroses, and buffaloes are plentiful in this region, and French sportsmen are keen on being among the first in the field. One notable sportsman, Prince Peter of Arenberg, [who came to Ceylon on a shooting trip a little over a year ago.—ED. *C.O.*] has already arranged to go out to the Soudan with several friends and proposes starting immediately for Cairo.—*Daily Express*.

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1901, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round. 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year."

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1901, booking necessary before the end of March; large quantities on special terms; Plants in Wardian cases.

Manihot Glaziovii—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Kickxia Elastica.—(*Funtumia Elastica*).—Seeds and Plants, orders booked. (Lagos rubber.)

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Urciola Esculenta and **U. Elastica.**—Same as above. (Burma rubber.)

Parameria Glandulifera.—Orders booked for seeds for January-February delivery; also plants; immediate booking necessary. (A good rubber creeper of Malacca.)

Landolphia Kirkii.—Seeds in July-August, early booking necessary. Plants can be supplied all the year round. (A highly-recommended species.)

Chonemorpha Macrophylla.—Seeds and Plants; orders booked. (A very valuable rubber-yielding creeper.)

Memusops Globosa and **Payena Leerii.**—Seeds and plants in July-August, booking necessary before April.

Achras Sapota, Willughbeia Firma, W. Edulis and other **Rubber and Gutta Percha** yielding Trees and Creepers, Seeds and Plants.

Cinnamomum Zeylanicum (Cinnamon superior variety). New crop of seed in April to June; booking necessary before the end of February; also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

Cinchona Ledgeriana.—Seeds now ready, also other varieties.

Seeds and Plants of Nutmeg, Clove, Sandalwood (white and red), Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products for Foreign countries for 1901-1902, now being prepared, and will be ready in a few months.

"SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Price List of Seeds and Plants for CEYLON use post free on application.

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Orchids, Bulbs, Dracinas, now being prepared, and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address:
WILLIAM, VEYANGODA, CEYLON.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
HENARATGODA, CEYLON.

SNAKE POISONS AND ANTIDOTES.

Captain R. H. Elliot, I M S, delivered an interesting lecture a few days ago on "Snake Poisons and their Remedies" to the members of the Madras Young Men's Christian Association. In the absence of Dr. J. R. Henderson, of the Madras Christian College, Mr. G. Benton Smith presided. Dealing with antidotes to snake poisons, Captain Elliott said that the fallacies that occurred in connection with snake poision antidotes were innumerable, almost unbelievable, almost every village claimed to have unfailing remedies, most of them vegetable preparations for snake poison! People were never in doubt as to their efficacy; in fact they represented that they had tried and tested them and effected several cures with them. Several natives had come to him with such preparations and he found them all, by repeated experiments, absolutely worthless. The several so-called cures they had effected with the preparations had either been scorpion stings, pricks by thorns or by sharp stones, or bites by harmless snakes. He invited the many natives who came to him with "unfailing antidotes" to submit themselves to an injection of a dose of lethal poison and then prove the effect of the cures on their own persons. Needless to say that the invitation was never accepted. In this connection he dealt with Professor Muller's strychnine cure. He pointed out that Muller talked nonsense when he spoke of strychnine being an unfailing cure. From hundreds of experiments he (the lecturer) had made with strychnine on different animals, he found it to be absolutely useless. Professor Muller's remedy had now been exploded altogether. In fact it was found that, in a large number of cases, victims of snake poison had been killed more by the administration of the strychnine than from effects of the poison itself. An injection of ammonia as well as the swallowing of it were also spoken of as antidotes, but he was convinced that this was also useless. Alcohol was equally useless as an antidote; on the other hand it did harm. Referring to the immunity of snake charmers, he was inclined to think that some of them had obtained a certain amount of immunity by rubbing small quantities of poison into abrasions in the skin. They had a wonderful control over snakes which had, like horses, to be approached and treated gently if they were to be kept under control. The mongoose had a very large amount of immunity. He was not then sure of the exact figure, but he believed that a mongoose, weight for weight, would require, to kill it, 25 times the amount of poison which would kill a rabbit. The pig also was somewhat resistent to snake poison. Peafowl and guinea-fowl which were commonly credited with immunity, were no more so than other animals. Cats and dogs, which were also credited with immunity, owed their reputation to the same cause as snake-charmers, namely to their wonderful dexterity.

The serum of the Russel viper was to some extent antidotal, but its antidotal powers were not sufficiently powerful to make it a marketable product. Besides there was a certain amount of risk in obtaining serum from snakes. The same was the case with the mongoose which was a very difficult animal to deal with. The serum of the horse contained certain protective properties out of which was prepared the anti-venine which was tried and found to be a good antidote against snake poison. But to his mind the hope of the future in this matter lay in separating from the snake poison itself its own antidote. It would be difficult to tell them exactly how he thought it could be done. He thought it was possible that in snake poison itself there was not merely a lethal matter that killed, but side by side with it, at all events separable from it by heat and chemical processes, there remained a remedy which would be very powerful as an antidote. He thought that possibly one might be able by very careful experiments to separate such a remedy from the bile of the snake. There was quite enough to encourage them to think that there was a possibility that either from bile or serpent serum, or possibly by inoculating these into a resistent animal, they would be able to obtain a body which would be more powerful and stable than anything that they possessed at present as an antidote.

Captain Elliot then exhibited to the audience snake poison in a small bottle; which, he said, was the largest collection of snake poison in the world.—*Pioneer.*

RAMIE FIBRE.

A PLANTER ON A BIG SCALE.

Among the passengers stranded in Ceylon for a fortnight or so, by the break-down of the French steamer "Sydney," is Mr H. C. Bluntschli, of Siak, Sumatra, who for seven years has been giving his attention to the cultivation of fibre-yielding plants, chiefly Ramie, and the preparation of the fibre therefrom. Mr. Bluntschli (who has, for many years, been a reader of the *Tropical Agriculturist*), has just returned from Europe, where he has been making a systematic study of fibres in many of the Continental centres of manufacture as well as in Bradford and other places in the United Kingdom, and he has entered into an advantageous contract for a steady supply of his raw product. Mr. Bluntschli says the great matter is to get the right plant to grow (and he purposes visiting China to see some of the fibre plants there, specially China Grass.) He cuts a crop from his Ramie fields every six weeks—save that twice a year or so there is a rest from growth during the dry weather. The machines he uses gives from 1 to 3 per cent of clean fibre fit for shipment, while some use is made of bye-products. Mr. Bluntschli has experimented with pineapple fibre, getting £30 a ton for two tons to Europe, with an order for any quantity; also with Aloe and other plants. But he deems Ramie, so far, the best and most profitable—the drawback, however, for the planter being that there are at present so few buyers, most of the Bradford spinners, after certain unfortunate experiences, refusing to touch Ramie. Mr. Bluntschli is to send us his latest report on the subject. He is to visit each of the local Botanic Gardens and Kandy and Nuwara Eliya, and we bespeak attention, hoping he will have a pleasant and interesting time. Our visitor, who is a Swiss, speaks English well; and we only wish we had a capitalist of his calibre to develope a new industry in fibres in Ceylon.

OUR TEA EXPORT FOR 1901:

CEYLON LIKELY TO SHIP LESS THAN IN 1900 BY 5 OR 6 MILLION LB.

SUCH is the belief of Messrs. Forbes and Walker (who estimate our total export of tea at 142 million lb. of which only 100 millions are likely to go to London) and this, we think, is a very reasonable calculation, considering the general determination to be more careful about plucking and the probability of poor fields being abandoned, apart from the proposed "ten per cwt." reduction taking effect. Our leading Colombo Tea Brokers deserve credit for the promptitude with which they put forward their Tea Exports Estimate each year; and it will be seen from the following table that, although on the whole they have been farther from the mark than the Planters' Association—due perhaps to any revision on their part not being taken into account,—yet, in two seasons at least, their estimate was nearest to the actual result. In the following table we cannot give the P.A. estimate for 1901, because it will not appear for some days yet:—

CEYLON TEA EXPORTS.

	Estimated by Planters' Association.	Estimated by Messrs. Forbes & Walker.	Exports as per Chamber of Commerce Returns,	Exports according to Customs Returns,
	lb.	lb.	lb.	lb.
1901	—	142,000,000*	—	—
1900	142,000 000	125,000,000	148,431,639	—
1899	125,000,000	124,000,000	129,894,156	129,661,907
1898	120,000,000	120,000,000	119,769,071	122,113,573
1897	119,000,000	105 000,000	116,054,557	114,466,318
1896	101,000,000	89,000,000	108,141,412	11,0095,358
1895	90,000,000	90,000,000	97,939,871	98,581,060
1894	88,000,000	90,000,000	84,991,714	85,376,322
1893	77,000,000	78,000,000	84,406,064	82,269,353
	"*Observer*" *Office Estimates*:			
1892	80,000,000†		71,153,657	72,279,984
1891	68,000,000		68,274,420	67,719,371
1890	46,500,000		46,901,554	45,799,512
1889	32,000,000		34,048,085	34,345,859

It may be explained that the Customs enter the exports as each shipment is put on board a vessel in the harbour: while the Chamber only takes cognizance of the vessels and cargoes as they clear from the port.

Seeing that 34,671,446 lb. of our crop in 1900 went to Other Countries than the United Kingdom (or an increase of 8,725,414 lb. over 1899), it is a very reasonable estimate to put down 42 millions as going to Other Countries in 1901. But that would leave only 100 million lb. for London against 113,760,193 million lb. sent in the past year—or a decrease of nearly 13¾ million lb. So mote it be; for certainly that would be a great relief. We see the next Indian Tea Crop is spoken of as likely to be 5 million lb. in excess from new acreage in hearing; but that more than this is likely to be reduced through careful plucking, so that the London market in 1901 should see no surplus of tea supplies from either Ceylon or India.

* Of which 100 million lb. to United Kingdom; and 42,000,000, to Other Countries. † Planters and merchants whom we consulted were greatly out in their anticipations, for this year.

THE PAST YEAR'S TEA TRADE.

IN Messrs. Gow, Wilson and Stanton's circular which we issue as a Supplement, some interesting observations are made regarding the progress of the Indian and Ceylon tea trade during the past year. The total crop for export is estimated to reach 325,000,000 lb. (183,000 lb. being from India and 140,000 lb. from Ceylon) as against 305,000,000 lb. in the previous year; while the consumption at home and abroad was 310,000,000 lb. so that there was a surplus production of 15,000,000 lb. or two millions less than in the previous year. Reference is made to the adverse effect which the increase in duty has had upon the industry, and on the other hand to the satisfactory increase (13,000,000 lb.) that has taken place in the quantity taken by new markets, the greatest expansion being in Russia, and to the relief afforded by the reduction in warehouse charges. Dealing with Ceylon teas in particular the well-known Rood Lane brokers express the opinion that the heavy crop was due to the unusually favourable weather for flushing and the extensive use of manure, and while they admit that the quality from some estates has been very good, they show that on the other hand there was a larger proportion of poor liquoring teas. The manufacture of green tea is considered likely to afford much relief to the industry by reducing the production of black tea. Planters are also counselled to avoid coarse plucking. Figures are given of the imports, deliveries and stocks since 1897-8, and those for last year are given up to November.

CONTINENTAL MARKETS FOR INDIAN TEA.

(To the Editor of the *Home and Colonial Mail.*)

SIR,—A good deal of interest attaches to the recent resport by Mr. Harrington on "The Position and Prospects of the Continental Markets for Indian Tea." The real hope for the future of Indian tea lies in those markets. I have been a planter in India for many years, and have watched with much interest the gradnal development of the market for our teas in England itself. One thing which has all along struck me forcibly is that our Indian teas cannot force any market by a direct frontal attack. In England we had from the first a great deal in onr favonr, from the mere fact that Indian tea is grown by our own countrymen and with our own capital, but for all that it took many years to educate people np to the fact that the Indian article was better than the China. People now fully acknowledge that it was only by *blending* Indians with Chinas that the market was captured at all; so that until about eight or ten years ago it was practically impossible to buy pure unmixed Indian tea in any town outside London.

It was the same with the American campaign; no success attended the efforts of the commissioners for India and Ceylon until they worked through the *existing trade*, and subsidised the *dealers* who were already in possession of the market for Chinas, when they made purchases of Indians, either for selling pure or for blending as they might think fit.

The frontal attack is an old mistake, but it is still being repeated. The Indian Tea Association is attempting to force the consumption of our tea on the Continent in direct opposition to the merchants engaged in the China trade; even Mr. Harrington still clings to the idea, although he admits that the only progress made hitherto has been by blending, and, what is more, that the only hope in the future for strong Assams is by blending. Then further on in his report he makes a sort of forced admission that "blending with Ceylon or even China leaf should not be entirely barred."

In the Continental market we have to face three things:—

1. The general dislike of everything British, and the jealousy generally regarding our Colonial possessions and trade.

2. The existing taste for China tea, as distinguished from Indian.

3. The merchants engaged in the China trade.

The third item is by far the most formidable, if we attempt to set up an "opposition shop."

Let the committee of the Indian Tea Association modify its policy. Don't *push* the establishment of separate houses for the supply of pure Indian tea, but work mostly through the merchants already in the tea trade; bring persistently to their notice the *fact* of the superiority of our teas for *blending* purposes. In doing this a double purpose will be served—the consumer will be gradually trained to appreciate a stronger and better tea, and the merchant will gradually use a larger proportion of Indian, until in course of time there will be no China left in his canister; our tea will beat it purely on its merits.

This has been exactly the course of events in Great Britain, in the Colonies, and will be everywhere.—Yours faithfully. C. B.

—*H. and C. Mail*, Dec. 28.

TRAVANCORE GREEN TEAS.

TO THE EDITOR, "INDIAN GARDENING AND PLANTING."

SIR,—As I have just despatched a small invoice of green teas to America I send you as promised a set of samples. Of course the teas are by no means extra fine, being made from ordinary medium pluckings, and as the hot weather is somewhat against manufacture of green tea leaf are almost certain to get a small amount of fermention while in transit from the fi ld. Of the quality of the leaf there is little to be said, as it is very ordinary, but I venture to say the teas have the chiracteristics of true green teas of Mysore character.

One set of samples are plain, the other set of *the same tea* but slightly glazed. We are shamefully treated I consider, in that owing to the red tape rules of the I P A we are in practice debarred from getting "the grant-in-aid." Theoretically we can do so by sending samples to Calcutta from our shipping agents at Cochin, but we are told that the teas must *not be shipped* until the samples have been reported on and results made known, otherwise we lose the grant: this would mean a delay of three weeks at least and, if a steamer was missed during the interval, perhaps seven or eight weeks.

Common sense, one would think, would suggest that, the samples having been drawn and despatched to Calcutta by the Cochin agents, the teas might be allowed to depart by first steamer, the grant-in-aid being sent to the shipper if the teas passed the standard. Unfortunately, no one here but myself takes any interest in the question, and I am looked on as a sort of lunatic with a fad, but I venture to prophesy that within two years (unless prices mend, many will be making green tea for sale, of which there is a considerable scope in Canadian, American, and Russian markets. Later on, when the rains commence, I hope to go regularly at it, and then I shall send you samples of some really fine teas for price.

H. DRUMMOND DEANE.

Stagbrook, Peermaad, Travancore, S. India; 2nd Jan. 1901.

REPORT ON MR. DRUMMOND DEANE'S GREEN TEAS.

TO THE EDITOR "INDIAN GARDENING AND PLANTING."

DEAR SIR,—We have the pleasure to hand you our report, on your samples from Stagbrook Estate.

(GLAZED) YOUNG HYSON.—Well twisted greenish glazed Pekoe leaf, fair tip, pure pungent flavoury liquor, valuation nominal.

(GLAZED) No. 1 HYSON.—Well curled glazed Orange Pekoe leaf, good tip, pure pungent flavoury liquor, valuation nominal.

IMPERIAL.—Rather flat greenish Pekoe Souchong leaf, pure pungent flavoury liquor, colour of infused leaf is good.

No. 1. HYSON.—Well twisted greenish wiry Pekoe, fair tip, pure pungent flavoury.

YOUNG HYSON.—Very well twisted Pekoe leaf, good tip, pure pungent flavoury.

(GLOSSED) IMPERIAL.—Flat greenish Pekoe Souchong, leaf pure pungent flavoury, colour of the infused leaf is good.

These are as fine samples as we have seen of true *Namuna* green teas. They have not the appearance of green teas, as manufactured in China, but in our opinion, it is a matter of future experience whether the American market will take such teas on their merits in preference to teas made on the old fashioned China methods. The only way to arrive at this is by selling an invoice in America, and we are confident such pure liquoring teas would meet with a favourable reception.

MORAN AND CO.

3, Mango Lane; Calcutta 9th Jan. 1901.

TEA-GROWING IN HUNGARY.

The example of Russia has inspired Austria-Hungary with a belief that she can "grow her own tea." On the initiative of Count Zichy, who recently returned from a tour through Asia, the Hungarian Minister of Agriculture ordered that trials should be made in various parts of the country with tea plantations. With this in view, large quantities of seeds, together with about one thousand tea plants, were imported from Shanghai; but, notwithstanding the utmost care, the plantations have been failures. According to exports, when the selected plants arrived at Fiume, they were more fit for burning than for planting. The Agricultural Department has not yet given up the hope of obtaining favourable results, and has decided to make fresh attempts; for which purpose plants have been brought over from Tiflis. These have been distributed throughout Hungary to the State nurseries.—*Planting Opinion.*

CARDAMOMS IN INDIA.

A report by Mr. J. W. Mollison, Deputy Director of Agriculture, Poona, according to an Indian contemporary, claims the cardamom plant to be indigenous to Western and Southern India. It is found in abundance in Kanara, Mysore, and Travancore, and as here, affects rich, moist, forest soils—the essential conditions for successful cultivation being "a soil of loam or clay loam consistence, kept moist by favourable position, but not wet at all seasons; and the garden should by

its natural situation be protected from strong winds, and shade trees should be provided." We suppose there is nothing new in this description; and Ceylon Planters have little to learn from it, and must only wish that they could always command the above conditions. They have, however, succeeded with much less, though always appreciating sheltered nooks and shady ravines for the cultivation. The cardamom is not a product about which much is written now-a days. Its cultivation and preparation do not call for much skill; and those who are in it prefer to keep their own counsel, with their profits! Outside our Executive Council, it would be difficult to find ten men who think that the product is, in any sense, in the experimental stage. Still, it is interesting to learn that in Kanara the crop is chiefly raised from seed, while elsewhere the rhizomes used for propagation are subdivided and planted with their leaves attached in 18 inch pits filled with leaf mould. Little guidance is obtained from the statement that a well-grown plant yields up to half-a-pound of dry cardamoms, as we know what such statements mean with coffee, or any other shrub or tree. It is the average yield which decides the profit and not any exceptional feature.

The statement, however, that the cultivation of cardamoms is attended with considerable risk, is one which it is well to bring to the notice of our readers, as prevention is always better than cure, and precautions against disease to which all plant life is liable can be taken without feeling or causing alarm. Our readers will please note that: "In most of the Kanara gardens a so called disease has appeared in the cardamom crops and is restricting cultivation. The affected plants do not present any particular indications of disease, but simply do not thrive. The leaves in parts become yellow and wither. The effect is that the plants have no vigor of growth. It may be taken as certain that the cardamom, like any other cultivated plant, degenerates when grown for long periods under precisely the same conditions of soil and climate and without any change in methods of propagation or reproduction. The vigour of any cultivated plant may be renewed from time to time by change of soil, change of seed, by rotation of crops and by other regenerating influences. The Kanara cardamom crops have for a long period been grown without any changes in the system of manuring, propagation, and general cultivation, and Mr. Mollison is of opinion that the diseased conditions referred to have been induced by these causes. However, within recent years, borers and grubs have caused considerable damage to the cardamom crops, and the cultivators assert as a reason, that they have been prevented by forest conservation from using for leaf-mould the leaves and twigs of certain trees containing astringent properties and incapable of harbouring insect life. It is of interest to note that snakes and rats are particularly fond of the fruit of the cardamom plant." And so are porcupine and Kandyan villagers!

RUBBER.

SUMATRA RUBBER.—I have received a circular from the Tandjong Kassau Estate in Sumatra, giving particulars of the cultivation of rubber on the Bander Betsy Estate. This estate is situated next to that of the Russian American India-rubber Company, and a large number of Ficus Elastica trees have already been planted. Samples of the rubber already obtained can be had from Mr. J. Poc, Almaar, Holland.

RUBBER, IN JAVA.—A meeting of coffee planters has been held at Malong, in Java. A German scientist addressed the meeting upon the subject of rubber cultivation, and admitted that it would hardly pay on a large scale; but mentioned that a factory had been started in Singapore for preparing gutta from leaves on the Ledeboer system. One of the planters at the meeting, however, stated that the company had failed to raise the capital for the scheme, and that no share had been taken.

RUBBBER IN GAMBIA.—The report of the Administrator of Gambia for the past year gives a highly favourable description of the conditions of the colony. The revenue was £46,840, and was the largest on record, while the expenditure was £30,405, so that at the end of the year the accumulated surplus was £43,490. There is a large decrease in the exports of rubber on account of the practical extinction of the rubber plants by ignorant persons who wander about rubber-cutting in the bush.

RUBBER IN WEST AFRICA.—Under the auspices of the African Section of the Liverpool Chamber of Commerce Mr. P. Hitchens, forest inspector Southern Nigeria, read an address at the Sale Room, Exchange Buildings, Liverpool, on the 3rd instant, on the district of West Africa, known as Benin City Territories. In the middle delta there are palm oil trees, cane, etc. In the upper regions there were no forests—there were grass lands, and here and there were to be found patches of rubber trees. In the middle belt also gutta-percha trees had been found, and next year he hoped large quantities would be shipped from the ports near to the Benin City Territories. Having explained the method of tapping rubber trees and the means taken to preserve the trees from destruction, he said that seeds of rubber trees had been planted along four hundred and fifty miles of road and the seedlings were now growing, and would ultimately grow four deep along this length of roadway. The value of the yield at 2s per pound would be about £140,800. This plan would, he thought, solve the problem of the reafforestation of West Africa.—From *India-Rubber Trades' Journal*. Dec. 10.

SNIPE IN BANGKOK.

Let others talk of the glories of grouse and indulge in rapturous talk about the purple heather, and all other delights of Highland shooting. We are satisfied for the nonce with the bonny little snipe. Imagine the holy calm that reigns on a Siamese landscape as the sun, for a few short minutes heralded by the grey dawn, gilds the smiling fields of green rice and the tops of the palms and feathery bamboos. The air is fresh and bracing, and the matutinal cup of coffee and modicum of fruit are eagerly welcomed. Brilliant drops of dew like rare jewels deck every blade of grass and giant-leaved shrub; and these brushed by the sportsman's nether garments from the knee-high verdure strike with an icy chill ... to the skin. No time is lost in sallying forth and before a dozen steps are taken into the paddy the first brown patch, hardly distinguishable in the uncertain light, whirrs up at the sportsman's feet and with a "tweet," "tweet," is soon lost in rapid flight quite oblivious of the ill-directed

storm of pellets that are sent to arrest his retreat. Another few steps and another bird rises and then another, but the eye of the destroyer is too quick for these and a couple of well-directed shots lay them, with wings outstretched, on the water from which they have just risen. The day has now fairly begun and, only diversified with the advent of an occasional land rail, a plump teal, or perchance a gorgeous truncated pheasant, the fun becomes fast and furious and the bright eyed, elegantly marked little snipe plentiful in the hand of the nimble attendant. Indefatigably the work goes in till near noontide when heat and exhaustion call for a halt under some spreading clump of bamboos or peasant's homestead, where, lost in dreamy indolence superinduced by the cool zephyrs rustling through the foliage, the eye wanders over the peaceful picture, the glorious tints of orange, rich brown, and amber. Then, the basket contains the modest lunch, consisting of a little curry, a sandwich and some fruit with a bottle of some innocuous beverage. With such simple fare the true sportsman is content. But a truce to reveries—after an hour's rest he sets forth with renewed vigour until the lengthening shadows remind him of the necessity of returning. Then as the day wanes he can reach home, tired and foot-sore, may be, but feeling brimful of health and spirits, able to do ample justice to his dinner, conscious that he has worked for and shot his game like a man.—*Bankok Times*, Dec. 28.

HOW TO MAKE TEA—AND SELL IT.

A correspondent, writing to a home medical journal, asks how tannin can be eliminated from tea. We presume the inquirer follows the usual method of allowing his view [brew ?] to draw *ad infin.* When will it dawn on tea drinkers that stewing is not the proper method of treating leaf: despite reiterated advice a cup of drinkable tea is yet unattainable in Calcutta, from the can of the peripatetic vendor of *gurum cha* among the *ghariwans* to that dispensed by fair hands across boudoir tables. A tea kiosk at the Eden Gardens in the evening, and the neighbourhood of the Red Road in the morn, might stimulate consumption and teach our tea concocters a lesson. Have our agency houses ever heard of Lockhart's coffee rooms? or are they too genteel?—*Indian Planters' Gazette*, Jan. 12.

COCONUT OIL INDTSTRY OF THE PHILIPPINES.

ALSO SOAP, CANDLES, TANNERIES, AND OTHER INDUSTRIES.

(*Special Correspondence to the New York Reporter.*)

Iloilo, P. I., Oct. 13. 1900.

The new administration of affairs in the Philippine Islands has brought about many new and important changes in the industries of the former unsettled archipelago. This Spaniards always managed to keep the people of the country in such a turmoil that the owners of

THE LARGE COCONUT GROVES,

never considered it safe to operate anything more than miniature oil-producing plant in connection with their immense groves of coconuts. The proprietors of the plantations and the operators of the plant in which the coconuts were pressed for the purpose of securing the oily materials therein, were subjected not only to heavy taxtation, but were constantly in danger of destruction by raiders, looters and incendiaries. Your correspondent has interviewed very many former wealthy owners of immense coconut groves and copra preparing establishments, who are now poor because of various forces of insurgents or revengeful Spaniards who burned the buildings and destroyed the trees. With the advent of the new administration, however, not only is peace assured to these industrial pursuits, but the taxation is not so great as before, and the proprietors have some chance to make a good income from the business. In fact, some of the parties who have recently taken hold of the cocoaut oil industry in the Philippines are well on the way to success and prosperity. Evidently there is a grand opening here for the investment of capital in the immense tracts of coconut lands that may be found everywhere in the islands. These lands are often without ownership, and when owners appear, they can be bought off at ridiculously low prices. I have seen miles and miles of coconut trees, all flourishing in first-class order, sold at the rate of about $1 per acre.

The coconut lands are in the low and rich soil of the island, of which there is an abundance. The trees grow from 50 to 100 feet high, and the natives can depend upon collecting crops frequently for the purpose of securing the meat of the fruit, the milk, the fiber of the husk, or the copra, the latter being obtained by cutting the meat into pieces and drying it. The oil is gotten by subjecting the meat to pressure as will be noted later. On horseback I have ridden for days along stretches of country in which the coconut groves are closely joined, every tree of full size and bearing considerable fruit without any cultivation at all, for the natives never give any time or attention to the trees, and go near them only to gather the fruits.

The natives

GET AT THE FRUIT

by ascending the tall trees by means of notches cut in the sides. They apparently walk up the trees with ease. Parties engaging in the copra or the coconut oil business in the Philippines make it a point to first hire about ten natives for each grove of from ten to fifteen acres, and these natives are all capable of ascending the trees. They can be secured for ten cents per day. One or two other natives are needed to do a little cultivating and looking after the property.

The process of getting

THE VALUABLE OILS

from the coconuts consists in first procuring the coconuts from the trees. The fruit is made into large piles in the groves and is collected by other natives who operate the bull carts. The nuts are now taken to the bamboo sheds of the groves, and usually an owner of several miles of groves will have the sheds near the centre of all of the groves, and he will there have his office. A number of natives are employed at this point to remove the husks and the husks are by no means wasted, for they are spread in the sun for a few weeks until thoroughly dry, which causes the fiber to open and loosen to such extent as to permit the coconut fibre workers to rip the fibre off and work it into strands for the making of certain native yarns and fabrics. The sale of the husks brings in quite an income yearly. On a few coconut plantations I noticed that the proprietors made quite a side issue by working the fiber themselves, operating several looms weaving fabrics which brought in good profits. After the husks are removed from the coconut the shells are broken and the meat removed by another set of natives, all working for the extremely low price of from ten to fifteen cents per day and doing a good, full day's work at that. Furthermore the natives calculate upon feeding and lodging themselves at this low rate of wages, but a good proportion of their food comes from the coconut meat, of which they are fond. Most of the owners of the large groves also furnish quantities of rice for their help. As to lodging places, the natives drop to the floor or ground wherever they happen to be at dark and sleep

until morning. Some of the workmen have families, and these erect nipa huts in the locality and live there.

After the meat is cut out from the coconuts, it is chopped into bits by hand knives, mechanical devices fitted with rolls and parallelly arranged blades, and spirally fitted knives for accomplishing the same purpose.

THE CUTTING OF THE COCONUT MEAT

involves considerable work, and after it is done right, the meat is spread out in the sun to dry. One may see wide expanses of white surface where this meat is distributed over extensive territory for purposes of drying. The drying is accomplished in a few days, after which the material which is now called commercially "copra," is ready for packing. The copra is usually packed in mats of native make and shipped to Europe, Japan, Russia, and sometimes to America. In nearly all cases the copra is used for manufacture of oils and soaps, although it finds its way into many lines of saleable articles when it arrives at the final markets. Candy makers buy much of it, while bakers and others take certain quantities.

A very large proportion of the cocoanuts and the copra go to waste every season and this wastage is equal to good incomes for someone. The writer has seen hundreds of hogs feeding on the rich coconuts in the groves simply because no one cares enough about the product to collect it. There is many more times greater products of the fruit here than is needed to supply the market at the present time, simply because the local raisers of the fruit and the makers of copra do not provide to furnish the demand. If the purchasing agents of other countries could always rely upon obtaining all of the copra they want in the Philippines, a vasty greater number of orders would be placed than at present. I know of many instances where representatives of foreign purchasing concerns have failed to secure the quantity of copra required by them, and of course this sort of thing tends to turn the market to other islands.

THE COCONUT OIL FACTORY OF THE PHILIPPINES

is fitted ordinarily with very crude machinery of ancient type. The principal piece of machinery is the press. In many cases these presses are only of the old screw pattern with a large worm shaft, and the whole force of natives employed in the vicinity of the works is called upon at the time the big levers are operated for turning the worm shaft. I have noticed as many as thirty men on the lever. They work at the lever for hours, pressing the big platen down on the bits of cocoanut, pressing the last drop of oily matter from the same. In other places, they have steam presses, in which case the work is done in more of a mechanical order and on a much larger scale with considerably less manual labour. The steam presses call for the employment of a steam-power plant, and this is one of the reasons why they are not so extentively used, Recently, however, there have been some turbine and other kinds of water wheels shipped here and the writer has observed that a number of cocoanut oil establishments have adopted these forms of power-producing devices for the operating of the presses. Where they can get a steady run of water, they are assured of good and regular service the entire year. Again in a few instances, where they were not required to operate the presses constantly, they were using windmills, obtaining the power from these. Again I saw that they had animal traction employed at other places. In several of the more up-to-date works they were operating hydraulic presses to good advantage. Some of the Americans, who have taken hold of the industry and who are making rich returns, are using the hydraulic presses. As to taxation, factories in which cocoanut oils are made pay $15 gold per year to the Government. For each hydraulic or steam press $6 is charged in addition. Cocoanut oil refineries pay $15 gold. The collections are made quarterly by the collectors of internal revenue of the islands, there being collectors at every port, and at all important interior cities and towns. At present army officers have charge of the collections. Later on civilians will be in charge.

With the general revival of manufacturing and other

INDUSTRIES OF THE PHILIPPINES,

there has come a good demand for all of the products of the plantations and the shops. Oils are in very good demand for the purposes of lubrication, employment in making soaps, candles, illuminating purposes, and many others. There can hardly be enough coconut oil made here during the next five years to be equal to local demand alone, while the exporting demand has not decreased. The result is that oils are coming in from other countries, and these, too, meet with quick consumption. I have been in localities where for weeks the entire oil business is stranded for lack of any supplies. Prices take big jumps under such circumstances. Taking in rotation the various channels for consumption of coconut oils in the Philippines, for the benefit of Americans or others who are contemplating engaging in what is going to be one of the best money-making industries of the new possessions, we find that the oil lamps consume large quantities annually. The shipments of illuminating oils to the Philippines are chiefly kerosene, and the expense is so high by the time the oil is here that domestic oils are sought for. Therefore, many of the street lights and lights for the churches and public buildings, as well as for houses, are made for burning coconut oil. The main consumption for the oils will be for these lights, and the amount consumed will always be large for the reason that, in addition to ordinary lighting purposes, the natives utilize considerable oil in burning lights steadily at church and home altars, besides in the torches of numerous night religious processions. Wakes and feasts are always in progress, at which the burning of oil is large. The result is that the oil manufacturers of the Philippines are constantly doing a lucrative business.

HEMP

has been one of the staple industries of the Philippines since the beginning of the habitation of the country. Hemp manufacturers now manufacture many lines of twines, threads, cords, and fabrics in which the fiber has received a high gloss by means of employing oiled surfaces in imitation of waxed textures. The oil is applied during the processes of winding and warping the yarns, and many gallons of it are consumed annually in the various textile manufacturing districts. After the oils are applied, the materials are subjected to the friction of brush rolls by which the gloss is further heightened.

THE SOAP MAKERS

of the Philippines manufacture little white slabs of soap for use in washing both clothes and persons. These soaps contain large percentages of coconut oils, and some of the fats of animals. The coconut oil refiners sell much oil to the makers of the so-called fancy soaps, which soaps are really dangerous to use, as the native manufacturers employ some of the dye woods for coloring the soaps, which are poisonous. I visited several soap works where they were combining coconut oils with fats, and at certain stages of the operation pieces of dye woods were strewn in the mass, the dye releasing itself and mixing rapidly with the whitish mass of oil and soap. The color was red in one case, in another yellow, while still another was almost green. Then, after enough color appeared, the dye woods were removed and the soaps finished. The soap makers take very considerable quantities of oils, and with the increased additions to the soap making plants and the erection of new works the demand for coconut oils will be proportionately larger.

THE CANDLE MARKERS OF THE PHILIPPINES

do a thriving business, owing to the great amount of candle material consumed for religious purposes in both churches and homes. There are thousands of families who have lost dear ones and who have erected altars in their houses in memory of the departed, at which series of candles are constantly burning. The candle makers buy the lower grades of coconut oils, and, together with fats and greases, manage to turn out some low-grade candles suitable for the purposes of the islands. The best grades of

wax and sperm candles are sent here from other countries, but they cost too much for general service, and usually the home made, cheap candle is used.

The Philippines have in them a great many more

LEATHER TANNERIES

than strangers suppose. There is a large consumption of leather here for the making of shoes for use on Sundays and feast days. Harness leathers are wanted, and belts, etc. In nearly all of the cities or of the country there are leather tanneries in operation, and these have taken new life since American occupation. Your correspondent visited several of these native tanneries and found that in every case there had been increased orders, and that it was the intention to add more machinery and increase the capacity of the work. The native tanners find an abundance of tanning material in the country, and this comes cheap to them. They also use considerable fats and oils in the finishing processes for softening the fibre of the leather and in getting the necessary glossy finish. Since they have tried to make leather belting for the power plants of the islands, considerable oily substance has been called for. The natives formerly turned out belting so stiff and harsh that few would buy it, preferring to pay ten times higher prices for the imported belting that would work well on pulleys. But among the discharged soldiers of the United States Army there were some who were formerly tanners, and these men have seen the money to be made in the business, and they have interested themselves with the native owners, with the result that the belting turned out by the native tanneries is now suitable for the transmission of power on frictional surfaces of pulleys.

It has become a general custom in the Phillippines to always calculate upon certain important portions of articles shipped here from other countries to be missing. Paints have been shipped here from American and other nations in vast lots during the past year, but the necessary oils are often absent, with the result that the native painter uses any available oil. I have seen these native painters dump quantities of coconut-oil into colors so as to thin the colors and make them go over more surface. The oils prevent the drying of the colours for a long time, but no one minds this. The painters of the islands are good customers of the oils, and the coconut oil makers have no difficulty in selling their products, and the chances for additional manufacturers are good.

Americans or others who would engage in the making of coconut oils in the Philippines should calculate upon securing the entire plant for the oil manufacture in America, as there are no presses or refining apparatus here. One can buy the engine here, also the vats, pumps, belting and small devices. All other equipments should be purchased ahead and sent here. The necessary labor can be secured in the immediate vicinity. I know of several Americans who are sitting back in their carriages and riding about, while their newly purchased oil works are paying handsome profits under the superintendence of a Filipino oil manufacturer at wages equal to about $1 gold per day, and a very small commission on profits. This superintendent hires several overseers of departments at 40 to 50 cents per day and no commission, and the overseers get all the labor they want at from 10 to 15 cents per day. The coconuts can be raised or bought outright, or the copra can be purchased ready to crush and refine. There is certainly money in this business now that the soldiers of the islands afford the necessary protection to industries. If need be, soldiers will be provided to guard outlying works.—*Oil Paint and Drug Reporter.*

THE TEA TRADE IN 1900.

In its review of tea for the past year the *Grocer* has the following:—

CEYLON TEA.

This market, as regards priced teas, is ruled by the Indian market, but fine quality Pekoes and all leaf teas suitable for export have a market of their own, more or less, while fine broken Pekoes move up and down 3d and 4d per lb. throughout the year as quality improves or falls off. The enormous extra supply, however, for the first five months of the year greatly added to the collapse of the common tea market. From January 1, 1900, to May 31 we received 11¼ million lb. more than in 1899 to same date, while for the year we shall receive about 112 million lb. against 96¼ million lb in 1899, making a total increase of between 15 and 16 million lb. Deliveries, however, head the list in increases, and are most satisfactory—viz, 11 million lb, or say 105 million lb, against 94¼ million lb in 1899. We have, however, added on to our stock about 6 million lb, and, as we said in our remarks on Indian tea, the outlook for the new year is not a bright one when we consider that India and Ceylon together will add some 17 million lb on to the stock by January 1, 1901. We can only hope that the present ruinous rates will help to curtail any extra supplies we might otherwise get from our "spicy colony." Re-exports are accountable for 1¾ million lb of the increased deliveries. The quality of this year's supplies has been a fair average. The average prices of the fine liquoring leaf teas and brokens until August were decidedly under previous seasons, but since then values have improved considerably, the trade having competed for them, owing, no doubt, to the poor value offering in Indian teas between 8d and 1s per lb. In previous years Russian orders were generally 2d per lb over trade ideas, but of late we find the latter have been willing to take them at even more money. The market opened in January with a very strong tone and a quotation of 6¼d to 6½d for leaf, but prices before the end of the month gave way for the lower grades, and showed small ups and downs for several months, while the better teas rose until May or June. Sweet common broken Pekoes were a feature at 5¼d to 6d, and have remained low for the rest of the year, with a rise of ½d per lb about July, only to fall away again later on. In July-August we find quotations of 5d for leaf, and since then there has been a more or less falling market for common kinds until we reached 4¼d and 4¾d for fair leaf teas, and 5¼d to 6d for sweet broken Pekoes. The quality of fine teas was very good in October, and long prices were, and are, being realised. Choice teas have been scarce throughout the year, but as we write we find that the lower grades are nearly 2d per lb cheaper than they were at the end of 1899.

The exports for 1900 from Colombo direct to other countries than the United Kingdom will be about 32 million lb, Russia being credited with nearly 9 million lb, or an increase of more than 5 million lb over 1899; while America and Australia both taken 1 million lb extra —*Home and Colonial Mail*, Jan. 4.

ARTIFICIAL MANURES.—The *Englishman* understands that a scheme is under consideration for the starting of a company having for its object the manufacture in India of artificial manures. This movement has had its origin in the important part that scientific methods of manuring have been found to play in improving the quality and increasing the yield of indigo.—*Pioneer*, Jan. 7.

Correspondence.

To the Editor.

TAX ON TEA.

[*To the Editor*, "HOME AND COLONIAL MAIL."]

SIR,—Tea is essentially the beverage of the masses—it refreshes, invigorates, and stimulates, without if properly brewed, possessing any baneful properties ; and it has come into such universal use amongst all classes that it can no longer be looked upon as a luxury, but must be treated as an actual necessity to every man, woman, and child in Great Britain; and yet the policy of our Government has always been to do its utmost to restrict the use of tea by taxing it to a greater degree than any other necessary article of food or drink imported into our islands.

This tax at present amounts to fully cent. per cent upon seven-eighths of the tea we drink,—*i.e.* tea that is sold at 6d per lb in Mincing Lane has to pay a tax of another 6d per lb before it can reach the grocers, and in gross it yields a yearly total of fully £6,000,000, to the Exchequer.

Now your ordinary readers will say that this subject does not affect them, inasmuch as the price of tea retailed to the public has steadily declined of late years, and this in spite of the addition of 2d to the tax made in the spring of last year.

This, indeed, is the case at the present moment; but it cannot and will not last for, as, of course, is not generally known, although none the less an absolute fact, the entire sum produced by the additional tax has come out of the pockets of the unfortunate tea-growers and producers (who for some years past have been working with a very small margin of profit). The result is that much more than half the tea now imported is selling in Mincing Lane considerably below the cost of production, and tea-growers are being ruined. The end is not far to seek—tea plantations or gardens,as we call them,cannot be carried on at a loss and many,if not most, of them will be closed altogether, thus throwing numberless poor natives and many of our own countrymen out of employment in India and Ceylon ; shareholders will be ruined, and the total production will be naturally reduced, with the inevitable consequence that prices will rise again, and the English working man will have to pay probably half as much again for his cup of tea, or go without it altogether. The Government will find, when it is too late, that it has been killing the goose that has been laying the golden eggs, as it will have a very considerably reduced total upon which to levy its unjust tax, and then the only way in which it can recoup itself will be by raising the tax to 9d or 1s, which would in the course of a short time stamp out the industry altogether.

The above is no exaggerated picture, but a plain, bare statement of facts, and of what must inevitably come about unless the masses of the tea-drinking English public bestir themselves, and insist upon this most shameful and oppressive tax being at once very materially reduced, if not removed altogether.

Time was when we heard the cry of a "free breakfast table" ; and we might yet have distant visions of this proof of the freedom and prosperity of our country, if every tea drinker in England, Scotland, and Ireland, would raise a protest against this crying injustice ; and even if necessary make it a party cry. For myself, staunch Conservative as I have been all my life, and had hoped to remain, I would be strongly tempted to vote Liberal at the next election if, failing our present Government, the Liberals would promise to redress this evil before it is too late.

I have spent the best part of my life in growing and making tea, and, if you will believe me, really know something about the subject I have tried to treat of. Everything connected with the tea industry is very dear to me, and it was never in such dire distress before. This is chiefly due to the imposition of that extra 2d on the tax last March. That, at least, was the last straw, and unless relief comes quickly the great Indian tea industry will before long have become in a great measure a thing of the past.

I enclose my card, and remain, yours faithfully,

J. S. H.

London, Dec. 30, 1900.

TEA AND "MANURO-PHOBIA."

Jan. 15.

DEAR SIR,—How prejudice can blind one to reason, is finely illustrated in Mr. N. C. Davidson's letter which you published in last night's paper. He has made up his mind against Mr. Rosling's proposal, and bases his opposition to it on the ground that those who have not helped over-production by forcing manures, should not be called upon to suffer for the benefit of those who have, he thinks, brought about all the trouble. I do not say that Mr. Rosling's is a scheme on which there cannot be two opinions ; but it does *not* call for any self sacrifice, as he clearly showed. On the contrary, if his expectations are fulfilled, it is the high estates which will benefit more than those in the low-country from enhanced prices.

Over-production is a fact ; but what is the warrant for the assumption, on which Mr. Davidson builds his opposition—that it is forcing manures which have caused over-production ? It is only within the last three or four years at most that forcing manures are alleged to have been used. Assuming the truth of the allegation, what have they forced the bushes to in four years ? The exports have increased from 116 million lb. of tea in 1897 to 148 millions in 1900. Is a progressive increase of 32 million lb. in four years anything out of the way, simply allowing for the development of young bushes over about 60,000 to 70,000 acres, to say nothing of extensions ? Apply another test, do 148 million lb. represent an excessive yield for about 400,000 acres under tea ? It works out an average of only 370 lb. an acre. The theory of forcing manures cannot be supported by statistics. It is a chimera of those who have forcing manures on the brain, and who do not understand manuring with brains. There may be a few hundred, or even a few thousand, acres which have been forced. Others have had only just and liberal treatment to keep the bushes in heart, but for which the acreage abandoned and the drop in exports would have ruined hundreds of stout and willing men.

LIVE AND LET LIVE.

PER CONTRA.

Amherst, Udapussellawa, Jan. 16.

Sir,—In the footnote to my letter (*vide* local "Times" of 14th) it is said that very little manuring of any sort is done in India, and that forcing manures are practically unknown there. If this is the case it only strengthens my argument, as it is quite absurd to think that India will join us in the abandonment of 10 per cent. of bearing tea as long as we go on glutting the market with artificial aids. Why don't people who are crying out against the Over-production, put it down to its real cause, viz., *manure.* I know estates at high elevations (4,800 ft. to 5,000 ft.) that have nearly doubled their yield from fields that would give 450 lb. to 500 lb. naturally and, *pace* Mr. W. D. Bosanquet, there are very few estates that have reached the stage of manuring half every year *of their whole bearing acreage.* A few may be doing so, and they are more than anything else the curse of Ceylon and the tea industry. Mr. Kelway Bamber in his pamphlet page 74 says: "There is little doubt that the present crop of Ceylon could be increased by ⅓ or more, and this without the employment of very expensive, though somewhat stimulating, manures. But prices would drop, &c., &c." With estates at liberty to use manure *ad lib*, the mere fact of abandoning 10 per cent. of our acreage will have absolutely no effect on the present output and we should be worse off than ever. I would suggest:—

1. Put a stop to manuring by a prohibitive duty. *Then* abandon 10 per cent. if necessary.
2. Get Ceylon and Indian Governments to put a stop to further increase of area under tea—Yours, &c.,

NORTH C. DAVIDSON.

THE SILVER OAK—A QUERY.

Delta, Pussellawa, 19th Jan., 1901.

Dear Sir,—Can you give me any information about the silver oak? Is it a quick-growing fuel tree or merely ornamental and about what size does it grow? Yours faithfully,

A. L. F,

[In a list of over fifty kinds of oak with popular English names, we cannot find "the Silver Oak." Does our correspondent mean 'the silky oak" of Queensland, which is the well-known *grevillea robusta* that ought to, and no doubt does, grow rapidly to be a very large tree in the delightful climate and soil of Pussellawa? There is besides the "silver tree" (Leucadendron argenteum) or "Witteboom" of Cape Colonists; but it is a small shrub useful for fuel.—Ed. *T.A.*]

OVER-PRODUCTION AND THE REMEDY.

Jan. 23.

Sir,—Mr. Rosling's proposal, which I have written in support of, is certainly not put forward from the altruistic point of view, nor does it ask anyone to give away a part of his profit for someone else's benefit, or it would deservedly earn Mr. Wiggin's title of "Puerile." The essence of the proposal is that the letting of 10 per cent of the acreage of India and Ceylon run unplucked, will reduce the output of tea by 25 million lb., and that 25 million lb., taken off the market, will raise the price of tea 1d per lb. Granted the correctness of the above premises, and the rest is capable of proof, and each estate can work out the result for itself. 25 million lb. is about seven per cent, of the probable yield for 1901. I give a few examples of how the plan would work and each estate can correct the figures in the light of its own estimate. My own belief is that the high estates would benefit more than the low, and that the rise in teas of high quality would be more probably 1½d per lb., as their loss would be more felt in the market.—Yours etc., faithfully,

WILLIAM D. BOSANQUET.

Take 3 average estates of 500 acres giving at present 500 lb. of tea per acre at three elevations.

HIGH ESTATE.

500 lb. per acre at 9d nett or 54cts=250,000 lb ...	=R135,000
Expenditure, at 30cts per lb. ...	=R 75,000
Profit ...	R 60,000
50 acres at 400 lb. per acre taken out=20,000 lb. 230,000 lb. of tea at 10d nett of 60cts ...	=R138,000
Expenditure, less saving on 50 acres R5,000 ...	=R 70,000
Profit ...	R 68,000

MEDIUM ESTATE.

500 lb. per acre at 6½d nett or 39cts=250,000 lb. ...	=R 97,500
Expenditure, at 26cts per lb. ...	=R 65,000
Profit ...	R 32,000
50 acres at 300 lb. per acre taken out=15,000 lb.; 235,000 lb. of tea at 7½d nett or 45cts ...	=R105,750
Expenditure, less saving on 50 acres	=R 62,000
Profit ...	R 43,750

LOW ESTATE.

500 lb. per acre at 4½d nett or 27 cts =250,000 lb.	=R 67,500
Expenditure at 22 cts per lb. ...	=R 55,000
Profit ...	R 12,500
50 acres at 300 lb. per acre taken out =15,000 lb.235,000 lb. of tea at 5½d nett or 33 cts	=R 77,550
Expenditure, less saving on 50 acres	=R 53,000
Profit ...	R 24,559

FINALLY TAKE THE BEST ESATE I KNOW.

500 acres at 800 lb. per acre at 8½d or 51 cts	=R204,000
Expenditure, at 24 cts per lb. ...	=R 96,000
Profit ...	R108,000
450 acres at 800 lb.=360,000 lb. at 9½d or 57 cts	=R205,200
Expenditure, less saving on 50 acres,	R 90,000
Profit ...	R115,200

The figures are, of course, only approximate.

W.D.B.

II.

Amherst, Udapussellawa, Jan. 23.

SIR,—In a controversy such as is going on, the subject of over-production and its remedies, I am surprised at your admitting remarks like those contained in the first two paras of Mr. A R Wiggin's letter.* They might easily have been deleted. Abuse is no argument, and I do not suppose you are going to add a new suggested remedy to your list, viz., "abuse those who have been deservedly elected as leaders by a plebiscite of planters."

I was one of the first to write in opposition to the Rosling-Rutherford scheme, but I trust I have more sense and better taste than to consider everyone who disagree with me or with whom I disagree, "puerile" and "brainless."

To turn to the object in view:—There is no reason to suppose that India will co-operate with Ceylon in any "curtailments of output" as long as Ceylon goes on using artificial aids to increase her yield, which India does not employ. Mr. Talbot's scheme does not suggest any "curtailment of output," but "an expansion of markets," and is sure to be much more popular than any scheme that means self-sacrifice. I presume that he does not mean that we are to *give* away 5 per cent. of our green, and 5 per cent. of our black, teas. The Indian planters should take the matter up. If there is no caste prejudice against drinking our teas, there must be a vast untouched market in the Indian towns for black teas; and in Afghanistan, Thibet, &c., for green teas, as the Afghans and Thibetans seem to be great green-tea drinkers.

Is it a fact that tippings make as good green teas as leaf longer from pruning? If so, surely it would pay green tea factories to buy tippings from their neighbours at prices that would be profitable to both producer and manufacturer. This alone would reduce the black tea output considerably and improve the quality of the tea at the same time; but I may have been misled on this point, as I have had no practical experience in green-tea making.—Yours, &c., NORTH C. DAVIDSON.

ARTIFICIAL MANURES POISONING VEGETABLES.

Kandy, Jan. 22.

DEAR SIR,—With reference to your extract in *Ceylon Observer*, Jan. 21st, entitled "Suggested Danger from Artificial Manures," I beg to inform you that cabbages and turnips, manured with superphosphates, are surely poisonous; and I estimate the quantity of cabbages or turnips which should empoison a man to be at least *one ton* daily.—I am, dear sir, yours faithfully,

DR. F. W. KOELER.

VEGETABLE SOAP.—There are several trees and plants in the world whose berries, juice, or bark, are as good to wash with as real soap. In the West Indian Islands and in South America (says the "Family Doctor") grows a tree whose fruit makes an excellent lather and is used for washing clothes. The bark of a tree which grows in Peru, and of another which grows in the Malay Islands, yields a fine soap. The common soapwort, which is indigenous to England, is so full of saponine that simply rubbing the leaves together in water produces a soapy lather.

* The letter was signed in full by a responsible colonist: had it been anonymous the case would be different.—ED. *T.A.*

IN DAYS OF OLD.

(By an ex-Colombo "O.B.C.-ekerc.")

Sitting by the "ingle neuk" in a long dreary, murky nicht in Auld Scotland, one's thoughts often turn to far off Ceylon, where the best of my years were spent, and an intense yearning for another glimpse of that lovely land creeps in upon one's soul as he recalls the many sporting adventures he had the pleasure to take part in with the many good old friends of his youth, who are, alas, no more!

The writer's earliest experience of

ELK HUNTING

was in 1868 with the late John McLeod while Superintendent of Kadianlena, and to him I was indebted for my first visit to a planter's bungalow in Ceylon.

On arriving from Colombo, it is unnecessary to say, I was received with that open hospitality and kindness, which were in those days extended to every stranger visiting them, by the planters of Ceylon. Their open-heartedness was proverbial then, and, I believe, continues to be so up to this very day. Reclining in a long-arm chair in the verandah after a good dinner, and while enjoying a well-seasoned "Trichi," I can remember becoming much excited by the distant eerie cry of a pack of jackals as they began their nightly round of the Baharundrah slopes, hunting no doubt some unfortunate "moosul," and as their screeching became louder and louder, and the pack came close down through the coffee to within a few hundred yards of where we sat, it took my friend some considerable trouble to check my youthful and ardent desire to be up and join in the hunt, for I recollect it was a lovely moonlight night. Mine host having informed me, however, that he was going to show me another kind of sport on the following morning, and that we should require to be early on the move, I was reconciled to return to my comfortable lounger, finish my smoke with the usual accompaniment, a "peg" of good old Scotch, thereafter to "roost" and dream of the morrow's chine.

We were afloat before daybreak, and, when light dawned, well on our way, with a nice little level pack of hounds to the spot selected for our hunt. Young and vigorous as I was in those days, I soon found out that I was not in good enough training, once the hounds found, to keep within hail of them for any distance. All I can remember at this period is that, after going a couple of miles over beautiful patana land and through stiff jungle, I was quite out-distanced by McLeod and the dog-boys, and left so hopelessly in the rear that I had to succumb and seek mother earth with "bellows no end to mend." How long I lay on the patanas I cannot say, but it seemed hours before the huntsmen and pack returned with a handsome buck elk carried by coolies in the usual manner; and, though I had not the pleasure of being in at the death, I saw and had recounted to me enough of elk hunting to satisfy me that it was about the finest sport extant.

HOW I KILLED MY FIRST AND ONLY SPIKED BUCK.

A goodly number of years had come and gone, and in the interval I had taken part in some very fine runs in and around Nuwara Eliya with the late G A Cruwell, R B Downall, W W Wynn, &c., when in 1875, or 1876, a couple of those gentlemen and the writer received a very cordial invitation from

THE LATE LAIRD OF MATTAKELLE

—than whom there was no grander old huntsman at that time in Ceylon—to have a day with his celebrated pack in Dimbula. Well do I recall that (to me) memorable morning when we turned out on to the large stretch of patanas lying at the back of Mattakelle bungalow. A bright crisp morning in November after the monsoon rains had refreshed all Nature, and "Old King Coffee" looked as if the heyday of its prosperity would never decay—at least over that grand expanse of Dimbula lying betwixt us and the Great Western range—and I had no misgivings then as to the assured fortune of our genial and kindly host—the biggest-hearted soul I ever met. How a few short years changed the circumstances of many hardy, honest, prosperous planters in those days, it would be useless for me to recount in this letter, so I will "hie back" to the subject of my text. In the days of which I write nearly the whole of Dimbula, at least as far up as Radella, was under coffee and there was little jungle to be seen, big enough to hold game. About the far end of the patanas to which I have referred, however, there was a conical hill of forest standing. I should at a rough estimate put it down at 100 to 150 acres, though we could only see the side facing the plains. Into this the hounds were slipped by the "dog boys," while the huntsman, Cruwell, Wynn and the writer squatted on the grass to await results. The Master knowing so well the habits of the elk assured us that when the hounds succeeded in forcing him to vacate his stronghold, the "quarry" would break cover and take to the open on the side commanded by us.

HUNTING THE QUARRY.

"The Laird" had that time in his kennels a magnificent specimen of the greyhound, a half-brother to the famous Irish dog of that breed, "Master McGrath," a triple winner, I believe, for the late Lord Lurgan of the Waterloo Cup at Liverpool. This hound was in leash and delivered over to my care. How long we waited on those patanas, listening to the distant "tonguing" of the pack as they hunted their quarry round and round that jungle, the voices of the hounds every now and then being heard as they approached the ridge and then becoming quiet again as they descended on the other side—it is impossible exactly to say. Keener huntsmen than the trio who accompanied me it would be difficult to find, and yet when 9 o'clock arrived, and seemingly no prospect of any excitement, either their patience became exhausted, or more likely the cravings of hunger led them to make tracks for Mattakelle; for off they went and left me single-handed with only the grey-hound as a companion. I had not very long to wait before the virtue of patience was rewarded. From the far-off corner of the jungle I could see the elk break cover, and come bounding down over those vast and rugged patanas with a couple of small half-bred hounds hanging on to his ears, and in the very direction wished for and exactly as indicated by our huntsman before he left me.

Making the best use I could of my "understandings", and pulled along at a tremendous pace by the straining power of the hound whom I was loath to slip until he had fairly sighted the game, I came almost to mortal grief over a cut drain in the middle of the plain, which was hidden by tall rushes. Unaware of this wretched "man-trap" and going at such speed I tripped over the upheaved earth and stones, and landing ful length I came a cropper on some broken metal on the far side, and though clad in a stout pair of English corded "knickers," I received a very severe cut close upon the knee cap (the mark of which I carry to this day) and I was thereafter only able to crawl to where the elk was held at bay by the assistance of the greyhound.

THE "COUP DE GRACE"

followed, and do not wish ever again to hear that "uncanny" cry when my blade struck his heart and he bounded high up into the air, falling dead at my feet. He turned out to be a magnificent specimen of the Spiked Buck very rare in those days in Ceylon. The head was mounted and adorned Mattakelle bungalow along with so many other trophies of the chase; but I was promised that it should eventually find a place in my own house whenever I had the good fortune to settle down in this country; and one of the very latest letters I had from my late noble friend was to the effect that the head of my Spiked Buck would be sent to Scotland by an early opportunity. But it has never reached me.

To finish my story, Making tracks for the bungalow, as best I could in my crippled state, I had not proceeded far, before

ANOTHER DANGER

lay in my path for my attention was soon drawn to the presence of three semi-wild buffaloes who came trotting along in our direction with up-raised heads looking as savage as only those brutes can look when raised. A means of concealment fortunately was close at hand, and into an open drain I dropped unperceived, dragging my greyhound on the top of me, and with deep feelings of relief allowed these creatures to pass to leeward within about 30 yards of where we lay, and move out of sight. When I did manage to reach Mattakelle, exhausted with pain, I received much kind attention from Dr. D—then resident Surgeon of the district—and who I am glad to know is still in Ceylon. By his orders I was laid up for several days; thereafter when convalescent travelling on to Kandy where I was due to take part in an important Cricket match,—Colombo *vs.* Planters. Thus ended the most enjoyable holiday I ever had in the Island of Ceylon.

"W. G."

BIG GAME IN THE SOUDAN.

A PRICE PLACED ON EVERY HEAD TO BE SHOT AT.

Cairo, Dec 31.—The Soudanese Government, having received numerous applications from notable sportsmen to hunt and shoot big game in the Soudan, have decided to afford sportsmen the desired facilities under certain restrictions. Licences to kill big game will be granted at the following rates:—£25 will entitle a sportsman to kill four buffaloes, two elephants, one giraffe, six hippopotami, two rhinoceroses, antelopes, gazelles, and wart-hogs; in addition to which, for some animals killed a fee is charged—for a buffalo £6, an elephant £8, a giraffe £6, a hippopotamus £1, and a rhinoceros £5. A £5 licence entitles a sportsman to shoot antelopes, gazelles, and wart-hog. In addition to the fees mentioned the duty on ivory has to be paid.

These regulations have been instituted by the military authorities for the purpose of preserving big game, which is plentiful in the Soudan, from wanton destruction. Some of the rare species of antelope will also be protected in an edict shortly to be issued by the Soudanese Government.

Captain Charteris is here, and has made arrangements with the military authorities for a party of sportsmen to hunt and shoot over the territory bordering the Blue Nile. Mr. E N Buxton, a noted English sportsman, is also here, and is arranging a shooting expedition.—*Daily Express.*

COCA.—*Erythroxylon coca.*—It has been ascertained by practical test made in our experimental garden that the coca plant cannot be grown successfully in Madras unless it is partially shaded. Plants put out in the open did not thrive; they grew, but were stunted in appearance, and the leaves were small and scanty; on the other hand, plants grown directly under the shade of a tree, although they grew to the height of 5 feet and looked otherwise in a healthy condition, failed to produce fruit, while plants grown in partial shade grew luxuriantly and bore fruit that ripened in due course.—*Agri-Horticultural Society of Madras.*

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1896.	1897.	1898.	1899.	1900	Av of 31yrs.	1901
	Inch	Inch	Inch	Inch.	Inch.	Inch.	Inch.
January ..	2·92	3·81	2·32	6·98	3·72	3·24	11·91
February ..	0·35	1·68	1·98	2·78	0·63	1·89	0 37*
March ..	5·64	3·66	4·21	0·88	3·71	4·75	
April ..	5·93	10·97	22·81	6·66	15·12	11·43	
May ..	9·31	8·30	5·80	17·73	10·63	12·04	
June ..	8·37	10·14	10·94	9·23	7·83	8·35	
July	2·85	5·24	6·15	1·11	6·77	4·30	
August ..	6·35	9·09	0·97	0·62	7·35	3·79	
September	10·99	4·58	6·90	1·43	4·00	4·98	
October ..	16·78	4·71	20·60	12 99	9·47	14·:6	
November..	19.81	11·66	17·38	8·58	9·25	12·:5	
December..	11·76	8·89	3·05	4·44	5·20	6·35	
Total..	101·06	82·73	103·11	73·48	83·68	88·03	12·28*

* From 1st to 6th Feb. 0·37 inches, that is up to 9-30 a.m. on the 7th Feb.—ED. *C.O.*]

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS FOR DEC 1900.—We append the Monthly Return of rain from which it will be seen that the highest fall in Dec. was at Manalpuddy in the Eastern Province 48·06 inches, and the lowest at Mylapitiya in the Central Province, 1·01 inches.

WESTERN PROVINCE.

Negombo, Mr. Bucknall (6) .. 5·82
Kalutara Mr. Emerson (36) ... 9 74
Labugama, Mr. Bond (369) .. 11·11
Henaratgoda, Mr. Silva (33) .. 5·75

CENTRAL PROVINCE.

Katugastota, Mr. Morgan (1,500) .. 2·51
New Valley, (Dikoya) Mr. Wa d-ll (3,7c0) ... 3 71
Helboda (Pusselawa) Mr. Gosset (3,·00) .. 7·57
Yarrow Estate, .. Mr. Padwick (3,400) 9·61
Peradeniya Mr. Macmillan (1,540) 7·20
Duckwari, Mr. Edwin (3,300) .. 5·74
Caledonia, Mr. Shand (4,273) 6·77
Pussellawa. Mr. Powell (3,000) .. 7·89
Hakgala, Mr. .. Nock (5,581) .. 11·61
S. Wanarajah Estate Mr. Tatham (3,700) ... 6 19
Padupola, Mr. Waddel (1,636) ... 9 45
Mylapitiya, Mr. Fletcher (1,7c7) .. 1·01
Aluta — —

NORTHERN PROVINCE.

Mullaittivu, Not received (12) —
Jaffna Mr. Macdonnell (8) 7·76
Mankulam, (N. Road) Mr Ebert (167) .. 15·25
Elephant Pass, Mr ... Silva (7) .. 11·34
Vangalachettykulam, Mr. Oorloff (179) ... 8·50
Point Pedro, Mr. Chita alam (24) .. 6 74
Jaffna College, Mr. Hastings (9) .. 10·40
Kayts, Mr. Kretser (8) .. 10·17
Kankesanturai, Mr. Pararachasinghe (10) ... 8·98
Pallai, Mr. Silva (24) .. 11·17
Murlkandy, (North-Central Road) Mr. Silva (7) 28·53
Nedunkeni, Mr. Ebert (122) ... 17·79
Chavakachcheri, Mr. Silva (16) .. 5·54
Udupiddi, Mr. Brown (5) . 8 18
Marichchukaddi, Mr. Tampue (14) 3·84
Murungan, Not received (52) —
Vavuniya, Mr. Ebert (318) 7 10

SOUTHERN PROVINCE.

Ella Vella, Mr. Caldicott (262) 10·26
Kekanadura, do (150) 3·87
Denagama, do (286) 8·14
Unakiriwila Mr. Lourensz (235) .. 4· 4
Kirama, Mr. Lorensz (260) 7·32
Haliela Mr. Caldicott (200) 11·85
Tissa, Mr. Silva (75) 1 02
Matara, Mr. Caldicott (15) .. 3 93
Dandeniya, do (157) 7·04
Urubokka, Mr. Caldicott (890) 15·07
Tangalla Mr. Russell (94) 2·21
Mamadola, Mr. Doole (56) .. 4·57

EASTERN PROVINCE.

Irrakkamam, Mr. Bower (42) ... 12·78
Devilana, Mr. Vanderstraaten (136) 6·98
Sagamata, Mr. Bower (40) ... 10·65
Ambare, do (65) 14·24
Kanthalai, Mr. Carte (150) 5·10
Allai, Mr. Carte (95) 10·78
Rukam, Mr. Vanderstraten (120) 23·03
Periyakulam, Mr. Carte (20) .. 6·07
Chadaiyantalawa, Mr. Goodman (57) 7·71
Kalmunai, do (12) 6·.5
Rotawewa, Mr Bower (30) 17·83
Lahugala, do (70) 10 07
Naulla, do (30) 14·57
Andankulam, Mr. Carte (41) .. 6·55
Manalpuddy, Mr. Vanderstraaten 21) 48·06
Maha-Oya-Tank, Mr. Vanderstraaten (190) 16·68
Potuvil, Mr Sinnayah (10) 14·17
Vakaneri Mr. Watts, (8) .. 11·45

N.-W. PROVINCE.

Magalawewa, Mr. Crabb (176) ... 8·03
Maha Uswewa tank, Mr. Adams (160) ... 5·55
Tenepitiya, Mr. Churchill (8) ... 5·47
Batalagoda, Mr. Madahapola — 5·26

N.-C. PROVINCE.

Kalawewa, Mr. Chellappah (268) 7·35
Maradankadawala, Mr. Emerson (443) ... 18·66
Mihintale, Mr. MacBride (354) .. 6·37
Horowapotana, Mr. MacBride (217) . 5·28
Madawachchiya, Mr. MacBride (285) ... 5·28
Topare, Mr. Jayewardane (200) .. 14·33
Minneriya, Mr. Eves — 16·38

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) 7·34
Haldummulla, Mr. Viramuttoo (3,160) 10·32
Kumbukan, Mr. Devasagaiam (446) 7·90
Koslanda, Mr. Edge (-,258) .. 7 90
Tanamalwila, Not received (550) ... —
Bibile, Mr. Silva (680) 12·38
Taldena, Mr. Fernando (1,100) .. 12·41
utuuwara—Mr. Leembruggen (·00) 14·81

SABARAGAMUWA.

Ambanpitiya, Mr. Gregson (729) 6·02
Pelmadulla, Mr. Bingham (480) 14·06
Kolonna Korale (Hulanda-oya), Not received (203) —
Avisawella, Mr. Clarke (105 .. 5·51

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	—	1000	900 ExDiv
Ceylon Tea and Coconut Estates	500	—	—	—
Castlereagh Tea Co., Ltd.	100	...	90	—
Ceylon Hills Estates Co. Ltd.,	100	—	—	...
Ceylon Provincial Estates Co. Ltd.	500	—	...	490
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	—	75	—
Clyde Estates Co., Ltd.	100	...	—	—
Dromco Tea Co., of Ceylon Ltd.	100	...	—	50
Drayton Estate Co., Ltd.	100	...	...	—
Eila Tea Co., of Ceylon, Ltd.	100	..	40	—
Estates Co., of Uva, Ltd.	500	—	250	..
Gangawatta	500	—	—	—
Glasgow Estate Co., Ltd.	500	—	—	—
Great Western Tea Co., Ltd.	500	625	—	..
Hapugahalande Tea Estate Co.	200	—	—	...
High Forests Estates Co., Ltd	500	...	600	...
Do part paid	400	—	...	—
Horekelly Estates Co., Ltd.	100	50	65	—
Kalutara Co., Ltd.	500	—	300	—
Kandyan Hills Co., Ltd.	100	—	70	—
Kanapediwatte Ltd.	100	—	90	—
Kelani Tea Garden Co., Ltd.	100	—	—	...
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	65	—
Maha Uva Estates Co., Ltd	500	—	—	...
Mocha Tea Co., of Ceylon, Ltd.	500	—	..	—
Nahavilla Estate Co., Ltd.	500	—	375	—
Neboda Tea., Co. Ltd	500	..	..	..
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estates Co., Ltd.	100	—	—	—
Palmerston Tea Co., Ltd.	500	...	450	—
Penrhos Estates Co., Ltd.	100	—	100	—
Pine Hill Estate Co., Ltd.	60	—	50	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	—	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co. Ltd.	100	...	50	—
Roeberry Tea Co., Ltd.	100	..	70	—
Ruanwella Tea Co., Ltd.	100	—	20	..
St. Heliers Tea Co., Ltd.	500	—	..	—
Talgaswela Tea Co., Ltd.	100	—	35	—
Do 7 per cent Prefs.	100	..	..	...
Tonacombe Estate Co., Ltd.	500	—	350	..
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	...	200	..
Upper Maskeliya Estates Co. Ltd.	500	—	—	—
Uvakellie Tea Co., of Ceylon, Ltd.	100	—	70	—
Vogan Tea Co., Ltd.	100	65	—	...
Wanarajah Tea Co., Ltd.	500	..	1060	..
Yataderiya Tea Co., Ltd.	100	—	350	—

Ceylon Commercial Companies.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	25	..	..
Bristol Hotel Co., Ltd.	100	120	122·50	120
Do 7 per cent Debts	100	105	...	—
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	..	...	..
Colombo Apothecaries' Co. Ltd.	100	135	—	135
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	90	..
Colombo Hotels Company	100	..	295	295
Galle Face Hotel Co., Ltd.	100	142·5	145	142·50
Kandy Hotels Co., Ltd.	100	...	125	..
Mount Lavinia Hotel Co., Ltd.	500	—	..	...
New Colombo Ice Co., Ltd.	100	200	...	...
Nuwara Eliya Hotels Co., Ltd.	30	..	...	30
Do 7 per cent prefs.	100	...	...	102·50
Public Hall Co., Ltd.	20	15	16	—

LONDON COMPANIES.*

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon, Ltd.	10	8½	8¾–9¼	..
Anglo Ceylon General Estates Co.	100	..	35–45	..
Associated Estates Co., of Ceylon	10	..	1½–2½	...
Do. 6 per cent prefs.	10	..	4–6	..
Ceylon Proprietary Co.	1	...	⅜–⅝	..
Ceylon Tea Plantation Co., Ltd.	10	..	24–25	..
Dimbula Valley Co., Ltd.	5	..	5¾–6	..
Do prefs.	5	..	5½ 6	...
Eastern Produce & Estates Co. Ltd.	5	...	4½–5	..
Ederapolla Tea Co., Ltd.	10	...	7–10	...
Imperial Tea Estates Co., Ltd.	10	...	4½–5½	..
Kelani Valley Tea Asscn., Ltd.	5	..	5–6	...
Kintyre Estates Co., Ltd.	10	...	6–8	..
Lanka Plantation Co., Ltd.	10	..	4–5	..
Nahalma Estates Co., Ltd.	1	..	nom	..
New Dimbula Co., Ltd.	1	...	2¾ 3	..
Nuwara Eliya Tea Estate Co., Ld.	10	...	10–10½	...
Ouvah Coffee Co., Ltd.	10	..	6–7	...
Ragalla Tea Estates Co., Ltd.	10	..	9–10	..
Scottish Ceylon Tea Co., Ltd.	10	..	13–15	...
Spring Valley Tea Co., Ltd.	10	...	2½–3½	..
Standard Tea Co., Ltd.	6	..	11–11½	..
The Shell Transport and Trading Company, Ltd.	1	..	2⅞–3⅛	..
Ukuwella Estates Co., Ltd.	25	—	—	...
Yatiyantota Ceylon Tea Co., Ltd.	10	...	6½–7½	...
Do. pref. 6 o/o	10		10–10½	..

BY ORDER OF THE COMMITTEE.

Colombo, February 8th, 1901.

* Latest London Prices.

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, Feb. 7th, 1901.

Coffee:—	
Estate Parchment per bushel	None
Chetty do do	Nil.
Native Coffee per cwt.	Nil.
do F. O. B per cwt.	Nil.
Liberian coffee:—per bushel	Nil.
do cleaned coffee:—per cwt	Nil.
Cocoa unpicked:—per cwt	R41·00 to 44·00
do cleaned do	R44·00 to 52·00
Cardamoms Malabar per lb	R1·20 to 1·30
do Mysore do	R1·70 to 2·00
Rice:—	
Soolai per bag of 164 lb. nett	R9·36 to 9·78
1st quality:—per bushel	R3·70 to 3·75
Soolai 2 & 3rd. do do	R3·58 to 3·68
Coast Calunda	none available.
Coast Kara	R3·90 to 4·10
Kazala	R3·52 to 3·57
Muttusamba Ordinary	R4·75 to 5·00
Cinnamon per lb No 1 to 4	R 0·53 to 00 54
do do 1 and 2	R00·61 to 00 62
do Chips per candy	R 5·00 to 90·00
Coconuts Ordinary per thousand	R35·00 to 38·00
do Selected do	R36·00 to 39·00
Coconut Oil per cwt	R14·15 to 15·00 } Business done.
do do F. O B. per ton	R283·50 to 300·00 } Business done.
Poonac:—	
Gingelly per ton	R110·00
Coconut Chekku do	R110 00
do Mill (retail) do	R9[illegible]·00
Cotton Seed per ton	R80·00
Copra per candy	
Kalpitiya do	R48·00 to 49 50
Marawilla do (Boat)	R47·00 to 48·00
Cart Copra do	R36 00 to 4[illegible]·00
Satinwood per cubic feet.	R2·00 to 2·25
do Flowered do	R5·00 to 6·00
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R75·00 to 175·00
Kitul fibre per cwt	R30·00 to 32·00
Palmyra do do	R6·00 to 14·00
Jaffna Black Cleaned per cwt	R13·00 to 14·00
do mixed do	R11·00 to 2·00
Indian do	R6·00 to 12·00
do Cleaned do	R8·00 to 14·00
Sapanwood per ton	R42·50 to 47·50
Kerosene oil American per cases,	R7·00 to 7·25
do bulk Russian, per tin	R3·12 to 3·15
do Russian per cases	R6·[illegible]0 to 6·40
Nux Vomica per cwt	R2·00 to 6·50
Croton Seed per cwt	R2[illegible]·00 to 22·00
Kapok cleaned f o b per cwt	R24·00
do uncleaned do	R5·[illegible]
Plumbago per ton, according to grade: Large lumps	R[illegible]00·00 to 650·00
Ordinary size lumps	R250·00 to 6[illegible]0·00
Chips	R[illegible]0·00 to 4[illegible]0·00
Dust	R60·00 to 250·00

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 4th Feb. 1901.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·80
Do. dull medium do. R1·40
Speecial assortment, 0 and 1 only do. R2·20
Seeds do. R1·35

CINCHONA BARK:—
Per unit of Sulphate of Quinine 9c—For 1½ to 3 o/o.

CINNAMON:—
Ordinary assortment per lb. 56½c.
Nos. 1 and 2 only per lb. 62c.
Nos. 3 and 4 only per lb. 54c.

CINNAMON CHIPS:—
Per candy of 560 lb R90·00

COCOA:—
Finest estate red; unpicked per cwt R58
Medium do do R54
Bright native, unpicked and undried R52
Ordinary do do do R44

COCONUTS—(husked).
Selected per thousand R48·00
Ordinary ,, R40·00
Smalls ,, R30·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R72·50
Do in bags None

COCONUT (Desiccated).
Assorted all grades per lb 14½c

COCONUT OIL—
Dealers' Oil per cwt R15·00
Coconut Oil in ordinary packages f. o. b. per ton R330·00 Business done.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None.
Plantation Estate Coffee f.o.b. (ready) per cwt. None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—None.

COPRA—
Boat Copra per candy of 560 lb. R48·00
Calpentyn Copra do do R49 50
Cart do do do R43·00
Estate do do do R48 50

CROTON SEED per cwt—None

EBONY—
Sound per ton at Govt. depot—R230 As per last Govt. sales of Dec 3rd.
Inferior R155.—As per last Govt. sales of Dec 3rd.

FIBRES—
Coconut Bristle No. 1 per cwt R10·50
Do ,, 2 ,, None
Do mattress ,, 1 ,, 4·00
Do ,, 2 ,, 3·00
Coir Yarn, Kogalla ,, 1 to 8 18·00
Do Colombo ,, 1 to 8 16·00
Kitool all sizes ,, None
Palmyrah ,, None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R650
Ordinary lumps do 600
Chips do 400 No Enquiry
Dust do 250
Do (Flying) 125

SAPANWOOD— per ton None.
SATINWOOD (ordinary) per cubic ft. None.
Do do per cubic ft. None.

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	47	47	30
Orange Pekoe do	52	36	32
Pekoe do	43	32	25
Pekoe Souchong do	43	21	20
Pekoe Fannings do	29	21	22
Broken mixed—dust, &c per lb	17	17	14

CEYLON EXPORTS AND DISTRIBUTION, FOR SEASONS 1900 AND 1901.

COUNTRIES	Tea, 1901 lbs.	Tea, 1900 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon Bales lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1901 cwt	Coconut Oil. 1900 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts No.	Plumbago. 1901 cwts.	Plumbago. 1900 cwts.	Fibre.	Ebony cwts.
To U K. ..	10888137	9234210	305	..	305	5963	17855	147431	28	18076	14427	2000	522725	...	910795	8309	6728	3773	..
,, Austria ..	330	100	..	..	...	...	..	..	5600	772	1616	...	..	.	..	...	..	...	...
,, Belgium ...	..	..	..	..	..	...	..	1200	..	500	...	3151	..	..	...	927	2643	1006	...
,, France ..	20994	12834	..	...	..	..	1171	...	2240	...	..	1540	..	...	..	..	..	..	..
,, Germany ..	33045	39773	..	..	..	50	1420	51900	6552	..	2243	2563	123135	4004	69500	3455	6501	1497	1080
,, Holland ..	11074	..	...	..	..	..	..	1000	..	..	..	..	...	..	..	..	..	201	...
,, Italy ..	669	433	..	..	..	..	...	10000	5600	...	..	..	..	..	..	..	...	...	...
,, Russia ..	727093	645408	..	..	...	...	761	...	..	...	..	12210	..	..	..	..	...	..	...
,, Spain ..	...	3170	..	...	..	..	..	..	5600	..	..	...	...	...	..	...		..	..
,, Sweden ..	11315	12580	...	..	..	..	..	..	..	..	...	...	...	...	..	..	105	..	...
,, Turkey ..	9869	1400	...	..	...		..	..	...	..	...	...	...	...	...	...	...	..	..
,, India ..	116998	52004	9	..	9	..	14217	..	..	2949	5711	240	..	...	98400	..	..	..	..
,, Australia ..	409283	855517	...	..	..	...	...	...	..	...	..	..	3900	..	..	...	10	50	..
,, America ..	138335	541717	...	..	...	622	..	10000	..	6004	15223	1	138000	..	..	17410	24717	354	..
,, Africa ..	9713	6330	..	..	..	..	..	..	..	..	...	..	560	..	106400	...	...	...	..
,, China ..	40253	41265	...	...	..	..	..	..	..	..	...	..	..	..	..	..	..	..	...
,, Singapore ..	5410	1000	..	..	...	196	..	4000	..	...	..	...	..	...	...	..	...	47	...
,, Mauritius ..	3100	...	..	..	..	...	..	..	..	..	..	...	..	...	...	..	..	..	...
,, Malta ..	24900	32220	..	...	..	..	..	...	..	..	..	..	...	..	..	..	..		..
Total export from 1st Jan. to 4th Feb. 1901	12456415	11479961	314	...	314	6831	35427	225531	84588	28281	29230	21705	788320	4004	1185095	30101	407[illegible]	6928	1080

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, January 23rd, 1901.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry	44s a [illegible]5s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine .	5½d a 6¼d
BEES' WAX cwt.		
Zanzibar & Bombay White ,,	Good to fine	£6 a £7 10s
Zanzibar & Bombay Yellow ,,	Fair ,,	£6 5s a £6 17s 6d
Madagascar ,,	Dark to good palish	£6 a £6 1[illegible]s
CAMPHOR, China ,,	Fair average quality	182s 6d
Japan ,,	.. ..	192s 6d
CARDAMOMS, Malabar lb.	Clipped, bold, bright, fine	[illegible]s 3d a [illegible]s [illegible]d
	Middling, stalky & lean	[illegible]s 5d a 1s 7d
Ceylon. Mysore ,,	Fair to fine plump ..	1s 6d a 4s [illegible]d
	Seeds ..	2s 6d a 2s 8d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish .	2s 6d
,, Long ,,	Shelly to good ..	2s 11d a 3s 6d
,, Mangalore ,,	Med brown to good bold	2s a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4d a 4½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s a 46s
CINCHONA BARK.—lb. Ceylon	Ledgeriana Orig. Stem	3¾d a [illegible]¾d
	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	4⅜d a 5⅝d
	Renewed	5¾d a 7½d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	11d a 1s 8d
2nds	,, ,,	10d a 1s [illegible]d
3rds	,, ,,	9½d a 1s 6d
4ths	,, ,,	8½d a 11½d
Chips	,, ,,	3½d a [illegible]d
CLOVES, Penang lb.	Dull to fine bright bold	[illegible]½d a 9d
Amboyna ..	Dull to fine	4½d a 5½d
Zanzibar and Pemba	Good and fine bright	[illegible]½d a [illegible]¾d
	Common dull to fine	[illegible]d a 4⅜d
Stems ..	Fair	1⅜d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	9[illegible]s a 110s
	Middling to fine mid	80s a 90s
	Low mid. and low grown	7[illegible]s a 77s 6d
	Smalls	50s a 60s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to bold	35s a 40s
COCOA, Ceylon ,,	Bold to fine bold	85s a 102s 6d
	Medium and fair	75s a [illegible]2s 6d
	Native	60s a 70s
COLOMBO ROOT ,,	Middling to good	12s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair	£13 [illegible]s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £29
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £33
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	3[illegible]s a [illegible]0s
CUTCH ,, ,,	Fair to fine dry	2[illegible]s a 35s
GINGER, Bengal, rough ,,	Fair	34s
Calicut, Cut A ,,	Good to fine bold	[illegible]0s a 100s
B & C ,,	Small and medium	33s a 77s 6d
Cochin Rough ,,	Common to fine bold	28s a 34s
	Small and D's	2[illegible]s a 30s
Japan ,,	Unsplit	2[illegible]s a 30s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 [illegible]/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish .	£4 8s a £8
	,, ,, red .	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		65s a 80s
Ghatti ,,	Pickings to fine pale ..	12s 6d a 35s
Kurrachee ,,	Good and fine pale ..	52s 6d a 55s
	Reddish to pale selected	30s a 4[illegible]s
Madras ,,	Dark to fine pale ..	23s a 35s
ASSAFŒTIDA ,,	Clean fr to gd. almonds	40s a 85s
	Ord. stony and blocky	6s a 25s
KINO ,,	Fine bright	1s a [illegible]s 3d
MYRRH, picked ,,	Fair to fine pale	9[illegible]s a 107s 6d
Aden sorts ,,	Middling to good	50s a 60s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 20s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 10½d a 3s 0¼d
	Common to foul & mxd.	1s 4d a 2s 6d
Rangoon	Fair to good clean ...	2s 3d a 3s 3d
Borneo	Common to fine	1s a 2s 4d

	QUALITY.	QUOTATIONS.
INDIARUBBER, *(Contd)*		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s 3d
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 2d
	Ordinary to fair Ball ..	1s 10d a 2s 6d
	Low sandy Ball	1s 3d a 1s 7d
	Sausage, fair to good	2s 6d a 3s 1d
	Liver and Livery Ball	2s 4d a [illegible]s
Nyassaland ,,	Fair to fine ball	2s 9d a 3s
Madagascar ,,	Fr to fine pinky & white	2s [illegible]½d a 3s
	Fair to good black ..	2s a 2s 10d
	Niggers, low to fine .	11d a 2s 4d
INDIGO, E.I. ,,	Bengal—	
	Shipping mid to gd violet	3s 4d a 4s 4d
	Consuming mid. to gd.	2s 9d a [illegible]s 2d
	Ordinary to mid.	2s 4d a 2s 8d
	Mid. to good Kurpah	2s 2d a 2s 8d
	Low to ordinary	1s 10d a 2s [illegible]d
	Mid. to good Madras	[illegible]s 6d a 2s 8d
MACE, Bombay & Penang per lb.	Pale reddish to fine	[illegible]s a 3s
	Ordinary to fair	[illegible]s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s [illegible]d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	[illegible]d 1½d a [illegible]s 6d
Bombay & Penang ,,	110's to 65's	11½d a 2s 1d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	15s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	[illegible]s 6d
OIL OF ANISEED lb	Fair merchantable	[illegible]s 6d a 5s 9d
CASSIA ,,	According to analysis	[illegible]s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	3d
NUTMEG ,,	Dingy to white	[illegible]d a 3½d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s 6d
CITRONELLE ..	Bright & good flavour	1[illegible]d a 1s 0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody	[illegible]0s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	6¼d a 6 5-16d
Singapore	Fair	6¼d a 6s 5-16d
Acheen & W. C. Penang	Dull to fine ...	5¾d a 6⅛d
PLUMBAGO, lump cwt.	Fair to fine bright bold	3[illegible]s a 40s
	Middling to good small	2[illegible]s a 32s
chips ,,	Dull to fine bright ..	10s a 20s
dust ,,	Ordinary to fine bright	[illegible]s a [illegible]0s
SAFFLOWER ,,	Good to fine pinky .	65s a 75s
	Inferior to fair	40s a 60s
SANDAL WOOD—		
Bombay. Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	.. . ...	5s a £8
Madras. Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good .	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	51s 6d a 59s 6d
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair middling medium	3½d a 4½d
	Common dark and small	1d a 3¼d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's; D's and B's; Small ...	£3 10s a £4 10s
Mergui ,,	Small to bold ..	£5 12/6 a £7 10s
Mussel ,,	Small to bold ..	22s a [illegible]7s 6d
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	15s a 16s
per cwt Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	14s 6d a 21s
TURMERIC, Bengal cwt.	Fair ..	28s nom.
Madras ,,	Finger fair to fine bold bright	22s a 30s
Do. ,,	Bulbs ..	18s
Cochin ,,	Finger .	24s
	Bulbs ..	7s 6d
VANILLOES— lb.		
Mauritius ... 1sts	Gd. crysallized 3½ a 9 in	16s a 24s
Bourbon ... 2nds	Foxy & reddish 4½ a 8 ,.	15s a 18s
Seychelles 3rds	Lean and inferior ...	8s a 13s
VERMILION lb.	Fine, pure, bright ...	3s 3d
WAX, Japan, squares cwt	Good white hard ...	33s 6d

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for February :—

Vol. XII.] FEBRUARY, 1901. [No. 8.

THE TEACHING OF AGRICULTURE IN RURAL SCHOOLS.

I

WHILST we have nothing but praise for the excellent system of State school education throughout the colony, whilst we respect and appreciate at their full value the State school teachers, and the splendid work they have done and are continuing to do in the cities and townships throughout this great territory of Queensland, we believe we are justified in saying that there is still one channel through which the stream of instruction has not yet flowed—a channel which, if once filled and set flowing, will carry the beneficent stream throughout the land, eventually bringing wealth, health, and rural comfort to thousands of homes. This so long neglected channel is Agricultural Education. Let us at once say that we do not advocate a systematic course of instruction in the science of agriculture in the State schools. In the nature of things such a course would be impossible—first, because the time spent at the schools by children in the rural districts is of short average duration, hence allowing an all too brief period for mastering the three R's and a certain amount of geography, history, &c.; secondly, because the teachers were never expected to add agricultural subjects to the ordinary school curriculum, and hence went through no course of preparation, nor were they required to pass any examination in agriculture. We may further point out that whatever pleasure the teachers may personally derive from the cultivation of a piece of land in their spare and holiday times, or from the rearing of poultry and cattle, yet teachers are not farmers. The long course of arduous study and training gone through by them during their pupil-teachership, and whilst passing through the various grades to the higher classes, necessarily left them no time to study agriculture in a practical manner. Instruction of a comprehensive nature in the branch of education can therefore only be given in an Agricultural College, or in Dairy Schools, where all the instructors are specialists in their own particular branch of the various industries coming under the head of "agriculture."

But, these premises being conceded, we hold that it is quite within the range of possibility to render the instruction imparted in the schools under notice more consonant with the environment of the pupils than is now the case. It can be shown that without altering the curriculum in any way, without adding one single fresh burden to the teachers or pupils, that curriculum can be so handled as to attain the desired end in a manner not only not burdensome, but rather enjoyable to teachers and taught.

What is one of the most important duties of the teacher? Is it not to train the faculties of observation and research in the child. And how can this be better accomplished than by encouraging the spirit of inquiry—the curiosity, we may call it, so natural to every child?

More particularly should children be encouraged to observe the phenomena of Nature, and the results of her operations in the ordinary events of

daily occurrence everywhere about them. They should be invited to collect specimens of natural history, and to ask questions about all they see. Wherever possible, they should be encouraged to take a share in beautifying the school premises; they should be allowed to cultivate small plots of ground. Whilst doing this, they would soon discover that certain causes produce certain effects. They would find that their flowers, fruits, or vegetables will not thrive except under certain conditions—such as a supply of necessary plant food, manure, water, heat, or cold. Insect pests would also claim their attention, and in a simple way the intelligent teacher would explain how all this comes about, and how the enemies of plant life are kept in check. Then he could cause them to observe the habits of insects and, point out how they act as fertilisers of certain blossoms. The harmless and dangerous insects and animals would come in for innumerable subjects for object lessons. There is no need for any text-books to be placed in the children's hands; no set lessons should be learned by heart. All should be spontaneous on both sides. The teacher himself would no doubt refresh his memory, or gain some useful information from books; but no book should be employed in conversation on any of these little subjects with the pupils.

One valuable means towards inculcating a love of Nature in the youthful mind is the taking of occasional walks into the country. Every one knows how children, both boys and girls, will scatter about, following the bank of a stream, or wandering through the scrubs or fields picking up all kinds of insects, flowers, stones, and fruit. All these they should be encouraged to learn something about, not in a dry-as-dust fashion, but in a pleasant, intimate, conversational manner. There is another way of arousing their interest, that is, by stimulating the dormant faculty of imitation latent in most children, but very apparent in some. They should be provided with pencil and paper, or a slate and pencil, and induced to try and copy such specimens as they might find, but the most ludicrous efforts in this direction should be taken by the teacher as seriously as if they were models of art. Nothing so much damps a child's enthusiasm as a sneer. Every little first attempt should be commended, and the pupil helped to improve.

There are all sorts of other ways in which a painstaking teacher can inculcate a love of rural life in the children entrusted to his or her care, but we have said enough for the present. We may state that the above remarks are dictated by actual experience. They are not theory, for we put them into practice for several years, and always with the most encouraging results. Yet the ordinary work of a school was never for a moment disturbed. We therefore maintain that what has been done successfully once can be done and should be done again.

II.

The idea that the elements of Agriculture should be taught in our rural State schools commends itself to the earnest consideration of all who desire to see a healthy, rural population growing up around us. As matters are at present, there is a growing tendency on the part of the rising generation in the country districts to gravitate towards the towns instead of going on to the land, and by steady application to farming or pastoral pursuits, building up for themselves in the future comfortable homes, where by diligence and economy they may eventually become independent of "billets," either under the Government or in private employ, the remuneration in which is, owing to the severe competition, barely enough to provide food and lodging. On this subject we print the subjoined extracts from the Bulletin of the Agricultural Department of the West Indies. At an Agricultural Conference held in Barbados, one delegate said:—

"The time has arrived when it is absolutely necessary that elementary education should be made more practical, and I feel sure that these West Indian Colonies will do their utmost, with the limited means at their disposal, to make it so. There has been very little attempt made in the past to draw out and train the faculties of children. Our system must be remodelled so as to draw out these faculties.

'In too many cases' (to quote from a paper by Mr. F. J. Lloyd) 'the sole object of education has been to cram a certain number of useless and disconnected facts, or pseudo-facts, into what is termed the brain. Teachers recognise one faculty, and one only, viz., memory; and to train this one faculty to the neglect of every other has been the sole object of education for ages past, and remains so mainly to the present day. It has entirely neglected to develop manual skill; it has neglected to draw out or cultivate any mental faculty save memory; and even for this purpose has utilised subjects, the recollection of which would in no wise benefit the future farmer. But, far worse than this, it has neglected the most valuable of Nature's gifts to all of us, the strongest natural faculty we possess—observation. What is the most striking faculty possessed by a child from three to six years of age? The power of observation. Watch that same child between the ages of thirteen and sixteen, and the power, though at times manifesting itself, is gradually becoming dormant, partly because it has not been cultivated, partly from its constant suppression by the ignorance and heedlessness of those who surround the child. Ten years later the faculty is practically non-existent, lost from neglect of use, as a singer may lose the power of song, or a musician the power of execution. The difficulty now found in improving agricultural education depends greatly upon this failure of the past.'

Be ours the task, as far as lies in our power, to try and remedy this defect in our educational systems in the West Indies."

Mr. H. Collens, Acting Inspector of Schools at Trinidad, in alluding to the objection some parents have to their children being taught to do anything entailing manual labour at school, said:—"If there is an attempt to make a child in the schools do manual labour, the parents state their objections very forcibly. I agree with Mr. Hicks that, if our attempts to teach agriculture in elementary schools are to be successful, the greatest

possible fact must be shown by the officers concerned. We must not drive or coerce the people; above all, we must try and instil into the children's minds a love of Nature, and the necessity of learning Nature's methods. If we succeed in doing that, we may hope in time to turn their attention to field pursuits and to agriculture generally as a means of earning a livelihood. We must, however, proceed cautiously. In Trinidad it has been decided that the teachers should, first of all, have a course of lectures. and, in the event of their showing aptitude in teaching agriculture and passing an examination in the syllabus laid out, they are to be rewarded by receiving a bonus on the results of the examination of their schools at the end of the year.

"That is one encouragement; but we have another. We have made the examination the means for promotion from the third class to the second. That is an important means of influencing the teacher, because it directly touches his pocket. Then with regard to teaching in the schools, we make considerable use of Blackie's Tropical Readers. These are used as alternate reading books. I feel a deep personal interest in this subject of teaching agriculture in elementary schools. I have given considerable thought to it, and I am convinced if we are to do any real good we must exercise great caution, and always place the pleasantest side before the parents and the teachers. Otherwise, we shall fail."

A third speaker took a sentimental view of the question.

"The eyes," he said, "of the country child should be unsealed. He should be made to see the beauties and wonders that lie about his feet, and are to be found in profusion all round him A sympathetic, skilful teacher will invest rural life with an interest that will attract and fascinate. The life that was monotonous, dull, insipid, and purely mechanical will be changed into one full of interest, and with this there will be gained a discipline of the mind, a development of intellectual power which are prominent aims of all true education. The new knowledge and skill will be to the country boy as a new tool, the possession of a new power, and he will be eager to make use of it.

"What is done on a small scale in a corner of the school plot or in the box-garden will be reproduced at home on a larger scale and with added interest. It will be his delight to show what he can do, and the useful results of his doing. He will find use for his knowledge of reading, writing, and arithmetic in connection with his observations and experiments in the study and mastery of some of the secrets of Nature. He will have a desire to read; and, if we are wise, we shall see that he has opportunity by providing the school with a suitable library and some of the books specially applicable to country life."

In France and in the United States, agriculture has been introduced as one of the subjects to be taught with the express view of preventing the constant drifting of the youth into the great cities Illinois has now decided to introduce elementary courses in agriculture into the State public schools with the primary purpose of interesting country school boys in what may be their life work. The course will be adopted especially to the country schools, but it will be introduced into town and city classes in a modified form. One hope of those who have been instrumental in securing the adoption of the study is that it may tend to stem the tide of migration of the boys from the country to the city.—*Queensland Agricultural Journal.*

OCCASIONAL NOTES.

Mr. Kelway Bamber, Agricultural Chemist, has established a laboratory in Hunupitiya Road near the junction with Park Street, and not far from the Victoria Park.

The students for the School of Forestry left Colombo on tour on the 15th. They proceeded to Kurunegala and established their first camp in the Sudugama forest.

We have been hearing from Mr. C. F. Fernando, an old boy of the School of Agriculture, who left for South Africa to seek his fortune. He is still full of hope as to his future in the new country, and we have little doubt that with his ability he will succeed in finding suitable work to do.

Veterinary Surgeon Chinniah's article on Vasectomy, which originally appeared in these pages has been taken over by the *Veterinarian* (London). Mr. Chinniah has repeated the operation on a bull at Grove Estate, Ukuwella, with the same success as before. The after treatment in vasectomy is very simple, and the bull operated on was able to go to work in a fortnight's time.

Mr. Chinniah is reprinting his papers on the Branding of Cattle, and it will shortly appear in convenient pamphlet form so as to be available to all.

The closing of the School of Agriculture has been ordered by Government, and as a tentative measure agricultural work will be carried on though rural schools with connected school gardens. The Superintendent of the School of Agriculture will assume the duties of Superintendent of School Gardens. We are convinced that good results should follow this new departure, and we notice the Ceylon press is of the same opinion.

A gymnasium in connection with the School of Agriculture was opened on the 1st December in the presence of a large gathering, presided over by the Director of Public Instruction.

The School of Agriculture re-opened after the Christmas holidays on the 15th January. On instructions received from Government a new class of students was not admitted this year.

Mr. J. Rodrigo, Manager of the Government Dairy went over to Madras on the 4th December, and brought over 22 cows for the dairy.

A sale of 8 cows and 12 calves drafted from the Government Dairy herd took place on the Government Dairy on Thursday, the 17th inst., with the following results :—

		Rs.
One cow and calf purchased by	Mr. H. P. Rudd for	50
,, ,, purchased by	Mr. Chas Peiris ...	26
,, ,, ,,	Dr. Rockwood ...	55
,, ,, ,,	Mr. P. Ratnasapapatby	50
,, ,, and calf ,,	,, Chas. Peiris ...	57
,, ,, ,,	,, ,, ...	45
,, ,, and calf ,,	,, ,, ...	21
,, ,, ,,	,, Richard Perera	40
One bull calf ,,	,, W. B. de Saram	63
,, ,,	,, C. E. A. Dias ...	48
,, ,,	Dr. G. de Saram ...	78
,, ,,	Mr. Ekanayaka, Md.	62
One cow calf ,,	,, ,,	40
,, ,,	,, Chas. Peiris ...	60
,, ,,	,, ,, ...	38
,, ,,	,, W. B. de Saram	47
,, ,,	,, Ratnasapapatby	50
,, ,,	,, Chas. Peiris ...	57
,, ,,	,, H. P. Rudd ...	47
,, ,,	,, Chas. Peiris ...	47
		Rs. 981

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF DECEMBER, 1900.

1	Saturday ..	·23	18	Tuesday ..	2·52
2	Sunday ..	·29	19	Wednesday	·06
3	Monday ..	Nil	20	Thursday ..	·59
4	Tuesday ..	1·10	21	Friday ..	Nil
5	Wednesday ..	Nil	22	Saturday ..	Nil
6	Thursday ..	Nil	23	Sunday ..	Nil
7	Friday ..	·39	24	Monday ..	Nil
8	Saturday ..	Nil	25	Tuesday ..	Nil
9	Sunday ..	Nil	26	Wednesday	Nil
10	Monday ..	Nil	27	Thursday ..	Nil
11	Tuesday ..	Nil	28	Friday ..	Nil
12	Wednesday ..	·71	29	Saturday ..	Nil
13	Thursday ..	Nil	30	Sunday ..	Nil
14	Friday ..	·06	31	Monday ..	·02
15	Saturday ..	Nil	1	Tuesday ..	Nil
16	Sunday ..	Nil			
17	Monday ..	·02		Total..	5·76
				Mean..	·18

Greatest amount of rainfall in any 24 hours on the 18th, 2·52 inches.

Recorded by C. DRIEBERG.

COCONUT MANURES.

We are inclined to think that the complete analysis of the coconut made by Dr. Bachofen, the Chemist in charge of Mr. A. Baur's laboratory, established in connection with the latter's manure works, did not, at the time of its publication in the Press—nearly a year ago—receive the attention it merited. We are reminded of this fact by seeing the results of the analysis, as originally published in Ceylon, going the round of the Agricultural press in the various colonies. The analysis referred to is undoubtedly a valuable one, and shows in as definite a way as it is possible for an analysis to show, the actual demands made by the coconut upon the mineral constituents of the soil. On reading through the figures of Dr. Bachofen's analysis, the most remarkable facts are the large percentages (1) of potash (30·7 %) and common salt (45·95 %) in the ash of the husk; (2) of potash (54 %) in the ash of the shell; (3) of potash (45·8 %) in the ash of the kernel; and (4) of potassium chloride (41 %) and common salt (26·3 %) in the ash of the "milk." Calculating the quantity in pounds removed by a thousand nuts (assuming that the entire nuts are conveyed off the land) we find that the following are the figures for the chief ingredients of plant food :—

Nitrogen	8·6	lbs.
Phosphoric acid... ...	2·4	,,
Potash	18·7	,,
Lime	2·3	,,
Common suet	21·4	,,

It will be readily conceded by any one perusing these figures that, to meet the demands of the coconut, the use of potash manures and common salt together with the nitrogenous and phosphatic fertilizers usually applied, should not be neglected. That well-known authority, Professor Warrington, tells us that neither sodium nor chloride are among the essential elements of plant food, but that they are to be included in a class, which, though not indispensable, yet perform useful functions in the plant economy. But certain plants have, so to speak, a "fancy" for special ingredients of plant food—essential or non-essential, such as that of the glorias and *diatomaceae* for sillica, kumbuk, terminalia glabra, for lime (the bark containing no less than 50 % of the carbonate species of *solsola* for carbonate of soda &c. It may be assumed in the case of the coconut that it has a decided penchant for common salt), and this being so, there is no justification for giving it so niggardly an allowance as finds its way into the palm with the ingredients of wood-ashes and other manurial substances. The very fact of the palm being found growing with impunity with its roots saturated with sea-water—a condition of things few cultivated plants are calculated to tolerate—is a direct enough indication that the coconut revels in well-salted food. We find the coconut has become reconciled to inland sites, where it grows and waxes strong on the rich soils of the interior, contented with a less salted diet that it had on the comparatively barren sands of the sea shore. So, too, cereals which affect sillica will grow even in the total absence of this ingredient. But with the large demands made by the palm, as shown by analyses, for common suet and potash, it is only reasonable that the limited supplies in the soil should be supplemented with *added fertility* as regards these substances. On referring to Mr. Cochran's published analysis of the husk of the coconnt, we find very similar figures given to those of Dr. Bachofen for the percentage of potash and common salt. Mr. Cochran's analysis gives the following percentages for the two salts respectively, 3·45 % and 4 %,

those of Dr. Bachofen being 3·7 % and 45·95 % respectively. Mr. Cochran cites the case of the mangel, a plant with a strong predeliction for salt, (its roots containing no less than 45 %, and its leaves 37 % of sodium chloride) as being greatly benefited by applications of common salt together with the fertilizers, and makes the following important statement: "From the evidence before us, I am disposed to consider the coconut trees as one of the special cases in which salt is useful as a manure."

With the opinion of two of the three analytical chemists in our midst to guide him, the coconut planter cannot surely hesitate any further to recognise the importance of using potash salts together with common salt in the manuring of his palms.

It would be interesting to ascertain the views of Mr. Kelway Bamber who has just established himself in a new laboratory in Colombo, as Government-cum-Planter's Chemist. Mr. Bamber has come to us with a made reputation as an authority on the Chemistry of tea, being an Agricultural Chemist of high qualifications, his views with regard to the manuring of coconuts should prove most valuable. Where, we ask, is the Association that can come to the aid of the low-country planters? The consideration of the subjects, as set in for above shows the valuable work that a low-country planter's association, if formed, is able to undertake. We have now a number of technical officers who are capable of giving very good advice. But the coconut planter has no organized body through which he can indicate his wants. This is a state of things that require early attention, and the low-country planters have to blame themselves if they do not utilize the advantages offered to them.—"Ceylon Standard."

INTRODUCTION TO ENTOMOLOGY.

(MISS ELEANOR A. ORMEROD.)

Insects begin their lives either by being hatched from eggs, or produced alive by the female; commonly they are hatched in the form known as maggots, caterpillars, or grubs, but they are never generated by the decaying vegetables, putrid water, bones, carcases, dung, or any other matter, dead or alive, excepting their own insect forerunners. They come out of these matters constantly, but, if the observer will watch, he may often see the arrival of the insects, the laying of the eggs, and be able to satisfy himself as to the gradual development and the method of breeding, and that the progeny is produced by the female insect.

The eggs are usually laid soon after the pairing of the male and female, and are deposited on or near whatever may be the food of the larvæ. They are laid singly or in patches, and are sometimes attached by a gummy secretion to the leaf or whatever they are laid on; occasionally they are fastened by a short thread, or raised (like the heads of pins) on a stiff foot-stalk of hardened viscid matter. Such insects as insert their eggs in living animal or vegetable matter are furnished with a special egg-laying apparatus or ovipositor, such as a borer, or organs enclosing bristle-like points on saws, by means of which the female pierces a hole, and passes the egg down into the wounded spot.

For the most part insect eggs hatch shortly after they are laid, but sometimes they remain unhatched during the water; and it is believed that, where circumstances are unfavourable to development, they may remain unhatched for years, but this point is one of those subjects on which more information is needed. They have been found to endure intense cold without injury, and, besides some special and extraordinary instances, it has been found by experiment that insect-eggs may be exposed to a temperature lower than that to which they are usually subjected in this country, and cold enough to solidify their contents without destroying their powers of hatching.

In a very few cases insects are partly developed before birth, otherwise, after hatching from the egg, or being produced alive (in the same first stage of development) by the female, insects pass their lives in three different conditions or stages successively.

The first is that in which they are known as maggots, grubs, or caterpillars; in the case of grasshoppers, cockroaches and some other insects, where the young are very much the same shape as the parent, only without wings, they usually go by the parent's name; the young of greenfly are sometimes known as "lice." In this state they are active, voracious, and increase in size; and in this first stage all insects are scientifically termed larvæ.

In the second stage some orders of insects are usually inactive and cannot feed, as is the case with the chrysalis of the butterfly, or the mummy-like form of the beetle or wasp with its limbs in distinct sheaths folded down beneath it; some, however, are active and feed, as grasshoppers, cockroaches, aphides (or green fly) and others, and resemble the parent insect, excepting that their wings and, for the most part, their wing cases are not as yet fully formed; and in this second stage all insects are scientifically termed pupœ.

The thirds tage is that of the perfect insect, in which (whether male or female, or of whatever different kind, as Moth Beetle, Cricket, Aphis, &c.,) it is scientifically termed an imago.

The term Larva is from the Latin, meaning a ask or ghost, and signifies that the insect in his stage gives a mere vague idea of its perfect form.

Pupa signifies an infant, and is fairly appropriate to the second stage in which the insect is forming into the perfect state, but is not fully developed either in its limbs or functions.

Imago signifies the image, the likeness, or an example of the perfect insect. The appropriateness of the scientific names for the first and third stage does not seem very clear, but there is no doubt of the convenience of having some one term by which each different stage of life of any insect may be described; and these are the words that have been adopted; in the following pages some detail is given of these three successive stages of development.

THE CULTIVATION AND CURING OF TOBACCO.

(Continued.)

8. *Harvesting.*

When the leaves feel thick and gummy, and begin to turn yellow with brown spots, they are considered to be mature and should be cut off. Tobacco should not be cut overripe. Harvesting of a plot should not be done at once; the mature plants are to be gathered first. The best time for harvesting is morning, as soon as the dew is off the plants. They should lie for some time in the sun, say for two hours, to make them sufficiently wilted, so that they can be handled without breaking. Care should be taken not to let them become too much sunburnt. It is better to cut whole plants (close to the roots) than gather the leaves singly. Harvesting should be delayed for two or three days if there be heavy rainfall, which washes away the gummy matter of the leaves.

9. *Drying and Fermenting.*

Immediately after the plants are conveyed to the house, they should be hung up on strings beneath the roofs of a well-ventilated house six inches apart. They should remain in this state for more than two months, or until they are quite dry. When very hot or strong winds blow, the windows and doors of the house should be closed. In very dry weather, the floor of the shed should be occasionally sprinkled with water, in order to keep the air of the room sufficiently moist. In June, when the rains commence again, the plants are taken down, stripped and handled Best medium and worst qualities should be separated at the time of stripping. 16 to 20 leaves are tied up into one bundle. These are put into large heaps 3 to 4 feet square by 5 to 6 feet high, and well pressed down with hands. The leaves are transferred from one place to another at intervals of about a week or so; fresh heaps being made, top leaves going into bottom, and bottom leaves coming to the top. This transference also involves examination of the leaves. Care should be taken to prevent excessive heating. At the end of the rains the leaves are considered to be fully cured and quite ready for sale. The heat may be broken up earlier, if so desired.

10. *Methods of Curing in vogue in Bengal.*

The modes of curing differ in the different districts; and it would be well to cite here the systems of curing in Rangpur, Jalpaiguri, Nadia and Tirhut, which are the principal seats of tobacco culture in Bengal.

Mode of Curingi n Rangpur and Jalpaiguri.—The methods of curing followed in Rangpur and Jalpaiguri are almost the same. The leaves of mature plants are cut off singly in the morning and are left in the sun for all day long. In the evening small bundles of four leaves are suspended along the roof of the house—generally a cowshed. After two months, *i.e.*, about the middle of June, they are taken down. Eight small bundles are then tied up into a larger bundle. Leaves are not sorted according to their quality, though the tobacco growers are aware that the topmost leaves are the best. The bundles of leaves are then put into a large heap. The bundles are taken out and dusted, and the heaps are made at intervals of eight or ten days, until the tobacco is wanted for sale. It is best to keep on the heap till about the close of the rainy season. Tobacco thus kept is said to bring higher prices.

Mode of Curing in Nadia.—"When cut, the stems with leaves on them are allowed to remain spread out in the sun for two hours. They are then cut into pieces, each of which contains a pair of leaves and a portion of the stem. These pieces are then arranged on the ground in layers of 9 to 10 inches thick, and are allowed to remain in the sun for two days. Rain, of course, at such a time is most destructive. Tobacco in this half-dried state is taken home by the cultivator, who strings the sections together, and suspends them on rows of strings in the longest apartment of his premises, usually the cowshed. The leaves after being thus suspended for about a month are thoroughly cured. They are then taken down on a damp or foggy day when they are a little soft, and made into bundles of about 11 maunds weight each, the strips of leaves being cut into lengths of about a yard, and folded over and laid one on another. The above description relates to the Hingli tobacco of Ranaghat; the inferior sorts appear to be merely made up into bundles and subjected to the alternate action of sun's rays by day, and of the dews at night."—*Vide* Collector of Nadia's Report, 1874.

Methods of Curing in Tirhoot.—"Plants are allowed to be on the ground as cut for a day or two; they are then carried to some grassy spot and laid out to catch the sun during the day, and the dew at night, being turned daily. After this has gone on for eight or ten days, every third or fourth day the plants are stacked together till they get heated, when they are again spread out to cool. If at this time the dew is thought not sufficient to cool the plant, at evening time a little water is scattered over the leaves as the lie; this goes on for twenty days or more. The plants are then brought into cover and stacked; they are changed every third or fourth day, the top going to be bottom, and so on. It is important now to prevent them getting over-heated: if the leaves show a tendency to get crisp, the leaves are covered with plantain leaves or damp grass, over which is put a blanket to make the heap sweat. The leaves are then separated by khurpi or huswa from the stem. They are then tied five or six together with strips of date leaves and piled together. These piles are again watched carefully till it is evident that the leaves will not heat any more. They are then tied up in bundles of four maunds each, wrapped round with straw, and are then fit for the market; if not immediately sold, they are stowed away in some dry place. If the leaves are not of a good colour, the cultivator may, before opening them for sale, get a little good tobacco, boil it, and sprinkle the juice over them after the last process of drying; but this is more a trick of trade than a method of curing, which being really nothing more than a careful alternative of heat and moisture, no extraneous matter being introduced."—Collector of Tirhoot's Report.

11. Seeding.

The best plants are set aside for seeding. They are not topped like others, but the side shoots and suckers are removed from the stems, only the heads or tops of the plants being preserved for seed. The heads are tied to sticks to keep them straight.

As soon as the seed is ripe, the heads of plants are cut off and hung in a dry and safe place. After a few days the seed are rubbed out of the pods by hand and stored. The seed should be preserved from damp and insects.

The vitality of the seed can be tested by scattering some on a piece of hot iron. If a sharp spattering sound is given out, the seed may be considered to be sound.

12. Outturn.

A well-grown crop is expected to yield from 20 to 24 maunds per acre, the money value of which may be estimated at Rs. 100 to 120, Rs. 5 being the average price per maund of country cured tobacco.

13. Injuries.

The chief enemy of the tobacco crop is a kind of caterpillar which eats away the leaves at night and takes shelter in the soil by day. This caterpillar or cutworm causes serious damage to the young plants. They should be carefully looked for and killed when any injury from this source is noticed. Hailstorms often destroy the crop over large areas of the country.

14. Suggestions for Improvements and Conclusion.—Tobacco is one of the most profitable crops grown in tropical and sub-tropical countries. India is one of the important tobacco-growing countries of the world; but as regards the quality, Indian tobacco is very inferior. The only chemical deficiency of the Indian tobacco, according to the results of several analyses, is in carbonate of potash, proving the poverty of Indian soils in this important plant food. It may, however, be supplied by manuring the crop with saltpetre, which is easily obtainable at a moderate cost. Another direction in which improvement is possible is the cultivation of acclimatised foreign varieties, such as Havana, Dindigul, Samatra, Landreth's, etc., which grow as well as any of the indigenous varieties, and are certainly better adapted for cigar making than the latter, which are extremely coarse for the purpose. Seeds of these varieties can be had from the Agricultural Department, Bengal. Defective curing is, however, held to be the chief cause of the general inferiority of Indian tobacco. The curing of tobacco is a difficult art which requires to be learnt by experience. The simple directions for curing given in paragraph 9 will, it is believed, lead to some improvement in the quality of the tobacco. They have been followed with useful results by Mr. B. Pal Chaudhry on his Home Farm at Natuda in the Nadia district.—*Indian Agriculturist.*

RICE AS A FOOD STAPLE.

Rice is becoming more and more an important article of alimentation, as is evidenced by its increased importation. It remains a favourite dish among sweets, is largely consumed in soups, and in madeup dishes, while being extensively utillized along with wheaten flour to secure greater whiteness of the bread. It is also largely used to make starch. The rice emanating from South Carolina and from British Burmah are the two varieties most in request. Japanese rice of late meets with a fair demand. Indeed, when it is borne in mind that rice feeds one-third of the human race, and that it is considerably cultivated in Asia—no less than 100 different varieties alone are peculiar to British India and Ceylon, and Northern and Central America—the importance of the plant of its product will be much better appreciated. Its growth has been attempted in Northern France, and the experiment was tried with partial success of raising it south of the Thames, outside London. Rice exacts a warm climate, but above all, a humid soil; hence, why the growing crop has to be irrigated with so much care. Before being harvested, etc., the soil is freed from water, the crop duly cut with the sickle, and it is next threshed by means of the flail or by machinery; in some cases the grain is simply trampled out by cattle. The rice which has been obtained in the latter way, in the husk, is called "paddy;" the grain adheres firmly to the husk, so much so, that specially machinery has to be employed in order not to injure or break the grain.

The superiority of Carolina rice is due principally to the extreme care taken by the American growers to turn out clean samples. After it is husked, the grain passes through a whitening machine, which removes the inner cuticle or red skin. This done, the rice is fit for sale. Like the potato, rice is largely employed to prepare starch; it is treated with a solution of caustic soda, which dissolves out the nitrogenous matters; the starch deposits, and is weighed and dried. The analysis of Chemist Payen, and that which is generally accepted, gives the composition of rice as follows: Nitrogenous matter, 7·55; starch, 88·65; dextrine, etc., 1·00; fatty matters, 0·80; cellulose, 1·10; and mineral matters, 0·90. Rice then resembles nearly the composition of the potato, which contains, as will be remembered, so much starch and so little nitrogen, fat and mineral substances. It explains also why rice is not a complete food, and why it is necessary to supplement it with meat, vegetables or fish. But rice possesses the great advantage of being easily digested, and does not fatigue or inconvenience the stomach. Hence, its efficacy as a remedial agent in cases of diseases of that organ, and of the intestinal channels. It exercises no laxative action as other cereals are reported to do, and which explains the efficacy of rice in cases of dysentery and diarrhœa. China is able to procure two crops of rice every year; the Chinese sow it in March and July; the inhabitants of the Flowery Land pride themselves on completely understanding its cultivation, the whole secret of which is to give the plant a great deal of water. It may not be generally known that the Americans were indebted for his grain to a Mr. D.bois, who was treasurer of the East India Company, and who gave a small bag of the said grain to a

merchant of Carolina. This is how Europeans came to be chiefly supplied from Africa with Carolina rice, and which is everywhere accepted as being much the finest of its kind, the grains being double the size of that which comes from the East Indies, and known as Patna rice. Rice is said to be best cooked by thorough steaming; while in case of sickness, rice water can be prepared, sweetened and flavoured in the same way as is barley water.

The rice when being turned out for market is sifted and classified into five categories; one, known as broken rice, which is not to be disdained; if well cleaned, it will form an excellent mucilage, or when ground into flour, it can be mixed along with some wheaten meal, and thus cheapen, as well as whiten loaves of bread. Japanese rice is said to be rich in nitrogenous substance, no matter whether it be the upland, mountains, or lowland varieties. In some districts of India rice is not allowed to be consumed until after a lapse of six months from the time it is gathered, many even prescribe a longer period. A good hour is allowed for the digestion of rice. If the rice be anyway old, it is of course more difficult to digest. A very strong spirit is obtained from rice called arrack, which is partly made from it, being also mixed with toddy, which is the juice of the coconut tree. Sake is another national beverage prepared in Japan from fermented rice. In many countries rice is mixed with bean or pea meal; that combination is recommended to the parched rice travellers that have to secure that kind when on long voyages in unknown lands. South Carolina claims to have obtained the first seed rice from the Island of Madagascar, between 1700 and 1720. The importation of rice into the United Kingdom is nearly 80,000,000 of cwts. annually, and estimated at 3,500,000 of pounds sterling. Strange, though nevertheless a fact, that rice was not known to the ancients, and there is no mention of it in the Bible.—*London Correspondent in Grocers' Criterion.*

PEPPER CULTIVATION IN MALABAR.

Pepper (*Piper nigrum*) is grown in Java, Sumatra, Ceylon, and other Asiatic countries, but that which comes from the Malabar Coast is acknowledged to be the best. The only taluqs in Malabar in which pepper cultivation is largely carried on are Kottayam and Kurumbranad. The conditions most favourable to pepper cultivation are said to be copious rains, abundant dew in the night, and a gravelly red soil. These are found in other parts of Malabar, so it is not understood why the cultivation is chiefly confined to these two taluqs. Two varieties of pepper are produced in Malabar—the black and the white. The fruit is gathered green when intended for black pepper, but must become quite ripe for white pepper. White pepper differs from the black only in being stripped of its covering. After stripping them, the black berries are steeped in salt water, and when they have been exposed to the sun for several days the chaff is rubbed off with the hands. The process of cultivation is very simple. The vine is generally propagated by cuttings. It is usually planted at the base of trees, the most commonly used being *Murikku* (Erythrina Indica); other trees, such as the jack, cashewnut, and mango-tree, may also be used, but they are not in favour with the Malabar cultivators.

The first thing required for forming a pepper garden is to clear all jungle and root out all stumps of trees on the ground. This must be done by the middle of May. The *Murikku* standards, on which the vine is trained, should then be planted, and about half a dozen cuttings of the vine—each about 2½ feet in length—should be planted at the foot of each stem. The soil should then be turned, up by digging, and the cuttings tied with a fibre on to the *Murikku* crop. The tying is necessary to faciliate the growth of the vine, which sends out small roots at every joint, which strike into the *Murikku* stem and enable the vine to climb up the prop. In three or four years the vine attains a height of six feet.

The vines begin to bear in the third or fourth year, and in four years more are in full perfection, and continues so for 20 years, when they die. They blossom about the month of June, and begin to bear fruit in the following two months. The gathering season is January to March. The plant requires constant rains during the blossoming season. The expenses of cultivation incidental to farming and maintaining pepper plantations are variously stated. But it may be stated approximately that a plantation of one acre will not cost more than Rs. 300, together with an annual expenditure of Rs. 10 for its upkeep. The outturns of the pepper harvest are also variously stated. The yield ranges from one to three bharams per acre (one bharam being equivalent to 660 lbs). It is stated that a single vine produces from one edangali to four edangalis of dried pepper. There is no doubt that pepper cultivation is highly remunerative, and it is apity that it is not carried on more extensively than it is at present.

USES OF SALT.

Most farmers are aware that salt possesses valuable manurial qualities in connection with some soils, but its application has not been nearly so extensive as is desirable. Salt consists of two-thirds chloride and one-third soda, and as the solvent powers of chloride are enormously greater than those of rain water, its ability to break up soil and leave its constituents free and available for nourishing the roots of plants is a highly valuable qualification. Salt absorbs moisture from the atmosphere and helps to retain it in the soil, thus compensating, to some extent, for a deficiency of rain, and it also purifies and decomposes inert matter. When used in connection with stubborn soils they are made easier to work, while, at the same time, it is of material assistance in helping to destroy wireworms, slugs, and other insect pests. Salt is especially valuable for sour pasture lands. its action being to make the grasses sweet and palatable for stock. It also neutralises the injurious effects of rank grasses on new

pastures. For strengthening the straw of cererals the use of salt is most important, owing to the fact that it seems to be the only substance which has the chemical power of setting free the requisite quantity of silica to nourish the stems. Salt, when previously incorporated with the soil, is useful for root crops on account of its powerful moistening qualities and its action in preventing disease. A plentiful application of salt to the manure-heap will not only fix the valuable ammonia, but will destroy millions of vermin, which otherwise would be carried on to the land to the damage of the crops. It is difficult to lay down a hard and fast rule for the application of salt, as so much depends upon the constitution and condition of the soil and on the season. Under ordinary circumstances, from 6 cwt. to 8 cwt. per acre for cereals and about 10 cwt. for roots is generally recommended upon the breaking up of land, or the month before seed time. Salt should not be applied with the seed. Repeated topdressings in small quantities during the spring will be found beneficial, and it may be liberally applied to fallows and on the stubble. The antiseptic properties of salt render it highly valuable for sweetening and preserving fodder and prevent hay from becoming mouldy.—*Australasian.*

POULTRY NOTES.

If eggs are required the best breeds are Black Minorca and white Leghorn. If eggs and flesh, the Orpington stands first. If flesh only the red Indian game is the best. The cross with the Dorking is considered the best table bird in the English market. Enquiry in England, Jersey &c. has brought out the general opinion that the Orpington is the best all-round fowl for a poultry farm. The bird is large, of a good flavour, lays very good eggs, and its constitution is good. But as a rule too heavy birds should be avoided, especially those heavily-feathered in the legs.

There are many forms of the incubator, but among the most reliable are Hearson's "self-regulating," Tamplin's "Gans Parpil" or Harris' American incubator. The eggs in the incubator should be kept moist. This is the great feature of Hearsons, and is covered by patent. The cost for 100 eggs is about £12. Their address is "Chas. Hearson & Co., 235, Regent Street, London S.W. A very useful and practical book is supplied.

Fowls lay more the first year than any other, and in the second nearly as many,—in fact most of the eggs a pullet will lay are laid in the first two years. Fowls should not be kept over two years, as they do not then pay. This entails marking. The simplest way is by rings of aluminium—the first year on one leg, and the second on the other; then sell. For breeding purposes, one cock is required for ten hens.

The outside peel of onions is about as useless substance as one can think of, but when some of it is put into a hen's nest (only the driest parts being used) it makes the nests disagreeable, and thus frees them from fowl lice.

To get rid of scales on hens' legs, mix equal quantities of ground yellow sulphur and good lard well together and apply every day to the legs as an ointment for a week or ten days. Equal quantities of salad oil and kerosine mixed have a good effect in removing the rough scales.

An excellent disinfectant for fowl houses, to be used when the birds are out, is a solution of bluestone (copperas or sulphate of copper), sprinkled by means of a watering can. It removes bad odours at once, and is fatal to disease germs.

A skilled eye can tell the difference between fertile and unfertile eggs in three or four days after setting, but it will be better for you to wait until the eighth night. Go to the sitting-house when it is quite dark, and take with you a candle or lantern, preferably of the bull's-eye type, and a fresh-laid egg. Take the latter between the forefinger and thumb, so that it is surrounded by a dark frame, and hold it up to the light. It will be clear and transparent, nothing dark showing behind the shell. Now take the eggs, whether fowls or ducks, one by one from under the hen, and examine them in a similar way; the unfertile will look like the fresh egg, the fertile will show dark patches behind the shell. The difference should be at once apparent; but if you are doubtful about any, it is safer to mark them and replace, and test again a day or two later. The unfertile should be removed and hard boiled for the future chicks.

GENERAL ITEMS.

The artichoke belongs to the Thistle family (Compositæ). It is botanically known as *Ceynara scolymus.* The bottoms of the flowers and the riblike sepals are used as food by man. The so-called Jerusalem artichoke, though belonging to the same family, is a member of a totally distinct branch. It is named scientifically *Helianthus tuberoses.* The name Jerusalem is a corruption of the word Girasole, which is the term applied by the Italians to this plant as well as to the sunflower (*Helianthus annus*). The Jerusalem artichoke is said to possess exceptional drought-resisting properties, which make it an excellent standby for both man and beast during protracted droughts, since it is in many respects a valuable esculent for man, as well as a first-class feed for cattle, horses, sheep and pigs. The green tops or stalks are made use of as green fodder, hay or ensilage; but the main value of the plant lies in its tubers growing like potatoes in large numbers round the roots. These tubers (called in French *Topinambours*) form a very palatable food when fried in butter or boiled, or still better steamed, but best of all baked under hot ashes. For animals their feeding, milk-producing and fattening value is considerable.

The *Cape Agricultural Journal* makes reference to two useful parasites on insects injurious to vegetation: one is the South African parasite destructive to the black or olive scale, a shipment of which has been made to America. The parasites

will be placed on a couple of dozen small-olive trees, planted in pots, and covered with fine muslin so as to prevent their escape, and they will be released. After watching their action on the black scale on these pot plants they will be transfered to the orchard if they do well and permitted to scatter among the trees and propagate,

The other parasite (*Masicira pachytyli*) has just been brought over to California together with dead grasshoppers in the refrigerating room of the steamer to prevent the development of the parasites on the voyage. On arrival they were placed in a glass breeding jar, and after being allowed to issue, they were liberated in localities where the grasshoppers are now breeding. The parasite belongs to the genus Tachina, nearly all the members of which are parasitic or insects injurious to orchards, vineyard and farm products, and it is said that they cannot even be starved to eating any vegetable growth. The parasite resembles a house fly. The eggs of the female are deposited on the grass-hopper, and their hatching produce maggots which burrow into the fly. It has been found that from 60 to 90 per cent of the grasshoppers have been known to have been destroyed in districts where the parasite has been introduced.

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According to the *British Medical Review*, Dr. Jenni has found that it is possible to free a town from mosquitoes (unless the conditions are exceptionally unfavourable), and that the cost of bringing about such a consummation in a town of 50,000 inhabitants will be from R1,500 to R2,000 a year. The procedure consisted mainly of finding the breeding places of the mosquitoes and destroying the larvae by means of petroleum.

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The *New York Merchants' Review* has the following amusing reference to the nutmeg tree:—A peculiarity of the nut-pigeons inhabiting the Indian Archipelago is that they swallow the nutmeg fruit bodily and discharge the nut undigested. This curiosity which leads to the distribution of the plant was formerly connected with the sex as shown in Vogel's remarkable passage: "If the bird that drops the nut is a male, the tree growing from it will be a male too; if the bird is a female, the tree will be a female as well, whilst if the bird happens to be still a virgin, the tree that grows from the swallowed nut will be one of the best in the wood."

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The following are as nearly as possible the correct quantities to sow per acre:—Barley, broadcast 1 to 1½ bushels; drilled ½ bushel. Beans (broad) drilled 1¼ bushel; (French) 1½ bushel; (Horse) 2 bushels. Beet (drilled) 5 lbs., Buckwheat, broadcast, 1 to 2 bushels. Cabbage (field), in seed beds, 2 lb. Carrots, drilled, 5 to 7 lb. Clover, broadcast, 12 to 20 lbs. Grasses, prairie, 1 bushel: Italian rye, 4 bushels; perennial rye, 2 bushels; rib,; ½ bushel; couch, ½ bushel; permanent mixed pasture, 3 bushels; imphee, 20 lb.; kohl-rabi, drilled, 2⅙ lb. Lucerne, broadcast, 20 lb.; drilled 10 lb.; Maize, broadcast, 3 bushels; drilled, ⅓ bushel. Mangolds, drilled, 5 to 6 lb. Millet, broadcast, 1 bushel. Oats, broadcast, 2 bushels. Onions, broadcast, 5 lb.; drilled for setts, 20 lb. Panicum, broadcast, 20 lb. Parsnips, drilled, 8 to 10 lb. Peas, broadcast, 3½ bushels; drilled, 2 bushels. Potatoes 14 cwt. of cut setts; if planted with the American potato planter 10 cwt. Rye for grain, broadcast, ¾ bushel. If for saddlers' use, 1½ bushels. Sorghum for grain in drills 10 lb., broadcaat for green fodder 20 lb. Swedes, 3 lb. to 4 lb. Turnips, globe and yellow, drilled 2 lb. Vetches, broadcast. 3 bushels. Wheat, broadcast, 1 to 1½ bushels; drilled. ¼ bushel. Paddy (rice), 30 to 40 lb. Cow pea, 8 lb. Jerusalem artichoke, 3 to 4 cwt. The weights per bushel of the principal farm seeds enumerated above are:—Barley, 50 lb.; beans, 60 lb.; buckwheat, 50 lb.; couch grass, 40 lb.; cocksfoot, 20 lb.; clover, 60 lb.; flax, 60 lb.; grasses (mixed), 20 lb.; oats, 40 lb.; imphee, 40 lb.; prairie grass, 20 lb.; perennial rye grass, 20 lb.; peas, 60 lb.: rye, 60 lb.; rib grass, 60 lb.; sorghum, 40 lbs.; lucerne, 60 lb.; panicum, 60 lb.; maize, 56 lbs.; wheat, 60 lb.

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When the bark of rubber-producing trees is soaked in dilute sulphuric acid, it is found that the acid decomposes the tissues without affecting the rubber which is thus got quite pure. This process is maintained by *Engineer* as having been described before the Society of Civil Engineers of France. To French chemists is also attributed the discovery of extracting rubber from the Candolphia vine by crushing the vine in hot-water. The ordinary method of stepping is impracticable owing to the latter hardening quickly.

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Mr. C. Staiger, late Government Analyst of Queensland, found the seeds of kekuna (*Aleurites triloba*) to consist of the following:—1. The dry nuts; shell, 70 per cent; kernel, 30 per cent. 2, kernel, free from shell; oil 54·3 per cent; amylaceous and nitrogenous substances, 45·7 per cent.

The TROPICAL AGRICULTURIST MONTHLY.

XX. COLOMBO, MARCH 1st, 1901. No. 9.

CEYLON: ITS BOTANIC GARDENS; VEGETATION AND SHORT REPORT ON A JOURNEY TO CEYLON.*

By Dr. Treub of Buitenzorg, Java.

(*Concluded.*)

BADULLA, a small inland place, lies at an elevation of some 2,200 feet, on the eastern side of the principal mountain group of the island. It is more dependent, as regards rain, on the north-east than on the south-west monsoon; that is to say, the climate there is considerably drier than that of places at a similar height situated on the western side of the mountains. Messrs. Sarassin call Badulla a big oasis in the unfruitful patana region. The branch of the botanic garden at Peradeniya established there is, consequently, to put it briefly, a kind of experimental garden for the drier mountain regions. When one considers that our visit took place in the end of June (the 28th), and that June and July are the months of the year when the least rain falls upon the place, it is not to be wondered at that the drought, when we were there, had caused its influence to be felt appreciably on the plants. Moreover at the beginning of the year difficulties had been experienced in obtaining the needful water.

A certain number of fruit-trees, for which the drier climate is suitable, were in good condition, namely varieties of *Citrus*; also some ornamental plants and flowering plants looked satisfactory. Among the trees we were specially struck by a fine specimen of *Sapium biglandulosum*. There is in the garden only a Sinhalese overseer; this produces, as regards care and upkeep of the plantation, the same difficulties that we know in Java, through exclusive native supervision over places situated too far away for continued European control. At the end of 1899 the present overseer ("conductor") will be replaced by someone else, on which occasion it is intended to effect some changes in the garden and in the method of working.

The garden at Badulla has various fruit-trees available, as well as eight varieties of palms, ten to fifteen ornamental trees and of "economic trees and plants": *Bixa orellana (glungem)*, rameh, oils palm, coca, Para rubber, Ceara rubber, and nutmegs.

Before the railway was laid over the high mountain pass, to get from Badulla to the similar mountain garden of Hakgala one followed the post-road Since the distance comprises thirty miles and one has therein to climb 3,690 feet, it is now simpler to return by mail-coach to Bandarawela. From there one goes back over the portion of the mountain railway, that is so beautiful, by train, to the station of Nanuoya situated at 5,290 feet, where one has to get out in order to reach farther on by carriage the justly-famed plateau of Nuwara Eliya.

After only 3½ hours' rail one is again transported from dry Bandarawela to the moist mountain climate of the westerly mountain slopes. In mist and rain we rode in three-quarters of an hour from Nanuoya to Nuwara Eliya, where the weather was much better and at once tempted us to a walk; "walk" in this sense, that, clad in European costume, one had to assume a brisk pace in order to get warm.

The plateau of Nuwara Eliya, situated at 6,300 feet above the sea, is, although a great part of it is quite flat, not entirely horizontal; there are more or less pronounced slopes, without great declivities however. It is a large plateau surrounded for a con-

* Translated from *Verslag omtrent den Staat van's Lands Plantentuin te Buitenzorg over het Jaar 1898* by Advocate F. H. de Vos and Donald Ferguson.

siderable part by mountain tops, among others by Pidurutalagala, the highest summit in Ceylon (8,280 feet).

With its well-laid-out and excellently-kept driving and walking roads, big lake, wide racecourse, admirably managed hotels and number of villas lying up against the mountain slopes, their roofs modelled after the European fashion with chimneys piercing through the green, the whole aspect reminds one of a small watering-place in Europe. Solitary specimens of the handsome flowered *Rhododendron arboreum*, having their origin in the adjacent patanas, in many places adorn the sides of the roads, in other parts one encounters extensive thickets, composed of the oddest combinations of European, Japanese and especially Australian shrubs and trees (especially many acacias), whilst in the neighbourhood of the dwellings a profusion of European plants (heliotropes pelargoniums, pinks, mignonettes, roses &c., &c.,) blaze with a glory of flowers. Though neither of us very friendly to a stay, such as is usually enjoined in our higher Javanese mountain regions, both my travelling companion and myself were under the influence of the special stimulus of the *ensemble* at Nuwara Eliya, and that although we were not there in the good season. As such however are said to be the months of December, January and February, when it freezes somewhat in the night and is bright sunny weather in the daytime. The mean temperature throughout the whole year varies between 13·5 and 15 degrees c. 56·3 and 59F.)

In the good season a number of visitors come from near and far to Nuwara Eliya, to spend some time there. The growing fame of this plateau must to a considerable extent be explained by this, that the fact has there been grasped, by the building and arrangement of dwellings, clothes, food, comfort &c., of how it is necessary to live, so that one indeed experiences the refreshing, exhilarating influence of the mountain climate, with its surrounding country reminding one of beautiful regions in Europe, but kno how to guard oneself against the unpleasant and harmful effects of such a climate, asserting themselves at other seasons and hours, by the mode of living, just as well as one knows how to do at home on bright spring and autumn days.

Although Nuvara Eliya is generally called a "sanatarium," it is self-evident, that the climate there is not suited to some invalids. Indeed I do not think I mistake in saying that the chief value, from a hygienic point of view, of a place like Nuwara Eliya lies in the preventive favourable influence of the climate. It tends to conserve the energy, briskness and love of life of Europeans who for the greater part of the year must live in warm regions, and are only seldom in a position to obtain the desired refreshment of body and spirit by a journey to Europe. That especially in this last respect a stay on a plateau in the tropics, however well it may fulfil all requirements, cannot entirely take the place of a residence in Europe is self-evident. But, when one considers, that in the "season" months at Nuwara Eliya some 3,000 visitors come together from relatively neighbouring countries and not entirely from Ceylon, it is equally evident that one can complain very little of the entire absence of that peculiar psychic stimulus contained in the temporary removal of oneself to an entirely different environment, the meeting of various persons from entirely different countries and with entirely different aspirations, in short a sojourn in a centre not infused with the every-day spirit.

Though the reputation of Nuwara Eliya is now continually extending, it must not be thought that the beginning was not difficult. The contrary is the case. Naturally the difficulties had to be overcome of the site, from the nature of the case, with such a high-lying plateau, not easily attainable. Even more opposition was found in the common human inclination that is *not* diminished in intensity by a residence in the tropics, in the case of every new thing, to look by preference at the dark side, and, by wishing for medals without a reverse, to hinder the carrying out of every new idea.

A former energetic governor, Sir William Gregory, to whom Ceylon is much indebted, among other things, in spite of all real and fictitious difficulties, took vigorously in hand the development of Nuwara Eliya. To him is due the lake, which, by the induction of a stream, was artificially called into life, and which now, perfect as if due to nature alone, adds so much to the attractiveness of the landscape: Sir William Gregory's predecessor, who was pig-headed with regard to the attempts to bring Nuwara Eliya to the front, was, so runs an anecdote, when he heard of the plan of his successor to make a lake there, so convinced of its impossibility that he declared himself ready in his own august person to drink up all the water that should come into the projected lake? And eleven years ago an English member of Parliament, who wrote an account of a journey round the world,—whose style it is true seemed generally to incline towards the pessimistic, —had not a single word of appreciation or praise but only persiflage and ridicule for all that was then already completed at Nuwara Eliya.

That those who, in the matter of sanataria and "air-cure resorts," want by choice "five feet on a sheep," do not allow criticisms of it to be lacking needs no demonstration.

But, in spite of all opposition and criticism, the development of Nuwara Eliya was proceeded with in Ceylon, and, after the overcoming of difficulties without number, one can now point there with pride to the Ceylon "sanatarium." *E pur si muove!* There is business-there; and it is daily increasing. During our stay in the island not only was a proposal of the Governor's, to grant a considerable sum to Nuwara Eliya, for the carrying out of various improvements, unanimously agreed to by the Legislative Council, at its sitting of 29th June, but advantage was also taken of that opportunity by several members to set forth in terms mostly highly laudatory the great importance and utility of Nuwara Eliya.

This somewhat long digression on the Ceylon plateau that is becoming increasingly more famed, is here, inserted purposely, because with us an attempt has begun to bring into existence something like what has taken place there. I lack the qualification and the data both to decide if the plans developed for Java offer more or less chance of success, and if there are present corresponding conditions which should promise as good a result as that attained at Nuwara Eliya. *One* conviction, however, I have brought with me from Ceylon by my own observation and by explanation and information obtained, namely that, whenever it should appear possible to call into being upon a plateau in Java something resembling Nuwara Eliya, the execution of such a plan should be a *blessing* to our colony.

Six miles east of Nuwara Eliya lies the hill garden of Hakgala, the largest branch of Peradeniya. As such the garden has been conducted since 1882 only; before that (from 1869 onwards) the land was occupied by a cinchona plantation or experimental garden of the Government.

The position of the garden at Hakgala, at 5,800 feet elevation, is exceedingly beautiful. The conditions for the growth of most plants from cool climates are there in general favorable. Off and on however they have had to suffer there, now from periods of too great drought, then again from phases when too much rain falls continuously, and there is too little sun. By chance both the one and the other were experienced in 1898. A worse disadvantage—because it happens regularly—to Hakgala as a place suitable for a botanic garden is the constant occurrence of severe winds that cause damage. This evil has under the present conditions been reduced to a minimum by the extraordinary and continuous exertions of the superintendent, Mr. Nock. It is

remarkable what exceptional results have been obtained in the sphere of cultivation by this zealous and capable manager. It is hardly credible that no where else in the tropics will one meet with such a rich collection of flowers indigenous to temperate climates, in number of species and varieties, as that which one is able to see at Hakgala. That the *Eucalypti* and other Australian trees thrive well there is due to the climate; varieties of *Cupressus* also grow well there. Fine specimens of tree-ferns, both indigenous to Ceylon and to New Zealand and Australia, also attract attention. In the lawns stand handsome specimens of *Bocconia frutescens*, whilst a large and well-grown example of *Pinus longifolia* strikes the eye by its dimensions.

In the last annual report the mention of the one that was observed in the botanic garden at Penang gave occasion for a brief consideration of our hill garden at Tjibodas; something similar is now, on the ground of the visit to Hakgala, once more the case.

Both the hill gardens, Hakgala and Tjibodas, are capable, as regards the object aimed at, of only a very limited comparison. The very great importance that, from a scientific point of view, attaches to Tjibodas as a station for the trial of the luxuriant flora of a primeval tropical hill forest is not to be sought after at Hakgala, because in that respect, the conditions there are in no wise so favourable as in our hill garden. Nevertheless the Ceylon hill garden can, in other respects, serve as an example to ours. In the first place there leads to Hakgala a winding carriage road in excellent condition, so that the garden can be reached without difficulty. Herein a comparison with Tjibodas very far from turns in our favour, since we do not even possess an elementary cart road to reach our hill garden. As it is to be feared that even such a simple road must as yet continue to belong to the *pia vota*, we shall have to resign ourselves to the thought that scientific students who visit first the Ceylon gardens and then the Lands Plantentuin—as sometimes happens—will consider the accessibility of our mountain branch as not quite "up to date." Hakgala also surpasses Tjibodas in the state of upkeep of plantations and roads, which is intelligible when one knows that about 11,000 rupees a year are spent on the Ceylon hill-garden, for all expenses inclusive.

On 1st July we returned to Peradeniya, where another couple of days were spent at the head establishment, after which the undersigned, under the guidance of Mr. Willis, set out on the journey to the northern branch, that of Anuradhapura. Of this garden, which truly in comparison with the two hill gardens spoken of, those of Tijibodas and Hakgala, occupies a very inferior place, one can certainly not say that it is easily accessible. In order to get there one must first go in the evening by train to Matale, where one stays the night in an excellently managed resthouse, After this one proceeds the following morning by mail coach in order, if all the circumstances are favourable, to reach Anuradhapura twelve hours later. Indeed we might consider it fortunate that the journey was accomplished in the regulated time, nevertheless the chief impression of that journey may be best expressed by the well-known quotation from the "Camera obscura." "How hot it was and how far."

The first portion of the road goes through a well cultivated and not yet too dry region; one rides, among others, along extensive cacao plantations, that stand under very dense shade. According to what I was told, the planters have adopted that as a remedy against the attack of *helopeltis*; that they had thereby however fallen into the evil—and this view is very plausible—of having by too much shade helped the development of parasitic fungi. On behalf of the Ceylon planters Mr. J. B. Carruthers, a competent and energetic young English botanist, had spent some time in the colony in order to make a study of the parasites of vegetable nature that do harm to the cacao culture. Many a useful hint to the planters has already been the fruit of this investigation.

Further up one comes into the true dry region that embraces so large a part of North Ceylon. Long straight roads over a gently undulating plain lead through a comfortless, monotonous, unfruitful and sparsely populated region, covered with brushwood and low trees. And yet in earlier times this was different. Some 2,000 years ago Anuradhapura was the great and populous capital of Ceylon; in the vicinity were then found gigantic works of art, namely enormous water reservoirs—more strictly speaking artificial lakes—which by means of regular irrigation had to guarantee the fertility of the region. Of all this there remains nothing more than extensive portions becoming marshy or evaporating puddles, where thousands and thousands of herons, storks, ibises, plovers, cormorants and a host of other waterfowl alone have sway.

Towards the fall of the evening we reached Anuradhapura, where, on a large plain, surrounded by strange and fantastic ruins and buildings, no longer easily to be discerned in the gloaming, crowds of pilgrims with hundred of lights and lamps had pitched their camps in the most picturesque confusion near their carts and unyoked oxen. In a resthouse that, as regards accommodation and cleanliness, can easily compete with most of our Java hotels, and far surpasses our *pasangrahans*, we found a very grateful shelter.

The little Garden at Anuradhapura was begun in 1885, with the object of making of it a sort of culture garden, especially for those tropical plants that do not bear a moist climate well and prefer drought and heat. Just in the year in question the drought was so severe, that several plants in the garden died, both trees and shrubs and herbs, which have since been as far as possible replaced by new specimens. A considerable portion of the labor force must be utilized in the middle of the year for bringing water and watering. That under such unfavourable circumstances the condition of the plantation is not flourishing is evident. Moreover the overseer can be but little controlled owing to the great distance—through troublesome communication—that separates Anuradhapura from Peradeniya. The difficult communication carries with it also the evil, that useful plants which, according to experiments made in the garden, will thrive well under the existing climatological conditions, as for example cotton, nevertheless as yet afford no opportunity for distribution for planting on a large scale, because the cost of transport of the product is too high. For the time being there is therefore not much to say about the little garden at Anuradhapura. When however the projected railway connection shall have opened an easy communication with the south of the island, and greater certainty of water supply is arrived at, then it will be possible to propagate a larger number of useful plants, fruit trees and others, in the garden at Anuradhapura and distribute them from there in the neighbourhood.

The place could not be left without a visit to a great botanic curiosity, which, together with the ruins and the dagobas, is the object of the crowds of Buddhist pilgrims, who, especially at certain times of the year, stream towards Anuradhpura. I refer to the sacred bo-tree (*Ficus religiosa*), regarding which its seems to be known with certainty that it was planted 288 years before our era by a certain King Dewanampiyatissa. Of this tree nearly 2,200 years old—probably the oldest of all trees upon our earth of which the age is known—some portions are still, surrounded by a high enclosure and carefully guarded by Buddhist priests, living, whilst in addition several of its off-shoots, also of a respectable age, grow vigorously inside an outer wall that separates the holy place from the outer world.

Had it not been our intention to become personally acquainted with all the branches of the botanic

garden in Ceylon, it is doubtful if the visit to the little gardeu at Anuradhapura was worth the tedious journey there and back. The expedition however in other respects fully rewarded us. In the first place because the place is so remarkable from an archaeological point of view, that the visit even for a layman is exceptionally interesting. In the second —and this has directly to do with the province of the writer of this—because it affords an opportunity of forming a good idea of the extensive dry northern Ceylon, which differs both botanically and economically so markedly from the better known southern portion of the island.

Yet one last "bye-garden" remained to be seen, namely, that of Henaratgoda, situated at about sea-level, at a distance of 16 miles from Colombo, a twenty minutes' ride from the station of the same name. In my visit to this branch, which thus, in strong contrast with Anuradhapura, has a warm but at the same time equably moist climate. Mr. Willis had the great kindness to again act as my guide by coming down specially for that purpose, some days after our return from the north of the island, whilst I came from the adjacent Colombo.

The Garden at Henaratgoda, which covers an area of 39 acres, was commenced in 1876, specially for the cultivation of caoutchouc-yielding plants imported from South America. Although many other plants worthy of observation are met with in this garden, among others a young but fine specimen of *Lodoicea Sechellarum*, and many cultivated plants grow very well there, still the chief attraction of this branch remains the caoutchouc-yielding trees, and more especially the Parà rubber-producing *Hevea brasiliensis*. Of this useful tree one meets at Henaratgoda with such fine and vigorous specimens, that this alone amply repays the trouble of a visit. Here also practice demonstrates the same as on the cultivated plant portion of the botanic garden at Singapore, namely, that the *Heveas* need a warm and moist climate and specially a moist soil in order to grow well and vigorously

An enforced postponement of our return voyage for several days—in consequence of a fear of eventual quarantine in connection with the plague in British India—was utilized by us in obtaining, both by a journey to Point de Galle and in Colombo itself, some data regarding export products of vegetable origin. These data were obligingly furnished, or at least the way indicated how to obtain them, by the Netherlands Consul at Colombo, Mr. Wennink, to whom once more a word of grateful thanks must be offered for the general help and friendly guidance afforded to us.

Especially in the districts round Point de Galle much is done in the culture of Citronella Grass, of the oil of which in the first half-year of 1898 no less than 594,433 pounds were exported from Ceylon. And the cultivation of this grass is further increasing, as was told me on credible authority. For Europeans, in Ceylon at least, the cultivation of citronella grass and the preparation of the oil does not pay. A European proprietor, living 15 miles from Point de Galle, who occupied himself therewith and extracted the product properly, certainly obtained higher prices than the native people for the citronella oil prepared by him, but nevertheless had to give up the business. That locally not much profits is to be made from it is proved by the following figures, which were furnished to me there. In the first two years there is no crop; then every year for a space of ten to twelve years. Then the grass can be cut four to five times a year. From each cutting is obtained 16 to 20 bottles of citronella oil per acre (bottles of 22 English ounces). For this oil the native producer gets 85 cents a bottle, while his total expenses of production come to 70 cents a bottle. Thus under the most favourable circumstances the profit obtained amounts per annum to 15 rupees per acre.

It must be borne in mind, that all these figures as well as the following statement refer to 1898, and that they rest partly upon verbal communications of very experienced persons.

The export of all kinds of products of the Coco palms is very considerable, which is not to be wondered at, since from Colombo to Point de Galle one rides continuously through such enormously extensive and fine coco plantations, that one understands how even a Junghuhn can declare never to have met with anything like it in Java and Sumatra. The shipment of coconuts as such (from the ports of Colombo and Point de Galle together) remained about constant in the years 1895, 1896, 1897 and 1898. In the last half of 1898 there were shipped some 5 million nuts. The export of "desiccated coconut" also remained nearly the same in recent years (with the exception of 1896, when much more was exported), namely 5 million pounds per half-year in the years 1897 and 1898. This dried coconut is packed in tin, in packages of half-a pound. Whilst of coconut oil in the first half-year of 1895 there were exported 143,329 cwt., in the first half of 1898 it had already risen to 177,282 cwt. Nevertheless the comparison of the figures for copra for the same years gives the astonishing result that in the first half of 1895 only 4,692 cwt. were exported, and from 1 Jan. to 28 June 1898, 176,211 cwt. In addition the export of "pouac"—the resultant of the copra after the extraction of the oil, which is sent in cakes to Europe for cattle food—increased in the same period from 83,560 to 101,184 cwt.

Of the fibres of the coconut, brought into the market, according to the method of preparation and treatment, under tho three categories of "rope," "yarn" and "fibre," there were exported in the first half-year of 1898 respectively 5,785; 30,984 and 43,678 cwt; quantities that, compared with the first half of 1895, taken all together, remained almost the same.

The rope is made by the natives with hands and toes and brought on the market in 14 numbers. Attempts to manufacture this produce by machinery have so far not succeeded; the preparation of the *fibre* however is carried out by Europeans in Colombo.

The coconut oil is prepared by the native people in the most primitive mills, worked by oxen or buffaloes. In the installations in Colombo it undergoes a further purification, by filtration, before being shipped. The careful measures that have to be taken against leakage and also, as I remember well—the higher freights, cause the export of copra and that of coconut rope to be more profitable than that of the oil.

In conclusion it may be mentioned that from the coconut, arrack is prepared (although that article does not appear in the export statistics accessible to me.) At Moratuwa a place situated on the railway to Point de Galle, at about 17 miles from Colombo, is an arrack distillery in which, as my informant told me, millions are earned.

From the very great importance that all these products of the coconut have for the trade of Ceylon it is not to be wondered at, in travelling by rail to Point de Galle and in the vicinity of that place, one is struck by the evident prosperity of the population. Matara, a place yet further than Point de Galle and almost at the southern most point of the whole island, is known as the residence of many rich Sinhalese families of the lowlands.

Of Cinnamon there was exported in the first half of 1898 altogether (in "bales" and "chips") about one-and-a-half-million pounds, that is some four hundred thousand pounds more than in the like period of 1894. In spite of this still fairly remunerative trade, there is, so I was told, only one European who occupies himself with cinnamon cultivation, because it is not profitable enough for the European planter. The prices are on an average about 50 rupee cents per pound, varying between 80 and 35 cents, according to the quality (from No. 1 to No. 5.) In recent years however the price

rose to a maximum of only 68 cents, while sixteen years ago the lowest prices—28 cents per pound—were realized. As has been said, the culture is still possible for natives with prices of 30 cents the pound. One reckons on an average annual return of 100 English pounds per acre and a maximum of 150 pounds. A certain quantity also—which is increasing—of cinnamon oil is exported, whilst from the leaves is prepared the "cinnamon leaf oil" that realizes 22 cents per ounce.

Of Cardamoms there was exported the quantity, that remained pretty constant during the last few years, of about half a million pounds per year, at prices varying for R1·6 to R2·2 per pound.

The export of Cacao, which is increasing, amounted in the first half of the year under report to 27,010 cwt., generally taken at 37 to 38 rupees per cwt., whilst there is one estate the produce of which fetched 55 rupees.

The export of Coffee from 1st Jan. to 28 June 1898 amounted to only 6,560 cwt: against 38,397 in the same period of 1895; that of Cinchona bark in the same time 395,716 pounds against 498,973 in 1895,

Ebony and Sapanwood are still exported, but in steadily diminishing quantities: in the first half of the year of report respectively 1,854 and 2,086 cwt.

Of fibres were also shipped, in the period in question, palmyra fibre (of *Borassus flabelliformis*) 15,768 cwt, and kitul fibre (of *Caryota urens*) 2,181 cwt., more certainly than in both the preceding years, but then somewhat like the export in the first half 1895. There may be mentioned, that the fibre of *Fourcroya gigantea* is not exported from Ceylon, although the plant grows excellently there, because no profit is seen in the prices obtained from the cultivation and preparation.

At the conclusion of these short data regarding the vegetable export products of Ceylon it may be repeated that of the chief of those products, tea, *in the whole year* 1898 were exported a trifle of 120 million pounds, being almost 4 million pounds more than in the preceding year.

Finally there remains just one word upon a subject totally different from the foregoing, namely, a visit to the Museum at Colombo.

It is a handsome building of two stories in front of which is a large lawn with a statue of Sir William Gregory, the former Governor of Ceylon, already spoken of. Commenced in 1877 in the so-called "Cinnamon Gardens," the Museum was reserved for all that Ceylon produces in products of agriculture and industry, minerals and gems, collections of natural history and ethnological as well as anthropological collections, as also for a library.

There is a special reason why the Colombo Museum is mentioned here; namely, the presence on the second floor of an exceptionally fine zoological collection, continuing to remain in an uncommonly good state, also entirely confined to the Ceylon fauna.

The present writer was also previously under the delusion that in a constantly moist tropical climate it is as good as impossible to preserve a Zoological Museum in only a tolerable condition. A visit to the zoological collections of the Museum at Colombo shows, in the most convincing manner, the injustice of this opinion. The collections look so good and well preserved and the mounting is so effective, that one could not find better in any single European Museum. This result, which cannot be too highly commended, was attained by continued expert oversight and particular maintenance. Such a zoological collection must be of specially great use for those that concern themselves in the natural history of the island, either from a purely scientific point of view or from practical interest.

It is certainly a matter of shame to us residents in Netherlands India that we have not been able to produce anything in any way like this.

The hope may perhaps be entertained, that within not too long a period we may get in Java a simple but well-kept Zoologica Museum maintained under expert supervision, and in that way, with our rich fauna and our so much more important island, no longer stand entirely behind Ceylon in the matter in question.

Such a Museum would for us be for two reasons of great importance. In the first place, because the number of zoologists that come to Java is steadily increasing; in the second, because a Museum such as that referred to cannot be otherwise than a guide of great value for all questions of practical moment, especially as regards agriculture.

On 15th July we once more embarked, in order to return to Buitenzorg *viz* Singapore, convinced of the great use that the visit to Ceylon had been to us. With the literally daily correspondence that the Lands Plantentuin has with foreign countries and the great number of foreign visitors that come there—both students of nature and persons dependent on or interested in agriculture and horticulture—it is, for him who has the honor to superintend the establishment, of the greatest value *to be able to learn by personal observation* what there is in other colonies in the same or in a similar domain.

Besides: if there is with us much, the superiority of which over that existing elsewhere may with justice be mentioned, that does not prevent the observations made abroad from being in not a few cases of service to our successors also, and the eye is opened to ways whereby and directions wherein service can be rendered in our case also, and to which presumably only very incomplete attention had been paid.

In conclusion thanks are tendered by the undersigned to the heads of the Department for the assistance rendered to him in the compilation of this report.

TREUB,

Director of the Lands Plantentuin.

Buitenzorg, July, 1899.

PLANTAINS AND BANANAS.

By Percy G. Wicken.

Inquiries having been made as to the method of cultivation, and the best varieties to grow in West Australia, the following notes may prove of interest to intending growers:—

The plantain usually attains a height of about 8 ft., and in favourable positions often reaching 12 to 15 ft., and the stalks a foot in diameter, it is one of the most striking instances of tropical fertility, growing in a few months to a size that takes other plants in cooler districts several years to attain. The plantain is to many thousands of people in the tropical islands what rice is to the Hindoos, rye flour to the Russian, and wheaten bread to the Englishman, it is their staff of life. It is claimed as a native both in the old and new world, and has been cultivated for ages in both hemispheres.

The banana is similar to the plantain, but the fruit is smaller. There are several varieties to be obtained in Western Australia, viz., the sugar banana, apple banana, pear banana, Cavendish or Fiji, and the Chinese banana; this latter variety is the one most likely to prove successful in the stretch of country between Perth and Geraldton. It is a comparatively dwarf species, the stem attaining a height of only 5 or 6 ft. Its robust and dwarf habit renders it particularly fit for exposed localities, and this is one of the reasons why it is so extensively cultivated in the South Sea Islands. It is early maturing, is not so exhausting on the land as the taller growing variety, and is very prolific.

This variety, as well as the plantain, should grow very well as far south as the Swan river, but it is not likely to give good results further south. There should be a good opening for several large plantations along the banks of the Swan river or the adjacent country, and having a market close at hand, the cultivation of this crop should prove a profitable undertaking. Between the Swan river district and

the Northern districts of the colony there should be plenty of spots where the cultivation of the banana might be undertaken on a large scale.

It has been found by experiment that the banana will live, if in proper soil, without injury to the roots, at a temperature as low as sixteen degrees Fahr, the stalk will stand a temperature of twenty-five degrees without injury, and the leaves are not wilted until the air is chilled to thirty degrees. Although the banana is stated to live at this temperature, it would not be advisable to plant out on a large scale unless the temperature is considerably warmer than that stated. The site for a plantation should be in a sheltered position, and as near as possible to a railway line or convenient water carriage so that the fruit can be carted cheaply to market, with as little handling as possible. When the site is decided upon the land must be cleared and should then be broken up and subsoiled as deep as it is possible to do it. Strong teams of bullocks are best to use for this purpose, one plough following the other and breaking up the soil in the same furrow without bringing it to the surface. The land then requires harrowing and rolling until in good order. If the land is low, and likely to be covered with water during the rainy season, it will require draining, and if too low for underground draining, open drains should be cut out with the plough at a distance of about one chain apart: the banana likes a rich, moist soil, but will not stand stagnant water.

The land should now be marked out into drills 15 ft., apart each way, and the young plants put in at each intersection of the drills, this will take 193 plants per acre. By planting on the square system we are able to keep the cultivation going between the rows until the plants are fully grown. The banana is propagated by suckers taken from the old plants that have fruited. Holes should be made in the ground deep enough to allow the roots to be placed in as deep as they were when taken from the parent plant. The suckers should not be removed from the parent plant until everything is ready for planting them out in their new home. The roots require planting as carefully, and in the same manner, as you would plant out a fruit tree, and the soil should be well packed round the roots. If the land between the rows is kept free from weeds, the plants will require no further attention except to replace any that may not have taken root. The shoots or suckers should be taken from the parent stem when from 2 to 3 feet high, their bulbs being divided from the principal bulb by means of a mattock. These slips are cut about 8 inches above the next, and placed in a slanting direction in the prepared holes, and covered with earth leaving in sight only about two inches.

The length of time which elapses between the planting of the slips and their fruiting depends on climate, situation, and variety of species.

During the first year a crop of maize, sorghum or other desirable crop may be grown between the rows, and will help to pay the expenses of keeping the land free from weeds ; after the first year when the bananas begin to bear fruit, they will require the entire use of the land. The suckers will bear fruit from twelve to eighteen months from time of planting out.

After the bunches of fruit have been harvested, the stems should be cut down to the ground, and two or three of the strongest suckers left for successive cropping, all the weaker ones should be cut out or carefully taken up if wanted for new plantations. If properly cultivated and looked after a plantation will keep in good bearing for about seven years, but after that the yield is noti satisfactory, and it is better to put the land under another crop. It is not advisable to plant bananas on the same land for some time to come, as it is likely to encourage disease, but a system of rotation of crops is always desirable.

The banana being a quick, rank growing plant, is naturally a gross feeder, and requires to be well supplied with manure, it requires principally nitrogen and potash. The best manure to use is well rotted stable manure, dead leaves, etc., that will supply plenty of humus to the soil, it should be applied as a mulch during the summer months to keep the soil moist, and then worked well into the ground with a hoe during the autumn. If artificial manure has to be used, a mixture of bonedust, kainit and sulphate of ammonia would give the best results, it should be mixed in the proportion of 200 lb. bonedust, 200 lb. kainit, and 100 sulphate of ammonia, and spread round the roots at the rate of about 3 lb. per plant ; this would take about 5 cwt. per acre. It should be applied early in the spring.

The amount of fruit obtained from a plantation of bananas is enormous, 70 lb. of fruit often being obtained from a single plant twelve months after planting. A statement made by Humboldt, once thought exaggerated, that an acre of good land in the tropics covered with plantain would yield as much nutritious food as 144 acres of wheat, is now no longer denied or doubted.

A Sacramento grower, in recording his experiences as to how to grow bananas in the garden, says :—"My method has been to supply the richest food for this gigantic plant, and force it to its extreme growth. Everyone has old chip dirt, ashes, boots, shoes, clothes and manure which are often a nuisance. Dig a big hole, bury this up, in the centre of the mass place a pailful of sand and plant the fresh bulb. This is to preserve the dormant plant from the wire-worms and insects which will not attack the growing plant. As the plant grows, give it an abundance of water, and all the slops of the house. Any kind of manure, fresh or old, ashes, leaves and vegetables will soon disappear, and be absorbed by this gigantic king of plants. As the rainy season approaches, pile all the leaves and twigs of trees around the plants. It protects the bulbs and makes the soil rich for next season."

In addition to its use as a fresh fruit, the banana is of considerable value as an article of food when dried. In a dry climate, where there is plenty of sun, the fruits may be dried in the following manner:—They are exposed to th sun in bundles, and when they begin to wrinkle they are peeled, for the skin, if left on, causes a disagreeable flavor. They are kept for some time until an efflorescence of sugar appears on their surface, as on dried figs and prunes. They are then pressed in masses of about 25 lb. each and wrapped in leaves or else packed in boxes. These methods can only be adopted in countries where the climate is very dry. In others, recourse must be had to artificial means which are, unfortunately, more costly. There are three distinct ways in which the ripe banana may be dried—1st, exposing the fruit to an atmosphere of sulphuric acid gas before the desiccation is begun ; 2nd, boiling rapidly very ripe fruit in water which contains sulphate of lime ; 3rd, by boiling it in syrup. By either of these, the albumen and caseine of the fruit coagulates, and the tendency of the banana to decay and ferment is stopped at a period favorable for desiccation. Experience shows that the second method is the best to employ in moist climates, without this precaution the fruit instead of drying becomes damp. To expose the fruit to the sun's rays after boiling, trays of bamboo or of any material which permits the free action of the air and light may be used. If rain falls they are dried n a furnace or an evaporator. The bananas when dry are pressed, and packed in boxes. Banana drying has been successfully carried out in Queensland. A meal is also made by slicing the banana,

drying in the sun, and then grinding into flour, it is very palatable, easy of digestion, and suitable for food for invalids and children.

Vinegar may also be made from the banana, when a glut occurs in the market.

The stem of the banana may be used in many ways, cattle and pigs both eat it with a relish, a starch is made from it, but the main use is for making fibre, and this is extensively carried out in Jamaica and other countries, Manila hemp and cordage are made from a species of banana, and over £1,500,000 worth are imported into the United Kingdom annually from the Phillipine Islands.—*Journal of the Department of Agriculture of Western Australia.*

TOBACCO.

A trial was made of a small area planted in tobacco at St. Clair in 1898-99. This produced a crop of tobacco which was of inferior quality, but nevertheless sold at a fair price in the local market. Most of the tobacco grown in the Siparia district of Trinidad, although cured after the Cuban fashion by a native of that Istand, is characterised by the presence of a musty flavour which destroys its value. The texture of the tobacco is good, it burns well, and it would not be deficient in flavour if the musty character could be eliminated. The Cuban leaf, however, appears to be too thin for our climate, for in wet weather, the leaves becomes spotted and useless. Again, many native growers who do not follow the Cuban plan of curing, add to this fault by actually allowing a damp fermentation to take place, which has the result of rendering the tobacco leeves tender in places and generally inferior in quality.

Discarding mainly the Cuban variety in 1899-1900, another kind was planted, which was grown from seed furnished by a correspondent. This variety has proved itself much stronger in habit, and the leaves on being cured have given good sound tobacco of full flavour and aroma. Further experiments are to be carried on next season. The main feature of the experiment was that the seed was sown so that the crop ripened in the dry season of February and March. In these months the euring can be carried on with more security from the attack of mould fungi, and a better sample results.

I am eonfident if growers could only be persuaded that tobacco does not require a damp fermentation. but should get what is known as fermentation only, a much better tobacco could be put in on the market. As described, our process (which is practically that followed in Cuba) is to cut the leaves in pairs and hang up under cover until the mid-rib of the leaf is well dried and the leaf itself crisp and easily broken if handled in the driest part of the day. When this stage is reached, the leaves are packed into hands of some 10 or 12 leaves together, and again allowed to dry for a few days. This operation should always be done early in the morning when the leaves are limp and soft from the night air, but they should never be handled when erisp dry at mid-day. When all the leaves are ready they should then be tightly packed into a stout box and turned once a fortnight for some three months, when they should be sufficiently cured for manufacture. At no time should the bulk of the package appear damp to the hand, or even to develope heat above the normal temperature, more than by one or two degrees.

Concisely stated, tobacco seed sown in September, planted in November, harvested in February, and dried and put to cure a month later. Turn every two weeks, turning sides to middle each time, cover with dry banana leaves, and put on cover with weights to keep the bulk closely together.

Anyone following this plan will be sure to get a tobacco which will sell and give a good return. Our crop gave 800 lbs. to the acre, and is estimated to be worth not less than 12 cents per pound in the local market. The principal expenditure is for the labour; the picking caterpillars morning and evening being very expensive-but a return at the rate of £21 per acre will more than provide for this, and leave a good a good margin for the planter.—*Trinidad Bulletin.*

RATIONAL MANURING.

In our remarks on the above subject published in March last, we dwelt mainly on the value of potash and nitrogen, and stated that a manure containing an excess of nitrogen will unduly increase the growth of leaf and straw at the expense of fruit or grain, and that, in order to avoid such a result, stable manure should always be supplemented by artificial fertilisers containing phosphoric acid and potash. These two ingredients however, should not be applied during the growing season, as their tendency is to injure the young plants and even the seed. We experimented on a bed of beans by applying these fertilsers when the plants were in full leaf, the result being that all of them rotted off at the surface of the soil. To avoid such a catastrophe, phosphoric acid and potash should be applied for some time (several weeks at least) before sowing, in order that their mineral fertilisers may become thoroughly incorporated with the soil. The reason which makes it imperative that phosphoric acid, in some form or another, be applied to the soil is clear enough. All our cultivated plants contain a large amount of phosphoric, acid, which is wholly derived from the soil. If the crops are removed either in the shape of grain, fruit, or green forage, then so much of this fertiliser is irrevocably withdrawn to build up the bony structure of the animals to which the crops are fed. Now, most soils are naturally deficient in the supply of phosphoric acid and what there is is so slowly available for plant food that it becomes an absolute necessity to supply it in a more readly assimilable form and in greater quantity. Seeing that the bones of animals are made up of phosphate of lime, it was concluded and rightly so, that ground bones would supply the want of phosphoric acid in the soil. The effects of an application of bonedust were so apparent that it was universally used by cultivators of the soil. When, however, the discovery was made that certain minerals would supply the necessary ingredient, the consumption of bonedust fell off, as it was found that Thomas's phosphate was not only cheaper than bonedust, but produced better results, and was much quicker in its working. Superphosphates also came upon the scene, and thus bonedust was practically discarded as an agent for replacing the phosphoric acid in the soil. In both these, the latter is very soluble, and is easily absorbed by growing plants. It may be interesting to those who use basic slag, or who see it mentioned in reports of experiments on crops, to know what it is. Steel is made from iron, but if the iron ore contains much phosphorus this ingredient has to be

removed, or the best steel cannot be manufactured. It is got rid of by burning to an acid. Subsequently it was discovered that by combining lime with this acid there was produced a substance called phosphate of lime. Now, this phosphate of lime, mixed with oxide of iron and some other refuse, floats on the top of the molten metal in the furnace, and is named basic slag. When it has been removed and cooled down, it is ground to powder, and thus an excellent fertiliser has been obtained from a substance useless to the ironfounder and the steel manufacturer—the waste of one industry becoming the support of another.

This particular Thomas's phosphate combines lime and phosphoric acid in the proportions of four to one, the lime being very soluble.

When bones are converted, by being dissolved in one-third of their weight of sulphuric acid, a superphosphate of great value is produced, a value such that one bushel of superphosphate is equivalent to four bushels of simple bonedust.

Other superphosphates are the produce of those phosphoric deposits found in the South of England consisting of masses of broken bones and teeth of prehistoric monsters—gigantic sea-lizards, whales, sharks; and also there are vast deposits of so-called *coprolites*, now supposed to be fossilised excrements of the animals themselves. Thousands of tons of these are annually ground up and converted into superphosphates for which there is an immense demand in the farming districts all over the world.

However, it is not our intention to give a list of phosphates or superphosphates, but we wish to impress upon agriculturists the absolute necessity of supplying the phosphoric acid demanded by field and garden crops, and of keeping up the supply. Consider what a quantity of phosphoric acid some crops require. Wheat requires 60 lb. per acre; beans, peas, &c., 80 lb.; some oil-producing plants 90 lb.; and small fruits 100 lb. Now, these quantities must be replaced, and stable manure alone is unable to furnish them; therefore if heavy crops are demanded from the soil, it follows that an artificial manure, in addition to the stable dung, is imperative. Here is a very clear statement showing the comparative phosphoric value of stable dung and Thomas's phosphate: 100 lb of hay demands from 1 lb. to 1¼ lb. of phosphoric acid, 100 lb of stable dung contain only 2½ oz to 4 oz of the ingredient, so that it would require 600 lb of it at least to furnish the phosphoric acid for 100 lb of wheat, whereas, by using the artificial fertiliser-phosphate or superphosphate, 100 lb. would be enough for 1,600 lb. of wheat.—*Queensland Agricultural Journal.*

MANGOES.

In article No. 308 published in the issue of the Bulletin for July, 1899, it was stated as follows:—"There are several other mango trees in the Garden which will probably prove worthy of record later when they have been sufficiently examined."

During the end of last season several mangoes were examined, and out of these seven have been selected for record, the figures and descriptions of which are now given. It has been thought advisable to import, once more, a number of selected varieties from the East, and to this end application was made to the Indian authorities for the best kinds from the various provinces, and cases of plants have been ordered from the Bombay-Bengal and Madras presidencies. It is almost certain that we do not possess all the types of the various strains of mango grown in the East, and although our number of seedling varieties is legion, yet it is probable that the introduction of further East Indian kinds will be of great advantage in the endeavour to improve the strains now cultivated in the Western world.

The "Maud" Mango.—A fine bold dark green mango having a most delicious melting flesh, without fibre, and perfectly sweet. It is a seedling raised by the Hon'ble W. G. Gordon, and named in compliment to Mrs. Gordon. This mango must take its place among the best of our list.

Deux-Doux.—This is a pretty little mango, and as its name indicates, peculiarly sweet. It is one of those mangoes which the child needs no teaching to devour, as it only needs to follow on the lines on which it obtained its first nutriment to consume it to the greatest advantage. It is one of those mangoes to cut which spoils it. It has a soft melting pulp which will pass freely through a small hole made in the skin.

St. James' Mango.—(Full size.) This is a seedling mango of peculiar form. It has a pronounced turpentine flavour, and a firm and rather fibrous sub-acid pulp, of a clean light yellow colour. The colour of the fruit when ripe is bright yellow. It could never be more than a second class mango at its best.

Honey Mango.—Dark green fruit, mottled yellow, with a slight purplish bloom. The flesh is soft and melting, very sweet, having a decided honey flavour. It has no trace of the turpentine taint so common among the mangoes.

The "Captain" Mango.—This is a mango yellowish green spotted with yellow. The fruit has a decided mamillated point on the apex. The flesh is firm, without fibre, but with a decided turpentine flavour, which is more than covered by its extreme sweetness. This tree, though a large one, fruited for the first time in 1899. Being so far unknown to us, it has been named the "Captain" to distinguish it from others.

The "Martin's" Mango.—The Martin's mango was first seen in July, 1899, when samples were kindly sent on to the Gardens by the Hon'ble C. Leotaud. It is a pretty fruit with a fine purplish bloom on the cheek, but in the main the colour is green, dotted with the small yellow spots common to most mangoes. On first taste there may be detected a suspicion of the turpentine flavour, but this is rather agreeable than otherwise, and before the fruit is eaten is entirely forgotten in the sweet and luscious flavour which overcomes it in the mouth. The flesh is bright yellow, melting and rather meaty, with short fibre next the seed. The kind was received through the hands of French cultivators in Martinique.

Dr. De Boissiere's Mango.—The following description is taken from a manuscript left by my predecessor, Mr. H. Prestoe, dated 15th July, 1869:—"Flesh farinaceous-fibrous, but very tender—strong mango flavour, with only a dash of the turpentine taint; bright orange colour outside as well as inside, round, full and very succulent—a first-class mango—little liable to be attacked by rot or sourness."—*Trinidad Bulletin.*

THE ERADICATION OF LANTANA SCANDENS.

A good deal has already appeared on this subject in the pages of the *Indian Forester*. The question has, however, been re-opened recently by the Inspector-General of Forests, and the conclnsions arrived at during the year may be of interest to our readers.

In May 1900 a suggestion was put forward by the Inspector-General to introduce into the country some well-chosen natural enemies of the Lantana in order to assist in its eradication.

"The *Lantana scandens* invasion of Coorg," wrote Mr. Ribbentrop, "has become a scourge to the country, and is spreading rapidly in other parts of Southern India.

"Originally, I have heard, introduced by the wife of a missionary as a hedge plant, it has taken rapid possession of open places in the forests, occupies grazing grounds, and threatens cultivation by spreading over every fallow area, even at a distance from the original stock, the seed being probably carried by birds.

"The eradication of the plant, when once it has taken possession of the gronnd, is an expensive business. It forms perfectly impenetrable thickets in which the sun does not reach the ground and nothing can grow. The *Lantana* takes sole possession. Once such thickets have formed, it is said in Coorg to be more costly to eradicate them than to clear virgin forests. The ryots, looking upon the invasion as an unconquerable pest, do nothing to help themselves and the evil is naturally spreading.

"In Berar the Forest Department took up the eradication of *Lantana* systematically and with considerable success. The Municipalities, and lately, I hear, the ryots, have followed suit.

"The first operations were naturally expensive, costing, however, but Rs. 4 per acre, against Rs. 30 estimated by the Commissioner of Coorg, where, however, it is to be said, the evil has taken a much longer and greater hold of the country. In Berar we have not succeeded in eradicating the plant; but at a cost of Rupees 30—50 per square mile, which is decreasing year by year, we keep it under sufficient subjugation to render it pactically harmless. A pre-considered plan for the work and a carefnl and steady adherence to it are, however, a *sine quanon*.

"Dr. Watt, when in Coorg, was consulted by the Commissioner, and he advised that enquiries should be made in South America (but Mexico I think it is), whence the plant originally came, what its enemies were in its own country and to import them, This plan was considered fantastic and was not acted up to and I think nothing else was done either. I am of opinion that a possibility of success underlies Dr. Watt's plan, and I would advise that in the first instance enquiries in this direction should be made from the Kew authorities, who are in touch with the botanists of the world.

"It may be possible, that somebody would have to be deputed to the original home of the *Lantana* to study the question locally, but even that would be but a small matter in comparison with the object in hand.

"That it is feasible however, to keep the *Lantana* within reasonable bounds, without introducing its enemies into this country, by unremitting attention towards its destruction, at a considerable cost it is true—but nothing compared with the estimate of the Commissioner of Coorg—has been proved in the Ellichpur district in Berar, where the plague assumed the most threatening appearance; and this might be pointed out to the Coorg authorities."

This view of the matter did not, however, recommend itself to Major Prain, the Director of the Botanical Survey of India, who wrote as follows:—

"I am not favourably impressed by the proposal to depute an officer to America to learn what the natural enemies of *Lantana* in its original habitat are. There are two well-known enemies of *Lantana*: both of them, as cures, are worse than the disease.

"One of its enemies is a Sunflower (*Tithonia*), which is becoming naturalized in many parts of India. It is found in Ceylon that where this runs wild it kills out and replaces *Lantana*. So different is the point of view that Ceylon planters look upon *Lantana* as a 'blessing' and think nothing has done so much as it has to renovate abandoned coffee land. The Sunflower they find, when re-clearing, to be more difficult to eradicate than *Lantana* is, and they believe that in place of renovating the soil the Sunflower greatly exhausts it.

"The other enemy is fortunately not yet very well known in India. This enemy is a scale-bug (*Orthezia insignis*) originally discovered at Kew, where it was causing damage in the plant houses It was noticed in Ceylon in 1893 or thereabouts, and was supposed to have been introduced from Kew, because it was first observed in the Royal Gardens at Peradeniya, to which place plants are often sent from Kew. But this is not clear to me, because the pest is also known, and gives trouble, in Natal. It was first noticed on *Lantana* in June 1898. By August 1898 it had spread, still on *Lantana*, with alarming rapidity, completely destroying, so it is asserted, the patches of *Lantana* it attacked.

"This *Orthezia* is one of the most destructive scale-bugs known. It by no means confines its attention to *Lantana*, but attacks, and is equally destructive to, many other species. When it is known that these include Tea; Coffee, both Arabian and Liberian; Cinchona; the Orange and all the other species of *Citrus*; Capsicums; and the Tomato, it will be seen that the alarm with which it suddens appearance on *Lantana* was viewed in Ceylon was a well-founded alarm, and it will be granted that the Government of Ceylon and the planting community there were justified in immediately taking the most drastic steps to stamp it out.

"Among the enemies of *Lantana* in its native country this or some similar pest may be numbered. It may well be that in its natural environment such a pest may cause no trouble. But remedies of this kind are apt to prove double-edged weapons, because there is no possibility of saying that in the new environment to which they are brought these will not get as completely out of hand as *Lantana* itself.

"As regards the methods detailed in the attached correspondence for dealing with the plant, I have little to say. I note that the cost of clearing land of *Lantana* in Berar is given at Rs. 15·8 per acre. This is interesting, because it agrees so well with the estimate given for Ceylon during a controversy that arose there so far back as 1881. It was found in Ceylon that land under *Lantana* for 12 years or more, and therefore as thickly covered with the shrub as it was possible to be, could be cleared by contract, the contractor cutting it down, uprooting every plant and burning the roots and stems, for Rs. 15 per acre. I find it stated that at present the plan used in Ceylon is to uproot the *Lantana* by bullock teams, and that the method is easy and effective. Its cost I have not seen noted.

"In Honolulu, where the experience has been exactly that of India and Ceylon, it is usually only the *small* plants that are uprooted. Large plants of *Lantana* have their stems cut across close to the ground and kerosine is then poured on the cut stumps. This is said effectively to prevent any further growth."

As to the steps taken at Chikalda in the Berars, mention of which is made in Major Prain's letter, Mr. Cecil Bagshawe, Conservator of Forests, gives an interesting account.

Lantana (scandens) clearance in the Station of Chikalda and the Melghat Taluq, Ellichpur District, Berar, 1894-95 *to* 1899-1900.

It seems well to describe the position of the Chikalda station and the Melghat hill, where the work was carried out.

1. Chikalda is on a plateau 3,600 feet above sea-level with more or less precipituous, dry and rocky slopes to the south, and on the north ravines with easy slopes and good, fairly moist soil, interspersed with steep and precipitous ground. On the north there are perennial streams; to the south torrent beds with waterfalls during the rainy season.

2. The Melghat Taluq * includes a southern extension of the Satpura range, is hilly throughout and varies in elevation from 600′ to 4,000′ above sea level.

The Tapti river and many of its tributaries rise in the Melghat and fall into the Indian Ocean, while the source of a main tributary of the Godavery is also within its limits, so that it forms a hilly well-watered part of the backbone of India.

The average rainfall is 78," which falls mainly from June to September; but the south-east and north-east monsoons sometimes give heavy showers in the autumn and winter.

3. *Lantana* was introduced into Chikalda about 1865, and was largely planted out for hedges. It flowers, fruits and the seeds germinate within a period of some five months and the plants grow freely from cuttings. *Lantana* was not recognised as a pest until about 1889, when it had overgrown the ravines, was spreading on the plateaux and even growing on the steep southern slopes.

In 1893, when the health of Chikalda and apparently any reproduction of valuable forest growth in the vicinity was endangered, the general eradication of *Lantana* was decided on.

4. To facilitate systematic working, the infested areas of the taluq were classed as—

(*a*) Very dense growth, including heavy hedges several miles in length and masses of *Lantana* matted into forest growth in the ravines where it sometimes climbed to the tops of trees 30—40 feet high.

(*b*) Dense growth scattered over extensive areas, but generally more accessible and easily destroyed than the (*a*) area in and near Chikalda.

(*c*) Scattered plots, dense in places, but easy of removal and in connection with which the chief expenditure was incurred in finding the plots.

The method adopted was to cut down † and thoroughly root up the plants, haul them to open spaces, and there destroy with fire. Rootlets left in the ground, it was found, did not shoot up, but plants and branches left lying on good soil readily took root.

This operation was called "clearing" and embraced the 1st year's work in each area dealt with.

In the 2nd year the areas were systematically gone over and all seedings etc., dug up, the operation being called the "1st cleaning." In the case of dense areas cleared, the following rains brought up a most complete crop of seedlings, which by August attained a height of 2—3 feet and flowered.

In the 3rd year seedlings were less plentiful, but the growth from 2nd year seedlings, broken off in the course of extraction in the 2nd year, gave much trouble and another systematic 2nd cleaning was made. In areas of very dense growth a 3rd cleaning was necessary.

Subsequent operations were called "scouring," to carry out which gangs of weeders in lines in open order were taken *rapidly* over the areas, once at the beginning and if possible, again at the close of the rains.

6. It is evident that the cost of the operations described cannot be correctly given by means of the average cost per acre for the whole area, and it is therefore given by classes:—

	(*a*) Areas of very dense growth.			(*b*) Dense but more scattered growth.			(*c*) Scattered growth.		
	R.	a.	p.	R.	a.	p.	R.	a.	p.
CLEARING:									
Per acre ...	11	6	0	0	12	1	0	1	10
Per sqr. mile...	7,280	0	0	483	5	4	73	5	4
1ST CLEANING:									
Per acre ...	0	10	6	0	8	0	0	0	9
Per sqr. mile...	420	0	0	120	0	0	30	0	0
2ND CLEANING:									
Per acre ...	0	2	5	0	0	9	0	0	9
Per sqr. mile...	96	10	8	30	0	0	30	0	0
3RD CLEANING:									
Per acre ...	0	2	5	—			—		
Per sqr. mile ..	96	10	8	—			—		

The cost of scouring cannot be given per acre, but from 1900-01 about R1,000 a year is being spent in weeding over the whole taluq in areas formerly infested, and destroying any plots that have been previously overlooked. This charge will fall steadily from year to year, but the work must be continued for many years or until the destruction of *Lantana* at sight has become a custom.

The cost of clearing and cleaning operations may seem high, but it is difficult to vividly describe the labour of digging and removing dense masses of prickly *Lantana* from narrow ravines and wooded hillsidee.

7. Taking the whole Melghat (1,650 square miles) into account, R24,896 have been spent during the six years 1894-95 to 1899-1900. Acres 32,155·50= square miles, covered with *Lantana*, were cleared at a cost of R8,461 or R169 per square mile, while R16,435 were spent on cleaning and scouring. The average cost of cleaning is put at R54 per square mile, but the cost of the two operations cannot be given separately. It may be said that the eradication of Lantana has been most successfully carried out; the plant is rare in Chikalda, and has to be searched for in other parts of the taluq. Still watchful care is needed to prevent the scattered plants spreading.

8. When work was started in the Melghat, the extirpation of the plant throughout Berar was also aimed at, and a clearance started with fair success in all districts. It may, however, be said that the growth of Lantana is generally only luxuriant in Berar in hilly districts, 1,400 feet and upwaards in elevation, and in places with fair soil and moisture.

* Area 1,650 square miles, and Chikalda, which is in the South-East of the taluq being about 77·30° E. and 25·30 ° N.

† Mechanical arrangements for hauling out with blocks and tackle were tried, and failed on score of expense.

PRUNING THE TOMATO.—When the fruit-bud appears we want to look out for suckers, which must be plucked off as fast as they appear. Keep in mind a straight, upright stalk, instead of the usual crawling vine we so often see. When the young fruit begins to form, put a stake about 4 feet long down on the opposite side of the fruit-bud, tie a cotton string around the tomato stalk immediately under the fruit-bud, leaving the cord loose, and then to stake, repeating this as the fruit-buds appear. This holds the plant firmly and causes it to grow straight and graceful, instead of falling all over the garden. Keep the suckers off by all means. When from four to eight fruit-buds appear, according to the fertility of the soil, top the plant, and you will have a magnificent crop of tomatoes, whereas if you let them go to vine you will have but very few. If they fail to ripen, a few leaves cut from the lower part of the stalk to admit the air will hasten it. Keep the suckers down, and the fruit will continue to ripen a long time if they have water and attention.—*Queensland Agricultural Journal.*

ANTIMALARIA CAMPAIGN.

The Roman correspondent of the *Lancet* has sent the following accouut of the systematic action of Italian physiologists in experimenting on the bites of mosquitoes at the cause of malaria

The strenuous efforts now being put forth in Italy to combat malaria and tuberculossis make it necessary to return frequently to these topics in order to follow the progress of the campaign against them. In regard to malaria the *Academia dei Lincei* publishes the first report of the experiments nndertaken by Professor Grassi and others along the Battipaglia-Reggio line of railway from San Nicola Varco to Albanella, over a distance of some eight miles. The objects aimed at were two: (1) to prove that malaria can be contracted only through the hites of anopheles; and (2) to find means of overcoming the practical difficulties that stand in the way of an efficient prophylaxis. Altogether 104 persons, including 38 children under 10 years of age, were kept under observation, all of them being railway employes with their respective families, living at the two stations and in various honses, 10 in number, along the line. The locality chosen, the Plain of Capaccio, is among the most unhealthy in all Italy. The persons selected for the experiment had all been examined during the non-malarial season—that is to say, before the anopheles had become infected —and those found to be malarious had been treated with quinine. The preventive measures adopted were the protection of the houses from the entrance of mosquitoes by wire gauze over the windows and the wearing by any persons obliged to he on duty outside after sunset or during the night of a simple veil attached round the hat with elastic, and of thick cotton gloves with tight sleeves. All who could went indoors at sunset and did not come out again till after sunrise. It was found very difficult, especially at first, to induce the people to observe these simple precautions in the efficacy of which they had no faith, but, nevertheless, of the 104 individuals experimented upon, excepting three cases of relapses which had escaped the previous treatment by quinine, not one has so far been attacked by malaria. This is very fortunate, for in spite of all precautions some anopheles succeeded in inflicting their hites, and although the proportion of infected insects is small (1 per cent.) one of these latter might easily have found its way into a house and inoculated some of the inmates. The better to supervise the experiment Professor Grassi spent three days a week on his field of operations, sleeping at the station of Albanella with open windows (covered, of course, with the wire gauze), and the same was done, though for shorter periods by Dr. Martirano and Dr. Blessich who assisted him. While the subjects of the experiment thus enjoyed a complete immunity from malarial fever the other inhabitants of the same locality, who may be regarded as so many control subjects, not having been protected in any way against the anopheles, fared very differently, having, it is stated, been all attacked, even those living under otherwise superior conditions. Other similar experiments have been carried out by Di Mattei in the Val Savoja* and by Dr. Fermi and Dr. Tonsini on the Island of Asinara,† near Sardinia. The former place is exceedingly malarious, and the mosquitoes are numerous; nevertheless, by the aid of wire gauze over the windows of the house, and the use of oil of turpentine on the hands and faces of the five inmates who carried out the experiment, the mosquitoes were kept away, and no case of malaria occurred during a period of four months. Elsewhere in the locality malaria was raging. In Asinara the conditions are peculiarly favourable for testing the practicability of entirely ridding a given area of malaria by destroying the mosquitoes infesting it, Dr. Fermi and Dr. Tonsini, hy destroying the larvæ with petroleum, and the adult mosquitoes by means of pyrethrum, chrysanthemum, valerian, and zanzolina, succeeded in exterminating anopheles in the island, and greatly diminishing the number of culex pipiens. At the same time use was made of wire gauze over the windows of the houses to protect the inhabitants from being hitten, with the result that no fresh case of malaria occurred in the island, althovgh in the previous year 40 persons had contracted the disease there. The experiment was carried out last year from June to November, and is being oontinued this season.

* Annali d'Igiene Sper., fast. 2, 1900.
† *Ibid.*

The last number of *Nature* also contains a notice of the work of Dr. L. Sambon and Dr. G. C. Low, of the London School of Tropical Medicine, in a part of the Roman Campagna, near Ostia, where scarcely a person spends a night without contracting a malarial fever of a virulent type. No quinine or other drug was to be taken as a precautionary measure, but the investigators were to live in a mosquito-proof hut from an hour before sunset to an honr after sunrise, so as to avoid being bitten by mosquitoes, which only feed during the night. The experiment was planned to test the reality of the connection between malaria and mosquitoes, and the *British Medical Journal* reports that it has been most successful. On September 13, Prof. Grassi visited the residence of the investigators with several other men of science, and gave his testimony as to the value of the experiment in the following telegram to Dr. Manson:—"Assembled in British mosquito-proof hut, having verified perfect health experimenters amongst malarial stricken inhabitants, I salute Manson who first formulated mosquito malarial theory.—Grassi." So far as the experiment has gone, therefore, the result is entirely satisfactory, and affords the strongest support to the mosquito theory of malaria. Additional evidence is given by Dr. Elliott, a member of the Liverpool expedition sent to Nigeria some time ago to investigate the subject of malaria fever, who has recently returned to this country. He reports that the members of the expedition have been perfectly well, although they have spent four months in some of the most malarious spots. They lived practically amongst marshes and other places hitherto supposed to be the most deadly, and they attribute their immunity to the careful use of mosquito nets at night.

Another experiment arranged in connection with the malarial investigation in the Campagna is described in the *British Medical Journal*. Drs. Sambon and Low have shown that hy avoiding mosquitoes they avoid malaria; but this is, after all, only negative evidence, aud its full value can only be appreciated in connection with the actual production of malaria in a healthy person in this country by the bites of mosquitoes containing the germs of the disease. The evidence is now forthcoming. A consignment of mosquitoes which had been fed on the blood of a sufferer from malaria in Rome, under the direction of Prof. Bastianelli, was received in London early in July. A son of Dr. Manson, who offered himself as a subject for experiment, allowed himself to he hitten hy these insects, and, though he has never heen in a malarious country since he was a child, he is now suffering from well-marked malarial infection of double tertian type, and microscopical examination shows the presence of numerous parasites in his blood. Full details of the experiments will be published in due course; meanwhile, they must he regarded as affording the most striking confirmation of malaria by mosquito bites that has yet been obtained.

The number of the *Lancet* for September 29th also contains a paper by Dr. Patrick Manson on "Experimental Proof of the Mosquito Malaria Theory."—*Journal of the Society of Arts.*

THE CHEAPEST FORM OF NITROGEN.

One of the best authorities on the value and action of sulphate of ammonia and nitrate of soda on certain crops, Professor Warrington, writes to the quarterly *Journal* of the Royal Agricultural Society, England, as follows:—

NITRATE BEST FOR LIMEY SOIL.

On land containing no carbonate of calcium (or, in other words, lime), sulphate of ammonium cannot be profitably used as a manure, though nitrate of soda may.

2. On land containing a large amount of carbonate of calcium (lime) sulphate of ammonium will seldom give its best result if applied as a top-dressing. On such land the proper course is to cover the manure with soil by the plough, and harrow it immediately after being distributed over the surface.

3. Though sulphate of ammonium may often be successfully used as a top-dressing upon ordinary land, it gives its best return when it is ploughed or harrowed in before sowing the seed. It is thus specially suitable for application to spring corn and potatoes.

4. Ammonium salts do not become available as plant food till they have become converted into nitrate of calcium. This nitrification will not take place in a dry soil, but in most arable soils it will speedily occur in showery weather.

5. Nitrate of sodium, being immediately available as plant food, and distributing itself in the soil more rapidly than the nitrate of calcium arising from the nitrification of sulphate of ammonium, this manure is generally more suitable for use as top-dressings to growing crops and for late applications.

SULPHATE HAS MORE GRADUL EFFECT.

6. The effect of sulphate of ammonium is always more gradual than that of nitrate of sodium, and is especially prolonged in soils containing little lime, and in old grass land, or when associated with organic manures. This implies a more gradual or a longer continuance of growth in the crop receiving it, and results in some cases in a better quality of produce.

7. The character of the climate or season frequently determines whether nitrate of sodium or sulphate of ammonium will be the more profitable manure. In a dry season nitrate of sodium always gives a better return for the same quantity of nitrogen applied, while in a wet summer the advantage is frequently with the ammonium salt. This influence of climate is most clearly seen in the case of cereal crops, or on grass land; it is less perceived in the case of crops, like potatoes and mangels, which have a long period of growth.

8. The greater crop frequently given by nitrate of sodium is in part due to the soda which it supplies, the soda acting beneficially both in the soil and in the plant.

PRODUCE YIELDED.

9. The produce yielded by sulphate of ammonium is more dependent on the presence in the soil of an abundant supply of cinereal plant food than is the case when nitrate of sodium is employed. Kainit is an excellent addition to sulphate of ammonium.

10. On an average of ten series of field experiments with cereal crops, continued throughout many years, in which equal quantities of nitrogen in the forms of nitrate of sodium and ammonium salts were applied to soils well supplied with potash, soda, and phosphates, the average return in corn was 93 by ammonium salts for 100 by nitrate of sodium, and in straw 79 by ammonia for 100 by nitrate. The return in corn is thus not very different by two manures, but the return in straw is considerably larger when nitrate of sodium is used. The quality of the corn was a little better where ammonium salts had been employed.

SOME FIELD EXPERIMENTS.

11. In three series of field experiments on grass hay, conducted in the manner thus described, the average return by ammonium salts was 85 per cent. of that given by nitrate of sodium, when the first cutting of hay was alone considered. When the second cutting of hay was included, the return by ammonium salts was in two series of experiments 88 per cent. of that given by the nitrate.

12. In the first ten years of the Rothamsted experiments with potatoes, the produce by ammonium salts was on an average fully equal to that yielded by nitrate of sodium. No dung was used, but alkali salts and superphosphate were applied.

13. The weight of mangel roots yielded by ammonium salts during seventeen years at Rothamsted was on an average only 76 per cent. of that yielded by nitrate of sodium; but when the superior quality of the roots grown by ammonium salts is taken into account, the return by the ammonia is probably 82 per cent. of that given by the nitrate. No dung was used, but alkaki salts and superphosphate were applied.

FARM EXPERIMENTS IN SCOTLAND.

14. The farm experiments made on turnips in Scotland and the north of England, with small quantites of sulphate of ammonium and nitrate of sodium generally do not show any considerable difference in the effect of these two manures.

15. Sulphate of ammonium of average quality will contain 24½ per cent. of ammonia. Nitrate of sodium of 95 per cent. purity will contain nitrogen equivalent to 19 per cent. of ammonia; 19 lb. of sulphate of ammonium will thus supply as much nitrogen as 24½ lb. of nitrate of sodium.

16. If the nitrogen in the two manures produced the same effect on crops, their money value would be determined simply by their contents in nitrogen. Thus when nitrate of sodium was £8 a ton, sulphate of ammonium would be worth £10 6s. Under various circumstances already described, the nitrogen in sulphate of ammonium is sometimes as effective as that in nitrate of sodium, and sometimes gives a smaller return.—*Queensland Agricultural Journal.*

"FOXY COFFEE."

To Editor "Planting Opinion."

Sir,—With reference to Mr. P. G. Tipping's query *re* "Foxy Coffee" in your impression of the 5th instant, I think he will find the following information of some use. Speaking on the subject at the U. P. A. S. I. Meeting in 1899, Mr. Graham Anderson, C.I.E., said:—"This term ("foxy") denotes a reddy-brown appearance of the seed caused by the adhesion of the silver skin into which the colouring matter contained

in the outer skin and fruity portion of the cherry has infiltrated. *This appearance is undoubted evidence of the fruit having been picked when quite ripe* (italics mine); and nearly all really good, cherry-dried coffee, which is so highly esteemed in France, is thus indelibly marked. The quality of the coffee is in no way injured, the stain being superficial and confined to the silver skin, which can easily be scraped off with a penknife. If roasted carefully, the aroma will be found excellent, which is another proof of maturity. If a quantity of ripe coffee fruit is heaped, or kept in a cistern, fermentation will take place, and the red colouring of the skin and fruity portions will sink into the gummy substance surrounding the "parchment," precisely in the same way that aniline ink penetrates the gelatine slab used for copying letters. If prompt measures are not adopted, not only will the parchment be permanently discoloured, but the silver skin below will be stained and firmly gummed on to the seed. If observed in time, the remedy consists of getting the fruit pulped as soon as possible; in closely watching the subsequent fermentation, and having the parchment thoroughly washed as soon as the gum has changed into a state in which it can be acted upon by water. In warm, rainy weather similar changes occur in very ripe cherry before it is picked from the trees. Some pulpers do not work satisfactorily and allow a large quantity of skins and half-pulped cherry to pass into the cistern along with the parchment. If these are not properly separated, before fermentation takes place the seeds they contain will be more or less foxy. The ripest richest and most succulent fruit is always the first to suffer in this way, or from any delay occurring in "picking, pulping or preparation."

Last season, in his desire to enhance the quality of his coffee, a proprietor hereabouts allowed his coffee to get dead, or purple, ripe on the trees before picking it, and to his thundering surprise, it was reported on from the Coast as foxy. Now his coffee had never before been reported on as foxy. His surprise was even greater when he was told that the "foxiness" had probably been produced by his allowing the fruit to become over-ripe on the trees before gathering it. On the other hand, on a neighbouring estate, the coffee, which had previously to *last* season been nearly always pronounced foxy, was that season singularly free of "foxiness." This was attributed to a uniformity of shade over the place which seems to have been attained for the first time in 1898-99; but the "trick" seems to have been done by washing the coffee twelve hours after pulping it, the pulp house having a position facing south-west, and the aspect of the estate being throughout nearly the same.

The obvious precautions which suggest themselves from the foregoing are—

(1) To avoid, as far as possible, allowing the berries to become dead, or purple, ripe on the trees. They should be picked as uniformly red-ripe as possible. A spot of green on the outside pulp will make no difference, the bean being nearly always matured before the pericarp has been fully coloured.

(2) To pulp the coffee as soon after taking in as possible. The operations of pulping and measuring might go on simultaneously. Some power more expeditious than cattle-power is desirable in this connection.

(3) To pulp as cleanly as possible. If pulpers are not working satisfactorily, this must be done with the aid of a sieve, the skins and half-pulped cherry being passed through the pulpers a second time.

(4) To wash the coffee as soon as the mucilage is ready to be acted on by water. This can be determined by experiment. For the rest, trust in Providence. I trust that this small contribution on the question will promote a healthy discussion which will lead to the elucidation of a subject which there is no gainsaying is of great importance to the planting industry.—H. G. R.

COFFEE SUBSTITUTE.

Read the following letter from Dr. G. Watt, Reporter on Economic Products to the Government of India, dated Calcutta, 14th June, 1900, in answer to our query about the value and analysis of Spermacoce hispida seeds sent:—"I have the honour to acknowledge the receipt of your letter No. 809, dated the 25th May, 1900. In reply I beg to say the question was referred to Mr. D. Hooper, F.I.C., F.C.S., who reports "that the seeds of *Spermacoce hispida* have the same shape as coffee berries, but are brown in colour and much smaller, ¼x1·12 inch: The seeds were powdered and analysed with the following results:—They contained a thick greenish oil dissolved by ether; a quantity of astringent matter giving a greenish colour with iron saltf; a bitter principle soluble in alcohol having the re-actions of an alkaloid; a colouring matter giving an orange solution with alkalis; mucilaginous and albuminous matter soluble in water. The moisture of the seeds amounted to 10·75 per cent. and the ash 6·7 per cent. These seeds contain similar constituents to Coffee and afford a substance of similar odour when roasted over a fire. They appear to have nourishing and stimulating properties different to other seeds offered as substitutes for Coffee. Their commercial use depends upon the abundance of the plant and the labour of collecting the seeds." *Madras Agri-Horticultural Society.*

BANANA DISEASE.

The disease, which has been so prominent a feature among the banana family in Trinidad, appeared at the St. Clair Station experiment during of the first year of cultivation, and many plants were killed out by it. This disease is caused by a species of fungi known as *Marasmus semiustus*, which attacks the older leaves eventually causing the whole stem and fruit to decay. From the fact of some plants growing in soil which was of a rich character not succumbing to the disease and developing their fruit in perfection it was inferred that the growth and spread of this disease was in a great measure due to the want of proper manurial constituents in the soil, in which they were growing.

To test this view of the case, a parcel of land was especially prepared by heavy manuring, and suckers from diseased roots were planted therein. The result has been a growth as good as could be wished, and although the fungus can be seen to be present, it is not able to fight against and overcome the "vegetative vigour" of the plants

under these conditions. These results seem to point to the supposition that the fungus is itself really only a saprophyte, (*i.e.*,) living usually upon dead material, but at the same time one able, under conditions of impoverished growth, to attack and destroy living vegetable growths which have been weakened by starvation or other causes, as is probably the case with the cane fungus *Trichosphœria Sachari* in abnormal seasons, and in unsuitable or impoverished lands or where the constitution of the growing plants have been weakened by other causes.—*Trinidad Bulletin.*

CHILE PEPPER CULTURE.

Mr. J. B. Neff, of Anaheim, California, discourses on chile pepper culture in the *Californian Cultivator*, on the basis of his own experience as a successful producer of hot stuff:—

How Plants are Grown.—A hot bed is made by excavating about 16 inches deep; fill in to within 4 inches of the top with damp stable manure, trampling down vrey solidly. Spread about 4 inches of sandy loam over the manure. The seed is sown quite thickly over the loam, and then about ½-inch of loose sandy soil placed evenly over it, and all kept damp. When the plants have two or three leaves, thin to 1½ inches apart each way. The plants must be watered while in the hot-bed by sprinkling. Great care should be taken to protect from frost.

Soil and Preparation.—Rich sandy soil is the best for the chile pepper. It should be ploughed deeply, and be put in a state of thorough cultivation. Ridges should be made 3 feet apart, and the plants set 2½ feet apart on the ridges. All plants must be on a water line, and to get this the ridges should be made, water run down the furrows, and the plants placed about 2 inches above the water-mark. This insures every plant receiving water when irrigated. Plant as soon as danger from frost is past.

Cultivation.—Frequent cultivation is necessary until the plants get too large to allow of a cultivator and horse passing between the rows. All weeds must be pulled out. When the plants are set as before noted, all the ridges will be on one side. This must be worked down with a cultivator, and then a plough used to throw earth on either side of the furrow, so that the plants will be midway on the ridge.

Irrigation.—While the plants are small water will be needed about once in twenty days, but as they get larger it will be needed as often as once a week, though only in small quantities. The plants seems to have no deep roots, consequently the surface soil must be kept damp.

Picking.—The field should be gone over about once a week after the peppers begin to ripen, all that are fully ripe being taken off. Great care must be exercised to pick all the stem with the pepper. They should be allowed to lie in the sun one day after being picked in order to toughen the stems and prevent them breaking during the process of curing.

Stringing.—The common method is to cut strings of strong smooth twine 8½ feet long. Draw this through a needle about 12 inches long, which is often made of a bicycle spoke. Peppers having any breaks or blemishes must be thrown away, as they would decay before drying properly. Of course, where an evaporator is used these can be saved. After the strings are full and tied they are hung on nails driven into a rough pole or other framework standing about 6 feet from the ground, and left until dry; or if shelter is available they may be moved before becoming fully dry and hung closely together until such shelter, but where there is a free circulation of air.

Evaporating.—Many growers prefer evaporating instead of drying. The evaporators used are of various designs and sizes, but they should be large enough when the peppers are dried on strings to hold not less than 500 strings. The usual plan is to have a furnace with several turns of 8 to 10 inch pipe in the basement, the peppers being placed in the second storey over a very open floor and with good ventilation. The temperature must be kept at 110 degrees Fahr., and in this way the house can be refilled about every four days.

Yield and price.—Both of these, of course, vary with the season, soil, and water supply. Two hundred and fifty strings of 5 lb. each is called a paying crop, but with all conditions favourable, including a late, warm season, as high as 400 strings, or even 2,400 lb. per acre, of dried peppers may be grown. Prices range from 35 to 75 cents. per string if sun-dried, and 7½ to 12½ cents. per lb. if evaporated.—*Queensland Agricultural Journal.*

A NEW VEGETABLE.

A new vegetable, and one that promises to be a great acquisition, says the *Australasian*, is the asparagus pea, introduced into Victoria by Lord Hopetoun. It is extremely prolific, and most people would pronounce it a delicious vegetable when properly prepared, combining, as it does, the pronounced flavour of asparagus with the delicate suggestion of the table pea. The method of culture is that of the ordinary pea, and the particulars as to price of seed, &c., can be obtained from Messrs. Adamson and Son. Amongst other places where it can be seen in full profusion is the Leongatha Labour Colony, and the head gardener there states that it is suited to all classes of climate, thriving almost equally well with or without watering. The plant is of a prostrate nature, branching much like a rock melon, and spreading nearly two feet. Stem prostrate, leaves trifoliates leaflets spatulate ovate, an inch in length, two stipules ovate, flower axillary, and of a scarlet red and purple, giving the appearance of a field of red clover. Pod square, with fringe on each side, 2in. to 4in, long, containing six to ten small peas. The pod is cooked and eaten with the fingers, after the manner of asparagus. With reference to the above, Mr. Wicken of the Department of Agriculture, to whom the matter was referred, said:—"I have grown this for several years. When I came over here last March I brought a small quantity of this seed and sent some to Subiaco for trial, and some to Drakesbrook. They both came up, but that at Subiaco has not done very well, while that at Drakesbrook was not sufficiently forward to report on at my last visit."

THE PLANTING OF MANGO GROVES.

The following brief account of the method employed in Thana, Bombay Presidency, for the planting up of open spaces with mango grafts, may interest some of your readers, who have not had experience in such planting.

Pits 4' x 4' are dug and left open for three or four days. Grass and dead leaves are then placed in the pits and burnt so as to destroy the roots of any other trees that may happen to be there.

Fresh earth from the margin and bed of dried-up tanks, and from cultivated rice fields is brought and the pits are then filled up, each with an alternate layer of tank-earth and field-earth. The sites of the pits are well watered daily for about 8 or 9 days.

The mango grafts are brought growing in earthenware pots. Holes 1 to 1½ feet deep are prepared in the sites of the old pits and in them the grafts are inserted. But before insertion a little fresh earth from the spoil bank above is thrown into the holes to render them shallower and a layer of cowdung ashes is spread over this. It is needless, perhaps, to remark that the earthenware pots in which the grafts exist are broken and that the resulting ball of earth surrounding the roots is inserted in the holes.

More earth is then thrown into the holes and carefully arranged with the hands around the ball of earth surrounding the roots. Then a second layer of cowdung ashes is applied, and over this another layer of earth. When the holes are completely filled, a third layer of cowdung ashes is placed at the surface surrounding the stem, and the ground is well watered.

The graft is now established and the grafted portion of the plant is on a level with the surface soil. In order to induce the plant to grow erect, a bamboo support is tied to it.

One month or 1½ months after planting the stock is pruned near the summit, and six or eight months after it is cut off almost down to the point of the graft.

The three layers of cowdung ashes are applied to prevent the roots being attacked by white-ants, etc.

Mr. Jagannath Damajee, an expert in planting mango grafts, for he has established over 2,000 plants successfully in Thana informs me that when the plants are 3 to 5 years old, a layer of salt, about an inch or two deep, should be placed round the stem, commencing at a radius of about 1½ feet from it—to further protect the plants from insects' attacks.

He forms mounds of earth round the stems during the rains at this age of the plants and removes them (the mounds) in the hot weather.—G. M. R.—*Indian Forester.*

PLANTING NOTES.

ANIMAL MANURE.—From a series of careful experiments which have been made from time to time, it has been shown that a well-fed horse produces from 5 to 6 tons of manure per annum during the time he is in the stable. A steer of 1,000 lb. produces about 20 tons of manure a year. A sheep weighing 6· lb. would produce about three fourths of a ton, and a pig from 2 to 3 tons of manure yearly. These amounts include the necessary bedding to keep the animals comfortable—*Queensland Agricultural Journal.*

INDIA-RUBBER IN SIERRA LEONE.—The United States Council at Sierra Leone reports favourably on the local india-rubber industry. He states, however, that the native collectors are now frequently bleeding the roots of the tree as well as the body—a proceeding which is as fatal to the tree as to the quality of the rubber.—*Queensland Agricultural Journal.*

KEEP THEM BUSY.—Hens that go in the corner and sit down should be put to work. In the morning give them about one-third as much food as they can eat, so as to have them hungry. Then get some leaves, cut straw or dirt, and scatter about a tea-spoonful of wheat, corn, and oats (mixed) through it. The hens will soon get hungry, and finding one grain will hunt for another. That is just what you want. Give them nothing until night, then feed all they want. Do this every day. Keep them hungry during the day, but feed them well before going to roost, and they will keep well and lay.—*Farm and Fireside.*

FRENCH SCENT FARMS.—The flowers mostly cultivated on the French scent farms are the violet, the jonquil, and mignonette, which are picked in February, March and April, though when the winter is mild and rainy, violets begin to flower in December. Roses, orange blossom, thyme and rosemary are gathered in May and June, tuberose and jasmine in July and August, lavender in September, and acacia in October and November. But the most important crops of flowers are the roses and orange blossoms, the others being mostly grown by small cultivators in the rural districts among their vines and olives. One of the largest flower farms is one at Seillans, about 2,000 feet above the level of the sea, and 20 miles from the coast, until the southern slope of the Alpes-Maritimes.—*Australian Field.*

A RUBBER PLANT FOR TEMPERATE CLIMES.—In a recent lecture at the Paris Academie des Science (says *Das Handelsmuseum*), Messrs. I Dybowski and G. Frou introduced a new rubber furnishing plant, a native of Northern China, which is at present cultivated with great success at the Jardin des Plantes, the Paris Horticultural Gardens. Up to the present time rubber has been extracted from trees only, and efforts have been made to acclimatise those from the Netherland East Indies in the French colonies, but unfortunately, without any result whatever. This new plant, called *Encomia illinoides*, whose fruits contain over 27 per cent. of indiarubber, has great economical advantage. It can easily be acclimatised and cultivated in countries of even a moderate climate.—*Queensland Agricultural Journal.*

GERMINATING OLIVE SEEDS.—The olive tree is, as a rule, propagated by means of truncheons, or cuttings, or from the tips of the branches, but it may also be grown from the seed, the latter being first cracked and well washed. Experiments have lately been made in Italy to determine the effect of different temperatures of water on the germination of the seeds. After removing the pericarp from a number of olives the seeds of eight lots were subjected for ten minutes to the action of water of different temperatures, the initial temperature of which varied from 30 to 100 degrees C. The seeds were then planted, and the germinations for seven months were tabulated. It appears that the germination of the olive seeds was accelerated when they were treated with water heated to from 40 to 50 degrees, and the maximum was reached at 70 degrees C. When the water was hotter than 90 degrees C. there was no germination, the seed having been killed.—*Queensland Agricultural Journal.*

DISTRIBUTION OF OUR COCONUT PRODUCTS.

The Distribution Table compiled by the Chamber of Commerce, showing the destination of our Exports, is of continuous interest to the statistician and the businessman. The figures for last year bearing on the products of the Coconut palm, are, like those of previous years on which we have commented, as puzzling in some respects as they are interesting. There is one circumstance which must strike the observer—the wide distribution of these products, going, as one or other of them does, (several in some cases) direct to 18 out of 19 countries whose names appear on the Export list. And the fact that these countries take up practically all that we produce every year, and that the result has been attained without any special efforts, such as have been found necessary in the case of Tea, is evidence that the supply is not outstripping the demand, and that the Palm holds what may be called a steady market. Our remark applies, not only to the older products, such as Oil and Poonac, in which business has been done with the outside world for generations, but also to more recent exports like Copra and Coconuts in the shell, and to the entirely new industry of Desiccated Coconut which already finds its way direct to twelve countries, most of which are, probably, centres of distribution. The time that the palm takes to bear, has, doubtless, been its chief safeguard against the rush which quick returns provoke in the case of both Tea and Coffee, both of which of late, have had to contend with the problem of over-production, and the inability of the markets of the world to take up all that was being hurried into them.

But to deal with distribution, the United Kingdom was our largest customer for Oil—having taken 257,655 cwt., or nearly three-fifths of the output of last year. In the previous year it took only one-half, though then too, it was the largest buyer, America coming next with more than one fourth to its credit. But last year America took little more than one-half of the previous year's purchases, or one-seventh of the total exports, and was distanced by India, which claimed 88,148 cwt. In 1898, however, India stood at the top of the list, having taken 125,687 cwt., against 123,316 cwt. by the mother country; while Singapore which has dropped off to 6,052 cwt. in the latest returns, stood third with 91,893 cwt.! What is the explanation of these violent oscillations? The demands of the United Kingdom and America where the Oil is chiefly used for soap-making and candles, are believed to be regulated by the abundance or scarcity of animal fat and the imports of African palm oil; but in India and the Far East the Oil is largely wanted for food and lighting; and it is a puzzle how they can do with so little one year, when so much can be taken off another year. Nor do we find, on the assumption that the Oil taken by Singapore is intended for the American market, any correspondence in the exports to the two countries.

In Copra, Russia stands *facile princeps*, having taken 99,620 cwt. out of 362,467 cwt., Belgium coming next with 77,988 cwt. and Germany third with 65,599 cwt. In 1899, too, she stood (more easily) first with nearly 105,000 cwt., against 76,634 cwt. for Belgium; while in 1898, the year of our largest export, Russia had no less than 143,688 cwt. to her credit, out of 506,000 cwt. The mother country continues our best customer for Desiccated Coconut, having taken nearly nine million lb. out of 13½ million lb. exported; but in 1899 she had nearly 9½ million lb. out of a smaller output. America is the next best with 1,829,280 lb., followed by Germany with 1,149,471 lb. The other countries which take large quantities are Australia, Belgium, Austria, France, Holland, Africa and China; so that, if only quality keeps up, there is no reason why there should not be that steady growth of the trade which we anticipate. Our Poonac is not sought by many countries; but with Germany taking a little more than a half, and Belgium somewhat less than a half of the output, there is not much left for other countries. The mother country stands first again for Coconuts in the shell, having taken over ten million nuts out of less than 15 million sent away. Africa comes second with over 2½ million, and India third with over a million; and almost all the continental nations are among our customers for nuts. Ceylon Coir, in its various forms of Rope, Yarn and Fibre, find their way to almost all the countries on the list—Singapore taking all but 1,000 cwt. of Rope, and the United Kingdom almost seven-eighths of the yarn, and more than one-half of the fibres.

"RESTING" TEA AND MINOR PRODUCTS.

A correspondent writes;—

"An idea has just occurred to me that, perhaps, the Hakgalla or Peradeniya people might be able to suggest a Product that we could grow between the lines of our tea, while the fields are *resting*: anything that would pay for the weeding of these fields would be a help; pine apples grow well where the climate is hot and forcing, and pine fibre *might* be of use if machines could be introduced at little cost for its preparation?"

A good authority replies on the above;—

"I am afraid I cannot recommend anything to grow among tea that is likely to pay, as I think the tea plants require all the ground allotted to them. The roots of the tea would not allow anything else to have a chance. Where the tea is widely planted and in good soil, the 'ground nut,' pine-apples and tomatoes may struggle along; but I don't think they would pay, as the tea bushes would soon smother them. I understand the resting of the tea to mean that it should be allowed to run for three years and then to be pruned down and start afresh in general cultivation. In this case if the ground is in fair heart the tea would grow so quickly that few weeds would grow and very little weeding would be required."

THE ENDURANCE OF TROPICAL HEAT.

Dr. William Hunter Workman, M.A., M.D, F.R.G.S, writes an article of nearly six columns in length in the *Pioneer* this month entitled: "The Endurance of Tropical Heat, a Study from Personal Experience," and endeavours to combat, and claims to destroy, some of the prevailing notions regarding heat in the tropics. Dr. Workman is known in Ceylon for his five months' tour here with Mrs. Workman, whose fame, by the way, springs rather from her being the first lady mountaineer in the world than from any cycling achievements. He certainly achieved longer rides *per diem* in our hill and lowcountry than are usually performed by the ordinary resident in this island; but his experiences in India, not in endurance of mere heat alone, but of thirst, becoming continuously more intolerable, which is the outcome of long distance wheeling in the peculiar heat prevailing on the driest routes traversed, certainly surpassed anything undergone in the way of physical hardship in our midst. Here we may quote an interesting passage:—

"We carried four felt-covered aluminium water-canteens, each containing a quart. If the contents of these had been used with any such freedom as thirst demanded, our supply would never have lasted beyond noon, and usually not till then. We found it advisable when passing a railway station at any time during the day to stop to fill our canteens, and drink as much water as we possibly could. Otherwise we replenished our stock as occasion offered at dak bungalows, or failing these, if we passed through a town large enough to have a postmaster, we applied to him, though we drank with misgivings unboiled water obtained from natives. In riding through the Bhil country and other famine districts in February, 1900, we had no opportunity to obtain any water except at an occasional railway station. Nearly all wells, streams and tanks were dry. When all the above sources failed, we had to endure the tortures of thirst, from the time our canteens gave out till the journey's end. On one such occasion when our last drop of water was exhausted at three o'clock p.m. we arrived at our destination in darkness at half-past seven so used up and with throats so parched that we could only with difficulty utter an articulate sound."

Survivors of such hardships, we would point out, must be persons extremely well-fitted physically for the trials of endurance undergone; and we do not hold this to be any proof of what may be done by the residents of longstanding in the country, who bear the heat and burden of the day, working in their offices, and are only able to take comparatively brief exercise before our briefer tropic twilight. The advice Mr. Workman so vividly describes, as warnings to him that he must not do this and that, was, of course, given by people who have become more subject to the effect of the tropical sun; and, even if well meant, has, we admit, proved more than mistaken in the case of this successful tourist over islands and continents of no mean size. What we would emphasize is that Mr. Workman had experienced a good deal of foreign travel, involving physical endurance, before his arduous wanderings in India, and that he was therefore in a condition to stand far more than the Anglo-Indian, however abstemious, who becomes slightly more subject to the effects of tropical *heat*—not necessarily of the sun's rays, for though Mr. Workman half hints that exposure to these in India *need* not do harm, he does not exactly say so—with each succeeding year. Mr. Workman "dodges" this question of sun's rays with the ability of a mountaineer on the prose slopes that correspond to those of Parnassus! In Kashmir he has stepped into the open sunlight with only a cap on his head, *but*—at 5,000 feet above sea; in America, at close on 100 degrees Fahr., he has seen young men expose themselves for hours to the burning sun and done the same himself; but no mention is made of similar exposure in the plains. Even if such was undergone, his subsequent mountaineering feats prove that he and his active wife were persons of no common powers in the endurance of extreme heat and extreme cold, in the art of pedalling an extensive mileage and of making stiff pedestrian ascents.

"Moidart," in the *Pioneer*, writes a witty and useful letter in reply to Dr. Workman, but the record of his far more dependable experience is spoiled by attributing exaggerated conclusions to Dr. Workman's long and, throughout, able article. Nevertheless we give two extracts, the first for its practical worth, the second for the entertaining advice given; and with these we conclude:—

"As to what to do to stand the heat, I say only general rules can be given which each man must adjust to suit his own constitution. Watch your health. Wear what clothes you can. Prickly heat will soon explain if you make a mistake. Wear a hat of thickness which will allow you to stay out from 10 to 3 without a headache, and see that it is well ventilated above the hair. Don't go out, unless obliged, before the sun is up; as nothing gives a headache more quickly than horizontal sunrays which strike your neck below your hat. Take as much exercise as your organisation will permit, as you must never allow yourself to be overtired. It upsets digestion and banishes sleep. Sleep as long as you can. Goodness knows it is little you get at some seasons of the year.

"I presume we shall soon hear of Dr. Workman lecturing in Europe on the failure, through their own bad management, of Europeans in India to enjoy the glorious climate they are privileged to live in: also advice as to how they should bear heat and, I must not forget, quench thirst, this time, I hope, in a temperature above 130 degrees. On the chance of this meeting his eye, I would humbly and with due deference suggest that, to assuage abnormal thirst after a hot day, a more effectual and perhaps more *comfortable* remedy, than pouring gallons of fluid down his throat, would be to soak himself in a warm bath and then sip a cup of boiling tea or, still better, one cold, weak, however pernicious and despised whisky and soda."

THE SISAL MATTER.

(*To the Editor of "the Speaker."*)

SIR—I should like to make a few remarks in reference to a letter signed "Observer" in your issue of the 15th inst. In the first place, your correspondent has misread the report of the Co-

lonial Secretary of the Bahamas, who says "henequin," or "dagger plant," the fibre of Yucatan, and not sisal, grows all through the West Indies. In Yucatan there are two varieties, the Bahama and another. Mr. Morris imported in error an aloe from Ceylon, which was planted in Jamaica and probably in other islands, but I do not believe it is "hennequin," neither do I believe the dagger plant to be hennequin. As to the statistics referred to, all sorts of mis-statements were made under the "Shea" administration, so Mr. Churchill's estimates may be more correct; but I should mention that an acre of land in the Bahamas must not be confounded with an acre in this country; the first would probably be equivalent to one-fourth of an English acre, probably less, so much of the land being nothing but plate rock. "Observer" is right as to the question of origin: that has been settled in the minds of all truth loving people by the *Refutation of a Romance of a Governorship*, but I have already had my say upon this point. On Mr. Chamberlain's speculation in sisal I need not enter, except to wish for his own sake he had bought the lands I pointed out to him. Results might then have been very different, and the colony would not have lost the great assistance in its development which his investments in the islands would have brought; but under the influence of Sir Ambrose Shea he did otherwise. I wonder if Sir Ambrose's friends give him credit for this disastrous result of his want of judgment and knowledge. "Observer" refers to the "Crown Fund" of the colony. I am of opinion that, under the sole control of many Governors, it has not been properly administered. The "options" given on land, for instance, were without any binding agreement or fine, and so the fund is not nearly so large as it ought to be, if any reasonable foresight had been exercised. Really, this Colony manages its own affairs so intelligently, that it would be well if Mr. Chamberlain turned over the Fund to its Legislature, who are the proper parties to administer it.—Yours truly,

AUGUSTUS ADDERLEY.

SUGGESTED DANGER FROM ARTIFICIAL MANURES.

(*A tit-bit for Ceylon's daily alarmist.*)

The "Lancet" says:—"During the past week our laboratory commissioners have undertaken the examination of a number of substances, including certain foods and drugs in common daily use, in the preparation of which sulphuric acid is used. It will be found, after a few moments' consideration, that a fairly lengthy list of articles of everyday use may thus be drawn up. The results are not yet ripe for publication, but we feel bound to divulge one important result, since the disturbing announcement has this week been made by the analyst of Manchester that arsenic has been found in malt in a quantity equal to that found in glucose or malt substitutes. Moreover, arsenic was found in beers which were known to be brewed from malt and hops only. Now that this remarkable statement has been made, we may say that we have found, in the course of the inquiry alluded to, artifical manures to be rich in arsenic easily soluble in water. This is hardly surprising, since the basis of artifical manures—namely, superphosphate of lime—is made by acting on ordinary bone ash with common oil of vitriol. The important point is that it has been established that plants to which arsenical manure is applied take up arsenic in their tissues. Cabbages and turnips gathered from fields manured with superphosphate have given unmistakable evidence of the presence of arsenic. It is probable that arsenic accumulates in the soil which is constantly being dressed with superphosphates, so that plants raised on such soil would absorb arsenic and exercise an injurious effect on the health of man and animals. The question arises, therefore, may not the arsenic in malt be traceable to the somewhat large amount of arsenic inevitably present in artificial manures? This aspect of the subject is very serious, and needs further inquiry. We shall return to it in a future issue, when we hope also to be able to record the results obtained in an examination of other more or less familiar articles in which arsenic may be possibly introduced through the employment of impure sulphuric acid in the course of the manufacture."

TEA; POSITION AND PROSPECTS AT END OF YEAR IN LONDON.

MCMEEKIN & CO.'S NOTES ON INDIAN AND CEYLON TEAS.

INDIAN.—As practically all Teas on which duties were paid in anticipation have now passed into ordinary consumption, the annual summary may be taken as fairly correctly representing the year's trading in tea in the London market.

From the producers' point of view, the statistical position cannot be regarded as at all satisfactory. The imports during the calendar year showed an increase of some 12,000,000 lb., while the deliveries only increased by about 4,000,000 lb., and it must be remembered that of this increase over 2,000,000 lb. went into Export trade. It is evident that Ceylon teas have again gained materially in home consumption as compared with Indians, the reason doutless being the lower level current for the former during a large part of the year. For two months, however, quotations for Indian teas have been very low, and the effect is being quickly seen.

At the close of the year the total of seasonal imports recorded showed an increase of about 3,000,000 lb. only, while up to the same date some 9,000,000 lb. in excess of the 1899 figures had been shipped from Calcutta alone, irrespective of the increase due from Southern India. Besides, the quantity offered to date for the seven months was much below the figure for the same seven months of 1899 and the accumulated stock showed an increase of 8,500,000 lb.

The position is a most serious one to face, as, in addition to the London market being oversupplied, the other important outlets—Australia and America—are in a most congested state owing to the excessive shipments injudiciously consigned to them; and the strong demand from Eastern Europe has been temporarily well supplied.

A proposal is now under discussion to arrange for a voluntary limitation of production during 1901 by a mutual arrangement of producers. Should anything of the kind be arranged an made effective by the conclusion of Ceylo

growers, it must rapidly and seriously affect prices. A reduction of even five per cent in the yield from both India and Ceylon could not fail in present circumstances to lead to a marked advance in the value of the remaining 95 per cent produced.

CEYLON.—The statistical position appears rather more favourable than that for Indian teas. Within 1900 there was an increase of 15,000,000 lb. in the imports, while the deliveries showed the marked advance of 11,700,000 lb., of which under 2,000,000 lb. went into Export Trade. The large advance in home consumption has been bought at a heavy cost in the level of prices realized. The year closed with an increased stock of 8½ million pounds, while the quantity shipped from Colombo to London within 1900 exceeded that received in the latter by fully 3 million pounds. The congested state of other large markets, referred to above, affects Ceylon tea fully as much as it does Indian, and serves to explain the very heavy export from Colombo to London during December. It may also have an important bearing on the volume of shipments to London during the early part of 1901.

The expectations of yield for the new year again point to probable large increases, if no steps are taken in the direction of restricting output.

COFFEE AS A BEVERAGE.

SIR,—I notice that a great deal is being said at the present time in the public Press regarding the remarkably small consumption of coffee in England. It appears that more than 30 times as much coffee per head is drunk in Holland as in England. It also appears that the United States of America is an extremely large consumer of coffee; in fact, nearly half the coffee produced in the world is consumed in that country. As the Americans and the English are practically of the same race one would naturally suppose that the consumption of coffee per head would be about the same in both countries. Various writers have lately been attempting to arrive at the cause of this great disparity in the consumption of coffee. Why is it that England consumes such a small quantity, and Holland, Germany and the United States such an enormous quantity? One writer speaks of coffee in the following language :—"Coffee affords the human frame energy and vigour, and consequently ameliorates the ill-effects of overwork or excessive study, and neutralises the consequences of deficient, poor, or unwholesome nourishment."

The coffee berry in its raw state contains, on an average, about half of one per cent of caffeine. Caffeine acts as a stimulant. It strengthens the action of the heart, and stimulates the whole vascular system. It removes fatigue, and, in fact, has an exhilarating effect similar to alcohol. Caffeine is the only substance known which can produce these exhilarating effects without an after depression. When coffee is well roasted and well prepared drinkers acquire a certain coffee habit very much like that of smoking. In some countries, like Greenland where no alcohol is either imported or made, the natives produce a species of intoxication by drinking very large quantities of strong coffee. If anyone is a habitual coffee-drinker, he feels great depression if he misses having his coffee at the usual time.

In the United States of America there are absolutely no restrictions on the importation of coffee or on its use. Even when coffee was dutiable, after the duty was once paid the purchaser was at perfect liberty to do anything he liked with the coffee. But in England the case is quite different. The Government is not satisfied with simply receiving the duty ; coffee is hampered in every way by restrictive laws. No other adulterant is permitted but chicory. In France the children are provided in the morning with a large cup or bowl of coffee and milk, into which they break their bread, and eat it very much the same as they would eat bread and milk. In the United States a very cheap drink is prepared by mixing roasted cereals with coffee, which is practically the same thing as mixing bread with coffee. In this way a very delicious and cheap beverage is produced, which is not only stimulating in proportion to the coffee it contains, but at the same time serves as an excellent food. A cup of so called coffee prepared in this way is quite as good as a bowl of soup, and what is more, it is exceedingly cheap and palatable. It is because the Americans are allowed to use coffee in any way they like, either as a beverage or as a flavouring material, that the consumption is so extremely large.

In England, on the other hand, coffee can be adulterated with nothing but chicory, because chicory pays a duty. Now it so happens that chicory is a root, not altogether unlike beetroot. It contains a large amount of very impure sugar similar to raw beetroot sugar. When this chicory is properly roasted, it communicates to the coffee a great deal of colouring matter. Moreover, the roasted impure sugar which it contains becomes extremely bitter ; and as an adulterant of coffee, as far as bitterness and colour are concerned, nothing could be better. When the quantity of chicory is limited to one-third of the whole, it produces a very pleasant drink ; but unfortunately chicory has a medicinal effect. It is like a great many other things which may be quite palatable at first ; but if chicory is consumed day after day one soon tires of it, as it is like all other impure sugar. It produces slight nausea, and in this way, unless one has a very strong stomach, it soon becomes quite unpalatable. Therefore, as coffee is always associated with chicory in England, coffee is discarded because the consumer finds that chicory causes indigestion, and does not agree with him. As coffee contains only half of one per cent of caffeine, and as a large amount of this is dissipated in roasting, and as the relative amount is still more reduced by the addition of chicory, it follows that the actual amount of caffeine contained in an ordinary cup of coffee, such as one finds in England, is quite insufficient to produce any exhilarating effect. On the other hand, tea contains sufficient caffeine to produce a perceptible amount of exhilaration. The result is that people take to tea aud avoid coffee.

If the Government really wished to increase the revenue from the importation of coffee, the best course would be to let people adulterate it with anything they saw fit, instead of confining them exclusively to chicory. In countries where common cereals are used for adulterating coffee people never tire of it, but in England, where only chicory is used, coffee has become very unpopular.—Yours, &c., HIRAM STEVENS MAXIM,

—London *Globe*.

A THRIVING WATTLE PLANTATION.

On the mountains, not far from Maritzburg, in Natal, the Town Hill Wattle Company eight years ago acquired a tract of 3,000 acres, and commenced to plant wattle trees for bark. At the present time 2,400 acres are planted, the trees standing six feet apart in rows twelve feet wide. The soil is poor in quality, of a red colour, and light and porous. A correspondent of the Natal *Agricultural Journal* recently interviewed the manager of the plantation, Mr J A P Ellis, and it is thought the following particulars from his report may be of considerable value to people in New South Wales interested in the production of wattle bark, for which there is so great a demand and so little provision. The land is broken up about Christmas-time and well harrowed. In February the planting is done, and the ground receives no further attention until the autumn of the following year, when the space between the young trees is ploughed to aerate the soil, and at the same time protect the trees from the ravages of fires. Trees in Natal do not reach their prime, either as regards bark or timber (the company have a market for all their wattle timber for mining purposes and firewood) till about the tenth year. Insect pests, in the shape of locusts and bag-worms, do considerable damage to the trees, and grass-fires are a great source of anxiety. "In August and September no plantation in Natal is absolutely safe in the event of fire starting with a high wind, for the undergrowth in most cases is sufficient to feed a fire in hot wind." To protect their plantation, the company have nearly fifty miles of fire-breaks, boundary and dividing. It is costly work, but is regarded as a sort of insurance premium. The stripped bark is brought in by means of a tramway, which also connects with the nearest railway station.

The shed for drying the bark is 250 feet in length, with its back to the weather quarter. From the back, along the whole front of the building, a series of very broad-gauge tram lines, six feet six inches orcm the ground, on wattle posts, like an overhead railway, run out a distance of 126 feet. On what may be called these tram-lines there rests a flexible ladder of thin poles overlapping the rails on either side by a foot. The sides of the ladder are light chains, a dog-spike at the extremities of the wire rungs entering the chains at fifteen inches apart. The last rung is a stout pole for the hauling wire, which wire runs over a pully at the extremity of the tram line. As the bark arrives for drying it is thrown over the rungs of the extended ladder. When rain or mist threatens, a wire from the back of the shed is drawn by a couple of oxen, and the flexible ladder with its load comes under the shed, the load of bark hanging from each rung being closed up compactly like the bellows of a concertina or the laths of a venetian blind, if they were run in horizontally from a couple of guides. On the return of fine weather, the ladders are again drawn out. The capacity of the shed is one hundred and twenty tons. At one time there was apprehension that it might become necessary to send the wet bark down the hill below the mist line for drying—for much depends on the proper drying of bark—but this system of shed drying has disposed of the necessity for such costly procedure.

Close by is the shed for chopping the bark, sawing the poles, &c., the motive power being a twelve-horse-power engine. All the machinery is well set on exceptionally solid foundations and the shed seemed advantageously planned for avoiding unnecessary handling, both as regards the placing of the machinery and the run of the tram sidings. In reply to a question, Mr Ellis said he had not been able to do anything profitably with tannage or cutch. The former, as many know, is an infusion of tannic matter derived generally from the waste small branches of the tan trees, and the latter (cutch) is the same inspissated—evaporated to a solid consistency. For making cutch, he said that a plant of vacuum pans, &c., costing £8,000, would be required.

From a commercial point of view the company's operations have been attended with great success.—From *The Agricultural Gazette*, New South Wales, for December.

RUBBER TRADE IN LAGOS.

At a meeting of the Manchester Chamber of Commerce, on the 12th inst., Mr. John Thomson, president, in the chair, the minutes of the African Sectional Committee containing the report of a discussion by the committee on the Lagos rubber-tree regulations, which were recently brought under its notice by the Lagos Chamber, were laid before the Chamber. The "Manchester Guardian," in a report of the above meeting, states that it appears that, with a view to the preservation of the rubber industry, the Lagos Colonial Government has placed restrictions on the "tapping" of trees and the sale and purchase of rubber in certain districts. The Lagos Chamber a few weeks ago addressed a letter to the Lieutenant-Governor of the colony urging that these restrictions should be removed, or at least modified. It was stated that "trade is extremely bad in the colony, and the Chamber is of opinion that it is partly due to the restrictions, which are diverting the rubber industry to other colonies." The African Committee having last week had the advantage of an interview with Sir William M'Gregor, the Governor of Lagos, resolved to recommend to the Board that a letter be addressed to the Secretary of State for the Colonies to the following effect; (1) That the Chamber is not sufficiently well informed to express an opinion on the demand of the Lagos Chamber that the restrictions on the rubber trade should be withdrawn. (2) That the matter is of sufficient importance to make it advisable that the Governor should receive instructions to inquire into all the points raised by the Lagos Chamber, after his return to the colony, so that he may be in a position to judge whether it is possible to modify the restrictions. (3) That in the opinion of the committee some restrictions are needed, and that the best way of making them effective is by securing the goodwill of the chiefs and by working through their agency. (4) That the chiefs should be encouraged to prevent overtapping the trees and to plant young trees in place of those which are killed. (5) That it is desirable to pass an Ordinance making it penal to buy or sell "root rubber." (6) That measures should be taken which will render it impossible for the native police to show the undue harshness to the people which is alleged to have been manifested. The Board sanctioned the despatch of a letter to Mr. Chamberlain in accordance with these suggestions. —*India-Rubber Trades' Journal*, Dec. 24.

HOW MUCH SEED TO USE.

Most people are very indifferent as to how much seed to use. In writing us for seed corn lately, some correspondents thought a quart of corn should plant one acre, others seemed to think that it would require a bushel. From my own experience, I find that four quarts will plant one acre, not more than four grains to a hole, 4ft by 4ft which is a good standard distance to secure a favourable return. Where rats and mice are giving trouble by eating out the seed, it is judicious to steep the seed in a decoction of bitter wood or in water with kerosene added, for a few hours, but even that does not secure immunity from some mysterious pests, (which I know are not rats or ants—the people say the offenders are frogs, but I do not believe it) which scoop out a hole and do away with the grains. For this reason, it is better to drop six or eight seeds in the hole and thus give a better chance to secure

a good stand. It is easier to pull some of the plants out if too many escape harm and come up than to go and plant more seed, for nothing is more annoying than to have to do this; you have to make holes again, even though the ground have been ploughed, drop seed, cover up and after all, these later plants never do well, for they are shaded by the older plants and dwarfed from the start. Therefore in planting six or eight seeds to the hole you would allow eight quarts to the acre. With pumpkins which can be planted through the corn after it has half grown, two to three pounds per acre is the rate for seed setting. As a general rule the following will be found fairly correct:—Beans in drills $1\frac{1}{2}$ to 2 bushels; Peas in drills 2 bushels, broad cast $3\frac{1}{2}$ bushels; Corn in drills $\frac{1}{2}$ bushel; broadcast 3 bushels; in hills 8 quarts; Guinea Corn, broadcast or hilled 1 bushel; Cow peas to 8 quarts; Rice 30 to 40 lb: Cabbage (in seed bed to plant an acre) 2 lb; Guinea Grass 1 to 2 bushels; Turnips in drills 2 lb; Jerusalem Artichokes 3 to 4 cwt. "Red Peas" allow a bushel per acre in holes, tomatoes 1 ounce to 1,500 plants, egg plants 1 ounce to 1,000 plants, onions 5 to 6 lb, potatoes cut in two sets 12 to 14 bushels of whole potatoes or allow 4 to 8 barrels to plant whole or in sets. The weights in lb per bushel of different seeds are:—Beans and Peas 60 lb. Beggar Weed 60 lb. Guinea Grass 20 lb. Guinea Corn 40 lb. Country Corn (Maize) 56 lb. Oats 40 lb. Wheat 60 lb.—*Journal of the Jamaica Agricultural Society.*

RUBBER FIND.

A great discovery of india-rubber forests of vast extent has been made in the Department of Santa Cruz de la Sierra, and on the Magdalena in Bolivia. In the province of Caupolican, Department of La Paz, there have also been discovered some splendid forests, in which there have been found some rubber trees of a species not before known.

In Bolivia the only species of rubber trees hitherto worked are those known as "Hevea," or "Siphonia Brasiliensis," but lately the species known as "Castilloa, which exists in Mexico, Colombia, Equador, Central America, etc., has been dicovered.

In the Province of Caupolican gutta-percha has been discovered, which is very important. In order to facilitate shipments for the products of Santa Cruz and Beni, the Government has decided to open a port with a national custom-house, on Laguna Gaiba, a beautiful creek of the River Paraguay, on its right bank, at 17 deg. 48 S. latitude.—*India-rubber Trades Journal*, Dec. 24.

THE SUMATRA FIBRE PLANTER.

Tobacco Abandoned for Ramie.

Mr. Bluntschli, with a friend, visited the Peradeniya Gardens on the 18th and enjoyed a round of the Gardens—being of course chiefly interested in fibre-plants, more especially Ramie, which he grows on a large scale in Sumatra. He has had nearly eight years' experience of Ramie cultivation now, so that he can speak with authority on the subject. It is not however every planter who can afford the patience or means to persist for seven years (!) at a cultivation like Ramie, as Mr. Bluntschli has done, before any profits are reaped. Previous to this he grew tobacco extensively, but becoming dissatisfied with the returns from this he ventured to try Ramie on a large scale, which is the only condition under which it can be made profitable. But it was a case of "out of the frying-pan into the fire." Still, patience has its own reward, and Mr. Bluntschli is now sanguine of respectable and steady returns, for he now employs 24 decorticating machines at his different factories, which are all lighted with the electric light. Mr. Bluntschli grows six distinct varieties of Ramie, though he considers there are no less than thirty more varieties in existence. Yet he was shown a species at Peradeniya which was quite new to him, viz: *Bœhmeria pulchra*, which as the name signifies, has beautiful velvety dark-green leaves. This seems to contain as good a fibre as any of the family, and is easily grown. *B. nivea* Mr. Bluntschli considers the best, and he confirms local experience (in the Gardens) by condemning the variety *tenacissima*, which is often said to be the best variety for high elevations. Mr. Bluntschli purposes a visit to Mr. Power's ramie clearing before leaving the Island. Then he goes on a tour to China and Japan for the purpose of acquainting himself with the methods of Ramie cultivation in those countries and with the different varieties grown.

THE NILGIRI GAME ASSOCIATION.

This Association held its annual meeting on Friday last at the Collector's office. There were present Sir Frederick Price, Messrs. C M and W Mullaly, Colin Mackenzie, H P Hodgson, Herbert Browne, Van Ingen, Wilbraham, Church and Captains Bagnalls, Van Agnew and Swan.

The Honorary Secretary, Mr G Hadfield, presented a Report of the year's operations of the Association, which was recorded satisfactory. Of the prosecution under the Game and Forest Laws detection had considerably improved owing chiefly to the appointment of two competent watchers, at Mettapollium and Satymungalum ranges.

The other measures of game preservation referred to was the destruction of vermin. A schedule of what had been done during the year is appended to the Report and testifies to rewards having been paid for 141 eagles, 279 wild cats, 65 mongooses, 24 cow pheasants, 13 wild-dogs and an otter. These figures were in excess of those of the previous year.

The question whether there had been an increase of game as the result of measures of protection was answered in the affirmative and the amount of success achieved, the Secretary contended, justified perseverance in the course adopted.

Among measures inaugurated during the year was the Game Bag and Shikari Register. Mr. VanIngen was the only contributor to the former and from lists of game shot in the district furnished by him, it appeared that 11 sambur, 1 spotted deer, 3 tigers, 4 panthers, 5 bears, 4 muntjack, 2 black bucks and 1 hyæna, were destroyed.

From the details supplied in Mr. VanIngen's list, we learn that the largest stag, with 34 inches of antler, was met with on the slopes of the Nilgiris, while the Kundahs and the Drug furnished two others of 33 and $32\frac{1}{2}$ inches, respectively. The spotted deer was shot on the Westbury estate and the length of its right horn was 32 inches and of its left 31. The biggest tigers killed

were one male on the Kundahs and a female at Westbury each measnred from nose to tail 9 feet. Westbnry also snpplied Mr. VanIngen with the largest skin to eure, which measured 6 feet 8 inehes. Nellacotta, in S-E Wynaad, aecounts for the largest bear destroyed, which measured 5 feet 11 inches, and was a male,

The meeting then adverted to the trout eulture, undertaken by the Association; and to Major Bagnall having taken up the duties so ably performed by Major Grant, V.C. Major Bagnall arranged what he had to communicate under 3 heads—(1) attempts to procure ova, (2) the evidence of the existenee of trout in Nilgiri waters (3) the existence of other fish. Two consignments of ova were sent by Messrs. Andrews and Andrews, of the Surrey Trout Farm, the first consisting of *S. Fario* by the "Golconda," the second of the American rainbow trout or *S. Iridens* by the "Manora." Every precaution was taken this side of Madras, but owing to the apathy and utter want of appreciation of what was required on the part of the individual into whose custody they were delivered on board the ship, both the consignments arrived in a hopeless eondition.

H.E. Lord Ampthill, it was resolved, should be asked to become the Patron of the Association, and a few additions were made to the Committee or the year.

CINNAMON IN LONDON.

It was scarcely to be expected that the extraordinary prices which some parcels of fine Cinnamon fetched at the August sales would be maintained. It is not surprising, therefore, that at the last quarterly sale for the year, held in Mincing Lane on the 26th ultimo, prices receded to the extent of 1d to 2d per lb. This falling-off was, however, only on the qualities which had received an abnormal fillip, and it represented a return to the range of prices which had previously ruled. A fictitious or unusual rise generally does harm by inducing illegitimate speculation; and if some people feel disappointed that the August prices were not maintained last month, they should derive consolation from the fact that there was not a serious drop, by way of reaction, and that prices were not forced down by an excessive supply. The finer qualities which are usually "worked" in London, by being unbaled, examined and re-baled, all found buyers at prices which must be considered satisfactory —the difference between the bids for the three First sorts being far less than usual, and one lot of Seconds actually fetching top price! Only about one half of the offerings of "unworked" spice found buyers in the room; but the drop in their price did not exceed ½d a lb., for marks on which August prices were not maintained. The quantity catalogued was a fair average one, and the leavings need not mean accumulations, as Cinnamon is generally taken off at auction prices soon after the sale. The prospects of the spice may, therefore, be regarded as good, looking both to prices and stocks. Another circumstance which renders the outlook hopeful, is the determination of the trade to have nothing to do with so-called wild Cinnamon. Would that it were possible to secure a similar, effectual boycott for rubbishy Teas, by which we do not mean sound Teas of inferior quality—Cinnamon counts four sorts—but Teas manufactured of coarse leaf, leaf that does not roll, and adulterated with stuff that does not generally enter into consumption as food. We quote as follows from the Cinnamon Report of Messrs, Forbes, Forbes & Co., Ld.:—

CINNAMON.

London, E.C., Nov. 27.

The last series of quarterly sales for this year were held yesterday, when a total offering of 1,587 bales plantation Ceylon quill was catalogued, against 1,141 bales in August, and some 2,900 bales plantation at this period last year. With only a moderate enquiry, about 900 bales passed the hammer at generally easier prices. The exceptionally high prices realised for "Worked" quill at the August auctions were not maintained, as we had anticipated, and prices for these marks then unduly forced up, now gave way to the extent of 1d. to 2d. per lb. The "Unworked" spice realised about last sale prices to one halfpenny per lb. decline. The whole of the "Worked" quill —296 bales—was sold, firsts 1/4 to 1/7; seconds 1/2 to 1/7; (one lot at 1/8; thirds 1/1 to 1/6; fourths /9 to 1/; of the 1,391 bales "Unworked," 601 bales were cleared, firsts 11d. to 1/; seconds 9½d. to 11d; Thirds 9½d. to 10½d; fourths 9d.

A few lots quillings and chips sold, the former at 7½d. to 10d. per lb., and the latter at 3¾d. per lb.

1401 bales and 2,500 bales wild cinnamon and bark were again brought forward and, as before, were totally neglected.

	3,032 bales quill		1899.	1898.
Stock of Ceylon	2,	against		
	2,446 ,, wild		3,659 &	6,116
Chips	2,743 bags		1899.	1898.
Wild bark, &c.	7.450 ,,	,,	6,705 &	1,920

The next public sales will be held 26th Feb. 1901.

Owing to the strike of Thames lightermen the Cinnamon on board, the SS. "Alcinous" was shut out of the auctions.

SOME NOTES ON CHRISTMAS FRUITS.

By Sampson Morgan.

The present Christmas season will be eonneeted with the fact that it is a record one as far as the supply of fruit is concerned, and that never before has there been such a varied show of festive dainties in the windows of the fruit-shops, not only of London but of the United Kingdom. Until a few years ago the fruit-supply for Christmas was confined to a few well-known fruits, sueh as the grape, orange and apple; now shippers ransack every quarter of the world for new fruits, so that they may be put on the markets at a time when an insatiable demand and high prices prevail. That is why this Christmastide we have the grape-fruit from Jamaica, the persimmon from the South of France, the custard apple from Madeira, the mango from the Canaries, lychees from China, and golden-skinned apples from the Pajaro Valley. This apple is known on the English markets as the Californian Newton pippin. It is, however, nothing of the kind. It is the Pajaro Newton, and is grown in that fruitful valley from whence it derives its eorrect name. One faet about the development of the Christmas fruit-trade deserves a speeial notice. The public is inelined naturally to take it that we are as a nation importers of Christmas fruits, and importers

only. This is a slight error. At the present time English hothouse grapes are on sale in the leading fruit-shops of Berlin, Paris and New York. The English hothouse grape stands above all competitors, and is of magnificent appearance and quality. These grapes will be on the tables of many of the richest families in Germany, France and America, this Christmastide, and the fact, though generally unknown, deserves notice. But things will not even be permitted to stop here. We suggested the development of the export fruit-trade from this country to the Continent many years ago and now a Covent-garden firm has, we believe, opened a shop outside the Halles Centralles in Paris, so that best English fruits will be obtainab'e in Paris in large quantities for the festive season.

Another important feature of the Christmas fruit-trade is the unique position taken up by the Denia orange. Of course, no city in the world is so well and cheaply supplied with oranges as London is. At one time the flat St. Michael was the Christmas orange; then it gave place to the round Valencia. This in turn was eclipsed by the oval-shaped Jaffa; then the Navel orange surpassed that, for not only was it of a similar shape and size, but contained no seeds. Higher prices in Canada and New York have diverted the supplies of Navels from London, so the Denia enters the list, and to-day holds a foremost position with all comers.

This Christmastide the English hot-house grape-growers have for the first time had to face serious Belgian competition. True, Belgian fored grapes have been sold in previous years, but this season the fruit has been put up in special little wicker-plaited baskets, and by this means have come to hand in perfect condition, with the bloom quite untouched and as fresh as when they were packed by the growers. The quality is not equal to the home-grown fruit, but they are excellent imitations, and few of the public will be able to tell whether they are buying English or foreign fruit. Great expectations had been raised with regard to the arrival of huge quantities of bananas from Jamaica, but the public will have to depend upon the shipments from Madeira and the Canaries for the yellow-fingered fruits this Christmas-time. Without doubt the quality of the Madeira banana is as near perfection as possible. The banana is the coming fruit. It is wholesome, highly nutritious, and when fully ripe may be said to be devoid of starch, hence its great value as a food product. Among dates those that come from Tunis are immensely popular, and the public prefer them to the Tafilats, which are sold loose, though the latter are twice and three times their size. Then there are the Elvas and Carlsbad plums. These have met a larger sale this season than ever, and have taken a good hold upon the public taste. The American figs in little wooden drums are also highly appreciated. Lady-apples from France, packed with dyed moss and with one layer of crimson-cheeked fruits in a case, have become so much sought after that they will command high prices this year.

Nuts are plentiful—the cokernut (*sic!*) particularly so. What wonder when we know that in Ruatan, off Spanish Honduras, the Carib Indians never work, because the cokernut trees drop their harvest of nuts about them, and repeat the process for half a century before losing their fruitfulness. In other parts of the world it is the same, and the cargoes which reach us from Trinidad and elsewhere prove the prolificness of this wonderful tree. Brazils and almonds are plentiful. Kent cobs are abundant, so are the small Spanish nuts, There are good stocks of chestnuts on sale; the best come from Naples. France sends a good-quality nut to this country. Walnuts are represented by samples from Naples and Grenoble. The former are kiln-dried, and the latter what are termed fresh. In its dried state the almond is known to everyone in this country now. In Italy their culture for commerce receives special attention. Around Catania and Syracuse they are grown in profusion, but the nuts are also eaten when they are soft and green as a dainty by the rich classes. In either form, whether green or ripe, they are a useful article of diet, and always appreciated. The almonds of Catania are well known in fruit-trade circles.

In addition to the other dried fruits that have been named there are huge stocks of figs, and a fine and varied display of fruits in thick sugary syrups.

Possibly in time we shall have the privilege of adding a considerable number of fruits to the extensive list we already possess. Were the fruit-growing centres of India alone exploited by dealers as they should be, we should soon be having a plenteous supply of oranges, bananas, custard-apples, guavas, pomegranates, limes, lemons, dates, figs, and mangoes from that possession alone, and in prodigious quantities too. As to melons, those of India are of the finest quality, and would be prized in this country.—*St. James's Gazette.*

DESTRUCTION OF GAME IN INDIAN NATIVE STATES.

Government would do well to direct attention to the game laws and their administration in Native States. In Mysore it appears that a wholesale destruction of game takes place all the year round, whilst a gun license may be had for the nominal sum of four annas. No animal is spared, whatever its age, sex, or season, and the result will be that eventually not a living thing will be left in the forests. The rivers also are suffering from netting, and representations by the local Government appear to be barren of result. In Hyderabad half the State is annually closed to European sportsmen, but the destruction by native shikaris proceeds apace in a country where every man is armed. The natives, however, destroy only harmless animals, and do not keep down beasts of prey, with the consequence that the latter prey almost entirely on domestic animals and not infrequently take to man-eating; the predaceous animals are thus likely to largely increase in numbers and destructiveness.—*Asian*, Jan. 15.

THE FORTHCOMING BURMA RICE CROP, according to the estimate, will be the largest on record. As it is to be hoped there will be no famine in India, prices will probably be lower than those of 1900. In Siam the prospects of the present crop are said to be excellent, and Bangkok and Saigon will doubtless supply a good deal of the demand for China and the Straits. Japan now buys Burma rice pretty regularly, finding it more profitable to export her own grain. No attempts seem to have been made to introduce the Japan variety of rice into the province and it might be worth while to experiment in doing so.

REPORT ON CEYLON TEA, 1900.

EWART MACCAUGHEY AND COMPANY, LIMITED.

The New Year's Auctions opened pretty well on the same lines as Indians. The market was strong up to 7½d per lb while over this prices were irregular, although, where quality was unmistakably good, buyers were prepared to pay up. A fair amount of Pekoe Souchong for price was available at 6½d per lb, and Broken Pekoes generally were relatively much cheaper than leafy grades. The very strong tone died out towards the close of the month and partly owing to inferior quality, but chiefly no doubt in sympathy with Indians, prices fell all round until 6d per lb teas in particular were showing wonderful value.

In February better teas brought a better market, and with both home and export buyers coming in and fine teas in small compass, prices advanced, finer kinds selling up to 1s 7d per lb or 1s 8 per lb, while in Common Leaf there was no quantity to speak of under 6½d per lb. Prices for Common did not, however, remain up very long and the end of the month brought lower quotations for all tea under 7d per lb with a fair number of 5¾d per lb quotations.

The first auctions after the Budget opened with an irregular tone and very shy bidding, Pekoes at 6d per lb, wonderfully cheap, and tea generally a full ½d per lb down from highest point. Quality was improving, and in March we had a strong enquiry for fine teas, while at the other end of the gamut low grades had receded to 5½d per lb. Throughout April and May quality was indifferent, but prices were useful, and with 6d per lb grades showing wonderful value a large business was done, the blenders in particular operating freely as prices exactly suited them. All the enquiry was however for leaf, and Brokens were going anyhow.

May closed quietly with bad tea and easier prices. There was plenty of Pekoe Souchong and Pekoe at 5½d per lb., and a fair amount at 5¼d per lb. Enormous quantities were being offered and this not only killed the Ceylon enquiry but reacted on other markets as well. Poor quality and more tea than the trade wanted at this time of year had brought down the average price to 6¾d per lb. as against 7½d per lb. in the previous season.

In June again the market was entirely overdone with tea and prices receded to 5¼d per lb. for leaf and 5¾d per lb. for Broken, practically the whole weight of tea selling between 5d per lb. and 7d per lb.

Quality improved in July and a better market resulted, and by the end of the month the average price had risen to 7¼d per lb., with 5½d per lb. representing about the lowest price for common leaf.

Auctions had been heavy right through what is usually the slack season and this led to a deal of fluctuation in prices, and by the end of August we had a decidedly slumpy market, with a much larger supply of 5d per lb. and 5¼d per lb. tea. This feeling was even more pronounced in September, and the very bad condition in which a large proportion of the tea was landed tended to create a further knock-out in prices.

Quantities dropped off a little in October, and there was rather less 5d per lb. tea, but, except in the case of finest, there was a poor market. Free buying in the upper grades, especially by the blenders, hardened up prices for anything with quality, and to show that fine tea is appreciated, there were Pekoe Souchongs selling at 1s per lb. and 1s 1d per lb. during the brief period in October when really good tea was being offered.

The last two months of the year showed a continuously weak market for Common and unfortunately the very low class of much of the tea offered (the worst ever seen) tended to keep down quotations, and to discredit Ceylon Tea generally. That buyers would rather deal in good articles was shown by the fact that while the grades up to 5d per lb. were neglected, there was nearly always a strong enquiry for useful medium between 6d per lb. and 9d per lb.

During the past twelve months it was more than ever noticeable that the planters are sacrificing quality to quantity, and this is much to be regretted especially as the export branch of the trade has of late years steadily increased. The Continental orders are now an important factor but if Ceylon tea is to hold its position, quality must be considered as of the first importance.

A result of the low prices, and a most satisfactory one, was the very considerable increase in the Export of Indians and Ceylons to other countries and this opening up of new outlets capable of absorbing large quantities must prove of the greatest value in the future.

After the experiences of the past season planters will doubtless see that it is to their interest to reduce production by plucking finer, and we hear that proposals are afoot for combined action by both Indian and Ceylon Garden Owners to bring about this desirable consummation. If carried out efficiently this would be an enormous advantage to every branch of the trade as it would raise the standard of quality all round.

An unsatisfactory feature has been the large proportion of tea which was laid down here in a tainted condition. A certain amount of friction and endless trouble has resulted, and never before have we seen anything like the same number of parcels thrown up or contracts cancelled. Unsuitable packages, no doubt, largely account for the flat teas, but in the case of real taint we are bound to look for other causes, and shippers, rightly or wrongly, are becoming very suspicious of some of the steamship lines.

PLANTING NOTES.

A LARGE AUSTRALIAN PUMPKIN.—Canon Garland has sent to the Minister of Lands a huge pumpkin, of the ironbark species, which was grown by the boys of the Swan Orphanage. This great vegetable when weighed turned the scales at 30 lb. —*Westralian paper*, Jan. 14.

THE SEYCHELLES.—Mr. CHAMBERLAIN has given his sanction to the establishment of a botanic station in the Seychelles, which, with the co-operation of the Director of the Kew Gardens, will be started on the first day of the coming century. Some people have actually assigned the site of the Garden of Eden to the Aldabra group in the Indian Ocean, now famous for little else than the gigantic land tortoises, of which so many have been sent to the Zoological Gardens through the instrumentality of the Hon. WALTER ROTHSCHILD, M.P. Every description of plant which is likely to be of the slightest economic value will be obtained from other countries, and the treatment of the soil will be made the subject of special experiments. The islands are in direct communication by steamer with Colombo, Mauritus, Aden, Zanzibar, and Bombay, a factor which is likely to play an important part in the development of their internal resources. Our contemporary, the *Daily News*, overlooks the famous double-cocoanut, around which so many legends have collected, the most fantastic being the theory of the late Gen. GORDON above alluded to, that this was the forbidden fruit.—*Gardener's Chronicle.*

THE WORLD'S SUGAR.

The map which we print on page 11 shows roughly the area of the world where sugar is produced. It will be seen that the sugar-cane is not cultivated beyond the 40th parallel of latitude while the beet can be grown to the 60th parallel. Until a few years ago sugar was extracted from the cane in the warmer latitudes by an antiquated method of labour and ineffective system of machinery, but as a good price was obtained for the sugar no attempt was made to improve the methods of production. It was never anticipated that sugar could be produced in a comparatively cold climate, and when the beet sugar came in the sugar-cane planters were quite unprepared for the new development. They had to face a fall in prices, the introduction of bounties, and improved methods by capitalists and companies in other hands and they went under.

Beet sugar is now grown in most of the countries of Europe, and the following figures, which are published by the International Union for Statistics on Sugar, show the number of acres that have been planted with beet sugar seed.

BEET SUGAR PLANTING.

Country	1899 Acres	1900 Acres	Increase Per cent
German	1,057,939	1,090.521	3·1
Austria-Hungary	804,063	839,151	4·4
France	626,480	685,391	9·4
Russia	1,261,614	1,356,075	7·5
Belgium	158,235	170,028	15·0
Holland	109,703	112,878	2·9
Sweeden	65,238	71,271	9·2
Denmark	34,594	34,594	—

The beet sugar production of Europe this year is over 5,500,000 tons, while the production in the United States amounts to 73,000 tons. The beet sugar shows an increase over 1899 of 500,000 tons, while cane sugar shows a decrease of 250,000 tons. The Louisiana crop, according to the New York *Journal of Commerce* is put in at but little more than half of what it was last year, the Porto Rico crop is charged with a large ratio of decline and the Cuban crop is sat down for 45,000 tons less than last year, and at much less than one-third of what it was in each of the two years next preceding the revolution. In Queensland and New South Wales the crop is estimated at very much below last year's figures, the decrease in the former colony being 40,000 tons or nearly one-quarter and in the latter 12,500 tons, or not much less than one-half.

To cope with the unremunerative nature of the cane industry, Barbadoes is endeavouring to obtain the capital to erect central factories which would enable the colonists to extract more juice out of the canes, and also to produce a better quality of sugar which would be more suitable to the Canadian and British markets. At present nearly all their sugar finds its way into the United States.

PROGRESS OF THE EUROPEAN INDUSTRY.

To show the progress of the European beet sugar industry, it may be stated that there are 213 factories in Austria-Hungary alone, the total output of raw sugar from this country in 1899 being computed at 1,083.000 tons. The Government set aside a sum of £750,000 for the payment of export bounties. The decision of the Legislative Council in Calcutta—following the example of the United States—to introduce a countervailing duty on bounty-fed sugar imported into India has made no change worthy of special notice in the trade between Austria and India. The chief burden of the countervailing duty, which is equal in amount to the export premium accorded to sugar in its country of origin, is thrown upon the Indian consumer, who has not only to pay more for the bounty-fed sugar, but also for the colonial sugar, which sympathetically rose in price.

Russia is now the largest producer of beet sugar in Europe, there being altogether 23 beet cultivating provinces in this country. The industry in Germany is able to keep going 400 raw sugar works and 150 refiners.

There are about 230 sugar factories now at work in Cuba, which is only about 60 per cent of what there were before the war. Owing to the present competition of beet sugar, it is unlikely that the mills which have been destroyed will be replaced. During 1899 about 324,000 tons were exported.

There has been an improvement in the sugar industry in Jamaica after a persistent decline for many years; 360,748 tons were exported last year. In British Guiana many of the sugar plantations can hardly pay their way, and future prospects are not encouraging. About 100,000 tons were exported from Georgetown, Demerara, in 1899. The whole of the sugar production of the Hawaiian Islands, amounting to 282,807 tons in 1899 went to the United States.

Large quantities of cane sugar are produced in Southern China, Formosa, Java, Philipines, Mauritius, Central and South America and other tropical and sub-tropical countries, but the rise of the beet sugar affects them all. The bounty system has also meant the ruin of more than one commercial house in this country. Bristol, which was once the centre of an extensive sugar-refining industry, closed the last of her refineries a little while since. In this country there are now only about five refineries—two in London, two in Liverpool and one down Greenwich way.—*Homepaper.*

THE REDUCTION OF THE TEA OUTPUT.

(To the Editor of *The Home and Colonial Mail.*)

SIR,—Last week you were kind enough to publish a letter we wrote you on the subject of over-supply and consequent low prices.

We are pleased to learn that this matter is being taken up energetically by influential producers.

Some three weeks ago we wrote a similar letter to that published by you to the Editor of the *Ceylon Observer*, and according to a telegram published in the *Daily Express* this week the idea has evidently caught on in that island, as the telegram reads as follows:—

"With a view to reducing the excessive production of tea, Mr. H. R. Rosling, chairman of the Ceylon Planters' Association, suggests that all Ceylon and Indian tea planters shall leave one-tenth of their tea unplucked for two years."

There can be no getting away from the fact that the law of supply and demand dominates the tea market as it does all others. In other words, the present demand must be increased or supplies must be curtailed in order to beneficially affect prices. The demand, or consumption, has been artificially reduced by the advance in the duty, and if any further change is made at the next Budget announcement the chances appear more in favour of a further advance than any reduction in the tax. There is, therefore, no hope of relief from materially increased demand, so that the question of supplies must be dealt with if the situation is to be improved, or even saved. If nature does not produce a diminished crop then some scheme of artificially accomplishing that end must be devised, and such a scheme must be thoroughly and enthusiastically carried out by all

concerned, whether growers of fine or common tea. It is a mistake to think that all parties are not in the same boat; it is the weight of tea that is crushing the market quite as much as, or more than, one particular class. Certainly the high grown estates are, and should be, getting larger proportionate profits on their smaller outturns, but how badly do those prices compare, speaking generally, with those ruling but a few years back. If there is a demand for 250 million lb. of tea, and 275 millions are supplied, then the market must decline whether all that tea is fine or common.

There is one other point we should like to mention, viz., that the idea of voluntarily plucking finer would not inspire confidence among buyers, as they would feel that in the event of a rise in price the method of plucking might be changed by telegram, and in six weeks or two months the market might be flooded and stocks greatly depreciated in value.

The producer must inspire confidence in the trade, and the same can only be done through reduction in the supply being absolutely assured.—We are, pear Sirs, yours faithfully, BROKERS.

RAISING OUR OWN NITROGEN.

Everybody believes that the soils of California are abundantly rich, yet in a Los Angelos paper, Professor A J Cook stated that the orange growers spend an average of $50 an acre for fertilizers. Florida needs fertilizers even more, but they believe there in raising their own nitrogen, not buying even cottonseed meal, except, perhaps, to get a start. Desmodinm (beggar wee) cowpeas, and velvet beans, are legumes, and have power to draw nitrogen from the atmosphere through their rootlets, and transit it to the soil as food for future plant growth. Nitrogen is the most expensive element of our fertilizers, costing 17 cents a pound, while phosphoric acid costs 6 and potash 5. The planter should aim to raise everything that he must have, which he possibly can raise, instead of paying out his hard-earned money for it. No farmer can afford to buy rough nitrogen for fertilizer when he can so easily raise it. Desmodium makes the best of hay, if sown thick, so as to reduce the size of the stalk, and at the same time it enriches the land. If put in tall narrow cocks and capped, and left to cure for a few days without getting wet, then opened and aired for half a day before being hauled in, it makes the most valuable hay the planter can produce. Horses not only relish it, but they actually fatten upon it without oats or other grain. Immediately after cutting, another growth starts up and makes a heavy second crop. Some farmers prefer to save this for hay, because the rainy season is passed, while they cut the first crop and leave it to rot on the ground, as it comes in the rainy season.

The effect of this plant on the soil is almost magical. Not only do the roots draw nitrogen from the atmosphere, but they also run down deep and bring up mineral fertility to the surface. A Middle Florida farmer, a native of the State, and accustomed to Desmodium all his life, has stated that he raised a crop of corn for twenty years consecutively on thin, sandy land, and the yield increased a little every year, with no manuring except that given by a crop of Desmodium following the corn each year. There is something which cannot be explained which makes heavily-shaded soil gain in fertility. It is nature's way of enrichment. After plowing down this dead Desmodium one can grow almost anything with astonishing results; the shading of the land has made it mellow, and it is full of nitrates. Potatoes revel in such a situation; melons, pumpkins, cucumbers and beans grow like the proverbial gourd—Florida *Fruit Grower*.

TEA PLANTS FROM CHINA.

According to the "Annales de la Sociedad Rinalde Argentina," the Department of Agriculture in that country has procured a quantity of tea plants in good condition from China. These have been distributed among the State Agricultural Colleges for purposes of cultivation, and, as in the Argentines there is a choice of climates, it is anticipated that ere long a suitable locality will be found, and that an important development in the direction of tea cultivation may be looked for in the future. But, of course, there, as in most South American countries, the labour question is the lion in the way.

IMPORTANT IMPROVEMENTS IN TEA-LEAF WITHERING.

The results recently obtained in Ceylon from the artificial withering of tea-leaf are of so much importance to the whole tea industry that they deserve some special reference in our columns. Messrs. Davidson & Co., Limited, of Belfast, whose "Sirocco" Tea Machinery for every other process in the manufacture of the leaf is so widely knew and highly appreciated, claim the credit of having solved the difficult subject of tea leaf withering. The experiments made by them in this connection extend over a period of fourteen years, during which, and more particularly within the last four years, we believe, that they expended well on to £10,000 in apparatus, plus cost of conducting large scale trials in different factories in India and Ceylon before attaining the present satisfactory results.

These experiments were carried out by Mr. F G MaGuire, under Mr. S C Davidson's guidance and directions, and the resulting outcome is that now, at a small outlay to the tea garden proprietor, thorough control of the wither is, it is claimed, so perfectly obtainable that the quality of the tea produced is equal to that from leaf withered naturally under the most favourable circumstances of temperature and weather; and the time required for producing the wither is greatly reduced, so that the output capacity of the exsisting withering space is thereby increased to such an extent that in many instances large extensions to withering houses have been obviated.

A cold wither, it is stated, can now be obtained of such satisfactory quality that, if a small quantity of the leaf be pressed between the hands, it will stick together, showing that the leaf has attained that desirable soft and clammy condition which is so conducive towards the production of the best results during subsequent manufacture.

A large number of factories in Ceylon, ranging from sea-level to over 5,000 ft. elevation, have, we understand, been equipped with the necessary apparatus during the past season, and in actual practice, perfect withers have been obtained in twelve to fifteen hours, from leaf plucked on wet days during the rainy season, and which on arrival at the factory was saturated with rain water,

The opinions expressed by the proprietors and managers of the tea factories in which the new system (the principal item in which is the special adaptation of the new Sirocco fans in existing withering lofts) refer, we understand, in the highest terms to the results obtained.

Mr. F G MaGuire is now in this country, and will, we are informed shortly, visit London in the interest of Messis. Davidson & Co., so that their numerous clients, representative of the important tea industry, will be enabled to gather further particulars from him as to this new system of withering The data and details of numerous trials which have been reported on various estates, where the entire crop of leaf is now being withered on this system, can. we learn, also be inspected.—*Home Colonial Mail* Jan. 11.

CINCHONA AND QUININE IN 1900.

The year 1899 ought to be a memorable oue for quinine speculators, as the article has again proved a veritable will-o'-the-wisp. The makers have done their best to stem the tide of speculation by refusing to make contracts with speculators, but they have only been partially successful. At the first cinchona-auction in Amsterdam an average of 8·90c per unit was paid, but at the second one the price advanced to 10·65c, dropping to 10·05c at the third and rising to 10·10c at the fourth. From this period to the eighth auction in September there was an uninterrupted advance to 12·25c (the highest point touched). In November the unit dropped to 10·90c, and again this month to 8c. The gradual advance from 10·10 to 12·25c was due to a falling-off in bark-shipments from Java, but unexpectedly large shipments were made during September, October and November. There was then a deficiency of 1,100,000 Amsterdam pounds to make up before the year closes, of which 470,000 was wiped off in the first half of this month. Meanwhile the second-hand quinine-market has been influenced by every little wind that blew; but makers have been very passive, only raising their price when absolutely compelled, and at one period an advance of half-pence was made when quite two-pence had been expected. Prices are two-pence cheaper today than in January. The notable alterations by makers were a reduction of two pence in April and one of three pence in December. The highest figure of the year 1s 7d, in September, at which time the second-hand market stood at 1s 6⅝d spot—also the highest.—*Chemist and Druggist*, Dec. 29.

CINCHONA AND QUININE.

Recent events in the cinchona and quinine markets have rather upset the calculations of those who conceive and act upon short views of the course of these articles. With such an artificial and highly —in fact, one might say, fantastically—sensitive market as that created in London by speculative dealing, the natural trend of things is often obscured and even retarded for a period. It has been our good fortune to point to the promising positions of the market just before each occasion of late when advances have set in. These have not been so st[illegible] and consistent as natural causes acting alone w[illegible] have made them. Speculators have paid the penalty for their weakness, or their rashness, or their miscalcuations. Many of them have shown again their peculiarity of carefully keeping out of the market until it has sustained several material advances—then rushing in as if believing that quinine only wanted a start to carry it to goodness knows where. They never allowed for set-backs to compensate for the unnaturally rapid advances, and when some of them were involved in disaster the others had to pay a double penalty.

But to the men of long views the situation seems only temporarily clouded. They will find their ideas reflected in a letter from a planter which appears in the *Tropical Agriculturist.* Much of what this planter says reads like a re-echo of remarks in former notes of ours. For instance, he leads off by stating that nobody will deny that consumption of quinine has overtaken production. He continues as follows:—

"Nor is there any doubt that it will do so to a far, larger extent during the next five or six years, for that at the least, is the period necessary to bring matters to a state of fair balance again. The reason for this is evident; it takes five to six years under the most favourable circumstances to grow cinchona fit to bark."

Five or six years is the time we allowed for those planters to be ready with, new bark who had perceived the situation and had begun to extend their plantations in view of this. The planter whom we quote is bitter towards the quinine manufacturers who according to him, "have grown fat and sleek" by their manœuvring in the past, though "many cinchona planters have been ruined by it." He believes the move of raising the unit temporarily, in order to stimulate the shipments, is about played out, and he alludes to the low shipments from Java during the first nine months of 1900 to illustrate this. The Java planters, according to this correspondent, have now "probably learnt the lesson that a pound of bark at a two-penny unit is equal to three pounds at a penny unit as regards net results on every four per cent of bark." Turning from bark the planter has next some advice to give to quinine manufacturers. He says he is "one of those whose cinchona prospects have been ruined by the policy of the manufacturers;" yet he does not blame them for doing the best for themselves, but for the way they have done it. Now, he thinks their wisest policy is a generous one. This is to reduce their margin of profit to a minimum and thus by "a good and stable unit encourage the planting of as much cinchona as possible in the near future, and the cultivation of every cinchona tree in existence." It is, of course, impossible, he says, to tell what stock of quinine and bark they hold [all the evidence shows next to none, say we]. They have, however, to reckon on a steadily increasing demand, and "five to six years of decreased production." Any manœuvre tending towards a rapid overthrow of the unit would decrease the amount of cinchona which will otherwise be planted out in the near future. Even with an increase in the plantations, it is pointed out that much will not grow into anything worth barking, suitable land and good seed being difficult to find. Manufacturers are advised to investigate for themselves what is the state of the cinchona districts.—*B. and C. Druggist*, Jan. 4.

NEW VEGETABLES.—Were it not that humans are creatures of conventional habits, the probabilities are that our sources of food supply would be very extensive, and we should not be as dependent on certain known and cultivated species as we are. Arguing on this line of thought *La Science Française* puts forward the following suggestion:—"Our present garden vegetables are cultivated varieties of wild species; why do not our horticulturalists seek for other wild plants that could be introduced with profit to our tables? A fortune awaits him who does this successfully. We may be shy, at first, of a dish of iris, or a saxifrage salad, but the papers will relate how Bernhardt or Coquelin ate and liked them, and then the iris and the saxifrage will become popular, like the potato." The possibilities of the vegetable kingdom as a source of food supply are immense, and the suggestion thrown out above is well worth pondering over.—*Indian Gardening and Planting*, February 7th.

CINCHONA IN MYSORE.

The reader will probably smile at this headline, thinking that he is to see something after the style of the chapter on Snakes in Iceland, which read "There are no Snakes in Iceland." We have no such plagiarism in view, however, for there actually *is* cinchona in Mysore. That it is apparently not worth removing the bark from it is quite another matter. Official statistics show the following figures for 1898-99:—

		No. of Plants. Mature.	Immature.	lb of bark.
Kadur	C Succirubra	49,160	43,200	25
	,, var. Condaminia	9,840	4,500	
Mysore	C Succirubra	1,749	75	
	,, Calisaya	—		
	,, var. Condaminia	502	19	
Hassau	,, ,,	1,940	120	
		63,191	47,914	

In 1894-95 there were 350 acres under cinchona in Mysore, in 1898-99 only 279; in 1894-95 there were 207,783 cinchona plants in permanent plantations in Mysore, only 111,105 in 1898-99; the quantity of bark collected had decreased from 160 lb in the former year to 25 lb in the latter. Can any Mysore planter oblige us with a historiette of the Rise (?) and Fall of the Cinchona Industry in the Mysore State? The above figures suggest that there is something to be told that is worth the telling: 279 acres, 111,105 plants and yield—25 lb!—*Planting Opinion*, Jan. 26

A FARMER'S EVERY-DAY LIFE.

XVIII.

(*By Cosmopolite.*)

The New Year has begun with a dry change, for which we have long prayed:

THE WEATHER OF THE PAST YEAR

having been the wettest in North East Aberdeenshire, of all the years of the 19th Century, so, at least, says the oldest inhabitant and he ought to know; and now farmers, when they get the chance of a dry day, can't push fast enough in order to make up lee-way in the work which has been retarded by the bad weather. I have managed to get 300 loads of turnips carted, but it has been a terrible job, the mud up to the box of the cartwheels causing the work to be extra hard both on man and beast. My turnip crop has been an exceptionally fine one, and it gratifies me, when reading the reports of the prize competitions for the growing of turnips with artificial manures, to find that I have beaten the best record bya good deal, although I have only used bulky manure. The best record that I have read about has been

23 TONS PER ACRE

except in one instance when 28 tons were got from a field dressed with cattle manure only. Having sold a few acres of my turnips, as I had such a heavy crop that I was not likely to require them all myself, one of the purchasers, who had bought an acre, carted his to the railway station, where they were weighed and trucked South, and the aggregate was just a few pounds short of 30 tons, and this, I think, may safely be considered one more victory scored to the credit of bulky manure.

I see that many agriculturists are publishing complaints, in the press, about the habit which has been adopted, by the farm-servants, of drinking great

"BLASHES" OF TEA,

not only in the afternoon, but during the forenoon also. One writer, who farms in Peebles shire, tells how his ploughmen's children carry hot tea to their fathers, in the field, at 8-40 a.m., no matter what sort of weather is in evidence; and again, about 3 p.m., the same arrangement is carried out. He adds that he would not object to this during harvest time, or when work is from 6 to 6, but that surely it is uncalled for at the present time of year, when the work is only of seven hours' duration. This custom on the part of farm-servants has not yet reached our northern counties, so that I cannot speak from personal experience as to the effect which it produces on the men and on the work; but, no doubt, the habit, will be highly approved of by Ceylon tea-planters, as providing another outlet for the disposal of some more of their staple. Another singular habit obtains in England, which, I am thankful to say, has not yet reached Scotland, namely the

DYEING OF HAIR AMONGST THE LABOURING CLASSES.

The fact is that the working man has, long since, found that, if he looked old or white-haired, persons to whom he applied for a manual job would seldom entertain him if they could get a younger man. Even amongst clerks this habit prevails in a great measure, and some of those, of upwards of 60, are wonderfully made up. Writing on this theme reminds me of the rhyme of one's childhood.

"The sudden fright unnerved her quite,
She fainted dead away;
Her hair turned white in a single night,
But she turned it brown next day."

THE LONDON CHRISTMAS MARKET.

has been a complete frost this season, the price being very much under what the same class of stock was selling at, in provincial markets. This is easily accounted for, although, I fear, it will take many years yet before the dealers who patronize the London market will learn wisdom and become converts to the well-known fact that London is the city in which the *worst* mea in Britain is retailed. Formerly London was celebrated for its roast beef and Highland mutton but now, owing to the vast quantities of cheap foreign meat at their command, the London butchers do not care to buy the better quality and higher-priced article that Scotch feeders send them. Their customers grumble away at the tough meat they get, and for which they pay top price, but they make no attempt to improve matters, and it never seems to dawn upon them that they are steaks off the gully-rakers of Argentina, and frozen roasts off the working bullocks of Australia that they are eating.

It would be very different if these butchers were compelled to disclose the origin of the article they sell, and foreign meat be sold for what it really is.

THE BEST BEEF AND MUTTON

is now to be got at the small village butcher shops where the public see and take note of every animal that is slaughtered; where it came from, who bred it, how it was fed &c. And he would be a foolish butcher indeed who attempted to bring into one of our villages a frozen carcase or an animal bought at a distant market. The London Parish Council elected to do away with private

slaughter houses, so the butchers of the metropolis have gradually given up killing on their own account, but purchase their supplies from the freezing depots or the dead-meat market, hence the toughness and the poorness in quality of the meat retailed in the London shops. Now that the Christmas season is past, with its glutted markets and its low prices, I am preparing to send off my usual weekly consignments of sheep to the fat sales. When all the rest of the Agricultural world was flooding the markets with stock,

I HELD MY HAND,

and so, for the past few weeks, I have sent none forward for sale. The price is now going up, however, and as there appears to be a scarcity of stock owing to so much having been sent off at Christmas time, I hope that my patience may be rewarded by a good price. The season of ploughing matches has once more come round, but, as I referred to these entertainments in an early article, I will not again revert to what is undoubtedly of the greatest interest to our farm servants. Horses, with their coats shining like satin, are to be seen at work in every direction, the extra grooming which they are receiving being preparatory to the day when the man who looks after them, is to face the music on the ploughing match field. The harness also shines like enamel and the buckles glitter like silver, whilst the men put in their spare time in plaiting fancifully coloured ribbons into rosettes, with which to decorate their teams.

AN EXHIBITION OF PAINTINGS

was lately opened in our country town, and it has been acknowledged, by good judges, to be by far the best that Aberdeen has ever produced. A singular fact in connection therewith has been commented upon, and, as it refers in a measure to agriculture, I take notice of it. It appears that the best judges of art, the chief connoisseurs of paintings in the Silver City by the sea, are all, more or less, connected with inanimate farming produce. One is a wealthy soap manufacturer, which is made from the fat of stock; another is a felt-monger and tallow merchant, whose stock in trade is all derived from agriculture; another is a miller, whose grain, of course, also grows on farms, and, although he is dead now, the gentleman who did more for art in Aberdeen than any other, made a fortune in the granite trade, the quarry which he worked being on my own farm, and which is still in full swing. Granite, perhaps, can hardly be said to be the produce of a farm, but let that pass; with regard to the other three, however, there can be no doubt. I have never heard it said that agriculture tended to the making of an artist, but, who knows, I may, even at my time of life, break out as a modern Titian or a successor to Sir Frederick Leighton.

PARAGUAYAN TEA FOR WESTRALIA.—The secretary of the Westralian Department of Agriculture is making arrangements to try and cultivate the tree or shrub that produces Paraguayan tea. It has been cultivated successfully in the Botanical Gardens, Melbourne, and it is considered that it should find a suitable home in many parts of Westralia, especially in the north-west and south-west divisions.

THE DEVELOPMENT OF THE TEA TRADE.

We quote the following from Harrison's and Crosfield's Tea market report,—the local branch of the firm being Crosfield, Lampard & Co., Colombo,—dated 3, Great Tower Street, London, E.C., 7th January, 1901:—

The Statistics just published having closed a Century of remarkable expansion in the consumption of Tea in the United Kingdom, it may not be altogether uninteresting to note the various developments in the Trade, together with the changes in the Duty, market value &c., as they have taken place from time to time. At the beginning of the Century the entire Import of Tea was in the hands of the East India Company; and the Duty was collected through them, by an *ad valorem* percentage on the prices realised in their Public Sales. The monopoly granted in their charter having come to an end in 1833, this method of levying the Duty was no longer found practicable, so a specific rate per pound was adopted instead, and it has continued to be so levied ever since with the undernoted variations in the amount.

Table showing the quantity of Tea consumed in the United Kingdom at the various points in the 19th Century when changes of Duty were made: and the quantities of Indian and Ceylon Teas consumed after their introduction.

Year.	Duty.		Av'rage market value without duty.		Total home consumption.	Indian.	Ceylon.	China and other sorts.	Percentage of British grown Tea.	Percentage of Foreign grown.
					millions			lb. entire		
	s.	d.	s.	d.	lb.	lb.	lb.	supply		
1800*a*	1	2½	3	0½	23	—	—	do	—	100
1801*a*	1	6	3	0	24	—	—	do	—	do
1803*a*	2	8	2	10¾	25	—	—	do	—	do
1806*a*	3	2	3	3	22	—	—	do	—	do
1811*a*	3	3	3	4	22	—	—	do	—	do
1815*a*	3	1	3	2	26	—	—	do	—	do
1819*a*	2	9¾	2	9¾	25	—	—	do	—	do
1828*a*	2	6¼	2	6¼	29	—	—	do	—	do
1830*a*	2	3¼	2	3¼	30	—	—	do	—	do
1833*b*	2	2	2	2	32	—	—	do	—	do
1836	2	1	1	7	49	—	—	do	—	do
1840	2	2¼	2	7¼	32	—	—	do	—	do
1850	2	2¼	1	3¼	51	—	—	do	—	do
1853	1	10	1	3¼	59	—	—	do	—	do
						million		millions		
1854	1	6	1	3½	62	½	—	61½	1	99
1855*c*	1	9	1	3	63	½	—	62½	1	99
1857	1	5	1	5½	69	2	—	67	3	97
1863	1	0	1	6¾	85	3	—	82	3½	96½
1865		6	1	8	97	3	—	94	3	97
1870		,,	1	5¼	117	13	—	114	11	87
							million			
1875		,,	1	4¾	145	25	⅙th	120	18	82
1880		,,	1	1½	158	45	⅙th	113	28	72
1883		,,	1	0½	171	59	2	110	35	65
1885		,,	1	0	182	64	4	114	38	62
1890		4		10¾	194	100	36	58	70	30
1895		,,		9¾	222	111	71	40	82	18
1900		6		7½	249	137	94	18	93	7

a Duty assessed by percentage on value.

b East India Company's Monopoly abolished.

c Crimean War Budget.

THE POTATO INDUSTRY IN KUMAON.

The last monsoon of this century must be set down as a rascally bad one for this important crop of the province of Kumaon. I do not remember a more highly promising spring than the last during the past dozen years; the weather was ideal and could not have been better made even in Germany up to the month of May. But after that date and all through the month of June what rainfall there was—and it was very little save in places—came in non-effective driblets, and so progressed the monsoon period until the 11th of July when it did rain in real earnest, but the destructive drought had done its work: and in fifteen days after the real rains had set in it was quickly seen the potato plant had had enough and would do no more in the way of plant-production. Meantime the weather continued exceptionally warm and vapoury, and the great development of the rainfall was not as usual in July but near the tail end of the monsoon. In consequence of the altogether premature closing of plant growth three things ensued. First, there is this year a great dearth of large potatoes compared with normal years. Secondly, there is an excess of small potatoes; but thirdly, and worst of all, potatoes have supertuberated badly—indeed I have never seen this evil so pronounced.

Few people probably out of the province are fully aware of the amount of excitement, speculation, and finesse the native growers impart to the trade of growing and dealing in potatoes. For example one would think the best possible thing for a potato after digging it up was to dry and clean it, to separate bad from good, large from small, and so forth, and so it is in reality. But the native growers do nothing of the kind, but this is what they do. They remove about a foot deep of earth in circular form, the size being ruled by the amount of potatoes to go into this base for a conical pile of potatoes, which may, and does, vary from 5 to 100 maunds. Soon after digging up the potatoes go into these conical heaps, all the sorting being for the veriest mites that grow; these are saved for seed. Now at digging up time it is usually brilliantly fine by day, the sun is hot, and the potatoes damp as they go into the heaps; the moment these are completed a layer of grass is put round them and on goes a pile of earth an inch or two thick. There are here all the elements for keeping the tubers very thoroughly moist, drawing moisture up from the earth in fact, besides that with the potatoes already. The dealers buy from these heaps. The potatoes are lifted and weighed with extraordinary rapidity and a desperate kind of earnestness, dirt, small stones, bad and good, and all finding their way into the dealer's sacks with despatch. The dealer says but little besides seeing he gets weight, but he is, however, far from the apparent fool a casual observer might take him to be. When the weighment is over, he draws out a coil of rupees from somewhere and deals out so many: but the settlement day is at Haldwani, as many a grower knows full well.

The native grower is devoid of any consuming kind of honesty in growing potatoes. I have mentioned that this year potatoes have supertuberated badly: which is to say the crop in large measure, particularly the late-dug-up potatoes, grew again or commenced to grow. Now the effect of this is practically to spoil the tubers for table use, and also to produce seed which when planted shows much irregularity, some coming strong, others weak, and yet a lot more very much behind the rest in growth. The growers however lump them all in and say not a word to the buyers of such a fact. This year, however, there is heart-burning among the wily growers, for the Bengali dealers have come along with a terrible tell-tale weapon none other than a homely knife. With this they slice up samples of potatoes longitudinally; in a very few minutes, your supertuberated tubers tell their own destrution, being either of a congealed watery consistency, or with black markings, in either case they are inedible.

The buyer wants potatoes, the seller wants money, but the advantage is with the buyer, because he has grown more astute than in former years when he purchased direct from the field, whereas now he buys at Haldwani, knowing full well once the potatoes are there none but a madman, and scarcely he even, will take them back again: and so he seizes the bad samples, forthwith quoting terms, which are this year anything but magnificent. I greatly fear Kumaon potatoes will come in for a bad name this year; it is certain many hundreds of maunds are bad—very bad. But I hasten to say it is an entire mistake for any one to assume, and I happen to know some have assumed, that it is the disease. The evil is supertuberation, induced first by the extreme lateness of the monsoon, and its long continuation beyond the usual period. This is quite sufficient to turn many potatoes either black inside, or hard and stony. I believe a normal season will establish the fact that the province is practically if not entirely, free from the dreaded disease known in other parts of India and all over Europe.

I endeavoured to persuade many growers to hurry on with digging up, and mind nothing else for the time being, and pointed out that the late-dug potatoes would be very inferior, but the native will have none of these ideas; he is waiting, watching the Haldwani market, keeping a man there indeed to scent the fluctuation. This year he is being pretty well punished and it serves him right. Two years in succession previous to this the Haldwani market floundered about between R3 and R6 per maund, due in a large measure to astute speculation, and practically false information, for which the dealers were made to pay through the nose; the growers reaped a fine advantage; but the middleman as usual the best of all.

There is no doubt whatever at the present time the Kumaon patatoes for seed purposes are of very material advantage to practically the whole of India. The native with his extraordinarliy cheap way of working the crop makes incomparably the best profits out of potatoes, and for this very reason there is a growing evil which it is earnestly to be hoped Government will once for all put down, particularly at this opportune moment of settlement operations. I refer to the monied speculators—they have become monied solely through this crop. They are in every place where potatoes are grown, and generally absolute strangers. These men are the wire-pullers, always prompting a dummy to put in applications for land: and promptly stepping in afterwards. Now my contention is no man has a natural right to land in this way, entirely out of his own *puttie*, and removed from his own village and home. There is a rule in the province now that no man can acquire lands without property qualifications: and I am sure there is no rule that has been during the past seven to ten years more technically observed, but virtually and in reality more absolutely broken. What is required is to kill the speculative part of this trade, and for Government to fully recognise that it requires steady progress and uniformity of grants for potatoes, every man to be limited to his own capacity for production of this crop, and to his own *puttie*, and no bunniahs to receive grants at all. I should suppose 2,000 or 3,000 acres during the past 10 years have been exploited by people who had precious little right to the land since they have done nothing to cultivate it, but brought in the outsiders from distant *putties*. Potatoes are the sum and substance of matter to him. Lest it should be supposed I have some animus against bunniahs I may be allowed to quote a true example seven or eight years ago. A bunniah came from somewhere, not in the immediate district, and obtained a small piece of land for which he paid Government the magnificent sum of R5 per annum. It was to my certain knowledge and direct personal observation, as jungle, one of the finest pieces in the *puttie*. The way that insigni-

fisant beginning grew into a considerable piece many times larger than the original was a marvel. In addition this same man obtained another piece, stuck up a bunniah's shop where one was absolutely not required at all, and thereby annexed a piece of resting land for ponies and Bootias. Further, he hacked the jungle in the barbarous jhooming fashion right up to the Government Road, in flat contravention of another rule about jungle adjacent to Government roads. Yet again this same man in conjunction with another put in application for yet a third piece of land, but the officer before whom it came was one too many for him He has since died, having made a heap of money: since which Government, I believe, has resumed the original grant The wisdom of this sort of thing seems to me conspicuous by its absence. NICOTIANA.
—*Pioneer.*, Jan. 17.

PLANTING ON THE ANNAMALAI HILLS.

(*From a Correspondent.*)

I have on one or two previous occasions given an account of planting progress on the Annamalai Hills, Coimbatore District, and a further report may be interesting. Over 2,000 acres have now been opened, about 1,000 of this being

COFFEE

the growth of which is quite satisfactory. I have picked about $1\frac{1}{2}$ tons of crop from plants, a few hundred of which were put out very late in 1897, the balance in 1898; and at the present time not only all the 1898, but a large proportion of the 1899, planting has a large, even spike, promising a fine blossom after the next rain. Quality of bean looks excellent, and I am having the above small lot cured and shipped. If coffee is to keep down in price (it is useless going into the pros and cons of such a question here) good quality means salvation, and I am trying both the Maragogipe and Costa Rica coffee to get a fine bean; but from experience of various districts I am convinced that however useful careful selection and cultivation are, the natural conditions of soil and climate are mainly responsible for quality. No manuring has been done as yet, but 150 acres of the clearing are being trenched at present. It is worth mentioning that there has been no failure of the S. W. Monsoon during the recent dry years.

CARDAMOM

clearings are doing very well; and though a wary and somewhat pessimistic old planter, who was going round mine a few day ago, remarked that "good growth was all very well, but no doubt cardamoms would be selling at a penny a lb. in a couple of years," it is not an expensive cultivation, and if there must be a survival of the fittest such a natural home of the plant should be amongst the survivals. It must not be forgotten that there is a large market in India for this product, so large that the local price is not dominated by European rates, and the producer therefore does not suffer from the crushing effect which the 1s 4d rupee has on the coffee and tea grower. Over 1,000 acres in all have been opened in cardamoms up to date. Mysore seed has been tried, not all ways with success. I do not know whether it is unusual, but I notice that the short plump Mysore or Ceylon cardamom, and also the long Malabar fruit, are picked from indigenous plants growing side by side, and, I think, off the same plants, but this latter I cannot be sure of as yet. The partial clearing necessary for cardamoms costs us 15 to 18 rupees per acre.

TEA,

$2\frac{1}{2}$ years old, covers the ground well. I am not making tea from the few acres which I planted, more to see how it grew and to encourage others than for any other purpose, so the bushes, though they have been cut down, are some eight feet high or so. A planting at stake, on another property, is, I am told, coming on well, and from the great rapidity with which my plants grow and spread I can quite believe that the Annamalai tea-planter will be among the survivals, if quality can be obtained.

CINCHONA

I am very pleased with. Last year I planted C. Ledgeriana, believing that we had just the right conditions to suit this valuable but delicate variety. The plants were very small, too small in fact to put out at all until August and September, 1900, but there are many 15 ins. high now, and their healthy appearance is all that can be desired. A large amount of this variety, from the best Java seed, will be planted this year, the very free, deep soil, with its splendid drainage, appearing to suit to perfection. Some neighbours are giving Succirubra and Hybrid a trial, thinking that Cinchonidine and quantity of bark will yet pay. Personally, if, as seems probable, we eventually settle down to a penny unit, I pin my faith to good class Ledger, as, if it grows as well as it now promises, we shall have no difficulty in holding our own against the Java average of $5\frac{1}{4}$ per cent S Q. or even the Java Government average of 7·16 per cent. With cinchona also it is very marked how thoroughly suitable conditions tell on the quality of the bark and send up the analysis.

PEPPER,

according to my experience, does not do well, possibly, as has been suggested, because the elevation 3,600', is rather too great, and our evergreen forest climate is not forcing enough.

HEVEA BRAZILIENSIS

is making what I am told is excellent growth, but I know little about Para. I should have thought the elevation too great. Work on the ghaut road has gone on steadily, and we hope this will be completed to the nearer estates in the course of the year. Labour has presented no greater difficulty than in other districts, and the jungle tribe of Kaders has quite taken to long periods of steady work on the estates. Health generally has been excellent. On the whole, in spite of the general depression among planters, I feel sure that the youngest planting district will be by no means last in the race.—*Madras Mail*, Feb. 7.

COFFEE PRODUCTION IN MADAGASCAR.

Recent reports by the French Bureau of Foregn ommerce contains statistics relating to the tea and coffee industry of the Protectorates of Annam and Madagascar. The production of coffee in the eastern coast of Madagasoar isexpected to deveolp soon into important proportions. In the past it has been insignificant, but the French Government has published figures showing that in a short time an estimated crop of 718,000 kilogrammes (1,568,000 pounds) may be looked for. The receipts of coffee from all the French colonies in 1889 were only 963,000 kilogrammes 2,118,000 pounds. —From *Journal of the Society of Arts*, Dec. 28, 1900.

TEA IN FRANCE.

CEYLON AND INDIAN VERSUS ANNAM.

A recent report by the French Bureau of Foreign Commerce contains statistics relating to the tea ndustry of the Protectorate of Annam. The year 1894 was the first in which tea from one of her colonies was offered in France. In that year 7,500 lb were received from Annam. In 1896 the receipts increased to 10,296 lb ; in 1897 to 13 000 lb. In 1898 the imports of tea from Annam into France were 42,262 lb. The figures for 1899 are not yet available, but it is estimated that the exports will not be less than 54,000 lbs. Up to 1892 Annam tea was cultivated only for use among the natives, and the proposition to cultivate it for European consumption seemed a chimera. But the consumption of tea in France was increasing very rapidly. From 1,447,635 lbs, consumed in 1892, the quantity rose to 1,794,832 lbs in 1898, and increased by nearly another 100,000 lb in 1899. The supply was almost entirely from China an Ceylon. The tea from Annam is said to equal the finest article produced in China. It is in very general use in the French army in Annam, and it is only believed to be a question of time when it will meet the entire demand in France. The production is daily increasing. The old colonists are going into the business of growing tea, finding it more profitable than any other occupation. The above statements, culled from a French report, are not very favourable as to the prospects of Indian and Ceylon tea in France. They must, however, be accepted with a considerable "pinch of salt," as it is highly improbable that Annam tea will ever be able to compete with the British-grown product. It is hoped that the standard of tea will be raised in France and that the Ceylon staple will be supplied to the army. Strenuous efforts are being put forward to achieve these most desirable results.—*I. P. G.* Jan. 19.

OVER-SUPPLY—LOW PRICES.

[To the Editor, *Home and Colonial Mail.*]

SIR,—There is no doubt that the advance of 2d per lb. in the duty was imposed in a most inopportune year for the producers of tea. Even though the duty had not been increased, we should doubtless have had a fall in values due to over-supply, but this fall has been aggravated by curtailment of demand, owing to fictitious or forced increase in the retail or consuming price of the article. The planter is thus smitten on both cheeks. What is the remedy? There is only one : reduction of supplies.

There are various schemes suggested, having this object in view, some more absurd than others. One goes so far as to propose burning or destroying a portion of the tea. To these various suggestions let us add one more. It is this: that every producer should agree, under penalty, to allow 10 per cent of the total area of his estate to remain unpruned and untouched for one year. The area lying fallow would unquestionably be improved by the year's rest, and if the scheme were workable and succeeded, then that particular 10 per cent of acreage could be cultivated the next year, and another 10 per cent could then be given a well earned rest. The effect should be about 10 per cent less tea, which might mean an advance in London in price of perhaps 1d or 2d per lb., or say, roughly, 20 per cent.

We like to make practical suggestions, but as we think insurmountable difficulties might crop up which would make this suggestion impracticable, we desire to subscribe ourselves.—Yours truly,

BROKERS.

London, January 3, 1091.

PLANTING NOTES.

GOOD PRICES: A HINT TO THE TEA FOLK. We are interested to learn from Mr. Geo. Christie that the estate, Kanapediwatte, of which he has charge, sold 2,947 lb. cinchona bark in November last, and that it fetched 47½ cents per lb. in Colombo. Better than Orange Pekoe?

ELEPHANTS IN N. SIAM.—Elephants have grown so scarce in northern Siam that a special law has just been passed for their preservation. Any person wrongfully killing an elephant is made liable to fine or imprisonment. Formal permission to catch an elephant must be obtained from the authorities, and one in five of those so caught will be the property of the Government.—*B. Gazette*, Nov. 21.

TREATMENT OF MOSQUITO BITES.—M. Manquat recommends, for the treatment of the bite of the mosquito usually met with in France, the employment of tincture of iodine, formol, or mentholised eau de Cologne. Applying the tincture of iodine on a brush causes the disappearance of the itching at the end of about ten to twenty minutes. Although the iodine acts much more quickly when it is applied at once, still it does not lose its efficacy when the papules are enveloped and inflamed. Using formal, five grammes are taken of a forty per cent solution, and mixed with ten grammes of ninety per cent alcohol and ten grammes of water. This is applied in a thin coat and renewed as it evaporates, care being taken to discontinue on the appearance of any canterising effect. This is said to act even more quickly than the iodine mentholised eau de Cologne, or mentholised alcohol of a four or five pe· cent solution, also soothes the itching.—*British and Colonial Druggist*, Jan. 25.

EXTRACTION OF RUBBER.—A novel process was described recently before the Society of Civil Engineers of France for the extraction of india-rubber from the tree. The bark and roots are cut up and soaked in dilute sulphuric acid. The effect of this is to decompose the woody portions without affecting the india-rubber. In this way a division is made between the valuable rubber and the rest of the bark and roots, and it is claimed that the rubber so produced is quite pure. It was stated by the author that 1 lb. of india-rubber could be produced by the process at a cost of about 2½d.—*Engineer.*—Two French chemists have discovered a process by which rubber may be obtained from Landolfia vine, which grows wild and luxuriantly in all parts of Africa The process of tapping the Landolfia is impracticable, as the flow of rubber hardens too quickly. By the process of M. M, Arnand and Verneuil, the vine is crushed in hot water, by which means all the rubber which it contains is extracted. —*Queensland Agricultural Journal,*

Correspondence.

To the Editor.

TEA PROSPECTS AND OVER-PRODUCTION.

DEAR SIR,—It is only natural that current rates for low-priced tea should cause producers in India and Ceylon some alarm, and, as many enquiries have reached me regarding the reason for, and probable duration of, the present state of things, I should be obliged if you could find space in your valuable paper for this letter which may interest some of your readers and, at the same time, be a reply to all my correspondents.

The usual London statistics being merely rough estimates based on a supposed average nett weight, I have obtained the official figures from the Board of Trade returns, and they show that notwithstanding the increase of 2d per lb in the Duty, the actual consumption of Indian tea in the United Kingdom during 1900 showed an increase of 4,006,105 lb and of Ceylon tea an increase of 7,332,063 lb or a total of 11,338,168 lb (whilst China tea shewed a decline of 4,106,895 lb) and the export also shows a moderate increase of 2,548,002 lb Indian and 1,631,026 lb Ceylon; so that London practically disposed of a total of 15½ millions out of the 21¼ millions increased shipments from India and Ceylon. These figures, in my opinion, should at once remove any serious cause of alarm; the expanding consumption of the article disclosed by the figures of the Board of Trade being an unanswerable argument as to the inherent soundness of the industry. The extremely high prices ruling for common tea during the latter part of 1898 and the commencement of 1899 induced most gardens to go in for making the maximum quantity at the minimum cost, and of the lowest quality. Helped by an abnormally favourable season and also, to some extent, by the aid of manure, the result has been an increased shipment from Ceylon to the United Kingdom during 1900 of 10,850.000 lb, and from India 10,397,000 lb totalling 21,247,000 lb, thus leaving a very distinct surplus over and above the increased consumption: and this surplus is made up entirely of common tea, which is demonstrated by the satisfactory rates ruling throughout the year for all teas with any pretensions to quality. The theory advanced by some that a large quantity of the tea exported from Ceylon and India this year is too common to be consumed readily may be dismissed; for in 1898, teas which today are difficult to realize at from 3d to 4d per lb were readily taken by the trade at from 6d to 7d; and were the position today the same as in 1898 the same rates would be obtainable. The position, however, is altered. Instead of a scarcity of common tea every market is glutted with it; and as the addition of 2d per lb to the English Duty has resulted in the practical abolition of all the retail canisters under 1s 4d—for which canister competition forces the trade to pay from 6d to 7d per lb. The consequence is that the best value offering at about that range finds a ready market, whereas anything distinctly inferior is almost entirely neglected, its chief outlet being for export.

The duration of present prices rests entirely with planters, and will continue as long as the policy of flooding the English market is persisted in, only more so. Many suggestions have been made to rectify the present state of things, the most remarkable being that 10 per cent of the land under cultivation should be abandoned. This does not, I imagine, come within the range of practical politics, nor, in my opinion, is it necessary. By combination in both Ceylon and India, in three months a totally different range of prices for common tea could be established. Are the Associations in Ceylon and India sufficiently strong to bring this about? An agreement universally to adopt fine plucking for the period stated would have an immediate effect, if it were known in London that it would be rigidly adhered to.

To deal, however, with the output of the increased area under cultivation (which, in both Ceylon and India is as yet not in bearing or only partially so) the further development of the markets in Colombo and Calcutta is essential. Not only should more teas of all descriptions be offered locally, but steps should be taken to make conditions for buyers in the Eastern markets as favourable as those in force in London. All teas offered in Colombo and Calcutta should be more carefully bulked on the estates and more carefully graded and packed even than those shipped to London. The object in selling locally is to develop a foreign trade, where uniformity of leaf, freedom from dust, and good packing are all points of the greatest importance. At present, while care is taken in the bulking and packing, &c., of teas destined for direct shipment to London, this care by many estates is considered unnecessary in teas intended for local sale. As a matter of fact it is more important that care should be exercised there; for in foreign markets we meet in competition China and Japan teas, which, as regards packing, freedom from dust, and uniformity of leaf, are immensely superior to Indian or Ceylon teas.

The chief aim of India and Ceylon should be to avoid sending to England more than she requires; for to do so means lowering the price of British-grown tea throughout the world. London is still the barometer of the world, as far as British-grown tea is concerned, with the exception of Australia; lower that barometer by over-supplying her market, and prices drop all round. Far wiser, in need, to sell a few millions cheap in Calcutta and Colombo and so encourage the development of a foreign trade than send to London a few millions over her visible requirements, which means reducing the price generally on an immense quantity of tea. There are many interests which tend to draw tea to London, but the price obtainable is not always one of them. If, however, the policy of flooding the ruling and most important market of the world is continued, no material alteration or improvement can be looked for until consumption again overtakes production. Apologising for trespassing at such length upon your space.—I remain, yours truly,

ARTHUR LAMPARD.

CACAO

POLLINATION AND 10 CWT PER ACRE.

DEAR SIR,—Mr. Carruthers, among other things, I believe, is devoting his attention to pollination of cacao flowers, and I have ventured to collect a few ideas on the subject.

If only a tenth of the female flowers that annually appear on a cacao-tree set, 10cwt per acre would be common. But there are dangers

ahead, and in our endeavours to avoid Scylla it would be well at the same time to have a care of Charybdis.

Thus a tree bearing at the rate of 5 cwt per acre—and this is surely a low estimate in the event of successful pollination—should yield about 50 average-sized pods per annum. But this is reckoning 300 trees per acre.

It is not probable that the average Ceylon soil will stand the drain of 5 cwt per acre for very long, therefore systematic manuring is bound to be more or less generally adopted, sooner or later. Nor can it be expected, however much it may be hoped, that so delicate a plant, as the chocolate tree has proved itself to be, will absorb and continue healthfully to assimilate the concentrated nourishment of impoverished soil highly impregnated with stimulants. Moreover, the best artificial manure for cacao has yet to be named.

Ceylon planters have only to look about them to be fully assured of the fact that 20 to 25 years at a remunerative rate of yield, say 3 cwt. per acre, and a hundred trees for every hundredweight, should be the outside life-limit of the cacao-tree. It is useless to point to individual trees, whose locality is an open secret, whose age may be stated at 30 or 40 years, and whose fecundity is astonishing. The comparison fails (1) because the individual tree in question is not one of a number of others planted at say, 12 feet by 12 feet; (2) because cacao so planted will have been treated far more drastically than the solitary tree which bears so munificently; and (3) because, in the case of Forestero (to which these points more especially apply), there is not in the whole island a field of any useful extent planted up with only one particular variety. Such trees are altogether exceptional. So that every 20 to 25 years the estate will need to be renewed. For canker will help.

Now, the lower a tree, the cheaper the crop-gathering; therefore suckering will continue in vogue. But the tree having been heavily manured there will be an abundance of "suckers," and this means extra expense. But as the tree will achieve a great spread, this need not be taken into consideration, for then 300 trees per acre will become an impossibility. Probably 150 trees per acre would be nearer the mark.

In order to obtain 5 cwts. per acre from 150 trees, each tree will need to bear 100 pods, and there will probably be no decrease in the expense of manure. Being set further apart the trees are likely to live longer, however; and this is already a big step in the right direction.

To qualify this I am personally acquainted (and concerned) with fields of Forestero cacao whose trees have an average perimeter of 25 ft., and they are not yet at their maximum. Let me, therefore, suggest that their maximum spread will be 30 feet—a low estimate—say, therefore, 50 trees per acre. This indicates that in order to obtain 5 cwts. per acre, each and every tree must bear on an average of *300 pods per annum.*

But a tree with a perimeter of 25 ft. must of neccessity be some 15 ft. to 20 ft. in height, and probably much more. The *cost* of pollinating, an expensive process at best, now becomes something that may be felt. Picking will be dearer, for the trees will be very tall. Moreover, the cost of seed, and the planting of it is not excessive, so not much will be *saved* by having fewer trees per acre.

Trees planted at 25 ft. will find some difficulty at first in covering the ground; therefore weeding will become of more consideration than usual. In order to avoid this, the cacao might be planted at 12 ft. or 15 ft. and alternate trees cut out later. It is doubtful whether the crop for a year or two will make up for the trees so cut out. There might be two lean years.

Finally, cocoa will drop to 15s per cwt, through overproduction !

Now, the first answer to all this is that there already exist in the Island fields—few indeed !—which give, or recently gave, up to 8 cwt. per acre. But this does not dispose of what may be condemned as a *reductio ad absurdum.* for such fields are of the red variety of which planters are becoming more and more shy. Morever, any attempt at pollination in such fields would be justified only if the owner were willing and prepared to cut out and replant every 15 to 20 years. Under such circumstances (8 cwt. per acre) even the greediest planter would be inclined, I surmise, to leave well alone.

Manifestly, then, there is a point at which pollination, as fertile as I assume, and apart from the physical capacity of a tree to produce flowers which might set, must cease in order, paradoxically, to become beneficial. So that pollination is to be welcomed more in respect of that cacao which is not giving more than two or three cwt. per acre; otherwise the trees will become worn out in a very few years.

Some may say "What though they do become worn ? The younger the trees, the larger the pods (the less, therefore, to the cwt.), and the older the trees the more liable they become to canker. Let us plant up afresh two to three years—(and with *grafted* cocoa it is hoped this will be possible)—before we cut out every 20 years, so long as we get our 10 cwt. per acre." Once recognise the fact that the life of a cacao tree as at present cultivated is as stated, and the answer is obvious.

But if it were possible to obtain eight to ten cwt. per acre without cutting down—if, by means of pollination, a sixth of the trees per acre of a virile and prolific variety of Forestero could be made to bear as well as a Criollo field at 300 trees per acre, can there be any choice as to which of the two methods is to be recommended ?

But as there is no field in the island of only one variety of Forestero, so there is no field of Forastero in the Island which gives—I speak under correction—more than two to three cwt. per acre; and on the top of this comes pollination.

But is there any known jât of cacao—Criollo, Forestero or Calabacillo—which can be depended on for 300 pods per tree per acre per annum ?

For purposes of argument I propose to halve this figure: $2\frac{1}{2}$ to 3 cwt. per acre show a very decent profit. There are Forestero fields giving that now, and successful pollination should double and treble this yield.

And the second answer is that cacao, like everything else, is worth precisely what it will fetch in the market. *Verb sap.* POD.

"SILK-WORM SEED" FROM CONSTANTINOPLE.

Colombo, Feb. 11.

Dear Sir,—I send you herewith for inspection a sample-box of silk-worm "seed," reared in Constantinople, in which, the sender

says, "a large export trade is done, considerable quantities being sent to Kashmir and other parts of India." I should wish to know if you or any of your readers have any experience of the process of "rearing," and if it is done to any extent in this island. I have received also a pamphlet in Turkish explaining how the silk-worms are to be reared from the eggs or seed; but as the language is not familiar here, it will be useless to give extracts.—Yours faithfully,

M. L. M. ZAINU DEEN.

[For a concise account of what has hitherto been done in "silk" experiments in Ceylon, see page 129 of our review in last "Handbook and Directory." The Northern Province is expected to be best suited for the silk-worm and mulberry tree, being so dry. Major Gordon Reeves of Madulkele and Father Palla of the R. C. Mission, Galle, were amongst the most recent experimentalists, and they might be glad to have some of the "seed." We add the following information for the benefit of our correspondent :—

The eggs of the silkworm, called *graine* (seed) are hatched out by artificial heat at the period when the mulberry leaves are ready for the feeding of the larvæ. These eggs are very minute—about one hundred weighing a grain; and a vast number of hatched worms may at first be kept in a small space; but the rapid growth and voracious appetite of the caterpillars demand quickly increasing and ample space. Pieces of paper punctured with small holes are placed over the trays in which the hatching goes on; and the worms, immediately they burst their shells, creep through these openings to the light, and thereby scrape off any fragments of shell which, adhering to their skin, would kill them by construction. The rearing-house in which the worms are fed (Fr. *magnanerie*) must be a spacious, well-lighted, and well-ventilated apartment, in which scrupulous cleanliness and sweetness of air are essential, and in which the temperature may to a certain extent be under control. The worms are more hardy than is commonly supposed, and endure variations of temperature from 62° to 78° F without any injury; the higher temperature is very detrimental. The lower the temperature at which the worms are maintained the slower is their growth and development; but their health and vigour are increased, and the cocoon they spin is proportionately bigger. The worms increase in size with astonishing rapidity, and no less remarkable is their growing voracity. Certain races moult or cast their skin three times during their larval existence, but for the most part the silkworm moults four times —about the sixth, tenth, fifteenth, and twenty-third days after hatching. As these moulting periods approach, the worms lose their appetite and cease eating, and at each period of change they are left undisturbed and free from noise. The worms from 1 oz. of graine —numbering, say, 40,000—consume in their first stage about 6 lb. of picked leaf, in the second 18 lb., in the third 60 lb., in the fourth 180 lb., and in their final stage 1,098 lb.,—in all 1,362 lb., of mulberry leaf; but from that is to be deducted about 590 lb. of unconsumed fragments removed in the litter, giving of leaf really consumed 772 lb. An ounce of graine so treated may yield from 80 to 120 lb. of cocoons, 85 per cent. of which consists of the weight of chrysalides and 15 per cent. of pure cocoon.
—ED. *T.A.*]

KURUNEGALA, Feb. 18.—The weather is hot and dry. We had some most welcome rain on Saturday night—the showers were heavy and lasted some time. Sunday evening looked threatening, but no rain fell. The mornings are misty, prognosticating a sultry day.

PRODUCE AND PLANTING.

IMPORTANT TO MANUFACTURERS OF SUGAR MACHINERY. British Central Africa will soon occupy a prominent position as a sugar-producing country. In the rich, fertile district around the Lower Zambesi and the Shiré rivers the sugar industry already promises to become very important within the next few years. One company alone has 1,100 acres under cultivation at the present time, and shortly intends to bring in a further tract of 2,500 acres, while several other companies and private planters are either making preparations for planting sugar or have already started plantations. The land "according to reports recently to hand," is highly suited to the growth of sugar-cane, and there seems to be an ample supply of labour, while the sugar grown is said to be superior to that from Egypt. Sugar-cane growing is an industry, moreover, that gives a good return for a comparatively small outlay of capital, and, with the experience gained in Natal, the district round Chinde "should speedily become one of the great cane-sugar-producing centres of the world." A hope is expressed that British manufacturers of machinery and agricultural implements will not fail to grasp the opportunity which presents itself. As the country is staked out and divided up into plantations the demand for tools and implements will steadily increase, and as the canes grow mills for crushing and refining will become necessary.

RICE-CLEANING MACHINERY.—The British Commercial Agent in Russia has received an inquiry from Samarkand (Turkestan) asking for names of British firms supplying rice-cleaning machinery of newest type of construction, and, if possible, such as have received prizes and awards at the Paris Exhibition. The catalogues would probably be more serviceable if well illustrated, and it would be of advantage if the technical descriptions were in the Russian or German language. Further information may be obtained from Mr. Henry Cooke, British Commercial Agent, 88, Petrovski Bouleward, Moscow, to whom all communications should be addressed.

THE ZANZIBAR CLOVE TRADE.—The "1899" crop of Zanzibar cloves was the heaviest on record, and was 570,600 frazils, or 7,061,250 lb above that in the previous year; but whether this excessive outturn will be equalled in the future is a question which is beginning to exercise the minds of the trade generally. No reliable estimates of the total crops for 1900 have yet been published, and it is doubtful if the yield of cloves for the coming season will again be of similarly large dimensions. The grounds for entertaining this supposition are that circumstances in connection with the systematic cultivation of cloves in Zanzibar have considerably altered within the last few years, it being no longer carried on by compulsory slave labour as formerly, and time has not been afforded the planters to recover from the disastrous effects of the severe drought that existed during 1899-1900. Since the importation of slaves was prohibited, and the blacks were granted their freedom in 1897, the scarcity of labour in Zanzibar has been keenly felt. Prospects of a continued abundance of Zanzibar cloves are, therefore, not particularly cheerful, and as this condiment is in universal demand, any serious diminution in supplies would have an instantaneous effect in forcing prices up to a higher point. Speculators have already been busy enough to send quotations in Mincing Lane up to 4¼d and 4½d, which is 1d per lb beyond what was paid on the spot in January last, and judging from the extensive purchases of Zanzibar cloves to arrive, made from time to time, it is reasonable to anticipate a further improvement in value as the season advances.—*Home and Colonial Mail*, Jan. 25.

OUR PEARL-OYSTER FISHERIES AND MR. SAVILLE-KENT.

LAST mail brings us a letter from Mr. Saville-Kent in which he states that he sent in his application to the Colonial Office for the appointment to investigate our Pearl Oyster Fisheries, backed by a strong testimonial in his favour from Lord Avebury (Sir John Lubbock); but Mr. Saville-Kent feared he was too late, though he understood the steps to be taken with regard to our Fisheries had not been finally determined on. Mr. Saville-Kent adds:—

"I certainly feel confident that within three or four years, and with the assistance and support contributed by the local officials, very substantial headway might be made towards both the re-establishment of the present fisheries and the inauguration of new and, what would in all probability eventually prove to be, still more profitable ones. I have read up the pamphlets and reports bearing on the case kindly forwarded me by Mr. Collett, and was previously in possession of those by Mr. Edgar Thurston and others. Their perusal has still further convinced me that, with the advantage of my previous experience, the difficulties to be contended with are by no means insuperable, and I have in fact already sketched out some of the earliest and most essential steps in my plan of campaign that I should propose to follow or suggest, should the work in any form be entrusted to me."

CAMPHOR INDUSTRY.

One of the chief events of the year has been the fruition of the Japanese Government scheme for the conservation of the camphor-industry, which we outlined in March last. As was inevitable, the monopoly which was created has entirely altered the conditions of the market, the speculative market to a great extent having been obliterated. The price was originally fixed at about 180s, c.i.f. in March, but since then values have considerably advanced, 190s spot being quoted in November and "pressed" at 205s. For fluctuations in prices the palm must be given to refiners of German camphor, as no fewer than fifteen alterations have been recorded in 1900. On the other hand, English refiners, who are not influenced by speculators to the same extent, only raised their prices when absolutely necessary, and during the twelve months there have only been four advances, the year opening at 2s and closing at 2s 4½d.—*Chemist and Druggist*, Dec. 29.

PHOSPHATE IN THE MALAY ARCHIPELAGO.

AN IMPORTANT DISCOVERY.

A discovery of considerable importance to India has been made in a remote island of the Malay Archipelago. To make the story plain, it is necessary to go back some years when a party of scientists were sailing the seas in the now famous vessel the "Challenger." Amongst the most distinguished of them was Sir John Murray who has recently been in India [spending a week in Ceylon first.—ED *C.O.*] This gentleman had studied the question of the deposits of the deep-sea bottom, and when the "Challenger" was off Christmas Island a lovely place in mid-ocean to the South of Java, he found phosphate of great purity in the haul brought to the surface from the bottom by the deep-sea dredger. Now phosphate is an exceedingly valuable manure Treated with sulphuric acid it forms the super phosphate that is in demand for indigo cultivation. Sir John did not let the matter rest. Phosphate on the sea-floor might be valuable but it was not easy of access. It had been formed, he surmised, by the dropping to the bottom. through countless ages, of the remains of dead marine animals from the two geographical zones that here meet each other, the intermingling of water of different temperatures causing the mortality to be excessive; the fish from the waters of the north unable to stand the warmth of southern seas; those from the south similarly discomforted by the colder current. The island hard by might have had an analogous origin, so he examined it. It proved a veritable phosphate heap. Negotiations were commenced for its annexation. But years elapsed before this was affected. The British marine authorities indeed declared, at first. that the place was useless, and at one time mining operations narrowly escaped being undertaken under Dutch auspices. But at last the British flag floated over the possession, and a number of borings were made, the result fully confirming the sanguine expectations of the discoverer. A European chemist was brought out to superintend the the operations, and now large quantities of phosphate are being raised at a profit. The matter is of more than academic interest. Not only does it offer possibilities of supplying an indefinite amount of the dressing needful for the indigo fields, but the process of preparing the raw article for application means a demand for sulphuric acid which may not be without effect on the question of making the mining of the sulphurous copper ores of Western Bengal remunerative.—*Bombay Gazette*, Jan. 27.

TWO ISLANDS SET APART FOR CULTIVATION.

From the *Globe* of December 21st we learn that the United States Department of Agriculture has set aside the islands of Panay and Panitani in the Iolo Islands for the cultivation of India-rubber, as the American supply is failing. On the other hand reports from South America do not indicate any falling-off in rubber supplies from the back country of the Amazon aswell as the Andean Valleys.

NEW TEA MARKETS SUGGESTED.

EAST AFRICA AND FIJI.

There are two possible openings for establishing a trade in our medium teas that should not escape notice, the one in Mombassa, in East Africa, where not only are there many Indian emigrants among whose rations tea might well be included, and another in Fiji, the coolie trade to which is assuming increasing proportions. The rate of coolie pay in Mombassa is, we are informed, £1 per month, but the rations come up to an extra £2, while once out of his indentures the laborer nets a clean £5. It is not only among the imported labor that we may look for consumption but there is a steady influx of people from all parts, and our informant (a ship's officer) says that there is quite as marked a predilection for tea as for the home-grown coffee; the latter, however, owing to the cost of labor given

above, places it beyond the reach of the masses, while the use of the former is confined to the well-to-do. As for producing tea on any commercial scale with the wage rate ruling so high, that is out of the question, although the tea plant, grown as an experiment, has been successful enough. The development of East Africa is proceeding at as rapid a rate as Australia in 1850-51, so those first in the field ought to establish a firm business.

The tea trade with Fiji proper would be of a limited character; but as the coolie vessels subsequently go to the South Pacific ports to load for Europe, we have in these an as yet untouched market, while not far north there are thousands of labourers employed on the western terminus of the Nicaragua Canal in the Gulf of Panama. These small markets are bound to expand into large ones, offering better facilities for introducing a novelty than those already occupied by established rivals; not that we suggest any relaxation of efforts in Europe or America, but merely ask that places at present considered of minor importance should receive a fair share of attention.—*I. P. G.*, Feb. 9.

MEASURING RAINFALLS.

THE WORK OF 3,500 AMATEUR SCIENTISTS.

In every district, in every county, of the British Isles there are amateur scientists who take measurements of every fall of snow or shower of rain that occurs. This work is of immense interest, directly or indirectly, to all classes of the community. It is controlled by the Rainfall Organization. Yesterday Mr. Sowerby Wallis, who has made it his duty to receive the reports of these systematic observations and record them, gave an account of the work to an "Express" representative. "Forty years ago," he began, "my predecessor, Mr. Symons, commenced to study the rainfall of the British Isles, and found that there was very little knowledge on the subject, and even that was in a chaotic condition. In 1861 he wrote to all the observers, of whom he was aware, for records for the year 1860, with the result that 168 were sent in, and afterwards published. This gave a stimulus to observers, with the result that their number now exceed 3,500. The subject has been studied scientifically for the purposes of water supply, flood prevention, drainage, and river conservancy. The great majority of the observers are amateur scientists among doctors and clergymen. A large number, too, are maintained by the engineers of corporations and water companies." As a rule the work is done thoroughly. But that the observers are sometimes slack the following stories will show:—

"A Scotsman religiously kept his gauge out in his front garden during the daytime, but always took it in at night. His reason for this was that he was afraid it might be stolen. Another time a country parson, instead of sending in the record, posted the amount of the previous Sunday's collection."

HOW IT IS DONE.

"How is the rainfall measured? By a gauge costing from 12s 6d to £3 3s. For use in ordinary localities we recommend the Snowdon pattern. This consists of a copper or galvanised iron cylinder 15in. deep and 5in. in diameter, and containing a funnel and jar. Every week or month the jar is emptied and measured in a tube which is divided into 1-100ths of an inch. Snow, of course, has to be first melted. The gauge is placed on a level piece of ground at a distance from shrubs, trees, walls, and buildings. Readings are taken at 9 a.m." "Knowledge of rainfall," continued Mr. Wallis, "is of the greatest importance to the country." All water is rain-water, whether it be stored in tanks, water-butts, wells, springs, or rivers. When a town wants an increased water-supply the first thing to look for is a district where there is a heavy annual rainfall. That information we supply. Again, to agriculturists trustworthy statistics as to the annual rainfall in a country is of the utmost value. To river conservators figures showing the time it takes for a fall of rain over a given area to run off allow precautions against floods, such as the opening of locks and sluices, to be taken.

"In France the various parts of the great rivers are in telegraphic communication with one another. A heavy rainfall in the upper reaches, with its necessary consequences, is known at once lower down. With such a system on the Thames a great deal of destruction of property during storms would be avoided."

The work of the Rainfall Organisation is purely voluntary. The money derived from the sale of "British Rainfall," which is a general summary and epitome of the year's work, supplies the necessary funds. Mr. Wallis calculates that he spends at least six weeks every year in giving evidence before water committees and inquiries. His work is therefore recognised. At every Parliamentary Inquiry or Commission dealing with water questions, since the Duke of Richmond's famous Commission, Mr. Wallis and the late Mr. Symons have given evidence. Among the "observers" have been three Speakers of the House of Commons; the Dukes of Wellington, Westminster, and Argyll; Lord Addington, the late Mr. W H Smith, and many members of Parliament.—*Daily Express*, Jan. 10.

Our Botanic Gardens and Vegetation. —The special feature of February's issue of our *Tropical Agriculturist* is the Report by the accomplished scientist and botanist, Dr. Treub, head of the Buitenzorg Botanical Gardens, etc., in Java, on his visit to Ceylon and its Botanic Gardens over two years ago. It was published in Dutch and translated for us, the first portion by Mr. Advocate de Vos of Galle, and the rest by Mr. Donald Ferguson of Croydon. We regret the delay in giving the translation to the readers of the *T.A.*, but the concluding portion will appear in the March issue. Dr. Treub's observations are full of interest for their realistic freshness, and for a stranger he makes singularly few blunders. He accounts for Java, with only double the area, having eight times the population of Ceylon, by the dry if not thirsty climate over the larger portion of our island and the comparatively poor soil. He shows us how superior is the Javanese system of rice cultivation to that of the Sinhalese; he is delighted with the contrast between patanas and forest; does justice to the work of Thwaites and Trimen; as also to the energy of Ceylon planters, and generally writes a very appreciative notice, at least so far as Part I goes.

ADVENTURE WITH A LEOPARD.

The town of Nagercoil, in Travancore, was thrown into a state of wild excitement on Saturday morning last when it was reported that a leopard had found its way into the town and was hiding in a field near the Oolugananchery bridge. Large numbers of people collected at the spot, and, taking up positions at convenient distances, watched the movements of the brute, which had already attacked two men. Word having been sent to Vadasary, Mr. J Duncan Roberts and Mr. F A Cox hurried to the field, and while they were walking along the bund, without seeing any sign of the leopard, the bystanders called out to them that the brute was lurking in the grass. Turning round and walking a few paces, Mr. Cox's attention was arrested by a low snarl and on looking round he saw the brute spring on Mr. Roberts. A Shanar man who happened to be near rushed forward and diverted the attention of the animal on to himself, while one of the shikaris present fired and killed the brute. Mr. Roberts was badly mauled on both hands and suffers a great deal, but his injuries are believed and hoped to be not dangerous. The leopard is a fair-sized one and well-marked. The presence of mind and pluck shown by the Shanar, in saving the life of another at imminent risk to his own, are beyond praise.—*Madras Mail*, Feb. 14.

PRESERVATION OF THE WILD ANIMALS OF THE SOUDAN.

A CEYLON MAN TO THE FORE.

The Anglo Soudanese Government is forming a "Soudan Wild Animal Department," the object of which is to preserve the wild beasts of the Soudan, which between the time when the country was closed after the death of General Gordon and the capture of Khartoum had greatly increased. Indiscriminate slaughter in this, one of the few preserves left in the world, will be checked and regulated : and one of the branches of the department will be the supply to Zoological Gardens, Museums, &c., of live and dead specimens. The Soudan Government offered the post to Mr. Butler, who,

SINCE HE LEFT CEYLON AND TEA-PLANTING

four years ago, went on an expedition to the Andaman and Nicobar Islands, collecting birds for Mr. Walter Rothschild, of Tring. The work he found delightful, but it was very hard, and he resigned, taking up similar work in Perak. He then obtained under the Selangor Government the curatorship of the Straits Museum, and occupied this position when he received the offer from the Soudan Government. As may be well imagined the number of candidates suitable for such a post is limited, but the offer made to Mr. Butler required his quick decision. He wired assent, threw up his post in the Straits, and booked a passage by the Japanese ss. "Shinani Maru" for Port Said.

The action of the Anglo-Soudanese Government in taking steps to preserve the wild animals of the Soudan is most praiseworthy. It is only necessary to glance at the recent records of travel, not merely in Africa, but in other haunts of big game in various parts of the world, to see that valuable types are following the dodo and great auk into premature extinction. We need hardly dwell on the pity of this event. On the lowest ground it is extremely bad economy to use up in one great battue the sport of generations to come ; on higher grounds it is a crime against posterity to deprive the science of the future of the very elements of practical investigation.—*Egyptian Gazette*, Jan. 28.

PRODUCE AND PLANTING.

The Movement for Restricting the Output of Tea.—The Calcutta correspondent of the *Times* cables under date January 22:—"The Indian Tea Association has addressed a circular letter to all proprietors and agents of estates with a view to limiting the output and consequently enhancing prices. Opinions are invited on the following proposals: The temporary abandonment of 10 per cent. of the area in full cultivation ; the fixing of a date for closing manufacture in each district ; generally finer plucking ; and that a percentage of the crop consisting of low-grade teas be placed at the disposal of the Association, and utilised for encouraging the consumption of tea by the natives of India."

A Wise Suggestion.—Mr. Cuthbert Burgoyne, writing from Mount Ophir Vineyards, Victoria, puts in a plea for Imperial products which will specially commend itself to Indian and Colonial planters and producers, and he says: "At the beginning of a new century, when the civilised world is throbbing with the growth of the Empire, a plea for patriotism, even in trade, may not be misplaced. In the daily struggle for existence patriotism should not be lost sight of. If 'self' had dominated our feelings, the British Empire would not hold the powerful sway it does today. By giving preference to Colonial products, the grocer can assist in the augmentation of Britain's power without detriment to his own pocket. The British Empire produces from some corner of her vast dominions everything needful to mankind. Encourage, then, the tea-planters of India and Ceylon, the Colonial cane sugar mills, and push the cocoa of the British Colonies. New Zealand and Australian butters are quickly creeping into favour, and the full-bodied Australian wines have made their mark on French imports, and have come to stay. Spices are, to a very great extent, Colonial, and before many years the grocer will be able to place British dried fruits and coffees before his customer. Whatever is good for the British Colonist is good for the Empire. Let us always bear in mind that Greater Britain has her vineyards, her tea and sugar plantations, her rice fields, and her spice and orange groves, and, that in the present condition of the world, commercial interest are all powerful. Give preference to Colonial products, overrule the Englishman's prejudice against a new article, and the commerce of the Empire will be strengthened. As unity is strength, if we all work to one end, the result must be to the benefit of the empire." This idea might commend itself to the Chancellor of the Exchequer in connection with the tax on tea. While the Government does nothing in particular to foster British-grown produce, we fear that individual members of the great trading community throughout the British Empire cannot be expected to give such evidence of true patriotism as is indicated by the correspondent from Mount Ophir. The prosperity of the British Colonist or the Anglo-Indian weigh very little against the needs of the Imperial Exchequer.—*H. and C. Mail*, Jan. 25.

Cacao Cultivation.—We direct attention to a very suggestive letter on this subject by a practical cacao planter. It deserves the careful consideration of his brethren, whose criticism on any of the points raised will be welcomed. The problem submitted by "P.O.D.", as to what could be done with a limited number of trees per acre, specially treated as regards pollination, is eminently one adapted for experiment in the Peradeniya Gardens where the soil is, we suppose, no more than a fair average of our cacao districts.

THE KALUTARA COMPANY, LIMITED.

ACREAGE, 31ST DECEMBER, 1900.

Tea in bearing	518 acres
Tea in partial bearing ..	140 do
New Clearings	24 do
Arecanuts, Grass, Ravines, &c..	10 do
	692 do
Forest	392 do
Total	1,084 acres.

The Directors herewith present the accounts for the year ending 31st December, 1900.

The crop secured (including 4,653 lb. manufactured from purchased leaf) was 292,305 lb. tea against an estimate of 333,000 lb. The average net price realised was 31·32 cents per lb., against 36 89 cents per lb. obtained in 1899. The cost of the tea laid down in Colombo was 26·07 cents per lb. which included a sum of R5,691·75 spent on manuring.

In addition to a fall in price of 5·57 cents per lb. in common with most other low country estates, it will be observed that the crop was 40,695 lb. short of estimate. This most disappointing result was directly due to a local drought of unprecedented severity, experienced in the early months of the year, from the effects of which it took some time for tea bushes to recover. The reduction in amount of crop also added to the cost per lb. of securing it, which was in consequence distinctly high.

The new clearing, 24 acres in extent, planted during the past year is coming on satisfactorily. The growth of Para Rubber is promising and the Directors purpose extending its cultivation on the Company's estates.

After making ample provision for depreciation of building and machinery and paying the interest on the preference shares, there remains a balance at credit of Profit and Loss Account on the the year's working of R1,006·56, to which has to be added the balance of R5,921·79 brought forward from 1899, making in all a sum of R6,928·35 to the credit of Profit and Loss Account, which the Directors recommend be carried forward to the current season's account.

The capital expenditure for the past year amounted to R6,571·61, chiefly on the opening up of 24 acres in tea and for new lines.

For the year 1901 the estimate of crop from the Company's estates is 324,715 lb. Tea, as against an estimated expenditure of R73,693·69 on working and R3,448 on capital account. The latter expenditure being mainly on lines and the upkeep and supplying of the new clearing.

During the year under review Messrs. R S Templer and G H Alston resigned their seats on the Board on their departure for England, and Mr. H Cumberbatch and the Hon. Mr. W H Figg were appointed to fill the vacancies respectively.

In terms of the articles of Association Mr. H Cumberbatch now retires from the office of Director, but is eligible for re-election.

The appointment of an Auditor for the current year rests with the meeting.

THE GANGAWATTA ESTATES COMPANY OF CEYLON, (LTD.)

ACREAGE :

Tea in full bearing	335 acres.
Do partial bearing	2 do.
Do not in bearing	8 do.
Grass and Ravines	10 do.
Total	355 acres.

The Directors beg to submit their Fourth Annual Report and Statement of Accounts for the year ended December 31st, 1900.

The Tea crop amounted to 171,406 lb., against an estimate of 160,000 lb., which was disposed of as follows :—

Sold in Colombo	170,983 lb. for	R61,515·88
Sold on Estate	291 lb.	263·96
Carried forward to next year	132 lb.	—
	171,406 lb.	61,779·84,

or an average per lb. of 36·07 cts. as compared with 40·16 cts. last year.

Cost of production was ..	25·65 cts.	
including Manure ..		2·95 cts.
As compared with last year ..	27·06 cts.	
including Manure ..		2·70 cts.

The season was an undoubtedly favourable one throughout the Tea districts, and is responsible in great measure for the heavy output of tea and the consequent overloading of markets and fall in price.

The area manured with artificial manure was 120 acres, which, with 60 acres manured last year, leaves five acres only untreated on the Gangawatta division of the property.

The working account shows a surplus of R18,001·01, an interim dividend of 3 per cent. has been already paid, and the Directors propose to pay a final one at the same rate making 6 per cent. for the year.

After this payment, interest on mortgage, commission to Superintendent and Secretaries, and Auditor's fees, a balance will remain of R3,190·06 subject to payment of Directors' fees, and it is proposed to carry this sum forward to next year.

A regrettable accident of the year was the loss of the newly-erected wire bridge in the floods of June; half cost of reconstructing this remains to be met in 1901.

Some expenditure will probably have to be incurred for providing the factory with fans. In times of pressure the withering accommodation is at present insufficient. No provision for this is made in the estimate.

Mr. Hayes reports that the property is in good order.

Crop estimate for 1901 is R170,000 lb. Expenditure is estimated at R44,706·50, which includes R425,725 for manure. This will be applied almost entirely to the Bitterne division.

In terms of the Articles of Association Mr. S. H. Hayes retires from the office of Director, and being eligible offers himself for re-election.

The appointment of an Auditor for the current year rests with the meeting.

AGRA OUVAH ESTATES COMPANY, LTD.

THE REPORT.

The Report was as follows :—

ACREAGE, 31st December, 1900.

Agra Ouvah.

Tea in full bearing ..	302 acres.
Tea not in bearing ..	20 ,,
Grass and Jungle ..	9 ,,
Total Estate ..	331 acres.

Fankerton.

Tea in full bearing ..	15 acres.
Timber clearing ..	10 ,,
Grass, Patana and Scrub	18 ,,
Total Estate ..	193 acres.
Grand Total ..	524 acres.

The Directors now have to present to the Shareholders the accounts for the past year.

The crop secured amounted to 374,274 lb. (being 84,274 lb. in excess of the estimate) as against 293,908 lb. in 1899.

The average nett price obtained for the tea was 45·02 cents per lb., against 48·90 cents per lb. in 1899. After deducting the cost of manufacturing outside leaf, the cost of laying down the Company's tea in Colombo

was 23·18 cents per lb. The gross income derived from manufacturing tea for other estates was R11,975·90.

Allowing for Depreciation on the same scale as last year, the amount at credit of Profit and Loss Account for the year's working is R79,989·34 equal to 21·30 per cent on the Capital of the Company, to which must be added a sum of R2,794·58 brought forward from last year, bringing up the total at credit of Profit and Loss Account to R82,783·92. An Interim Dividend of 7 per cent was paid on 30th July last, absorbing R26,250. The Directors now recommend the payment of a final dividend of 13 per cent, making 20 per cent for tho year; that a sum of R5,000 be transferred to the Reserve Fund for the equalization of Dividends, and that the balance of R2,783·92 be carried forward to the current season's account.

The estimate for this year is 343,750 lb. Tea on an expenditure of R82,092·39, including a sum of R6,220 for manuring.

During the year under review Messrs. Alston and Polson resigned their seats on leaving the Island, and their places were taken by Hon. Mr. W H Figg and the late Mr. A E Wright, at whose loss the Directors desire to record their deep regret. Mr. Jas. Forbes was appointed to fill the vacancy thus caused on the Board.

In terms of the Articles of Association the Hon. Mr. W H Figg retires by rotation from the office of Direcort, but is eligible for re-election.

The appointment of an Auditor will rest with the Meeting.—By order of the Directors,

WHITTALL & Co., Agents and Secretaries.

Colombo, 25th January, 1901.

CEYLON MINING AND THE GEOLOGICAL SURVEY.

We omitted the other day to refer to the promised Geological Survey of Ceylon as an indispensable preliminary to the development of the mining industry of the Colony. When this Survey is completed, the Government will be much better able to revise and formulate definite regulations. —In this connection we may refer to the discussion following on the reading of a Paper on "Metalliferous Mining in India" by Dr. Evans (ex-State Geologist and Chief Inspector of Mines in Mysore) before the Society of Arts. We quote as follows :--

MR. ALEXANDER ROGERS writes :—At the conclusion of the discussion on Dr Evans' paper yesterday I said that I had intended to lead the discussion in a new direction, but that I refrained from doing so because the lateness of the hour would not permit of my expatiating properly on the subject. I now write to explain what my subject was, and to call attention to the subject of the mining regulations issued by the Government of India, which appear to me admirably calculated to crush all mining enterprise, instead of encouraging people to develop India's great mineral resources, as they should do. This is specially the case in the part of Central India which has not been mapped in the Geological Survey map of the country, as it is here particularly that there is the largest field open for research. It is all more or less under the charge or administration of political agents, who, as a rule, are military officers or men whose studies have not led them to inquire into such subjects. The greater, therefore, is the necessity for encouraging the efforts of outsiders to ascertain and develop the resources which at present are lying dormant for want of exploitation. I propose now to give you an instance, which I can personally vouch for, of the method in which the supposed intention of the Government of India to open out the country is acted up to locally. There are two villages on the outskirts of a low range of hills in the Rava Kanta political agency to the north-east of Baroda, which contain extensive deposits of the finest iron. Having discovered those valuable deposits, which are particularly rich in the villages mentioned above, I applied for a prospecting licence in them with a view to temporarily keep other prospectors out of the field, and suggested that a small sum of 50 rupees should be paid in each village. I received an answer that I had not complied with the rules of the Government of India by fixing on the exact spot where operations were to be carried out. I could not have done this without the advice of a mining expert. It was then suggested that the difficulty could be met by taking licences for the whole area of the two villages, which had never been surveyed, at the rate of 4 annas an acre. The estimated area came to 1,800 acres, so that the amount demanded was 450 rupees, in addition to 100 as a deposit on each licence, or a total of 650, which would only have protected me for a single year. I wrote to expostulate with the Supreme Government, and was finally offered by the Government of Bombay licences at 1 anna, in place of 4 annas an acre; that is, for 350 instead of 650. This has been finally declined, and I only bring it forward in order to show the penny-wise-and-pound-foolish policy that is being pursued, a policy which appears to me well calculated to stop all mining enterprise. Prospecting or exploration licences of the protective character asked for should, I think, be granted gratis, some kind of security only being required in order to provide against wilful injury to any property having an appreciable money value on the part of prospectors or explorers. I will not go further at present to inquire into the condition for mining licenses offered by the rules, but would suggest that such mining firms as J. Taylor and Sons should be consulted on the subject, especially with regard to such particulars as that no two shafts should be sunk within a certain distance of each other.

DR. EVANS :—I cannot concur in Mr. Rogers's censure of the Indian mining regulations. They may not be perfect but compare not unfavourably with those of other countries. If any one interested in mining believes a particular region to possess mineral wealth, he can take out an exploring licence at a cost, which varies in different parts of India, but never exceeds ten rupees. This gives him, it is true, no definite rights, but it is expressly laid down that in considering rival claims for mining concessions, "due regard will be had to operations conducted under cover of an exploring licence." If a valuable deposit is found, but the limit of its occurrence cannot at once be readily determined, a prospecting licence may be taken out over a comparatively larger tract till a proper survey can be made. When this is completed, the licensee is entitled to a formal mining lease of the block he ultimately decides to select. In most other mining countries not only is the amount of mining land which the prospector can take up much less, but he can acquire no rights till he has actually "pegged out" the boundaries of this small area. Mr. Rogers would have been far worse off in Australia, for instance, for there he would have had no means of safeguarding his rights while waiting for the arrival of his mining expert. I cannot regard a penny an acre, amounting altogether to £7 10s., as an exorbitant charge for obtaining preferential rights over nearly three square miles for a whole year. The R100 £16 13s. 4d) is only in the nature of a deposit.

A LABORATORY IN COURSE OF CONSTRUCTION.—"At Hakgala, we have just learnt," a Nuwara Eliya correspondent writes to us, "that a laboratory is being built at the Gardens with a special view to Research work being carried on *there*, as well as at Peradeniya, by Professors who come out to Ceylon for that purpose. Rooms are also to be put up adjoining the laboratory for the scientists to stay in. So far only the timber is being felled ready for the building, but they hope to have the work in hand shortly."

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1901, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round. 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year."

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1901, booking necessary before the end of March; large quantities on special terms; Plants in Wardian cases.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Kickxia Elastica.—(*Funtumia Elastica*).—Seeds and Plants, orders booked. (Lagos rubber.)

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Urciola Esculenta and **U. Elastica.**—Same as above. (Burma rubber.)

Parameria Glandulifera.—Orders booked for seeds for January-February delivery; also plants immediate booking necessary. (A good rubber creeper of Malacca.)

Landolphia Kirkii.—Seeds in July-August, early booking necessary. Plants can be supplied all the year round. (A highly-recommended species.)

Chonemorpha Macrophylla.—Seeds and Plants; orders booked. (A very valuable rubber-yielding creeper.)

Memusops Globosa and **Payena Leerii.**—Seeds and plants in July-August, booking necessary before April.

Achras Sapota, Willughbeia Firma, W. Edulis and other **Rubber and Gutta Percha** yielding Trees and Creepers, Seeds and Plants.

Cinnamomum Zeylanicum (Cinnamon superior variety). New crop of seed in April to June; booking necessary before the end of February; also plants.

Coffea Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

Cinchona Ledgeriana.—Seeds now ready, also other varieties.

Seeds and Plants of Nutmeg, Clove, Sandalwood (white and red), Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products of Foreign countries for 1901-1902, now being prepared, and will be ready in a few months.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Price List of Seeds and Plants for Ceylon use post free on application.

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Orchids, Bulbs, Dracinas, now being prepared, and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address:
William, Veyangoda, Ceylon.
Lieber's, A.I. and A.B.C. Codes used,

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

PLANTING IN THE STRAITS.

EXPERIMENTAL PLANTATIONS:—RUBBER, GUTTA, SUGAR, COCONUTS, &c.

REPORT BY SUPERINTENDENT OF EXPERIMENTAL PLANTATIONS.

SIR,—I have the honour to submit a Report of my visit to Penang, Province Wellesley and Perak.

Acting on instructions received from the Acting Resident-General, W. H. Treacher, Esq., C.M.G., I left Kuala Lumpur on 25th October with the object of visiting the Botanic Gardens in Penang and the estates of Perak and Province Wellesley, with a view of obtaining a knowledge of the country and the requirements of the planters, and, at the same time, selecting a suitable place as head-quarters for the Experimental Plantations which Government are about to establish.

In Penang I met Mr. Curtis, the Superintendent of the Botanical Gardens, and with him visited he Gardens, where rubber-tapping was in progress. Although the trees here are not growing under the conditions generally recommended for Hevea braziliensis (Para-rubber)—being planted on a dry, sandy bank—it is interesting to note that the returns are very favourable; the average annual yield for the last three years amounting to rather more than 1 lb. of dried rubber. It appears, therefore, that not only does Hevea thrive under varied conditions, but that it gives a fair return, which statement does not apply to Ficus elastica, the "Gutta rambong" of commerce.

I journeyed to Kuala Kangsa, and, accompanied by Mr. Derry, inspected the Para trees recently tapped by him, and other economic plants growing in the Government grounds. The average yield per tree was 1½lb. of dry rubber, the trees ranging from six to thirteen years of age. As this Officer points out, "the tappings were not exhaustive," and it is probable that more might have been extracted without impairing the health of the trees. What this amount is, has yet to be determined, neither Mr. Curtis nor Mr. Derry having attempted to decide the question.

Kuala Kangsa having been suggested as a suitable place for head-quarters, I made the visit here a special feature of my tour. After duly considering the matter, however, I must say that I fail to see that this district offers any special advantages over other places I have visited. I am of opinion that Kuala Lumpur, or its immedite neighbourhood, would be more suitable, seeing that it is much more central.

From Kuala Kangsar I proceeded to Sungei Siput, and, after visiting the Kamuning Estate, went on to Ipoh, where I had the benefit of an interview with the Acting British Resident, Colonel Walker, C.M.G., who advised me to go to Batu Gajah to see the estates in the vicinity and the Government Plantations at Parit. This I accordingly did, and, accompanied by Mr. Cecil Wray, I also drove out to see the large rambong and Para trees.

In the limestone districts of Kinta rambong grows very luxuriantly; but, so far as I am aware, it does not occur naturally either in the marshy districts or along the coast.

On returning to Ipoh I had a further interview with Colonel Walker, and, acting on his advice, I retraced my steps to Taiping, with the object of visiting the Krian district and the Province Wellesley sugar estates. I might here remark that it is the opinion of Mr. Turner, the Manager of Caledonia Estate, that sugar might be successfully cultivated in some parts of the interior. This is somewhat important, in view of the fact that beet-root sugar cultivation is on the decline in Europe.

From Prye I proceeded to Teluk Anson *via* Penang. Here Mr. Brewster kindly enabled me to visit the coconut estates on the Perak river and the rubber plantations at Setiawin, by placing the Government launch at my disposal.

At Setiawin there are a number of fine specimens of Hevea and Ficus, which would be suitable for experimental work.

In reference to Ficus elastica, I would like to point out that it has been proved in Bengal and elsewhere that "although it grows with undiminished rapidity and luxuriance in districts remote from the hills . . . it fails to produce caoutchoue." Dr. Morris also says that, in spite of the abundance of the tree under cultivation in the tropics of both the Old and the New World, it has nowhere proved so valuable for the production of rubber as in the mountainous parts of Assam.

It seems, therefore, that there is a possibility of this tree failing to come up to the expectations of the planters of this country, and I would advise Government to allow me to proceed to Setiawin, to experiment on these trees with a view to obtaining reliable data concerning their yield. It would be necessary to rent a sufficient number of Ficus from the Penghulu. The Para trees are Government property.

STANLEY ARDEN,

Superintendent of Experitmental Plantations.

BIG TEA-GROWING SYNDICAE IN CAROLINA.

A syndicate has purchased 4,000 acres of land 15 miles from Charleston, South Carolina, United States of America, where a tea farm will be started. Unlimited capital is behind the venture and the syndicate will deliver at least 300,000 lb of tea for the American markets annually after the area is in bearing. It is evident that Americans are beginning to look upon tea as a possible industry.—*Indian Planters' Gazette*, Feb. 16.

THE USE OF SORGHUMS.—The use of the sorghums as forage plants is rapidly increasing in all countries which are semi-arid or subject to freqnent long summer droughts. As the use of the plant increases there is an increasing desire to use it as pasture, but there is a reluctance to do so from the fact that there has sometimes been a loss of stock fed upon the growing plant which could not be accounted for upon the theory that death was caused by ordinary bloat. While these cases have been rare, yet they have occurred, and the cause is not yet known. The Nebraska Experiment Station has been thorough in its investigations, but so far has learned nothing. Samples of sorghnm which had killed a cow within a few minutes after eating it disclosed no trace of any poisonous substance when analysed a few days later. The station authorities are forced to conclude that sorghum sometimes, when growing or freshly cut, contains poison which soon disappears in the process of curing, so that by the time the samples reach the laboratory and are analysed they are harmless. There is at any rate no danger in feeding cured sorghum, and a great deal of sorghum is pastured with no injurious results, and yet the fact that deaths, not from bloat, have sometimes occured from its use makes it an undesirable pasture crop until we know more about it. It is suggested by the station authorities that in cases where poisonous effects followed its use the plant itself was probably unhealthy and yellow, but there are not sufficient data on that point to justify a very strong opinion.—*Weekly Chronicle.*

PLUMBAGO: CEYLON'S ONLY MINERAL OF COMMERCIAL IPORTANCE.

We learn with much regret that the Morgans Crucible Company—represented here by Mr. R. C. Fielding—have decided, after much consideration, to give up mining for plumbago in Ceylon, since neither the laws nor the conditions seem to them to offer any inducement for the investment of capital in the industry. This would be a matter dedemanding the serious attention of Government, were it not for the undeniable fact that native capitalists seem to prosper and to multiply as miners, under the same laws and conditions as are deemed so inimical by the great Battersea house, so long identified with the purchase and utilisation of Ceylon plumbago. Have we not here another illustration of the fact that there are certain trades and industries in this tropical island in which Europeans are unable to compete with the natives? It used to be an axiom in the Fort, during the "seventies" and "eighties," that no European merchant could successfully compete with the Chetties in the importation and sale of rice. The most notable attempt to develop a rice trade was by C. Shand & Co. who had, for several years, a special Agent (as hrewed a Scot as ever did business) stationed at Chittagong to buy rice at first hand, and ship it to Colombo; but after a time, the agency was not found to be profitable and had to be abandoned. The spell has been broken within the past few years by the advent of Calcutta experts in the trade, and here we may speak of an exception to the rule of the previous decade. But again, in regard to "gemming" and Mining for Gems, Europeans have on several occasions entered the field, operating through Syndicates and Limited Companies; but so far without success. And now it would appear as if Plumbago mining were to be added to the failures; for, certainly, no Company or Association in the world could have entered the local field with a greater backing of capital, authority and experience of the mineral sought for, than that represented by Mr. Fielding. At the same time it cannot be forgotten that our plumbago industry has been one of considerable and growing importance for the past fifty, sixty and well-nigh seventy years, though the mining was confined entirely to native hands. So far back as 1836, the export of plumbago was 12,644 cwt.; in 1846 (with many fluctuations in the interval, down to 423 cwt. in 1839) it was 25,037 cwt; in 1857 (again with extraordinary fluctuations between) it stood at 33,497 cwt.: in 1869 there was an enormous increase to 226,131 cwt. which was only exceeded in 1881-2-3. when 262,714 cwt. was reached in the last-mentioned year. Since then, the average annual export for the five years ending with 1888 was 216,472 cwt., rising in the quinquennial period ending with 1893 to 408 418 cwt.; while for the next four years the Export was very steady at between 335,000 and 357,000 cwt. Then in 1898 came a rise to 473,000 cwt. and in 1899 to the exceptional maximum of 616,000 cwt.—falling last year to 383,000 cwt. Now, until about five or six years ago, when the late Mr. C. Tottenham—with the remarkable prescience for which he was distinguished—interested himself in plumbago mining and finally got out Captain Tregay, as a practical Cornish Mining Engineer, to develop the mine on his Monerakande property,—it cannot be said that Europeans took any practical share or much interest in the industry. We have, therefore, a purely native plumbago mining industry which has built up an export of over 400,000 cwt. (it was 427,030 cwt. in 1892) with practically no extraneous help and which may, therefore, be supposed to be equal to the present trade, if not the actual requirements of the European and American markets. All this must be taken into account in dealing with the question as it now stands, as well as the fact of the withdrawal of the great Battersea Company after little more than three years' mining experience.

On the other hand, no civilized, progressive Government can content itself with the actual results we have shown, without taking into account the means by which they were produced. Until of late years, the working of Plumbago Mines in Ceylon was a disgrace to the British Government. There was no inspection, or care for the manner in which the lives of the labourers were endangered, and, if all accounts were true, no reports or enquiries were made in reference to numerous casualties. Even now that we have Inspectors, we have statements reaching us that many of the employees in the pits are little better than slaves, are badly treated and badly paid, and are allowed or encouraged to become demoralised by constant arrack-drinking—an illicit trade (not in the sense of cheating the Government, but of breaking the law) being developed round nearly every large mine or group of plumbago pits. Then again, it is alleged that a great deal of plumbago is illegally dug, and that bribery and corruption prevail to a large extent in certain native districts in connection with the mining. Of course, while failures of Europeans to make plumbago or gem mining (or even a rice trade) profitable, are notorious, one scarcely ever hears of the many native pioneers or capitalists who may have gone under, and whose non-success may possibly be due to causes which ought to be removed by a wise Government. And now we may consider the list of "obstacles," put forward by our evening contemporary, encountered by a European Plumbago-mining Company as doubtless experienced by Mr. Fielding and his principals. These are:—

(1) No owners of lands (whether natives of Europeans) that have ever been transferred from the Crown have any title to the minerals on them, according to the position now taken up by the Government.

(2) A good title to native-owned land, whether originally transferred from the Crown, or not, is practically impossible to find.

(3) The present mining rules do not offer a fair inducement to prospect and mine Crown lands.

(4) The delays in granting prospecting licenses, even after payment of the large deposit (R1,000) demanded by Government, forms a separate and most serious obstacle.

Practically therefore, the opening up of mines is barred in all directions under existing circumstances in Ceylon.

In contrast with these "obstacles" we are told of the much more favourable terms and conditions which prevail in India.* One great difference—and the difficulty which lies at the foundation of most of the "obstacles" above specified—is the absence of a "cadastral survey" in Ceylon Good titles cannot be got to much "plumbago" land, because the Crown is not as yet in a po-

* The Indian Mining Law is generally condemned by the Indian and English trade papers.

sition to say, definitively, to whom the land belongs. Natives, probably, dig with impunity in many cases, on lands to which they have neither right nor valid title. A cadastral survey is now in progress and when completed—or further advanced—all this could be rectified. But many years will be required before this is accomplished! —unless indeed the Governor gives orders to concentrate and strengthen the survey in the "plumbago" districts as the most pressing claim on official attention.

But apart from this question of survey, and in view of what we have said as to the mode in which Native Mines in many cases are carried on, and still more in view of the great difference between the Mining Laws and conditions prevailing in India and Ceylon, there is a case, in our opinion, for immediate Enquiry and Report. A Commission ought to be appointed, before the European gentlemen who have acquired so much unfortunate experience, leave the Island. Their evidence as well as that of leading native mine owners and managers, ought to be recorded, and could not fail to be valuable to the Government as well as to the public; and we sincerely trust His Excellency the Governor will take advantage of the opportunity now presented, to arrive at a right conclusion in respect of the working of the local Industry in Plumbago Mining.

Finally, we have to notice a letter on our sixth page which may be regarded as, in some sense, a warning to the Ceylon Government. But so far as substitutes for "plumbago" (as also for "rubber") go, we do not think much need be feared. The risk of discoveries of the mineral in other lands must, of course, be faced; but so long as Ceylon can give from 15,000 to 20,000 tons of its mineral to the world at a fair price, we think it should hold its own. Curiously enough last mail brought us a letter from the great American business house of "Joseph Dixon Crucible Co," of Jersey City, in which while anxious to get information on certain points—the request arriving in the nick of time to have the answer embodied in our "Handbook and Directory,"—they say not a word about "substitutes" or new "finds" of plumbago. It cannot be forgotten that the United States is our largest customer for plumbago, its demand far exceeding that for the United Kingdom. We are anxious to compile a reliable list of all the principal Plumbago Mines at present open in the island and trust to have a due response from the owners and managers to whom "forms" have been issued. Meantime, we repeat, the time is ripe for an Official Enquiry by Commission into the working of Ceylon Plumbago Mines, into the nature and effect of local Mining Laws as compared with those of India and as to how "prospecting licenses" can be more freely and promptly granted.

CEYLON PLUMBAGO CRISIS.
IMPORTANT LETTER FROM THE MANAGING DIRECTOR OF THE MORGAN CRUCIBLE COMPANY.

SUBSTITUTE ALREADY FOUND IN AMERICA.—THREATENED REVOLUTION OF THE TRADE.

SIR,—I have read your* articles on Ceylon's mining laws and mineral wealth with great interest, and feel that you have rendered a great public service in calling attention to this subject, which is of such vital importance to Ceylon I consider, Sir, that such serious economic questions should be discussed in an absolutely calm and philosophic manner and free from anything approaching personality. I do not, therefore, endorse your strong strictures on local authorities, as I believe that the official apathy and opposition is due, not so much to any wish to discourage the industry, as to an entire want of appreciation of the risks and cost of prospecting and mining operations, which is, perhaps natural in a Colony whose principal industry is, planting.

It is obvious to anyone that in clearing jungle and growing tea, for example, the planter must spend his capital, and the approximate cost per acre can easily be calculated—what he does is easily recognised. The work of the prospector too frequently leaves nothing to show for itself, and the mining laws now in force in the island are evidence that it is neither understood nor appreciated by Government.

It is well-known that more gold is put into the ground than ever comes out of it as the rare reward of the successful prospector. What is difficult to make clear is the cost of even superficial prospecting in a country like Ceylon, where heat, jungle-fever, etc., are serious factors. Even if, at last, some indications of that most "chancy" mineral, plumbago, are found, expense on a far larger scale must be incurred to prove, in nine cases out of ten, that it is one that will not pay to mine. The Government have dealt with the subject more as if they had well-defined and accurately-located coal measures which they wished opened up by private capital than jungle land in which, possibly, one acre in ten thousand may contain some deposit of plumbago that would pay to mine.

In your first article and at the end of your fourth you allude to the fact that users of plumbago may be forced to find some cheaper substitute. On this point, perhaps, I can give you a little information. In a great measure this is a "*fait accompli*" in that they are learning to do without *Ceylon* plumbago. A great many trades are Ceylon's customers for plumbago. One of her best is the American manufacture of crucible steel. [The Sheffield industry has never used plumbago crucibles for this purpose.] I am well within the mark in putting down this customer for 3,000 tons a year. Just before leaving England I received a letter from America, from one who is in a position to know accurately the course of trade there, telling me that recent enormous prices had set the biggest people to work to do without plumbago, and that the result was a complete success and would revolutionise American consumption of plumbago. Another large customer of Ceylon is manufactured stove polish—a customer extremely useful as it takes the inevitably produced and otherwise unmarketable common dust.

Just before leaving England, again, I saw, for the first time, Chinese plumbago of a new character, and was informed that 1,000 tons of this were imported into the United States last year, and tests show that it will be equally appreciated in England.

The enormous rise in plumbago prices in 1899-1900 has been regarded in the light of a blessing to Ceylon, and as a subject for congratulation by Government, native pit-owners, and owners of estates. But if more were known of the course of trade hitherto dependent on Ceylon

* A local daily paper.

plumbago, it would have filled them with consternation instead of rejoicing. It was a tidal wave which will leave ineffaceable marks in the form of *permanently diminished demand*. In the twentieth century the price of a commodity cannot be trebled in twelve months with impunity and without ensuring that the ingenuity of man will devise a means of defence against a recurrence. The best friend of the Ceylon plumbago industry at the present moment is he who can do anything to assist in *reducing prices*. That the Government have not hitherto realised this, and have failed to appreciate that the interests of Government and plumbago consumers are identical, is, I consider, Sir, a subject of serious regret. The dry logic of facts, in the form of diminished exports of Ceylon plumbago, will, however, inevitably prove it in time.—I am, &c.,

BASIL E. PETO,
(Morgan Crucible Company, Limited, London.)
Colombo, February 11th.

RUBBER AND GUTTA-PERCHA.

East Africa.—An interesting discovery has recently been made that the fruit of a tree which grows principally at Dunga will on being tapped with a knife produce a white fluid, which when placed in boiling water coagulates into a substance closely resembling gutta-percha ; this in the process of cooling becomes hard, but can in its previous soft state be moulded into any required shape. The fruit somewhat resembles a peach in shape, but is of the size of a small melon. It was intended that samples of this product should be taken to London, and doubtless by this time expert opinion has decided whether it is actually gutta-percha or not. It is not improbable that it will prove to be an inferior order of that article. Should it be found to be worth anything, however, a large source of revenue may be derived from it, particularly if, as is quite likely to be the case, it is discovered in the sister island and upon the mainland.—*Central African Times.*

WYNAAD PLANTING NOTES.

WYNAAD, Feb. 13—The coffee spike is so well developed upon bushes which yielded only a light crop recently that the recent showery weather, if succeeded by more wet within a reasonable time, will open and set an excellent blossom. A considerable amount of pruning has already been accomplished, but this work will prove more costly and tedious than in 1900, as the quantity of old wood, from the heavy crops borne by estates, is necessarily larger than in the preceding season.

A weeding on weedy estates, if carefully accomplished after the termination of coffee crop work, is a judicious means of keeping down expenditure in weeding during the May and June ensuing, as the weeds do not, in such instances, require further attention till July ; and this leaves labour available in the two earlier months for burning borer stumps, handling, and supply pitting. A hot weather weeding, (on weedy estates,) if undertaken in February–March, can be finished for R2 per acre, especially where much local labour is to the fore for the operation. Where funds are available, in addition to the weeding, a light forking and the application of bulky fertilisers is also progressing, and by the end of March nearly the whole of such important operations should have been concluded and low country labour discharged, before the Vishoo festival, generally held early in April.

South Indian planters have every need to be buoyed up by the assurances and views of such as hold optimistic theories regarding the future prospects of coffee and tea, for a prominent London merchant, largely interested in such industries, as well as in Ceylon tea gardens, writing under date the 18th ultimo. holds that " we have a bad time before us which will not be improved by our dear friends the French putting 10d. per lb. duty on East Indian coffee, and letting Brazil in at about 2½d. The only hope is that I cannot conceive anyone drinking Brazil coffee who has ever tasted anything beter, and yet 70,000,000 of Americans drink it ; but then their state of civilisation is inferior in all matters of taste."—*Madras Mail.*

INSECT PESTS.

Planters will be interested to learn that Mr. De Niceville, the newly appointed entomologist of the Indian Museum, will spend several months each year on tour, for the purpose of investigating insect pests wherever they occur. He will also deliver a course of lectures annually at Dehra Dun.—*Indian Agriculturist.*

GUTTA-PERCHA.—The exports from Singapore are shown by the following figures to have swollen considerably in the last decade, and those who look with anxiety to the continuance of the supply will be seen to have cause for their disquietude :

1891	... ...	7,013,440 lb
1897	... ...	6,437,733 ,,
1899	... ...	16,178,133 ,,

These figures are certainly somewhat startling in more than one respect, and no doubt the Pacific Cable scheme has had a good deal to do with the conversion of a decrease into such a large increase. How long the producing districts can stand the train is a speculative matter of great importance, and it is regrettable that the system of gathering by natives, as practised in Borneo, cannot be effectively controlled by responsible persons. As things are at present, the natives do pretty much as they like, and there seems to be no way of enforcing the regulations as to cutting down trees which have been issued by the Governor of British North Borneo. We are promised a supply of gutta-percha in the future from French and German colonies where transplanting is being carried out, but it will probably be some time before supplies from the new sources affect the Singapore market —if, indeed, they ever do so. Still, what is being done by France and Germany is worthy of all praise, and our own Government might do well to take some decided action in the matter. Seeing how little success has attended the various schemes for the preparation of gutta-percha from the leaves of the tree, it is somewhat surprising that an attempt was recently made to form a new company for this object. Whether the promoters have succeeded I do not know, but cautious investors will surely take warning by what has occurred in the case of a large London company on the prospectus of which the names of distinguished scientists occurred. There seems to be a great difficulty in getting regular consignments of leaves to Europe, and the idea of successfully working the extraction process on the spot in the fore s is scouted by men who are familiar with the country.—*Gutta-Percha Trades' Journal* Jan. 21.

RUANWELLA TEA COMPANY.

THE REPORT.

The report of the directors was submitted as follows :—

ACREAGE.

Tea in full bearing ...	..	358
Tea in partial bearing..	..	16
Jungle and Waste land..	..	199
Total	...	573

year.

The crop secured amounted to 167,125 lb., being 12,875 lb. short of the estimate. The average nett price realized was 27·72 cents per lb., a drop of 6·94 cents per lb. on last year's prices shared by most other estates in Ceylon situated in the low country.

After providing a moderate sum for the depreciation of buildings and machinery, and setting aside R1,000 for doubtful Coast Advances, the profit for the year amounted to R2,073·62, to which has to be added the sum of R73·67, the under-estimated value of tea unsold of the 1899 crop, and the balance of last year's account amounting to R4,635·73. The total now available therefore is R6,783·02, which in the present very uncertain state of the tea market the Directors recommend carrying forward to the current season's account.

The crop estimated for this year is 200,000 lb. tea on an expenditure of R15,851·09, in which is included a sum of R5,828 for manuring.

During the year under review Mr. G H Alston resigned his seat on the Board ou leaving the island, and the Hon. Mr. W H Figg was appointed in his place. Mr. Melville White now retires from the Board in accordance with the article of Association, and being about to leave Ceylon does not offer himself for re-election.

The appointmnent of an Auditor for the current year rests with the meeting.

KIRKLEES ESTATE COMPANY.

THE REPORT.

The report of the directors was submitted as follows and adopted on the motion of the CHAIRMAN seconded by Mr. ARMITAGE OGDEN.

ACREAGE.

31st December, 1900.

Tea in full bearing ...	...	310 acres.
Do partial bearing	...	70 ,,
Tea not in bearing ...	...	58 ,,
Timber and Cardamoms, about	...	122 ,,
Uncultivated Land ...	...	157 ,,
Total	...	717 acres.

The Directors have now to present to the Shareholders the Accounts of the Company for the past year.

The crop secured amounted to 148,682 lb. Tea (including 4,526 lb. made from purchased leaf) 1,183 lb. Cardamoms and 19 bushels of Coffee. The prize realized for the Tea was 33·49 cents per lb. as against 39·80 cents per lb. in 1899, whilo the Cardamoms sold for Re1·32 per lb. nett, as against Re1·49 in tho previous year.

The Directors much regret the very disappointing prices realized for the Tea crop, and having provided extra withering accommodation trust that prices for this year will be more in proportion to what might be expected from a district favourable for the growth and manufacturo of good Tea.

After making provision for depreciation of Buildings and Machinery and paying the interest on Preference Shares, the profit for the past year amounted to R2,558·23, equal to 2·55 per cent on the Capital of the Company. To this has to be added the balance brought forward from last year, making a total of R3,625·45 at credit of Profit and Loss Account. This sum the Directors recommend carrying forward to the current season's account.

The estimates for this year are 160,000 lb. Tea and 2,000 lb. Cardamoms, on an expenditure of R44,465.

In terms of the Articles of Association Mr. Jno. Gordon now retires from the Board, but is eligible for re-election.

The appointment of an Auditor for the current year rests with the Meeting.

THE TALGASWELA TEA COMPANY OF CEYLON, LIMITED.

THE REPORT.

The report was adopted on the motion of the CHAIRMAN seconded by Mr. CHRISTE.

ACREAGE.

	Acres.
Tea in full bearing	455
Abandoned	135
Cinnamon and Tea abandoned	43
Ravines	113
Forest boundary belts	53
Forest	1229
Total Acreage	2028

Acreage.—Under instructions from the shareholders a detailed survey of the tea has been taken and the above figures represent the actual area, of the estate in cultivation.

The Directors beg to lay before the Shareholders their Thirteenth Annual Report, with a duly audited statement of the Company's affairs to the 31st December, 1900.

The yield for the year was 195,243 lb including purchased leaf and tea sold locally at an average of cents 28·63.

Mr. R Morrison last visited the estate on 18th Jan. and reports that the general improvement of the tea bushes and condition of the estate during the past season is most satisfactory.

The expenditure on manure was R6 000, and is debited to crop account. After paying for this and putting all machinery in thorough order, and writing off the usual depreciation on buildings and machinery, the balance at credit of profit and loss account is R4,991·31 ; out of this the directors propose paying a dividend of 2 per cent per annum, which will absorb R4,000, leaving R991·31 to be carried forward to 1901.

The crop estimate for coming season is 170,000 lb and expenditure during coming season will be kept down as far as possible.

Messrs. J A Henderson and J G Russell resigned their seats on the board when they left for England. and Messrs. Hector Van Cuylenburg and W Rae Sands were elected in their stead.

Mr. W Rae Sands retires by rotation and offers himself for re-election.

The appointment of an Auditor has to be made.

COLOMBO TEA TRADERS' ASSOCIATION.

THE ANNUAL REPORT.

The annual report was then submitted as follows :—

Your committee have now pleasure in presenting their Report for the year 1900.

TEA PACKAGES.—The subject of Tea Packages has again occupied the attention of this Association, which sought the advice of Mr. A. F. Broun, Conservator of Forests, and his Assistant, Mr. F. Lewis. An exhaustive and interesting Report by the latter gentleman upon Ceylon woods suitable for toa boxes, for which the Committee herewith acknowledge their indebtedness, has been printed and circulated amongst members, and a Special Sub-Committee has recently been appointed to report further on this matter.

TEA LEAD.—Severe complaints reached the Committee last October with regard to the inferior tea lead being largely used in packages offered for local sale. The interests of trade were finally protected by a new Rule passed at a Special General Meeting held on the 16th November last. providing that all teas in packages weighing gross over 28 lb. and packed in lead under 4 oz. shall be so declared by the Selling Broker before selling. This rule came into force on the 1st January.

TEA SALES.—Some confusion having arisen on one occasion through the sale having taken place at 10-30 a.m. instead of 11-30, without apparently the knowledge of the entire trade, your Committee recommended that in future it shall be understood that tea sales are held on each Wednesday at 11-30 a.m. except the first sale after a Tea Trade Holiday, when the time shall be 10-30 a.m. This is now recognized as a custom of the Trade.

AUSTRALIAN FREIGHT.—Much dissatisfaction has been felt for a long time amongst Buyers at the scarcity of tea freight to Australian Ports, and this was intensified by the subsequent raising of freights by all mail steamship lines from R40 to R50 per shipping ton. A Special Sub-Committee was appointed to report upon the subject, and its recommendations were forwarded to the local Agents of the mail steamship lines. Your Commitaee regret to state that no relief has so far been afforded to shippers, though the arrival of a few outside steamers quoting R40 per shipping ton is a satisfactory feature.

GREEN TEAS.—The unsatisfactory state of the black tea market together with the bonus offered to makers of Green teas has caused a very considerable growth in the offerings of these kinds. In order to prevent the bonus fostering the making of inferior teas, a Special Committee was appointed by the "Thirty Committee" under the auspices of your Association to arrange a standard of quality below which no tea would be entitled to receive the special bonus. A standard was agreed to and the grant is to paid ont any teas not passed.

INFERIOR TEAS.—Several complaints of shipments of inferior tea both to London and Australia have reached your Committee during the past year, and attempts have been made to trace them to their original shippers, and through them to the estates, the chief offenders, but so far without success.

The total exports for the year were, as per Chamber of Commerce Returns :—

	1900.	1899.
United Kingdom ..	113,760,193	103,948,124
Australia ..	17,606,912	15,606,833
Russia ..	8,917,185	3,949,740
America ..	3,980,680	3,080,002
Other Countries ..	4,166,669	3,309,457
Totals ..	148,431,639	129,894,156

Totals for 1898 and 1897 :—

1898 ..	119,769,071
1897 ..	116,054,567

The following figures show the quantity offered locally in public sale for the last four years, with the average price obtained for complete invoices sold:—

	lb.	Average cents.
1897 ..	33,886,809	37
1898 ..	35,958,819	35
1899 ...	38,377,318	38
1900 ..	47,681,826	34

The following is the Committee for 1900 :—

THE CHAIRMAN OF THE CHAMBER OF COMMERCE.

BUYERS.—Messrs. Tarrant, Henderson and Company, Messrs. Finlay Muir and Company. Mr. F F Street, S J Tokmakoff.

SELLERS.—Messrs. Whittall and Company, Bosanquet and Company, J M Robertson and Company, Geo. Steuart and Company.

The number of members belonging to the Association is 42, against 43 in the previous year.

The accounts for the past year made up to 31s December, 1900, and submitted to you shew a credi balance of R1,387·61

PLANTING NOTES.

RUBBER-PLANTING has gone ahead in the Kalutara district during the past year, and much of certain tea plantations has been covered with it. Enemies abound, however, in cattle and especially porcupines, for which as much reward as R5 a head is offered.

INTRODUCTION OF TROUT INTO KASHMIR.—A very interesting account of the one experiment made so far, to introduce trout into Kashmir, is given in a recent issue of the *Pioneer*. The preparations were wonderfully elaborate and complete; but as usual the fault lay at the other end, and the recent attempt failed.

BRITISH CENTRAL AFRICA.—"H.B." sends us another useful and chatty letter on the subject of life and prospects in British Central Africa, He is certainly able to present us with several names and residential terms which stand to the credit of the white population there, but in contrast with this we have a comparatively large obituary list, for a brief period, in a paragraph quoted elsewhere from a Central African paper. Nevertheless it is plain that the country has a future before it and that as the land becomes opened up—we hope by the way, to see a B.C.A. railway sanctioned before long—the life of the white man in this fertile territory will be rendered more popular for intending colonists by increased comfort and safety in its conditions.

COFFEE WITHOUT CAFFEINE.—At the last meeting of the Paris Academy of Sciences an interesting paper was read by M. Duclaux on "The Chemical Composition of a Coffee of the Grande Comore," the results of experiments by M. Gabriel Bertrand, of the Pasteur Institute. It appears that this coffee grows in a wild state in an island off the coast of Africa, where it was found by the explorer Humboldt, and is signalised on account of of the peculiar fact that it does not contain the slightest trace of caffeine, to which ordinary coffee owes its excitant properties. One quality of this coffee is, therefore, that it can be taken as an after-dinner beverage at night without any fear of in insomnia. Referring to it from a scientic point of view, Mr. Bertrand drew attention to the fact that well-known Botanists, such as Professor Frœhner of Berlin, and Professor Baillon of Paris, have not been able to agree as to the specific nature of this coffee. The French Botanist holds that it belongs simply to the same species as ordinary coffee, *Coffea Arabica*, while his German colleague treats it as a new species, and gives it the name of *Coffee Humboldtiana*. As a matter of fact, the botanical characteristics are practically identical with ordinary coffee, but there is a distinct difference in the chemical composition. This is not apparently due to any difference of soil or climate, as an analysis of *Coffee Arabica* cultivated on the Island shows it to contain 13 grammes of caffeine per kilo. M. Bertrand is of opinion that the subject opens a new field of study to biologists.—*Chemist and Druggist*, Feb. 2.

CULTIVATION OF TEA IN THE UNITED STATES.

(*The London Times*, Monday, Feb. 4.)

The possibilities of tea production in the United States cannot fail to be of considerable importance to those who are interested in the tea industry in various parts of the British Empire; in India, Ceylon, and Natal for example. In his recently issued annual report, the American Minister of Agriculture takes a hopeful view of the prospects of tea cultivation in the United States. It appears that for several years Dr. Charles U Shepard, of Summerville, South Carolina, has been experimenting with a view of obtaining information as to the practicability of producing American tea, and his efforts promised so much of value that it seemed proper for the Department of Agriculture to render assistance. To this end arrangements were made with Dr. Shepard, whereby certain machinery, &c., were to be furnished in order to settle some questions pertaining to the commercial production of tea. Throughout the work the question of labour has been an important one; but through Dr. Shephard's efforts there has been adopted a method for utilising the labour of colored children. What he has accomplished in this matter in his region could undoubtedly be brought about in other sections of the south, where much idle labour is awaiting proper utilisation. He has established schools on his place, and in these the children are received and educated, and at the same time are taught to pluck tea and perform other work in connection with the production of the crop. For such work fair wages are paid, and in this way interest is maintained. The experiments have shown that tea may be produced in the United States in two ways:—1. By families in their gardens, as was demonstrated years ago to be entirely feasible; and (2) on a commercial scale after the manner followed by the British East Indian tea establishments and the beet sugar industry. The work at Summerville was started with a view of ascertaining whether, under favourable conditions, tea plantations could be made to yield as much as the average Oriental production, and whether the crop could be marketed at a fair profit. The results obtained have been affirmative; the crop of 1900, although not so large as expected early in the season, exceeding that of any previous year by at least 12 per cent, and the entire product being sold before it was all gathered to a prominent Northern distributing house at a price that gave a fair profit. As further evidence that tea can be profitably grown in the United States capitalists are already making preparations to begin the work in certain parts of the South on a more or less extensive scale. It has so far been shown that a good grade of tea can be grown and put on the market in bulk at a cost not exceeding 15c per lb. Under average conditions an acre will yield 400 lb. of marketable tea, and this at 15c per lb. would make the expense of growing it $60 per acre. The tea should sell in bulk for at least 30c per lb. and the profit on this basis would be 100 per cent. Besides the cost of marketing, however, there are other expenses to be considered, such as the salary of a superintendent and the interest of the money invested in the plant, which would, of course, cut down the profits.

From considerations such as the foregoing it is inferred that the commercial possibilities of tea production in the United States can no longer be questioned, but there are still many points to be settled, especially as regards the improvement of the product. During last year experiments were undertaken for the purpose of determining the effect of irrigation on tea, and also the effect of shading the plants from the direct rays of the sun. Work has likewise been inaugurated with a view of reducing the cost of the preparation of tea, especially the green tea. The experiments in irrigating and shading, which will be continued, have given promising results, the shaded plants affording nearly double the yield of the unshaded, and a much finer grade of leaf. In the future special attention will be given to the manufacture of pure green tea. This subject is now receiving the notice of both inventors and planters in the British Colonies, as they begin to realise the hopelessness of bringing American tea drinkers to use the black tea instead of the green. The manufacture of green tea in the United States can be made successful only by the invention of machinery which shall take the place of expensive hand labour and prevent the waste which accompanies the latter. These questions are all being investigated by the Department of Agriculture, and in addition, it is giving special attention to a study of the conditions in various parts of the South with reference to determining the localities where tea can be grown to best advantage. Experiments have been inaugurated by some of the experiment stations and plants distributed with a view of putting the work on a substantial basis. Much need is felt for young men capable of taking up this important problem, and the subject is especially commended to the notice of the agricultural colleges in the Southern States.

[Dr. Shepard is certainly making a stir; but all the same it is impossible he can compete, commercially, with the cheap labour and teas of Ceylon and India.—ED. *T.A.*]

RAW RUBBER AT BULL WHARF.—We are enabled, by the courtesy of the proprietors of Bull Wharf, to give two illustrations of the method of sampling india-rubber and gutta-percha for the market. The crude material arrives at this wharf, which is one of the most important in the rubber trade, from all parts of the world, and a consignment very often includes a large variety of qualities. These have first to be unpacked and classified; the packages are then tared, and an average sample of each parcel is taken and forwarded to the selling brokers. The firm having been for many years connected with this branch of the Rubber Trade, and having on their staff men who have been used to the work all their lives, they at once appreciate the various points connected with the quality and different features possessed by each package, so that they can at once classify them according to their market value. In dealing with materials like india-rubber and gutta-percha, which have such very varied appearance, and can be adulterated in so many ways, it is important that this work should be done by men who thoroughly understand their work. The staff know approximately what a package should weigh, and if it is either too heavy or too light they would guess that something was wrong, and would immediately investigate the cause, and consequently place the package in a different class to that which its ordinary denomination might entitle it to.—*Gutta-Percha Trades' Journal*, Jan. 21,

THE "TEA" PROBLEM: THE VIEWS OF THE LONDON BROKERS:

"SWEET CLEAN CEYLON PEKOE SOUCHONGS" SELLING FOR 3¼D.—AND "NOW IS THE TIME TO PAY ATTENTION TO CHINA TEA"! ?

WHY ARE AMERICA AND EUROPE NOT SWEPT CLEAN OF CHINA-JAPAN TEAS—WITH "SWEET CLEAN CEYLONS" SELLING AT 3¼D. PER LB.?

"In the multitude of counsellors there is safety"; and surely if the scriptural adage be true, the position of the tea-planters of Ceylon ought to be safe enough! For, apart from the prolonged discussion before and at the Planters' and Merchants' annual meetings, our Correspondence columns shew that there is no abatement in the interest felt in the subject or in the varied advice tendered to the tea-grower. The latest letter of importance comes from a gentleman, who mentions that he has had residence and experience in China to guide him and whose name and firm will be recognised as connected with some very extensive tea interests in Ceylon. The gist of the warning tendered by Mr. M. P. Evans is that the growing inferiority of Indian and Ceylon tea, if continued, is bound to encourage a revival of the China tea trade with the United Kingdom; and, secondly, that in "going for quantity" without caring about quality, Ceylon planters, or certain of them, have taken the surest step to ruin the reputation of their teas and to injure fatally the trade in the same. Now, with *very few* exceptions ("the black sheep" who may be found in every large community) Ceylon planters do not mean this year to go for "quantity" at the expense of "quality." The universal determination, we believe, is to "pluck fine" and to turn out better teas; and if the same is done in India, we may be sure that the overplus of common teas will soon disappear. But why is it that our London friends and advisers do not confess that much of the blame for the deplorable state of things during 1900, lay at the doors of the London tea trade. How long ago was it—during 1899?—that we had the commoner grades of tea so much in demand, that the prices closely approximated to those paid for the higher, that is for the fine teas, and this continued so long that, of course, it set the mass of producers to go in for the very policy of "quantity" latterly condemned. Now, we are bound to have the other "swing of the pendulum," and we shall see how long it will be before there is a cry at home of "too much fine tea"?

But is the mass of the Ceylon tea that has been selling in London of late at 3d to 4d per lb. mere "rubbish"? We have good reason to doubt this; and here is our authority in the report of a London Broking Firm who must know what they are writing about—note the sentence we have italicized:—

I. A. RUCKER & BENCRAFT'S WEEKLY TEA CIRCULAR.

LONDON, THURSDAY EVENING, FEBRUARY 7TH, 1901.

TEA.—CEYLON—Deliveries for January shew an increase of one million pounds over those of same month last year, but as Imports were very large, we are carrying a stock of 28 millions against 21 millions. As the Indian stocks are nearly 75 millions compared with 63 millions, the position is adverse to price, and we are now lower than ever.

The market feels the weight of common tea, which is now at about 3¼d *for clean sweet Pekoe Souchongs with fair leaf, such as were selling at 6¼d per lb. same time in 1900.*

Ceylon Tea is really not doing so badly as Indian, as deliveries in the past eight months have increased by four millions of pounds, while those of Indian Tea are less by nine millions. Very heavy clearances of both kinds are being made, in prospect of a further increase in the Duty.

In the first three working days of February 4,327,000 lb. all kinds were cleared against 2,200,000 lb. last year

Now, here we have a most important admission, and we want to know from tea authorities, both here and at home, why it is with "clean sweet Pekoe Souchongs with fair leaf" selling at 3¼d, there is (1) a single million of lb. of China tea wanted in the London market; (2) why the American market for "black teas" is not swept clear of Chinas and Japans from the Atlantic to the Pacific Coast. [Some years ago we were constantly assured that only the high price prevented Ceylon's superseding Chinas and Japans in America; that the importers and dealers could not get their profits out of 6d to 9d teas. Well now can our "sweet pekoe souchongs" ever be cheaper than 3¼d and why does Commissioner Mackenzie not report that they are clearing out the black teas of the China-Japs? It is all very well to divert attention by crying up "green teas"; but after all America consumes *more* black than it does of green tea and now or never should be the time to get the dealers and drinkers accustomed to the "clean, sweet," cheap machine-made teas of Ceylon. Is the "Thirty Committee" awake to the fact and should not their Agent be even now in New York urging this new phase on the dealers' attention?—That we should have here a splendid opportunity for winning the Continent of Europe is equally true.] But (3) we have to ask, how it is that another London Broking Firm—Messrs. St Rucker, Marshall & Co.—on the same date, 7th Feb, urge on the Trade, that now (with "clean sweet P.S.'s" at 3¼d) is the time to pay more attention to China tea! Here is their report:—

LONDON, E. C., 7th February, 1901.—Business during the past month has been exceptionally quiet, prices for all descriptions showing a heavy decline; the large quantity of Indian and Ceylon Teas offered at public auction, combined with the heavy duty payments made owing to the fear that the Chancellor of the Exchequer may again increase the Tea Duty, has tended to depress the China Trade more and more, neither the Dealers nor Shippers showing the slightest inclination to buy, even at the exceedingly low prices now ruling. In our opinion the Trade would do well to pay rather more attention to China Tea, as in all probability they will never have such an excellent opportunity of securing such good value again.

CEYLON.—During the past month the market for Ceylon Tea has been very irregular. Up to the middle of January it remained fairly steady, when owing to the large quantities brought to auction prices fell away all round, especially for common sorts. Common Pekoe Souchongs have been sold as low as 3¼d per lb., and common Pekoes at 3⅝d to 4d per lb. The export trade is quiet. During January 148,520 packages

were brought to auction, and realised the average price of 6⅝d per lb.

Verily, the puzzles of the Tea Trade are interminable: just as we might expect China tea to disappear with our own clean sweet leaf down to 3¼d, sharp city men in the trade, say "Now is the time to pay attention to Chinas." What does it mean?

Next for some more counsel to our planters which we find this time in—

McMEEKIN & CO.'S NOTES ON INDIAN AND CEYLON TEAS, MONTH OF JAN. 1901.

Indirectly the business of the Tea trade has been seriously affected by the war in South Africa. The derangements caused by the large clearance prior to the production of last year's Budget, and by the imposition then of an extra Duty were not fully overcome when another movement to pay Duty in anticipation of this year's Budget set in. During January, the total of the Duty paid on all Tea was £740,000, while the monthly average for 1900, (taking the whole at 6d per lb) was only £520,000. Consequently, £220,000 of the available capital resources of the trade is now locked up in Duties beyond current requirements, and, in addition to that the whole value of the Tea has had to be paid over to the Importers in order to clear it from Bond, as now required by His Majesty's Customs, this would absorb about £250,000 more. The lock-up in question is doubtless responsible for some failling off in the activity of the demand towards the close of the month.

The proposal to restrict output has been seriously taken up by most of the larger producers of both Indian and Ceylon Tea, and if the scheme suggested is carried out there should soon be little excess beyond reasonable requirements to deal with. It is to be hoped that production will not be cut down too much, as anything approaching to inadequate supplies would certainly lead to speculative dealings, which have always proved bad for the trade.

Not only may speculation set in at home if Indian and Ceylon shipments fall off much; but are not China and Java exports to London bound to increase? The really great cloud overshadowing the future in our opinion lies in the area of young tea coming into bearing, especially in India—11,000 acres in one block on the "Kanan Devan" property in North Travancore; 2,000 acres more in Travancore proper and perhaps between 20,000 and 25,000 acres of tea in Northern India on well-selected soil. On the other hand, many gardens in the poorer parts of Sylhet and other Indian districts must contract their plucking area, and this leads us to consider the case of our older and poorer estates in Ceylon. Well does a London merchant (with no personal interest. we believe, in such poor old estates) write to us by this mail with reference to the "survival of the fittest" theory:—

"Terrible times for tea growers. Combination is not philanthropy and the retention in cultivation of the poorer estates is the safety of those less poor. If poor places shut up there is plenty of good land to be had in India!"

Here is another risk before Ceylon; but surely no capitalist will be so foolish as to put money in opening more tea land during the next three or four years? The supporters of the "10 per cent reduction of area" plan allege that it gives great security against any tea-planting extension; but all the same, we are not convinced that it must be the duty of every proprietor in Ceylon to subscribe to this plan. As we have already indicated, we should like to see tea estate proprietors have an option between the following answers (to the P. A. circular) or something like them:—

(1) We, or I, agree to abandon for the year 1901 one-tenth of my plucking area;—or

(2) I agree to make one-tenth of my output into green tea, in plac e of reducing plucking extent;—or

(3) I cannot consent to reduce plucking area; but I guarantee that my estate sends one-tenth less outturn or crop into the market during 1901 than in 1900;—or

(4) Inasmuch as my estate gave no more crop in 1900 than in 1899 and therefore did not contribute to the overproduction, I cannot agree to any one of the above proposals. but intend to pluck carefully and get no more than an average crop during 1901.

Surely if the above programme, were universally adopted—that is, if one or other of the answers were sent in, signed and honorably maintained—the object in view as regards "combination" and a reduction in production, especially of common teas, would be attained.

As to Mr. Robert H. Elliot's "currency" remedy, we are quite with him in realizing the great benefit of a cheaper rupee, to producers and exporters; but what about the dislocation of Banking, Trade and Revenue? Is there the slightest chance of reversing a Currency policy so deliberately arrived at, and which from the point of view of the official, the banker and the merchant, has given such special satisfaction? If Mr. Elliot thinks there is, he will agree that the agitation should begin and be mainly carried on by Indian exporters, as little Ceylon is but as "the fly on the wheel" when compared with the exporting interests of all India.

A NEW CEYLON TEA COMPANY.

The *Investors' Guardian* (of Feb. 9.) has the following details of a new undertaking:—

Kobonella Estates Company of Ceylon, Limited, (69,280).—Registered January 29th, with a capital of £30,000, in 1,200 preferred shares of £10 each and 18,000 ordinary shares of £1 each to acquire the four estates known as Deanstone, Kobonella, Horakanda and Meenagella, in the Central province of Ceylon, to adopt an agreement with J Greig and others and carry on the business of planters, farmers, graziers, cultivators and growers of tea, coffee, cardamoms, cocoa and other crops, miners, merchants, ship-owners, agents, etc. The subscribers are:—

	Shares.
J R Hughes, 30, Mincing Lane, E.C., Merchant	500
E B Smith, The Cedars, Norwood, Gentleman, Director of Balmoral Estates Company.	500
E S Anderson, Oak Bank, Elgin, Planter.	500
T J Anderson, Dunster House, Mincing Lane, E.C., Tea Share Broker.	1
J N Layton, 30 Mincing Lane, E.C., Tea Broker.	1
E J Young. 9, Fenchurch Av. E.C., Planter	50
E J House, 66, Old Broad Street, E.C., Clerk.	1

Minimum subscription (if any shares offered to public) 450 preference and 9,500 ordinary shares. The number of directors is not to be less than 2 nor more than 4; the first are E S Anderson, J R Hughes and E Bowden-Smith; qualification £500; remuneration £50 per annum. Registered office, 66, Old Broad Street, E.C.

NEBODA TEA CO., OF CEYLON LIMITED

THE REPORT

was submitted as follows :—

ACREAGE.

Tea in full bearing	..	231 acres.
„ in partial bearing	..	152 „
„ not in bearing	..	112 „
Total Tea	..	495 acres.
Forest land, &c.	..	240 „
Total	..	735 acres.

The Directors submit their Report and Accounts for the year ending 31st December, 1900.

The Crop secured for the year was 194,600 lb., and was sold in Colombo at an average rate of cts. 28·82 per lb., as against 35·09 for 1899. The cost of production, including manuring, was cts. 22,176.

Allowing for area pruned during the year, the Tea in full bearing has maintained the yield of the previous year.

The estimate for 1901 of 200,000 lb. made Tea is based upon the finer plucking already adopted. Compared to previous style of plucking this will effect a reduction of 20 per cent. in yield.

The Directors recommend that the 69 acres purchased last year for fuel be sold, as the completion of the cart road to Neboda renders the ample forest reserve there available for firewood.

The balance at credit of Profit and Loss Account was R13,609·63 which sum the Directors recommend should be disposed of as follows—to place R13,250 to credit of Reserve Account as a set-off against Capital Expenditure for the year, and to carry forward the balance.

In terms of the Articles of Association, Mr. Joseph Fraser retires from the Board, but is eligible for re-election.

The Meeting will appoint an Auditor for the current year.

KANAPEDIWATTE TEA COMPANY.

THE REPORT

The Directors beg to lay before the shareholders their report and accounts for the year ended 31st December, 1900, which they regret are not so satisfactory as in past years.

The usual table shewing the crop, cost and average of the tea for the past three years is attached for comparison.

1898.

	Crop in lb.	Cost in Colombo.	Nett Average.
From Estate Leaf..	142,267	23·11	32·71
From Bought Leaf..	30,330		
	172,597		

1899.

	Crop in lb.	Cost in Colombo.	Nett Average.
From Estate Leaf..	151,030	21·92	36·16
From Bought Leaf..	38,565		
	189,595		

1900.

	Crop in lb.	Cost in Colombo.	Nett Average.
From Estate Leaf..	151,121	2,407	27·72
From Bought Leaf.	52,195		
	203,316		

It may be mentioned that the estate tea by itself cost cts. 23·89 as against cts. 19·94 in 1899 and cts. 20·52 in 1898.

It must be borne in mind, however, that applications of manure cost cts. 1·39 per lb. of estate tea this year, or cts. 1·24 more than in 1899.

The crop was 13,879 lb. short of the estimate, which was in great measure due to abnormal rainfall in July, August and September.

The nett profits for the year amount to R20,065·98, which is equal to six per cent on the paid up capital of the company, as against 13 2-5ths per cent in 1899 and 12 per cent in 1898.

A sum of R660·70 has been written off for coast advances, which unfortunately could not be recovered, leaving a sum available for distribution, after adding the balance brought forward from last year, namely R480·39, of R19,885·67. Of this sum R6,680 was absorbed by the payment of an interim dividend to the 30th June last of two per cent, and the Directors leave it to the meeting to decide what dividend shall be declared out of the available balance R13,205·67.

In February last, Mr. Geo. Christie, one of the Directors (and also Manager of the properties of the Company) resigned his seat on the Board to proceed to England, and Messrs. W P Metcalfe and E M Shattock were appointed to act temporarily in his place.

He has now resumed charge of the estates and taken up his old position on the Board as a Director.

In terms of the articles of Association Mr. W Kingsbury resigns his seat on the Directorate, but is eligible for re-election.

The Auditor, Mr. J D Forbes, offers his services for 1901.

The report was adopted.

THE KELANI TEA GARDEN CO., LD.

THE REPORT.

ACREAGE.

282	Acres	Tea in full bearing		
52	„	„	planted	1896
30	„	„	„	1897
34	„	„	„	1898
10	„	„	„	1899
14	„	„	„	19.0
422	„			
313	„	Reserve		
11	„	Ravines, Waste and Grass		
746	Acres.			

The Directors beg to submit to the Shareholders the accounts of the Company for the year ending 31st December, 1900.

The crop secured amounted to 198,877 lb. made Tea, realizing R55,838·32 or an average price of cents 28·08 per lb., as against an expenditure exclusive of items under Capital Account of cents 20·92 per lb., including R1,843·77 spent on cost of Manure and application.

The balance at credit of Profit and Loss Account after allowing for depreciation of Buildings and Machinery is R6,319·99, which the Directors recommend should be carried forward to next account. The Directors regret the unsatisfactory result of the year's working, which may be attributed to the adverse conditions of the Tea market prevailing for low-country Teas during the latter part of the year.

The manufacture of the Tea also has been seriously interfered with during part of the year owing to alterations and extension in the Factory, but these having now been completed, better prices may reasonably be expected.

The estimate for the current season is 200,000 lb. made Tea, to be delivered into Colombo at a cost including manuring of cents 21.93 per lb.

Mr. Fred. Hadden retires from the Board in terms of the Memorandum and Articles of Association, and being about to proceed to England does not seek re-election. It is suggested that Mr. F L Clements,

who has recently been appointed Visiting Agent to Kelani Estate should be elected to fill the vacancy on the Board.

The appointment of an Auditor rests with the Meeting.

YATADERIA TEA CO., OF CEYLON, LD.

The Directors have the pleasure to submit the balance sheet and profit and loss account for the year ending 31s December, 1900, duly audited.

Including extraneous profit from outside manufacture the profit for the year is R43,575·04 to which must be added R6,405·80 balance from 1899. An Interim Dividend of 12½ per cent. absorbing R23,750, was paid last August, and the Directors propose that a further Dividend at the rate of 12½ per cent. absorbing R23,750 be declared and made payable as the Directors may determine in meeting on 26th instant, leaving a balance of R2,480·84.

It will be seen that the property representing Capital stands in the Balance Sheet at approximately R197 per acre cultivated, as compared with about R197 in the previous year's accounts, and that the profit is R47·72 per acre in bearing, and 22 93 per cent, on the capital.

The total Tea crop was 643,360 lb. or 63,360 lb. more than the estimated quantity, the latter part of the year having been more favourable. The plucking area was 913 acres, in addition to which the 29 acres of 1898 tea was plucked towards the close of the year. The total quantity of Tea for disposal was 660,419 lb. including 17,059 lb. made from purchased leaf, of which 17,805 lb. were sold locally averaging 19 11 cents per lb. and 642,614 lb. were shipped in London, of which 176,342 lb had still to be accounted for; but the average obtained for the 484,077 lb as yet accounted for is 28·14 cents per lb. The cost of the Tea delivered to buyers or put on board ship, including all charges, was 18·95 cents per lb and the nett value realised from sales (a portion being estimated) was 26·43 cents per lb.

The Company's property consisted on the 31st December 1900, of ;—

Acres Tea.					Tea per Acre. lb.
172	planted in	1885	yield in	1900	620
208	do	1887	do		605
100	do	1888	do		570
42	do	1889	do		968
6	do	1890	do		1,009
52	do	1891	do		1,015
120	do	1892	do		904
68	do	1894	do		697
37	do	1895	do		782
75	do	1896	do		772
33	do	1897	do		299
29	do	1898	do		62
24	do	1899	do not in bearing.		
22	Acres cocoa and Factory site.				
10	Acres cardamoms.				
255	Acres forest, &c.				
Total 1,253	Acres as per last report.				

966 Acres Tea.

Average yield from 913 acres 702 lb,

The estimated crop for 1901 is 594,045 lb Tea.

Mr. V H Masefield retires from the Board, and the Shareholders will be requested to elect a Director and also an Auditor for the current year.

THE CEYLON PROVINCIAL ESTATES COMPANY, LIMITED.

THE REPORT

was submitted as follows:—

The Directors beg to present their report for the year ending 31st December, 1900, together with a statement of accounts for the same period,

The tea crop amounted to 506,207 lb. against an estimate of 455,000 lb. for the year, or an average of 562 lb. per acre from the tea in bearing.

The total profit for the year was R91,017·16. The cost of producing the tea was R24 42 cts. including R1·97 cts. expended on manuring as compared with R24·35 cts. and R1·50 cts. respectively for the previous year.

The nett selling price of the teas shews a falling-off from 1899 of R2 06 cts. per lb., the average for 1900 having been R42·56 cts. per lb. as against R44 62 cts, obtained the previous year.

Including the sum of R587·03 brought forward from last year, the profit and loss account shews, after the payment of an interim dividend of 3 per cent, interest on mortgages, bonus to Superintendents, Secretariat and other items, an available surplus of R57,426 31, which the Directors recommend being disposed of, by paying a final dividend of 6 per cent, making 9 per cent for the year and absorbing R39,960; by setting aside R10,000 towards the liquidation of one of the mortgages and by carrying forward the balance to next year after providing for Directors fees.

The estimates for the new season point to a yield of 500,000 lb. of tea costing R24·98 cts. per lb., which includes a sum equal to R2·33 cts. per lb. for manuring operations.

A fresh survey has been made of Glassaugh, and the following is the preseot acreage of the estates:—

	Glassaugh.		Brownlow.	
Tea in full bearing	452	acres	423	acres
,, partial bearing	20	,,	80	,,
,, not in ,,	20	,,	—	,,
Total in tea	492	,,	503	,,
Fuel trees	—	,,	2	,,
Forest	4	,,	33	,,
Grass	1	,,	27	,,
Scrub and Waste	22	,,	20	,,
Total	519	acres.	585	acres.

Mr. E S Grigson retires from the board in terms of the articles of Association, and is eligible for re-election.

The appointment of an Auditor for 1901 rests with the meeting.

PLANTING IN B. C. AFRICA.

COFFEE AND TOBACCO—OLD RESIDENTS—HEALTH—FEVER—SOIL—MONEY-MAKING—ROOM FOR MEN OF THE RIGHT STAMP—RAILWAY—COFFEE CROPS.

Mlanje, 7th Jan. 1901.

You ask me if I could name half a dozen men who have stood this climate as long as I have, and kept as good health, and if anybody has made money here. I would not go beyond this district itself to answer the first question.

Mr. A C Simpson has been over 25 years in this country, arriving with the first steamer for the Shirè, and has had various ups and downs in the Country; serving on Lakes and Rivers as engineer, trader, and latterly settled down to planting and trading in Mlanje where he has been for the past eight years or more, and has only been home twice, I believe, during all those years. A.C.S. looks as fit and as well as any man could do at the present time.

J W and Mrs. Moir of Lauderdale, who are at present at home, enjoying a trip to

the old country, have been over 20 years in Africa, and eight years in Mlanje and I can safely say they both enjoyed good health in this country.

Mr. and Mrs. Smith, of the Church of Scotland Mission, have been 12 or 14 years in Blantyre and here, and are also in good health.

Mr. and Mrs Herd of the same Mission have been nine or ten years out and are also in good health.

Mr H B Bradshaw, my neighbour, and Mr. D Ritchie have been in Mlanje nearly as long as myself, and both have only been home for a run once for a few months, and finer specimens of robust planters you could not find in any of your mountain planting districts I need say no more in response to your query although I could name many in other districts who have been over 20 years in B.C.A. and are perfectly well at the present time.

The fact is, as I have said before, people must learn how to live in Africa as well as in other tropical climates, and those who have been long resident in B.C.A. have done so.

Now that scientific research is bringing to light so much on the subject of malaria it will soon be possible to be perfectly safe from fever in any country. Notwithstanding the mosquito theory I do not think it safe to live here without taking quinine. Mosquitoes are not numerous here in Mlanje, and *one* is only heard and seen occasionally during the rainy season, but I would not like to risk giving up taking quinine in preference to the mosquito netting. I have not had fever for five years now, and do not want to get it.

With regard to money-making in B.C.A. I know of only two planters who have left the country for good having made money at coffee-planting. Messrs J—— and D——, the former some £6,000 and the latter about £3 000. The former was only about six years here, and was fortunate in getting some 10 cwts. per acre from a coffee estate he opened up during that time, and his other investments proved good; so he sold out and has gone to S. Africa to start business in one of the coast towns.

The other was some 25 years in B C.A. but only about 10 years planting coffee, and he sold out—clearing, I was told, the above amount and is now living with Mrs. D. in Scotland.

It must be remembered that this country is young, and that the agricultural resources of the land have not yet been developed. There are few men with capital to enable them to prove what can be done with the different products which might be, and are, grown successfully here; most private planters have really got very limited means, and everybody knows what uphill work it is anywhere working under such circumstances. We all know it requires money to make money, especially quickly, so give us a chance. I can safely say, however, that there are no planters or others hard up in this country, and all seem able to make a decent living either at planting or trading or something else.

I do not believe there is a single individual out of employment in the country at the present time; and I am quite sure a few more are wanted to take up billets. So it is perhaps a good thing that the country has got such a bad name for sickness, at least it prevents us being flooded with men on the staff, especially those of the loafer stamp who are not wanted.

Any one coming here should be of good character and have sufficient means to leave the country again if need be—but it would be better still if emigrants had the means to engage in some independent industry. The transport and other firms, or companies, are all doing swimmingly well and some of them have paid dividends of 7 and 8 per cent. They have great trouble with their employees, who find when they come out here that they can better themselves, try all sorts of dodges, and do all sorts of things to get sacked; they of course, forget the fact that they were brought out by their employers, and were of little use till they learnt the language, etc. I cover the sketch of a draft prospectus which has been sent home to try and get capitalists to take up the construction of our railway. Comments on the paper I leave to yourself. It may force the hands of our newly-formed home Government to take up the matter. We have certainly more claim on the Imperial Government for a railway than Uganda has, and ours is far more likely to be a paying line.

We are going to have a very short crop in Nyassaland this year; the blossoming season was upon the whole very unfavourable, being too dry. Although we, in Mlanje began well, the latter end of the season was a scorcher, and with the dry heat came on an unusual number of spotted bug, and thrips; the latter is as bad as a severe dose of leaf disease, carrying off the leaves and killing back the branches and withering up the crop, which drops off to single berries. Fortunately this latter pest only comes with a very dry season. I never saw them in Ceylon. Our trees are now making wood fast and throwing off the thrips.

A good many planters are going in for tobacco, &c, not to have all their eggs in one basket. I have grown tobacco here for over two years now, and have at last got a market for it which pays me very well. So there may be money in the weed, if over-production does not reduce the price.

H. B.

THE EFFECT OF LIME.—Lime, though chiefly mechanical in its action, also acts chemically upon the constituents of the soil. One of the great purposes which it serves is that it sets free plant-food which would otherwise remain locked up in the soil.—*The Journal of the Jamaica Agricultural Society.*

BIG NEW SUGAR AND PAPER COMPANY.—An English company has just bought 10,000 acres of sugar lands, and will not only make sugar, but turn the bagasse into paper. The immense reclaimed sugar land areas in Florida below the frost line are now attracting foreign promoters, and with more reason even than those in Louisiana.—*New York Commercial.*

THE EXTERMINATION OF WILD ANIMALS IN INDIA.

The question which is often raised in these days, regarding the extermination of wild animals in the shooting grounds of the world, admits in India, at least, of being examined, to some extent, by the light of statistics. Statistics are proverbially capricious things to deal with, and, unfortunately the records I have at my disposal only go back to 1885, but they may help us a little. Let us commence then with that monrach of Indian big game, the tiger. The number of tigers destroyed and persons killed by tigers since 1885 is as follows:—

			Tigers destroyed.	Persons killed.
1885	..	..	1,355	838
1886	..	..	1,461	928
1887	..	..	1,408	1,063
1888	..	..	1,473	975
1889	..	..	1,312	985
1890	..	..	1,276	798
1891	..	..	1,293	979
1892	..	..	1,323	947
1893	..	..	1,267	969
1894	..	..	1,311	864
1895	..	..	1,381	909
1896	..	..	1,502	944
1897	..	..	1,569	1,071
1898	..	..	1,257	927
1899	..	..	1,570	899

The foregoing figures, it should be observed, deal with Madras, Bombay, Bengal, the N.-W. Provinces and Oudh, the Punjab, Burmah, the Central Provinces, Assam, Coorg, Bangalore, Hyderabad Assigned Districts, and Ajmere-Merwara. They consequently furnish no *data* regarding Mysore or the Native State of Hyderabad, nor of other tiger districts, which, though not so important as the two here mentioned, must certainly be regarded as factors of great weight in influencing our general conclusion. If we break up the totals for the whole of British India into Provincial totals, we obtain the following figures:—

TIGERS DESTROYED.

Bengal	N.-W.-P. and Oudh.	Punjab.	Burmah.	C. P.	Assam.	Ajmere-Merwara.	Coorg and Bangalore.	Madras.	Bombay.	H. Assigned District.
674	83	12	83	221	347	4	9	266	122	34
245	74	4	121	253	436	4	4	209	97	17
269	99	4	120	222	438	7	9	149	72	19
376	100	1	74	315	323	6	6	203	57	12
318	83	3	76	231	337	2	12	175	49	26
275	85	—	76	208	384	2	6	150	72	18
239	106	4	87	347	377	6	12	137	49	29
256	69	5	121	274	343	—	10	150	68	27
236	73	11	133	207	367	5	6	132	82	15
271	66	3	141	361	356	1	6	141	49	16
336	77	12	152	225	360	4	6	116	54	39
361	96	15	171	323	353	—	6	105	43	29
546	121	4	173	222	387	2	3	110	22	29
292	112	1	200	262	293	2	1	102	44	48
356	108	5	233	233	411	1	5	129	51	38

The only deduction to be drawn from these figures is that from 1885 onwards there has been no apparent diminuation, nothing worth speaking about, in the number of tigers available for killing. In 1885 Bengal, Madras and Bombay returned figures which they have never reached since, but in the North-West, in Burmah, in the Central Provinces, in Assam, and Assigned Districts, a full table of tigers always seems to be forthcoming. The Burmah figures are, perhaps, a little misleading. Up to 1890 the returns apparently date with Lower Burmah only; since that date the whole of Burmah has fallen under the intelligent classification of the Statistical Department. Hence these tigers! Though in Bengal 674 tigers were killed in 1885, considerable circumspection is required in dealing with this total; for the very next year, the Provincial bag dropped to 245, and indeed, from the *shikari* point of view the three years following 1885 were nothing like as good as 1897, and 1898, and 1899. It must also be insisted on that in the last three years of the series more persons were killed by tigers than in the first three, and after all said and done I suppose nobody will seriously maintain the doctrine that men should die so that tigers may be kept alive. Personally I can't see that India would be any worse off if there wasn't a tiger in the country. So far as leopards, bears, wolves, hyenas, and other wild beasts are concerned, the numbers recorded as having been killed since 1885 hardly lead to the conclusion that the stock is diminishing, Hyenas and wolves, perhaps, are the exceptions. The figures for 1885, 1886, and 1899 are here given:—

	Leopards.	Bears.	Wolves.	Hyenas.	Other wild beasts.
1885...	5,466	1,874	6,278	2,238	5,959
1886...	4,051	1,668	6,725	1,630	6,852
1899...	4,548	1,585	2,357	776	7,989

Matters far more serious for India than the extinction of beasts of prey, however much their disappearance might be made the theme of lamentations from sportsmen, are the everlasting slaughter that goes on among deer, the ruthless destruction of Indian wild birds, and the deterioration and diminution of agricultural Stock.

SAMBHUR.

—*Times of India.*

THE INDIAN TEA CROP, 1900.

In September last the Indian Tea Association gave an estimate of the outturn of the present season's crop of Indian tea showing a total of 182,144,874 lb.

The Association now give the following figures showing the actual outturn of the crop:—

			lb.
Assam	..	..	... 67,928,770
Cachar	..	..	.. 27,299,230
Sylhet	..	...	... 33,854,808
Darjiling	..	..	.. 7,474,098
Terai	...	..	.. 3,378,075
Duars	..	..	... 29,997,065
Chittagong	..	..	.. 1,065,300
Chota Nagpur ..		..	.. 185,089
Kangra Valley..		...	... 3,000,000
Dehra Dun	...	..	.. 1,785,000
Kumaon (estimated)		..	.. 300,000
Gardens from which no returns have been received, including Private and Native gardens (estimate)	..	...	.. 11,260,000
		Total	..187,527,435

The outturn from the Duars district shows an excess of rather more than 7,000,000 lb. over the estimate of September last. This excess is, to a large extent, an apparent one only. Owing to incomplete returns it was necessary when framing the estimate to include about 5,000,000 lb, of tea under the general heading of "Gardens from which no returns have been received," This quantity has now been accounted for by the final returns from Duars gardens and is deducted from the estimate of 16,168,000 lb. for "Gardens from which no returns have been received."

Correspondence.

To the Editor.

TEA OVERPRODUCTION:—JUDICIOUS *VERSUS* INJUDICIOUS (AND "WILD") MANURING OF TEA—AND THE "RESTING" PROBLEM.

DEAR SIR,—Your leading article of 21st inst. gives startling figures. I will not repeat them though they look simple enough, but I should think India will pause before agreeing with Ceylon to rest any part of her cultivated area.

17,717 tons manure means 53,151 acres of tea manured. The friend you support—on his style of working—would expect quite 200 lb. per acre as the legitimate extra quantity of tea to be produced by the application of this manure that equals 10,630,200 lb. extra tea. With the present labor supply in the country there is nothing to prevent a still larger increase in manuring operations for 1901. What is the use then of resting one portion while we go on increasing our production in this way from the remaining area. Does not above go to prove that it is not the resting of 10 per cent of our tea that is needed (any benefit from that is doubtful) but an actual reduction in output of say 10 per cent. This could be leased on the actual crop of the last two years; thus an estate averaging 100,000 lb. for the two years should undertake to put only 90,000 lb. on the market leaving it to the proprietor to decide whether he would pluck finer, rest a portion, destroy his low grades, or sell to the natives of Jaffna, Trincomalee or India; just reduce as it best suits his own taste or individual estate.

In some such way only shall we get any reduction in output that will be of any help to us. Still we must support the best scheme that is brought forward so as to make a beginning and do our best to make it workable in such a way as shall benefit us all. I do not think your friend was unjustly criticized. We do not object to manuring, it is fair legitimate cultivation; but we do object to everything being taken that the bush will produce, and this at the lowest possible cost of plucking so making and throwing on the market all unnecessarily increased quantity of low class teas that are spoiling our good name and ruining our industry.

In olden days we made tea so as to get the best price obtainable, the question was not—How cheap are you plucking? or—What is your yield per acre? but—What price did you get for your last break?

If men would work now on these lines, and manure so as to keep their bushes healthy, we should not hear so much about over-production; high and low estates would each in their own line get better prices than even your highly manured old coffee land has given during the last year or two.

Here are figures from a typical old coffee estate averaging over 40 years' cultivation in that product. Not a single acre of new land has been opened for tea and it is not in a favourite district. Area in tea, 356 acres, carefully plucked and manured just sufficient to keep up the fertility of the soil.

Season	1895	1896	1897	1898	1899	1900
Total crop	184,539	182,133	173,000	169,000	175,000	185,000
Spent on manure	R1,982	2,521	2,800	2,149	1,705	2,712

Yours truly, MANAGER.

THE "OVER-PRODUCTION" DIFFICULTY—AND HOW TO MEET IT:

[A copy of the following letter has been placed at our disposal from London.]

Brookfield, Carnoustie, N. B., January 21, 1901.

To the Chairman, Planters' Association of Ceylon, Kandy.

DEAR SIR,—I have received copy of Mr. Rutherford's letter to yourself for which I am much obliged. The proposals for reducing our over-production of Tea are very well worthy of consideration, but are quite impracticable, unless it is absolutely certain that India joins with us, and not only joins, but does so exactly to the same extent as we do, and either by the same system as Mr. Rutherford proposes, or in such a way as will in its working show us that a *bona fide* 10 per cent reduction is being carried out by them as well as ourselves. I note that Mr. Rutherford says he has reason to believe that Indian Planters will co-operate with us; this of course must be made a certainty, otherwise they willl walk away with the enhanced price which we hope our reductions will create. I doubt very much however whether our Indian *confrères* will care to fall in with our proposals. We must call to remembrance that Indian men were growing Tea long before us, and that it is we who have done Indian planters much harm, (even though we have opened up new markets, and done such splendid advertising) by growing these enormous quantities of Tea, and not only great quantities of Tea, but poor cheap stuff, that has still more added to the harm, and to the present lamentable state of the Industry.

The greatest injury that has been done to our Industry has been caused by sacrificing quality to cheap production, and this has been done almost without exception by every individual and Company in Ceylon, and I venture to say Mr. Rutherford's own Company is in this respect as great a transgressor as any. My cure for the present poor prices is first—to improve the quality of our Tea, in every possible way, and to do so let us firstly cease to cut our trees to pieces immediately the poor coolie finds it impossible to drag 10 to 12 lb. of green leaf per day out of them: secondly, instead of asking superintendents to pluck for 7 or 8 cents give them 12 or 14 cents per lb. for this work; thirdly, never prune oftener than once in 18 months in the very worst climatic districts, and 2 to 2½ years in more favoured districts. If, as many of my friends tell me, their fields will have ceased to yield before these months have expired, then I say all the better for themselves, their trees, and the general prosperity of the Tea Industry.

Why do fields go so quickly out of yield? Simply by the bad treatment the trees get, caused by this wicked and accursed cheap working, *i.e.*, cheap plucking and pruning. My plucking used to cost 13, and often 14, cents per lb. of Tea, when many of my friends were doing it for 8 or 9 cents or even cheaper, but my profit per acre equalled

some and beat many easily. Cheap plucking means wretched quality and it acts in many ways. First, the coolie has to work so quickly that many mature leaves are missed and when the next turn to pluck them comes these leaves, instead of producing broken pekoe and pekoe, are only fit for making souchong and congou, if indeed they should not have to be discarded altogether; secondly, this cheap plucking means ripping the trees when the shoots are young and succulent, causing the trees to cease yielding much sooner than they would otherwise have done had they been more gently and carefully plucked; thirdly, to secure this cheap working, continual pruning at short intervals is done, adding fuel to the fire in the shape of poor thin weak Teas. Then this pruning must also be done cheaply, which means that the trees are hashed to pieces in the same way as a Sinhalese man cuts *varitchies* with a blunt vettu cattie.

I have only to add further that for the past eight years my prices have kept exactly 2½d above the rate for all Ceylon, with careful plucking and pruning once in two years. The yield has been over 500 lb per acre for these years and for 1900 is 530 lb. without manure. Improved quality means less quantity; the tea itself being worth more money and a less quantity being produced, our position will be thereby doubly benefited—I am yours faithfully,

ROBT. C. BOWIE.

OVERPRODUCTION—AND GIVING TEA BUSHES "REST"?

(THE BUSH MUST AYE BE GROWING AND PRODUCING FRUIT IF NOT LEAF.)

Feb 5.

SIR,—I do not believe in the recuperative effect of allowing tea bushes to remain unplucked. If they ceased to grow, it might have that effect, but as they do not, they draw nourishment from the soil, and as they grow, they become fruit bearers, and require much more nourishment, and the bigger they grow, more fruit do they produce, and naturally require much more food. Just as a cat requires more food than a mouse, and a tiger more than a cat, the larger a fruit bearing-tree is, the more it exhausts the elements that sustain it.

It is the general opinion amongst tea planters, that plucking the bushes exhausts them more or less; they think that, when a bush has been plucked continuously for twelve months or two years, and the shoots get clogged and form what are called crows' nests, and it almost ceases to flush, this is a sign of weakness, or exhaustion. I do not think it is anything of the kind. It is in my opinion simply a sign that the bush wants pruning, if you want it to flush. For when it is pruned, what happens? It grows with increased vitality, and flushes again for another couple of years, when it again calls upon the planter to prune it, if he wants it to flush. At one time, I thought that frequent pruning was injurious, but subsequent observation and reflection convinced me that it was not so.

I have seen Cinnamon bushes cut down annually for cropping purposes, for fifty years, and they grew up again with increased vitality, and these bushes, grown apparently in the poorest soil, had been treated in the same way for fifty years previously by the Dutch. Moreover I have seen yew, privet, and thorn hedges, in England, which had been cut down, and trimmed, for hundreds of years, without shewing any signs of being injured by the operation. I think, therefore, that an exhaustion of the soil, from nourishing the bush, and old age will alone diminish the vitality and flushing powers of the tea plant, after it is pruned. The longevity of the tea plant, in suitable soils and climates, is still undefined.

As an illustration of its vitality, I may mention a surprising incident within my own knowledge. In 1860 the Agent of my firm at Chittagong sent a large quantity of tea seed to Ceylon. This was planted in a nursery amidst coffee plants; the field of coffee was abandoned in 1862 and with it the nursery of tea. Twenty years afterwards the Chena—20 feet high—was felled, and burnt off, and apparently all vegetation was destroyed. With the first rains, wonderful to say, the tea shot up most luxuriantly, as if it had only been cut down, whilst all the other plants burned off were killed!

C. S.

P. S.—I have written the above, because I notice that many experienced planters talk of giving the plants *rest* by not plucking them. If they could send them to sleep thereby, like Rip Van Winkle, it might have that effect; but that sort of rest means increased exhaustion of the soil, by converting a small leaf-bearer into a large fruit-bearer.—C. S.

TEA: OVER-PRODUCTION AND ITS REMEDIES.

HOW THEY ARE AFFECTED BY CURRENCY.

Hill Grove Hotel, Coonoor, Nilgiris, Feb. 23.

SIR,—I have lately visited Bombay, Calcutta, and Madras, and I am now confident from all I have been able to hear that the Government must either sacrifice its Indian exporting industries or its currency policy; and (I say) exporting industries, because an industry like that of coal is not at present affected as it is produced and sold in silver. Were there no artificial rate of exchange the struggle between India and her industrial rivals would be determined by the relative cost of labour, and India having cheap labour would well be able to hold her own. But the Indian Government compels its producers to pay 1s 4d for a rupee while the competing countries can purchase one for 11½d. When prices were high India could still continue to struggle through under a disadvantage of about 25 per cent, but with low prices profits made either vanish or descend to a very low level. Even taking the rupee at 12½d the difference between that rate and one of 1s 4d would entail on the Indian producer a loss of £583 on every £4,000 worth of an exported article. But the producer could live on £583 per annum till better times came round. Without that sum he must starve, or at any rate approach that disagreeable condition. The ultimate point of the struggle between India and her rivals is not one of the comparative cost of labour,

but the comparative rate of exchange, *i.e.*, between the natural state of exchange enjoyed by India's rivals, and the artificial rate created by the currency policy of the Government. And this artificial rate, by much worsening the position of the producer, naturally much lessens his credit. The profits and the credit of the producers having thus been heavily attacked by the Government, the ultimate result of the contest between them and their rivals in the competing countries cannot be doubtful. I do not wish to under-estimate the value of the various expedients which the planters propose to adopt with the view of relieving the pressure of the situation, but I would represent to them that, do what they may, the ultimate result must be dominated by the artificial advantages which the Government has conferred on India's rivals. The planters then should continuously press on the Government that it must either sacrifice its currency policy or its exporting industries; for it is absolutely impossible that it can have both. The planters, too, should practically understand that to move our governing countrymen, two things are necessary:—(1) a long continuous hammering to convince their reason, and (2) a still longer steady course of representation in order to move them into action.—Obediently yours,

ROBERT H. ELLIOT.

P.S.—I think it would interest many of your readers to look at the Silver chapter in my "Gold, Sport, and Coffee-planting in Mysore" (Archibald Constable & Co.). This was written in 1893 when the Currency Act was passed. I may mention that I have no pecuniary interest in the book.—R.H.E.

II—THE SERIOUSNESS OF THE SITUATION.

5, Dowgate Hill, London E.C., 8th Feb., 1901.

SIR,—I have read with interest the various expressions of opinion that have appeared in your local press with reference to the Rutherford-Rosling and other suggestions that have been put forward with a view to help the present unfortunate position of the British tea-growing industry. The majority of correspondents are satisfied to find fault, some even make the position a subject for levity, but very few appear to realise the true gravity of the situation now, and ahead of us, and the necessity there is for organisation amongst those dependent on tea growing for their livelihood. There can be no use in asserting that but for extensions, manure, and the rest, we should all be well off. The extensions have been made, and the results to be obtained by cultivation have been proved, and what we require is a remedy that provides an effective means of controlling the over-production which already exists and promises to increase owing to these causes. Some possessing favored properties at the higher elevations are inclined to the view that the true remedy is to allow natural causes to work a cure, but I venture to think that a policy of drift will in the end prove disastrous to everyone concerned. Financial credit will be shaken. The process of killing out the weaker estates will be a long-drawn one, and before abandonment every device of cheap production will be resorted to, which must tend to breed blight and disease and bring discredit on the whole industry. We have in British-grown tea an industry which has shewn itself so far able to meet successfully all its competitors. The industry, from an agricultural point of view, is thriving and healthy in every respect, the one thing at fault is the price, and that is the one factor that we have it in our power to control.

Surely then it behoves us all to give this matter our most careful attention, to give those who bring forward schemes of relief a careful hearing, and finally to give to that scheme which seems to be the best our heartiest and most loyal support. It must be borne in mind that we have to find a remedy effective both for the protection of high and low grown interests, and acceptable both to Ceylon and India, and this may seem difficult of attainment, but it is by no means impossible if the majority are determined to work together in the matter. The tea growing industry is easy to organise in comparison with numerous other complex interests that have been brought together and now exist as examples of what can be done by organisation.—Faithfully yours,

ALFRED BROWN.

MINES AND MINING IN INDIA.

Writing to the *Journal of the Society of Arts*, Mr. W Sowerby, C.E., says:—

The coal mines are of the greatest importance. Iron mining and smelting is surrounded with great difficulties, though there are vast deposits of iron ore of every kind and very rich in metal, but the climate and labour are unsuitable. Mr Henwood's visit in 1854-5 was on the suggestion of the late Colonel Drummond to establish colonies of iron workers in the Himalyas, but the question of the fuel put a limit to that experiment. The clearances of forest were too rapid, for it takes six tons of wood to make a ton of charcoal, and two tons of the latter to make a ton of iron; so the value of the wood would be about £15 which would be the cost of the iron for fuel only. Of the greatest importance is the development of the coal-mining. Seams of coal were discoveaed at the foot of the Himalayas, but the geological superintendent, the late Dr. Oldham, and Captain (now Sir Richard) Strachey discouraged the idea of further search. There are also indications of coal in Kattyawar, also oil, which the writer of this noticed when occupied there. While in Scindh, the late Mr John Brunton, C.E., found, mined and used some coal, which was tested on the Indus steamers, but it has been entirely ignored and remains unexploited. It is stated by Dr. Evans that when Lord Curzon visited the gold mines of Mysore he was very pleased to see the work and the forty thousand labourers. What, however, is that to 250 millions to find employment for in India. The occupation of the masses must be agricultural, but on a better system than that which is now being followed. Then so far from the country being over-populated, as suggested in the discussion, double the population might be maintained. Unworked and unproved gold mines can never be correctly valued; the prices asked and obtained in 1882-3 for Indian mines was ridiculous. Gold mining is best in the hands of Government in an old country like India. In new colonies they attract emigrants, but in India no such immigration is either desirable or feasible.

THE TRAVANCORE TEA ESTATES CO., LD

The ordinary general meeting of the Travancore Tea Estates Company, Limited, was held at the offices of the company, 20, Eastcheap, on Monday last.

The chair was occupied by Mr W Mackenzie, Chairman of the company.

The Secretary (Sir William Jonston) read the notice convening the meeting.

The Chairman, in moving the adoption of the report and accounts, said—I do not think we ought to begin the business of our meeting without expressing our deep regret at the death of Her Majesty the Queen and of our sympathy with the Royal Family. Since our last report death has deprived us of the very useful services of our colleague, Mr Tod, and Mr Talbot, another of our directors, is abroad. The report and accounts you have had for some days and, unsatisfactory though they be, may, I presume, be taken as read. The crop was 128,000lb more than the previous year, because of the larger area being plucked. But for the absence of rain, which caused the Indian famine, and the excessive downfall of the last two months of our financial year August and September, when 3in fell daily on an average, the yield would have been considerably larger. In the report you are told that 1,702 acres gave 304 lb. per acre. But as you will see, one-half of that area was immature tea. For the current year the estimate from the same area is 743,000lb. I say the same area, because nothing of any consequence can be gathered this year from the 1,500 acres, more or less, planted in 1898. During the first three months of this financial year to end of December the crop from the 1,702 acres has been 49,000lb. more than for the same three months of last year. More serious even than the falling-off in crop from the bad weather has been the fall in tea prices. In the early half of the year we were doing well, and we were quite justified in paying the interest on preference shares to end of March. But the unprecedented fall which has occurred since then has upset all calculations, and has brought the average price from 7·18d in the previous year to 6·20d, a drop of ·98 of a penny per lb. The average price of Ceylon teas since June has been 7·48d, against 8·42d the previous year, and Indian tea is also all but 1d lower for same period. The yield we anticipated four years ago has been realised, except during the final months of the last financial year, when first drought, causing famine, and then an excessive rainfall lost us nearly 50,000 lb of tea. The cost of production from mature tea has been less than we expected, the price alone is responsible for our present difficulties. Another misfortune we have to record is the loss of about £2,800 in advances to native contractors. This money was given out three to four years ago, when we were preparing for the large development in acreage made in 1898. The acting manager who advanced this money has been resident in Travancore for many years, and was well acquainted with the native contractors. He was home here a year ago, and was then confident he could recover three-quarters of the money on his return. As yet, however, he has not been able to do so. This advance system is universal in the East, but is seldom attended with loss in Ceylon. In some of the great tea-producing districts of Northern India, however, it is quite understood that labour costs R100 per head for a coolie, and it is seldom that any of this is recovered. In Travancore we trust this may be our only loss under the heading The result of the several misfortunes I have mentioned, the loss of crop from bad weather, the fall of 1d in price and the loss on these advances, is a deficiency in our resources of about £6,000. To cover this we propose to issue £7,000 of Preference shares and if your and our property is to be protected something equivalent to this is absolutely necessary. At the present moment the average price of our tea is 1¼d less than last year's average of 6 20d, and this means that it is being produced at a loss. How long this is to continue we, as directors, have no better means of forming an opinion than you have. Were it to go on for years, then it were better not to throw away more money but to allow the properties to pass to the Debenture-holders. But, pessimistic as we all are at present, I doubt whether anyone in this room really believes that prices are not to rise within a reasonable time. The laws of supply and demand will assert themselves. Planters will not go on producing 500 lb to 600 lb per acre at a loss of 1d per lb, when they can produce 400 lb of a better tea which may show no loss. The demand is increasing all over the world. The crisis has been brought on us by the great success of the tea-planting industry four to six years ago, which induced companies to open up hundreds of thousands of acres, the produce of which has swamped the market during the last two years. I might say much more in explanation of the position, and as encouragement for the future. But I refrain, as we have no wish to persuade shareholders against their convictions. I do not even wish to advise them. As directors we can merely make suggestions. It is for you to decide. But failing this scheme, the only resource known to us, short of handing over to Debenture-holders, is a reconstruction, or rather a re-arrangement, with a call on the shares. The sum we propose to raise, viz., £7,000, is what appears to us sufficient for the present. But it must be clearly understood that, with a continuance of present prices, the whole of this might be used up in paying debenture interest, and the difference between cost of production and sale prices; but such a condition of things, though we cannot, of course, say it is beyond the range of possibilities, we can only hope may not arise as the enormous tea industry of India and Ceylon would in that case also become involved in a general disaster. We show you in our report what we expect from the working of the company if our teas fetch 6½d per lb. when the land is in bearing. The price is 2d per lb. below that at which the company's teas stood when the company was formed, and if you think that is a fair and reasonable figure to assume when production and consumption have adjusted themselves, then I think you should have no hesitation in subscribing for your share of the extra capital. The matter rests entirely in your hands, however, and you must judge for yourselves. With regard to the debenture issue, I may state that when the company was formed there was not the slightest intention of issuing debentures. It was stated in the prospectus that the first issue of shares was for the purchase and working of four estates, therein named, aggregating 2,371 acres. It was also stated that further lands would be acquired and developed. This latter entailed the raising of more capital, and the total acreage is now 7,163 acres. The directors considered that the issue of debentures presented the best and cheapest form

of raising the necessary capital. The directors were of opinion that the company from the first would be a success, and there would be no difficulty raising ordinary and preference share capital when it was required, but as the price of tea gradually fell and tea investments were not in public favour they saw clearly it would not be possible to obtain the necessary capital from the shareholders. The contemplated acreage of development was very materially curtailed, but what was begun had to be brought to completion. The directors have given constant and anxious attention to the affairs of this company from its inception to the present time, without fee or reward of any kind, and respectfully maintain that as they could not foresee that Travancore teas would fall from 8.50d per lb. (the price when the prospectus was issued) to an average of 6.20d per lb., the present state of the company's finances is solely attributable to low prices. Anyone experienced in tea cultivation knows that £35 per acre is a reasonable price at which to bring tea into bearing with buildings and machinery, so it cannot be said the shareholders' money has been squandered. No new clearings of tea have been made for the last two and a half years, and it is practically three years since the land was opened out, roaded, and drained, for planting up. The properties are good, and have been well cared for, and the whole position entirely rests with the future market price of the produce, which we must all hope will soon take a turn for the better. I now move the adoption of the report and accounts.

Mr. H K Rutherford, in seconding the adoption of the report and accounts, said:—I would add a few words to what has fallen from your Chairman, and to recount the history of this company. It was started in 1897 as a tea company to develop and open out tea estates from jungle lands, having as a nucleus a certain acreage of land under tea. The land was reported on most favourably by the Ceylon manager of the Ceylon Tea Plantations Company, a gentleman of very high standing and experience in tea cultivation—and we have no reason, even at the present moment, to doubt the capabilities of the land to be less than he estimated. The principal vendors were your Chairman and Mr Knight, our manager in India—two gentlemen of the highest probity. The price paid was a reasonable one, and I believe they could, had they been anxious to do so, have sold these properties for cash to others, but they were desirous of retaining a large interest in the concern, as they had absolute confidence in the potentialities of the property. That interest your Chairman afterwards considerably increased by purchasing a large number of shares. Your Directors, from their intimate connection with tea, shared in the confidence of the Chairman, and had not the slightest hesitation in investing and joining in the management of the company. Let us now consider why results have fallen so much under our anticipations. There is one fact very patent, that it is not over-capitalisation that is the cause, as the price at which our estates stand is a fair normal cost for opening out and equipping tea properties, and therefore the company stands at practically bed-rock price without inflation. When we negotiated for these properties exchange stood at 1s 2¼d, and the price of the teas at 8½d, and at the present time the former is 1s 4 15-32d, and the latter 6¼d. When I have stated that simple fact I have stated the whole of our case. I do not know if any shareholder has taken the trouble to apply the condition of exchange and the price of tea in 1897 to the accounts in this report, but if so you will find that, had these two factors held good, instead of showing a loss we would have earned Debenture and Preference interest and 7 per cent on the Ordinary shares, and further, if you continue the application to the estimate of crops which it is practically certain the estates will yield, the Ordinary shares would earn something like 50 per cent. dividend. I ask you, therefore, as reasonable men, even if after allowing what one would consider a safe discount in the 1897 conditions of exchange and price of tea, if it can be said any of us—either we as directors, or you as shareholders—went rashly into this venture. Shareholders may complain today of minor matters of finance in our accounts which in a successful concern might have been looked at as virtues, but, believe me, the real crux of our position is the price of tea. If you believe this state of things cannot continue in the tea world very long, then you ought to keep this company afloat. It has potentialities if tea recovers, and if you stick to the ship I have no doubt whatever that you will reap a fair return in due course. So serious is the position of tea producers at the present moment that efforts are being made to bring all into a co-operative movement to reduce the output of British-grown tea for this season in India and Ceylon. If we make no profit whatever out of our estimated crop of 743,000 lb. of tea, then our debit balance, after paying Debenture interest, will be some £8,200, and therefore the £7,000 lb. we ask you for would not suffice, and we would again require to come to you. We do not wish to call upon you for one penny more than necessity demands, and it becomes a question for you to decide whether in the meantime it would be better to make this call in the hope that it may be sufficient to tide us over, or at once re-arrange the company. No one could have foreseen the difficulty, and we must leave the matter in your hands.

Mr. Dangerfield thanked Mr. Rutherford for his remarks, and stated that, although the position was an unfortunate one, the explanations given would, he felt sure, meet the views of the shareholders. He also asked how the required capital was to be raised.

The Chairman stated that that Directors would leave the shareholders to decide how that was to be done. They were, however, prepared to put it *pro rata*. The position of the tea market was accentuated since the report was drawn out. The market might fall again [illegible]y, and they could not say what might happen. They did not anticipate a month ago what had now happened. That being so, the Directors would not pledge themselves that the amount as stated in the report would be sufficient. The call would be spread over a number of years, and would be made as easy as possible.

The resolution for the adoption of the report and accounts was then put to the meeting, and carried unanimously.

Mr. D Reid proposed the re-election of Mr. Rutherford as a director. He remarked that in doing so it was no easy task he was asking Mr. Rutherford to assume. He had always carefully watched over the interests of the Company, and

had devoted much time and thought to their interests. They had been deprived of the assistance of Mr Mackenzie, the chairman for a greater part of the year, as that gentleman had been travelling in Canada and the States with the object of trying to raise the consumption of Indian and Ceylon tea. He (the speaker) joined the board of this Company four years ago, believing that it had good prospects, and that tea from Travancore would realise a good price. The Directors could not foresee that such a mass of tea would be thrown on the market. He thought it would be very unfortunate for the shareholders to throw up the sponge. He believed the depression would pass away, as a great industry, such as the tea industry, could not go on as now. The Directors were all willing to lend a helping hand. They did not get any fees, and the item for keeping the books, &c., was a mere trifle, so there was no such thing as bolstering up the company.

Mr Dangerfield, in seconding the proposal, remarked that the shareholders could take it for granted that the whole of the board were acting in good faith. He had perfect reliance on them, and believed that if the company could be pulled through they would do it.

The resolution for the re-election of Mr Rutherford was then unanimously agreed to.

On the proposal of Mr Worthington, seconded by Mr Dangerfield, the Auditors were re-elected.

The proceedings closed with a vote of thanks to the Directors.—*H and C Mail*, February 8.

THE LIMITATION OF TEA PRODUCTION—A TEA PLANTER'S VIEW.

To the Editor of the *Home & Colonial Mail*.

Sir,—May I ask your permission to make a few remarks on this important subject, more particularly from a planter's point of view? The various conditions are sufficiently complex to make the problem somewhat difficult of solution. I believe, however, that a means may be devised which may be practicable and acceptable to producers. The following scheme may to some extent, perhaps, assist in the matter:—

ESTABLISHED OR MATURE GARDENS.

1. All factories whose tea crop of season 1900 realised, say, 11d per lb gross be exempt from restriction.
2. A graduated scale of restriction as to yield for all estates whose tea crop of season 1900 realised an average price of less than 11d per lb at, say, from 5 per cent. for the finer, graduating to 12 per cent. for the coarser teas.
3. All five-year-old planting to be classed as mature, and four years and under to be exempt from restriction.

ENTIRELY NEW PLANTATIONS.

4. All new gardens of five years' planting to be limited to the average yield per acre of mature plant of the district.
5. All four years' planting and under to be exempt from restriction.

In making these varying distinctions consideration has to be given to the following:—

a. The makers of high-class teas have not contributed unduly to the present glut and therefore should be exempt.

b. The factories producing low-class teas are mainly responsible for the present over-production, and should rightly be subject to restriction.

c. In the case of new planting of four years and under it would obviously be unfair to tax such planting to repair a difficulty to which it had not contributed to any appreciable extent.

6. In order to calculate quantity to be produced by each garden a return of crop of season 1900 to be sent in to secretary of the respective Tea Association, together with statement of new planting for the years 1900, 1899, 1898, 1897, and in the case of entirely new gardens return of area planted in 1896.
7. All gardens manufacturing a special make of coarse tea sent down under a separate mark, not the recognised mark of the garden, to furnish statement of such teas produced in season 1900 to secretary of their Tea Association.
8. All factory marks to be registered with the Tea Associations.

A form of agreement as between two contracting parties could be adopted by which each producer covenants with the joint Tea Associations as representing the whole or any one of the members of the Tea Associations to carry out the engagement as to allotted output, &c., under pain of whatever penalty may be agreed upon.

It occurs to me that the agreement contracted should extend over at least two years—with provision, of course, for such modification as circumstances may render necessary, for little good will be gained by merely clearing away the present accumulation in order to make room for another. The present producing capacity of Indian and Ceylon gardens is far in excess of requirements. It will be necessary, therefore, that production be controlled until it is overtaken by requirements. This brings me to a subject about which I will, in this letter, only remark that the time has arrived when the scope and sphere of influence of the Tea Associations of India and Ceylon should be extended.—Yours truly, James Hodges.

Erdington, Birmingham, Feb. 12, 1901.

PRODUCE AND PLANTING.

The Crisis in Tea.—The Chancellor of the Exchequer is, we fear, not in a mood to lend a kindly ear to proposals to reduce taxation, but the two members of a sub-committee appointed by the Indian Tea Association (London) have thought it advisable to direct public attention to the causes which have contributed to the present crisis in tea. In the circular issued by these gentlemen, and reproduced in another column, it is mentioned that Sir Michael Hicks-Beach will be asked to reduce the Government royalty on tea from sixpence to fourpence per pound. In the circular it is pointed out that the closing of the mints and the fixing of the rupee at the artificial value of 1s 4d by the Indian Government have increased the cost of production by some 20 per cent, while the addition of twopence to the duty last year, instead of coming out of the pockets of the consumer, has fallen almost entirely on producers. A still more cogent argument is that the home Government reaps an annual harvest of six millions sterling from tea, and the total revenue at home being 120 millions, the impost is out of all proportion to other taxes levied. The object of the circular is to invite all those who are interested in the production of tea to help the movement by at once communicating with their local members of Parliament (irrespective of party), asking them to support Sir Henry Seymour King in his endeavour to get the tea tax reduced to its former rate of 4d per lb. We trust that the statements put forward will direct public attention to the grievances of the tea producer, who sees that unless some remedy for the existing state of things is found the important industry developed with such care, patience, and expenditure of capital is seriously threatened.

A Trade View of the Tea Position.—"As a natural consequence of the rapidly increasing production of tea within the last few years—that of Indian alone expanding from 148,252,000 lb. in 1897-98 to 182,144,000 lb as the estimated crop for 1900-01—the market here has been so over-supplied with the article," says the *Grocer*, "that steps have been recently taken by a Select Joint Committee of the Indian Tea Association

to call upon the proprietors and agents of estates to restrict the output of tea in India and Ceylon during the current season, and so bring the general supply more under control than it has been hitherto. Besides attaining unmanageable proportions, the quantities of British-grown tea have contained a much greater percentage of common, spurious, and undesirable qualities than ever before known, and in this respect cultivators of tea in Ceylon have been the principal offenders. In November last it was remarked in our London trade report that 'Some very inferior teas have lately been shipped from Ceylon, and such quality has been termed by the trade a disgrace to the island. It would be better if these teas instead of being shipped were destroyed in Ceylon, as buyers here have refused to have anything to do with them, and the Customs are apparently at fault in allowing this rubbish to pass.' Having seen and examined the teas in question we can vouch for the truth of the above statement, certain samples bearing a close resemblance to cinnamon chips, as coarse as chaff or stubble; and one firm of Mincing Lane brokers advises the planters to 'dig into the ground a large quantity of this common red stuff as withered leaves, or to utilise it, after burning, in the form of ash.'"

AN AMERICAN VISITOR.

LARGELY INTERESTED IN CINCHONA SUPPLIES.

Amongst the most recent arrivals from the Far East is Mr. F. L. Seely of St. Louis, Mo., U.S.A., who has come from America *via* Java, travelling for the Paris Medicine Company of St. Louis and London. Mr. Seely has been spending a month at the Government plantations, Java, and has shown us photographs of some splendid trees of *Ledgeriana* and plantations of *Succirubra* which give no less than 12 per cent yield. Any tree, in fact, that gives less is rooted out from the plantation. In one case as much as 16 per cent was yielded. Mr. Seely is travelling in the East to gain some idea of the quantity of supplies of quinine that are likely to be forthcoming in the future, for the Company of which he is Secretary and Treasurer buys an immense quantity annually. Mr. Seely informed us that the preparations sold by it are advertised in every paper in the States, $225,000 being spent annually on advertising alone. Mr. Seely proceeds to Kandy on Monday, and, after visiting estates with Cinchona here, will proceed to the Nilgiris, before returning to the States.

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1896.	1897.	1898.	1899.	1900	Av of 31yrs.	1901
	Inch	Inch	Inch	Inch.	Inch.	Inch.	Inch.
January ..	2·92	3·81	2·32	6·98	3·72	3·24	11·91
February ..	0·35	1·68	1·98	2·78	0·63	1·89	3 55*
March ..	5·64	3·66	4·21	0·88	3·71	4·75	
April ..	5·93	10·97	22·81	6·66	15·12	11·43	
May ..	9·31	8·30	5·80	17·73	10·63	12·04	
June ..	8·37	10·14	10·94	9·23	7·83	8·35	
July	2·85	5·24	6·15	1·11	6·77	4·30	
August ..	6·35	9·09	0·97	0·62	7·35	3·79	
September	10·99	4·58	6·90	1·48	4·00	4·93	
October ..	16·78	4·71	20·60	12 99	9·47	14·36	
November..	19.81	11·68	17·38	8·58	9·25	12·55	
December..	11·76	8·89	3·05	4·44	5·20	6·35	
Total..	101·06	82·73	103·11	73·48	83·68	88·03	15·46*

* From 1st to 27th Feb. 3·55 inches, that is up to 9·30 a.m on the 28th Feb.—ED. *C.O.*]

Ceylon Rainfall.

THE P. W. D. METEOROLOGICAL OBSERVATIONS FOR JAN 1901.—We append the Monthly Return of rain from which it will be seen that the highest fall in Jan. was at Manalpuddy in the Eastern Province 32·71 inches, and the lowest at Udupiddi in the Northern Province, 0·24 inches.

WESTERN PROVINCE.

Negombo, Mr. Bucknall (6) .. 4 55
Kalutara Mr. Emerson (36) ... 7 01
Labugama, Mr. Bond (369) .. 17·37
Henaratgoda, Mr. Silva (33) .. 8·54

CENTRAL PROVINCE.

Katugastota, Mr. Morgan (1,500) .. 1·57
New Valley, (Dikoya) Mr. Waddell (3,700) ... 6 87
Helboda (Pussellawa) Mr. Gosset (3,300) .. 2·65
Yarrow Estate. .. Not received (3,400) —
Peradeniya Mr. Macmillan (1,540) 2·00
Duckwari, Mr. Edwin (3,300) .. 4·75
Caledonia, Mr. Shand (4,273) 3·25
Pussellawa, Mr. Powell (3,000) .. 3·42
Hakgala, Mr. .. Nock (5,581) .. 3·61
S. Wanarajah Estate Mr. Tatham (3,700) ... 6·35
Padupola, Mr. Waddel (1,636) ... 7 05
Mylapitiya, Not received (1,707) .. —
Aluta — do —

NORTHERN PROVINCE.

Mullaittivu, Mr. Ebert (12) 4·62
Jaffna Mr. Macdonnel (8) .. 4·66
Mankulam, (N. Road) Mr. Ebert (167) .. 1·10
Elephant Pass, Not received (7) .. —
Vangalachettykulam, Mr. Oorloff (179) ... 1·20
Point Pedro, Mr. Kretser (24) .. 3·07
Jaffna College, Mr. Hastings (9) .. 0·44
Kayts, Mr. Kretser (8) .. 3·74
Kankesanturai, Mr. Pararachasinghe (10) ... 0·42
Pallai, Mr. Krester (24) .. 0 50
Murikandy, (North-Central Road) Not received (7) —
Nedunkeni, Mr. Ebert (122) ... 10·98
Chavakachcheri, Mr. Krester (16) .. 1·55
Udupiddi, Mr. Brown (35) . 0 24
Marichchukaddi, Mr. Tampue (14) 3·24
Murungan, Mr. Walker (52) 3·22
Vavuniya, Mr. Ebert (318) 1 14

SOUTHERN PROVINCE.

Ella Vella, Mr. Caldicott (262) 6·36
Kekanadura, do (150) 0 47
Denagama, do (286) 4·71
Udukiriwila Mr. Lourensz (235) .. 4·76
Kirama, Mr. Lorensz (260) 13·80
Hali-ela Mr. Caldicott (200) 15·80
Tissa, Mr. Silva (75)
Matara, Mr. Callicott (15) . 3·89
Dandeniya, do (157) 2·79
Urubokka, Mr. Caldicott (890) 15·15
Tangalla Mr. Russell (94) 1·03
Mamadola, Mr. Doole (56) .. 5·78

EASTERN PROVINCE.

Irrakkamam, Mr. Bower (42) ... 6·10
Devilaua, Mr. Suaminathan (136) 3·47
Sagamata, Mr. Bower (40) .. 4·31
Ambare, Mr Kretser (65) 7·29
Kanthalai, Mr. Carte (150) 1·66
Allai, Mr. Bartlett (95) 3·07
Rukam, Mr. Suaminathan (120) 5 38
Periyakulam, Mr. Carte (20) .. 0·75
Chadaiyantalawa, Mr. Goodman (57) 4·52
Kalmuuai, do (12) 4·74
Rotawewa, Mr Bower (30) 5·26
Lahugala, do (70) 2·33
Naulla, do (30) 7·94
Andankulam, Mr. Carte (41) .. 1·06
Manalpuddy, Mr. Suaminathan (21) 32·71
Maha-Oya-Tank, Mr. Suaminathan (190) 9·65
Potuvil, Mr. Sinnayah (10) 4·[illegible]
Vakaneri Mr. Watts, (8) .. 6·41

N.-W. PROVINCE.

Magalawewa, Mr. Soopeyrayan (176) ... 5·97
Maha Uswewa tank, Not received (160) ... —
Tenepitiya, Mr. Churchill (8) ... 6·70
Batalagoda, Mr. Madahapola — 1·74

N.-C. PROVINCE.

Kalawewa, Mr. Chellappah (268) 0·41
Maradankadawala, Mr. Emerson (443) ... 2·49
Mihintale, Mr. MacBride (354) .. 1·55
Horowapotana, Mr. MacBride (217) . 2·70
Madawachchiya, Mr. MacBride (285) ... 0 45
Topare, Mr. Jayewardaue (200) .. 3·81
Minneriya, Mr. Gordon — .. 5 10

UVA PROVINCE.

Bandarawela, Mr. Tocke (4,000) 2·48
Haldummulla, Mr. Viramuttoo (3,160) 8·41
Kumbukan, Mr. Devasagaiam (446) 1·27
Koslanda, Mr. Edge (2,258) .. 9 66
Tanamalwila, Not received (550) ... —
Bibile, Mr. Silva (680) 3·99
Taldena, Mr. Fernando (1,100) .. 6·54
Alutnuwara—Mr. Leembruggen (300) 4·[illegible]

SABARAGAMUWA.

Ambanpitiya, Mr. Gregson (729) 4·39
Pelmadulla, Mr. Bingham (480) 5·61
Kolonna Korale (Hulanda-oya), Not received (203) —
Avisawella, Mr. Clarke (105) .. 9·[illegible]

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	—	925	...
Ceylon Tea and Coconut Estates	500	—	—	...
Castlereagh Tea Co., Ltd.	100	...	85	xd
Ceylon Hills Estates Co. Ltd.,	100	—	—	—
Ceylon Provincial Estates Co. Ltd.	500	—	500	xd
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	—	75	—
Clyde Estates Co., Ltd.	100	...	—	--
Doomoo Tea Co., of Ceylon Ltd.	100	50	—	—
Drayton Estate Co., Ltd.	100	...	...	...
Eila Tea Co., of Ceylon, Ltd.	100	..	40	—
Estates Co., of Uva, Ltd.	500	—	250	—
Gangawatta	500	—	—	..
Glasgow Estate Co., Ltd.	500	—	—	—
Great Western Tea Co., Ltd.	500	.	—	—
Hapugahalande Tea Estate Co.	200	—	—	..
High Forests Estates Co., Ltd	500	...	575	...
Do part paid	400	—	...	—
Horekelley Estates Co., Ltd.	100	65	..	—
Kalutara Co., Ltd.	500	—	300	—
Kandyan Hills Co., Ltd.	100	—	70	—
Kanapediwatte Ltd.	100	—	85	—
Kelani Tea Garden Co., Ltd.	100	--	—	—
Kirklees Estates Co., Ltd.	100	—	120	—
Knavesmire Estates Co., Ltd.	100	—	62½	...
Maha Uva Estates Co., Ltd	500	—	—	—
Mocha Tea Co., of Ceylon, Ltd.	500	—	..	—
Nahavilla Estate Co., Ltd.	500	—	350	...
Neboda Tea., Co. Ltd	500	..	500	—
Nyassaland Coffee Co. Ltd	100	—	—	—
Ottery Estates Co., Ltd	100	—	—	..
Palmerston Tea Co., Ltd.	500	...	450	—
Penrhos Estates Co., Ltd.	100	—	100	—
Pine Hill Estate Co., Ltd.	60	—	50	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	--	—	—
Ratwatte Cocoa Co., Ltd.	500	—	—	..
Raylgam Tea Co. Ltd.	100	...	47·50	—
Roeberry Tea Co., Ltd.	100	..	70	—
Ruanwella Tea Co., Ltd.	100	—	30	—
St. Heliers Tea Co., Ltd.	500	—	..	..
Talgaswela Tea Co., Ltd.	100	—	35	...
Do 7 per cent Prefs.	100	..	70	...
Tonacombe Estate Co., Ltd.	500	..	325	..
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	...	200	..
Upper Maskeliya Estates Co. Ltd.	500	—	—	—
Ovakellie Tea Co., of Ceylon, Ltd.	100	—	70	—
Vogan Tea Co., Ltd.	100	52·50	—	...
WanarajahTea Co.,Ltd.	500	..	1060	..
Yataderiya Tea Co., Ltd.	100	—	350	—

CEYLON COMMERCIAL COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	25	..	..
Bristol Hotel Co., Ltd.	100	—	120	115xd
Do 7 per cent Debts	100	105	...	—
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	..	225	...
Colombo Apothecaries' Co. Ltd.	100	135	—	135
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	85	..
Colombo Hotels Company	100	..	295	..
Galle Face Hotel Co., Ltd.	100	145xd	...	145xd
Kandy Hotels Co., Ltd.	100	...	125	122·50
Mount Lavinia Hotel Co., Ltd.	500	—	..	...
New Colombo Ice Co., Ltd.	100	210	...	...
Nuwara Eliya Hotels Co., Ltd.	30	..	30	...
Do 7 per cent prefs.	100	...	102.50	..
Public Hall Co., Ltd.	20	15	16	—

LONDON COMPANIES *

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon, Ltd.	10	...	8¾—9¼	..
Anglo Ceylon General Estates Co.	100	..	25—45	..
Associated Estates Co., of Ceylon	10	..	1½—2½	...
Do. 6 per cent prefs.	10	..	4—6	..
Ceylon Proprietary Co.	1	...	⅜—⅝	..
Ceylon Tea Plantation Co., Ltd.	10	..	24—25	..
Dimbula Valley Co., Ltd.	5	..	5¾—6	..
Do prefs.	5	..	5½—6	...
Eastern Produce & Estates Co. Ltd.	5	...	4½—5	..
Ederapolla Tea Co., Ltd.	10	...	7—10	...
Imperial Tea Estates Co., Ltd.	10	...	4½—5½	..
Kelani Valley Tea Asscn., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	6—8	..
Lanka Plantation Co., Ltd.	10	..	4—5	..
Nahalma Estates Co, Ltd.	1	..	nom	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	...	10—10½	...
Ouvah Coffee Co., Ltd.	10	..	6—7	...
Ragalla Tea Estates Co., Ltd.	10	..	9—10	..
Scottish Ceylon Tea Co., Ltd.	10	..	13—15	...
Spring Valley Tea Co., Ltd.	10	...	2½—3½	..
Standard Tea Co., Ltd.	6	..	11—11½	..
The Shell Transport and Trading Company, Ltd.	1	..	2⅞—3⅛	..
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	...	6½—7½	...
Do. pref. 6 o/o	10	...	10—10½	..

BY ORDER OF THE COMMITTEE.

Colombo, March 1st, 1901.

* Latest London Prices.

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, Feb. 28th, 1901.

COFFEE:—	
Estate Parchment per bushel	None
Chetty do do	Nil.
Native Coffee per cwt.	Nil.
do F. O. B per cwt.	Nil.
Liberian coffee:—per bushel	Nil.
do cleaned coffee:—per cwt	Nil.
Cocoa unpicked:—per cwt	R44·00 to 52·00
do cleaned do	R52·00 to 55·00
Cardamoms Malabar per lb	R0·80 to 1·00
do Mysore do	R1·25 to 1·50
RICE:—	
Soolai per bag of 164 lb. nett	R9·35 to 9·77
1st quality:—per bushel	R3·70 to 3·75
Soolai 2 & 3rd. do do	R3·60 to 3·68
Coast Caluuda	none.
Coast Kara	R3 90 to 4·00
Kazala	R3·57 to 3·60
Muttusamba Ordinary	R4·75 to 5·00
Cinnamon per lb No 1 to 4	R00·53 to 00·57 } Scar
do do 1 and 2	2 } Scar
do Chips per candy	R87·50
Coconuts Ordinary per thousand	R42·00
do Selected do	R50·00
Coconut Oil per cwt	R15·00
do do F. O B. per ton	R300·00
POONAC:—	
Gingelly per ton	R110·00
Coconut Chekku do	R110 00
do Mill (retail) do	R80·00 Very scarce
Cotton Seed per ton	R80·00
Copra per candy	
Kalpitiya do	R49·00 to 50·00
Marawilla do (Boat)	R47·50 to 49·00
Cart Copra do	R43·00 to 44·00
Satinwood per cubic feet.	Nil.
do Flowered do	Nil.
Halmilla do	R1·90
Palu do	R1·00 to 1·12
Ebony per ton	R10 ·00 to 230·00
Kitul fibre per cwt	R30·00 to 32·00
Palmyra do do	R7·50 to 14·00
Jaffna Black Cleaned per cwt	R12·50 to 14·00
do mixed do	R10·00 to 1 ·50
Indian do	R7·50 to 12·00
do Cleaned do	R10·00 to 13·00
Sapanwood per ton	R40·00 to 45·00
Kerosene oil American per cases,	R6·80 to 7·50
do bulk Russian, per tin	R3·12 to 3·19
do Russian per cases	R6·40 to 6·45
Nux Vomica per cwt	R2·50 to 7·00
Croton Seed per cwt	R20·00 to 23·00
Kapok cleaned f o b per cwt	R23·50
do uncleaned do	R5·50
Plumbago per ton, according to grade — Large lumps	R275·00 to 600·00
Plumbago — Ordinary size lumps	R275·00 to 575·00
Plumbago — Chips	R150·00 to 375·00
Plumbago — Dust	R60·00 to 200·00

COLOMBO PRICE CURRENT.

(*Furnished by the Chamber of Commerce.*)

EXPORTS.

Colombo, 25th Feb. 1901.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·70
Do. dull medium do. R1·40
Special assortment, 0 and 1 only do. R2·00
Seeds do. R1·40

CINCHONA BARK:—
Per unit of Sulphate of Quinine 9½c—1½ to 3 o/o.

CINNAMON :—
Ordinary assortment per lb. 57c.
Nos. 1 and 2 only per lb. 62c. } Scarce.
Nos. 3 and 4 only per lb. 53c.

CINNAMON CHIPS :—
Per candy of 560 lb R87·50

COCOA :—
Finest estate red; unpicked per cwt R55
Medium do do R52
Bright native, unpicked and undried R49
Ordinary do do do R43

COCONUTS—(husked).
Selected per thousand R52·00
Ordinary ,, R41·00 } Very scarce.
Smalls ,, R30·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R72·50
Do in bags None

COCONUT (Desiccated).
Assorted all grades per lb 16c

COCONUT OIL—
Dealers' Oil per cwt R15·00
Coconut Oil in ordinary packages f. o. b. per ton R340·00.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None.
Plantation Estate Coffee f.o.b. (ready) per cwt. None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—50c

COPRA—
Boat Copra per candy of 560 lb. R49 00
Calpentyn Copra do do R50 00
Cart do do do R44 00
Estate do do do R50·00

CROTON SEED per cwt—None

EBONY—
Sound per ton at Govt. depot—R230 As per last Govt. sales of Dec 3rd.
Inferior R155.—As per last Govt. sales of Dec 3rd

FIBRES—

Coconut Bristle No. 1	per cwt	R10·50
Do ,, 2	,,	None
Do mattress ,, 1	,,	4·00
Do ,, 2	,,	3 00
Coir Yarn, Kogalla ,, 1 to 8		18 00
Do Colombo ,, 1 to 8		16·00
Kitool all sizes	,,	None
Palmyrah	,,	None

PEPPER—Black per lb None

PLUMBAGO—

Large lumps	per ton	R600
Ordinary lumps	do	575
Chips	do	375
Dust	do	200
Do (Flying)		125

SAPANWOOD— per ton None.
SATINWOOD (ordinary) per cubic ft. None.
Do do per cubic ft. None.

TEA—

	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	60	48	31
Orange Pekoe do	50	40	33
Pekoe do	46	34	23
Pekoe Souchong do	41	20	24
Pekoe Fannings do	27	24	24
Broken mixed—dust, &c per lb	15	15	15

CEYLON EXPORTS AND DISTRIBUTION, FOR SEASONS 1900 AND 1901.

COUNTRIES	Tea. 1901 lbs.	Tea. 1900 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon Bales lbs.	Cinnamon Chips. lbs.
To U K. ..	17302590	14739583	594	..	594	12552	36628	176081	26775
,, Austria ..	16365	16 7	..	..	...	...	..	5000	5600
,, Belgium ...	750	..	33	..	33	...	..	10209	12592
,, France ..	49097	29494	4	...	4	..	1469	7200	3920
,, Germany ..	44067	59929	.	..	..	750	6203	88500	128240
,, Holland ..	11074	..	...	..	..	..	..	1000	17920
,, Italy ..	1102	533	..	..	..	..	...	12500	11200
,, Russia ..	727093	1330119	..	..	...	...	764	.	..
,, Spain ..	...	6970	..	...	..	..	..	30300	19600
,, Sweden ..	12815	13605	...	..	..	..	..	..	..
,, Turkey ..	9866	5251	...	..	...	...	..	..	...
,, India ..	320270	103711	10	..	10	..	27765	..	.
,, Australia ..	2056868	1937961	109	..	109	...	...	...	..
,, America ..	410450	1193274	...	..	...	846	..	10000	9116
,, Africa ..	25084	12710	..	..	..	..	..	..	..
,, China ..	245551	87343	1	...	1	..	..	5000	..
,, Singapore ..	11310	11006	..	..	...	196	..	4000	..
,, Mauritius ..	7800	...	..	..	..	...	..	..	..
,, Malta ..	72632	37820	..	...		..	..	...	..
Total export from 1st Jan. to 25th Feb. 1901	21330796	19569930	751	...	751	14344	71829	350281	234968

COUNTRIES	Coconut Oil. 1901 cwt	Coconut Oil. 1900 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts. No.	Plumbago. 1901 cwts.	Plumbago. 1900 cwts.	cwts Fibre.	Ebony cwts.
To U K. ..	22911	22822	2000	809968	...	1668570	12851	14955	8285	411
,, Austria ..	772	2220	4451	6	.	..	...	..	...	...
,, Belgium ...	998	...	8798	35140	2001	...	2180	5791	2753	...
,, France ..	...	..	1990	..	...	..	..	..	1	..
,, Germany ..	..	2243	7394	145535	10428	94550	7634	7873	3053	1580
,, Holland ..	..	...	..	...	..	..	..	..	222	...
,, Italy ..	...	..	..	..	..	2000	..	...	...	...
,, Russia ..	...	..	12210	..	..	..	–	...	..	..
,, Spain ..	..	..	...	10370	...	..	...	-	..	..
,, Sweden ..	199	...	...	...	...	..	..	105	..	...
,, Turkey ..	..	...	...	...	...	...	...	...	..	..
,, India ..	6657	8820	300	..	...	222400	19	..	..	..
,, Australia ..	35	21	..	132288	..	..	...	210	532	..
,, America ..	6004	24246	1	221738	..	..	32111	59322	554	..
,, Africa ..	..	...	..	1600	..	128100	...	...	...	..
,, China ..	254	...	.	32500	..	..	..	..	..	...
,, Singapore ..	...	..	...	..	...	...	..	...	47	...
,, Mauritius ..	..	..	...	..	...	...	..	..	..	...
,, Malta ..	..	..	..	...	..	..	..	..	..	..
Total export from 1st Jan. to 25th Feb. 1901	37830	60378	37114	1389145	12429	2125620	54795	88256	15447	1991

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, February 22nd, 1901)

☞ No Price Current having reached us by latest mail, we omit the usual quotations and fill with other matter.

THE COMMON BIRDS OF BOMBAY BY E H A.*

"Eha" is well-known by the volumes "The Tribes or my Frontier," "Behind the Bungalow" and "A Naturalist on the Prowl"; and this latest volume will be welcomed by all who wish to know about the birds that abound in the land of their adoption. To enjoy this book, one does not need to have previous scientific knowledge; the author has watched the habits, haunts and customs of the birds, and in an easy conversational way he tells the reader enough to enable him to recognise and name the feathered songsters around him. Boys are always ready to hunt for birds' nests. Let them take this book out of doors with them and follow up the mother-birds sympathetically, watch them, their ways, their haunts, and the study may be quite as useful to them in after years as that of Latin or French.

The telling pen-and-ink sketches in this book are an additional help to the identification of birds, while the English names so freely given, make the stories life-like and real. The volume has 195 pages, and the chapters (32 of them) follow the natural orders:—The Birds of Prey, the Perching Birds, the Moaners, the Scrapers, the Stalkers, and the Swimmers. Among the Perching Birds or Insessores, the most interesting and best-known are the Woodpecker and the Coppersmith, the Sunbirds and the Hoopoe, the Babblers (which include The Seven Brothers) and the Bulbuls and Orioles. In the introduction, birds are very sympathetically described, thus:—"Though beasts rank above them anatomically and physiologically, birds have in many respects a higher nature. Their wits are quicker, their thoughts sweeter, their tastes finer, and their passions and appetites less gross. With respect to manners and morals they stand on a higher plane altogether. . . . The great majority of them are monogamous during the nesting season, and many pair for life and become devotedly attached to each other. Brides are won by courtship. . . . Much of their time is spent in the duties, or pleasures, of the toilet. Many of them bathe regularly in water, while others prefer a dust bath. Nature gives them an entire new suit every year, sometimes two, in which case the summer and winter suits are often different. If there is any difference in the sexes, it is the male which is most beautifully, or at least most brilliantly, dressed; as is fit, for he is in the front ranks, fighting and making love, while her place is in the sweet backgrounds of life, and quietness and modesty adorn her best." We must quote the description of the Sunbird:—"Our common Sunbird (Arachnethra Zeylanica) seen at a distance and in a dull light, is a tiny bird of a dull brown colour, except on the breast and lower parts which are yellow. But see it at close quarters, with the sun shining on it, as its admiring mate sees it; the top of its head glitters with a hue which Jerdon defines as 'bright, metallic, glossy green,' while Mr. Oates calls it 'metallic lilac.' Its throat and the whole of its back glow with the tints of an amethyst, the shoulders and wings are of the richest maroon red and the tail is black. The admiring mate is herself dressed in the beauty of simplicity. She also is yellow on the under parts, but paler than her lord, while her head, back and wings are of a greenish dusky colour. They are a loving couple and I think the union is for life, for one seldom sees a single Sunbird. Belt and other observers have stated that Humming-birds frequent flowers less for the nectar than for the little insects in them. I am sure this is not true of the Sunbird. It eats plenty of little insects, especially spiders, but it seeks flowers for their nectar. Sometimes it hovers in front of them, like a hawk moth, exploring their recesses with its long tubular tongue; oftener it clings with its minute black feet, throwing its lithe body into all manner of acrobatic attitudes, while it thrusts its slender, curved bill into each tube in turn. And 'between whiles' it skips about, slapping its sides with its tiny wings, spreading its tail like a fan, and ringing out its cheery refrain, *ching-ching, chikee, chikee, chikee*, as if it could not contain all the happiness that filled its little frame." For the description of the nest and the eggs, our readers must refer to the book itself.

* Thacker & Co., Bombay. Price R4·50.

THE LONGEVITY AND VIGOUR OF TEA.—The veteran colonist who writes above the initials "C.S." has some interesting experiences to relate in the letter which we publish elsewhere. The old Kandyan who declared that the tea-bush was a regular jungle plant, nothing could kill it,—was not far wrong.

IMMENSE RUBBER AREA ACQUIRED IN MEXICO.—The newest company organized to go into the planting of rubber exclusively is the Obispo Rubber Plantation Co., which has been incorporated under the laws of New Jersey. It will acquire a large plantation known as "La Republica," in the state of Oaxaca, Mexico, a property consisting of 9000 acres, of which at least 8000 acres will be planted entirely in rubber, 200 trees to the acre. This will form probably the largest rubber plantationin the world.—*India Rubber World.*

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for March :—

Vol. XII.] MARCH, 1901. [No. 9.

AGRICULTURAL INSTRUCTION FOR VILLAGE YOUTHS.

IN our last issue we took over two interesting articles on this subject but had no opportunity of adding our own views. As might have been inferred, however, from the absence of comment on our part, we are entirely in sympathy with the movement that has found favour in England, as well as the Australian and West Indian Colonies, and do not hesitate to say that the system of agricultural instruction in rural schools may be expected to be as fruitful of good results in Ceylon as elsewhere.

It must be borne in mind that what is aimed at by this new scheme is not technical education in the science and practice of agriculture, but rather the directing of the young mind to the study of nature, so that the natural surroundings of the village lad may present new beauties and fresh interests and possibilities to him and reconcile him to the so-called dull monotony of a country life.

To most of our village population the germination, developement and reproduction of vegetation are a mystery, and the realization that plants are living and breathing organisms performing all the vital functions of such, must come as a great revelation to the majority of our rural friends. A knowledge of the forces of nature as they work through plant and soil, the wonderful adaptations of these forces and the interdependence of the mineral, vegetable and animal kingdoms is what is wanting in the villager who sees nothing of design and recognises little of the sequence of cause and effect in his "common round and daily task." Under such circumstances is it any wonder that he becomes discontented with his lot, which he is wont to associate with manual labour pure and simple? Jerome, in one of his books, has a beautiful passage referring to the companionship of plants. It is this companionship which the new scheme seeks to establish in order that the life of the rustic may present a new charm for him which so long it lacked, and his environment appeal to his instincts in a manner that he has never experienced before.

An intelligent knowledge of nature in her various phases should be so much power in the possession of the youth of the village, which he will be able to use to his advantage. With such knowledge his lot will be infinitely more congenial to him, his prospects more cheerful and (what is devoutly to be wished) his inclination will be to remain amid his rural surroundings and apply himself to the cultivation of the land with a new zest. Thus it is to be hoped will the people of the country be led to develope its agricultural resources, and while the cities are relieved of the congestion of disappointed place seekers, the country be made the home of the industrious and contented husbandman bent on making the most of his newly-recognised opportunities. We trust the hope will be realized.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JANUARY, 1901.

1	Tuesday	Nil	Friday	18	·22
2	Wednesday	Nil	Saturday	19	·05
3	Thursday	·01	Sunday	20	1·85
4	Friday	·34	Monday	21	·94
5	Saturday	·23	Tuesday	22	Nil
6	Sunday	Nil	Wednesday	23	Nil
7	Monday	·01	Thursday	24	·01
8	Tuesday	2·96	Friday	25	Nil
9	Wednesday	·17	Saturday	26	Nil
10	Thursday	·32	Sunday	27	Nil
11	Friday	·02	Monday	28	Nil
12	Saturday	Nil	Tuesday	29	Nil
13	Sunday	Nil	Wednesday	30	Nil
14	Monday	Nil	Thursday	31	Nil
15	Tuesday	Nil	Friday	1	Nil
16	Wednesday	·09			
17	Thursday	·26		Total..	7·48
				Mean..	·24

Greatest amount of rainfall in any 24 hours on the 8th, 2·96 inches.

Recorded by C. DRIEBERG.

OCCASIONAL NOTES.

The *Agricultural Magazine* for August, 189 , contains an article entitled "The Queen as Agriculturist," in which a short history of Her late Gracious Majesty's connection with the agricultural interests of England was given. In concluding the article we said, "Whatever be the fate of English agriculture in days to come, the Royal family will be sharers in its prosperity or adversity, the bright traditions of the reign of Queen Victoria will be honoured and observed for many a day." King Edward the Seventh may confidently be expected to protect the interests of the agriculturist, for has he not already earned the sobriquet of "the Friend of the Farmer"?

At the great Scottish Annual Show held last year in Edinburgh, Sir John Gilmour speaking at a meeting over which King Edward—then Prince of Wales—was presiding, referred to His Majesty as "a Prince who followed so well and fully in the footsteps of Her Gracious Majesty, our Beloved Queen, and who had so thoroughly gained for himself the title 'The Friend of the Farmer.'"

The following typical little speech by His Royal Highness delivered only a few months ago will be read with interest at this time when the Prince that was is King, and the Duke of York who is about to visit our shores is the Prince Elect:—

The Prince of Wales, in responding to the vote of thanks, said: My Lords and gentlemen—and, may I say, brother agriculturists?—I am deeply sensible of the kind terms in which Sir John Gilmour has proposed the vote of thanks to me. I am also most grateful for this cordial reception and the kind words which fell from the Lord Provost of this great city. I need hardly tell you, as I mentioned to-day already, the great pleasure it gives me to be your President at this great Show at Edinburgh at the close of the present century. One has often heard of walking in one's father's footsteps. Well, in this instance, gentlemen, I am walking in my son's footsteps. In 1893 you kindly elected him to be President for the year. He had a good reason for not coming, for he married a wife and could not come. But he came the following year, and presided at your Show at Aberdeen. I shall always look back to this visit with the greatest pleasure and satisfaction, and for the kind and cordial way in which you received me. I hope before I leave to-morrow to have had an ample opportunity of seeing all that is of interest in this Show. I am glad to think that it has reached already the one hundred and fifteenth anniversary of its existence. At the Centenary Show, I believe, there were the largest exhibits of horses, sheep, cattle, and swine, amounting to 1,536. I think we have done very well this year when we have exhibits in these classes, as I believe, to the number of 1,417. I can only allude for a moment to the Scottish Agricultural Benevolent Institution. It has only been in existence for two years. From what fell from the lips of Lord Mansfield, it is indeed an institution, though young, which is, I think, well worthy of your support. Anything that can be done to alleviate the suffering of the agricultural class, male and female, deserves our sympathy and philanthropic efforts. I need hardly say it will give me great pleasure on this occasion, if I may do so, to give a donation of £50 towards it. I shall not keep you longer, as I think on these occasions that brevity should be the soul of wit; but I thank you once more for your kind reception, and I can assure you how proud I have been to take the chair to-day.

Veterinary Surgeon Chinniah's paper on the Branding of Cattle—reprinted from the pages of the *Agricultural Magazine*—has appeared in pamphlet form, and been favourably noticed by the local press.

Mr. A. F. Broun, Conservator of Forests, has left the Island on leave, his duties being discharged by Mr. Alfred Clark of the same department. The work of the Forestry School will be in abeyance during the absence of Mr. Broun, who during his holiday, expects to revise his lectures on Sylviculture and Forest Utilization with a view to their publication. The students who have just left the Forestry School are Messrs. D. W. Goonesekere, C. A. Bartlott, S. Lovell, W. Amerasekere, C. S. Fernando and J. T. de Silva. A Syllabus of the School, printed at the Government Press, is now available.

We welcome back to the Island Mr. W. E. Davidson, C.C.S., who proceeded to Paris as the Delegate of the Ceylon Government at the Great Exhibition of 1900. Mr. Davidson has done much to advance the agricultural interests of the Colony, and his excellent handbook prepared for the Paris Exhibition is a compendium of the latest and most reliable information about Ceylon and its industries.

We have to thank Mr. A. Chinniah, Veterinary Surgeon, for a photograph of the Calculus, the operation for the removal of which is described by him in his contribution on Crystology to the present number. Considering the weight of the stone ($3\frac{5}{8}$ oz.), its circumference ($7\frac{1}{4}$ in.), and the fact that the patient was discharged within 3 weeks, we cannot but commend the skill with which the operation was done and the successful antiseptic after-treatment.

Comparing the rainfall at the School of Agriculture and the Fort, we find a difference of about 8 inches for the year 1900, the larger rainfall being in the Cinnamon Gardens.

Some months ago a question was asked in the Press with reference to the most approved way of placing a thermometer for getting reliable readings, and if we remember aright, it was given as the opinion of an expert that the nature of the shade provided was not of consequence. We should like to state that we have found an appreciable difference between the readings under a Calicut-tiled roof and one covered with the old-fashioned half-round tiles, and we have no doubt that there will be a difference where the roof is of galvanized iron and again of olas. It would, therefore, be as well that there should be a uniformity of conditions, particularly in the tropics, as regards the conditions under which thermometers are kept.

In this connection we might refer to a case where the conditions under which rain was registered could not possibly have helped to give correct readings. The rain gauge, in this case, was so placed that a "Union Jack" fluttered on its pole above with the result that the precipitation of rain must have been seriously interfered with.

CYSTOTOMY.

By Veterinary Surgeon A. Chinniah, Colombo, Ceylon.

History.—A black waler gelding pony about 14·2 high, eight year old, the property of W. W. Kenny, Esq., of Colombo, was brought to my surgery with the history that the animal had been passing highly blood-coloured urine. It was treated by me for some time with palliative drugs as in the case of ordinary Haematuria; but when the case assumed an obstinate nature I suspected that there must be some mechanical agent—such as a Calculus—doing the mischief, as the symptoms suggested. The animal was examined per rectum, and the presence of the Calculus was diagnosed with certainty.

Symptoms.—There was painful straining during micturation, but at times the urine passed was of normal colour and consistency. After brisk exercise the urine passed contained blood corpuscles and pigments in abundance, and the expression of the patient during the passing of urine indicated great pain. The appetite was all throughout good, and there was no noticeable rise of temperature. As soon as the proper diagnosis was arrived at, I informed the owner that the animal must stand the operation, which, if it succeeded, was the only means of saving the life of the beast.

Modus Operandi.—The instruments taken for the operations were scalpels, sharp-pointed bistoury, Symes' artery forceps, bull-dog forceps stone forceps, Gullion's lithotritor, male catheter, and the female washing catheter.

The animal was thrown on the near side and general anaesthesia (chloroform) was administered. The penis was pulled out, washed and lubricated, and the catheter was passed and the penis retained all throughout in this position by an assistant told off for the work. The off-hind leg was drawn a bit in front, I took my position just near the croup. The tail was washed antiseptically and given in charge of another assistant to be kept in the desired position. An incision was made two inches below the rectum along the middle line of the perinium downwards. When the urethra was reached, the sharp point of the bistoury was introduced into the tube (urethra) which was eventually slit open to admit the passage of the forceps. When the forceps were in the bladder the stone was grasped with the, assistance of my left arm in the rectum. Several attempts were now made to remove the stone without performing cystotomy or lithotrity, but they proved futile.

I finally decided to perform Cystotomy. The bistoury was passed along the urethra into the mouth of the bladder, and guided by my left hand per rectum to prevent any rectal fistula, an incision was made dividing the mouth of the bladder, prostrate glands and (unavoidably) the pudic artery. The latter was promptly caught and ligatured. This made the operation simple, and with the help of the hand, per rectum, the removal of the Calculus was easy enough.

The Calculus weighs $3\frac{5}{8}$ ounces and its circumference is $7\frac{1}{4}$ inches. It is not spherical, but convex on both surfaces, and the margin unbroken and round. The outer layer is apparently composed of Phosphate of Lime and the urine of Oxalate of Lime.

After Treatment.—The bladder was washed with a tepid solution of Boracic acid. The wound was antiseptically treated and painted with Iodoform and Eucalyptus oil and left open. The animal micturated soon after the operation and passed urine both through the wound and along the natural passage. The passage through the wound ceased after the first day of the operation, 27th January, 1901. The wound was daily dressed antiseptically with what I call an antiseptic emulsion, composed of Boracic acid, Carbolic acid, Iodoform, Eucalyptus oil, and Glycerine, and satisfactory progress continue to be made. The animal was discharged from my Surgery today, 16th February, 1901.

THE VELVET BEAN.

The following notes from the *Queensland Agricultural Gazette* refer to results of experiments made in Mackay, Queensland, by Mr. A. A Ramsay:—

The velvet bean was planted at the beginning of November, 1899, and the analysis refers to the crop at 31st April, 1900. The crop was sown in drills.

Date of Planting—4th November, 1899.
Date of Harvesting—3rd April, 1900.
Yield in tons per acre—18·250.

The analysis gave of moisture	...	72·370 %
1. Mineral matter ...	...	4·232 %
2. Organic matter ...	...	23·398 %
		100·00

1. The Mineral matter contained of potash	·2990
Phosphoric anhydride	·0600
2. The Organic matter continued nitrogen	·8250
Per cent nitrogen in dry substance	2·9858
Moisture per acre of crop ..	13·208 tons.
1. Mineral matter do ...	·772 ,,
2. Organic matter do ...	4·270 ,,
	18·250 tons.

1. Containing potash	...	122·23 lbs.
Phosphoric anhydride	...	24·53 ,,
2. Containing nitrogen	...	337·26 ,,

Money value of potash, phosphoric anhydride and nitrogen per acre £13 10*s.* 9*d.*

THE "UNCULTIVATED" OILS OF CEYLON.

Among the exhibits sent from Ceylon to the great Exhibition at Paris last year was a small collection of the most useful oils produced by forest trees and uncultivated plants. Some of these from their importance as medicinal agents are worthy of special attention and examination by experts, and it is with the object of bringing them to the notice of medical men and others who may be interested in this subject that we are led to enumerate the oils and write short notes on their medical virtues, as known to the natives of Ceylon and India.

1. Duhudu Oil.—This is the product of *Celastrus paniculatus* (Celastraceae) sometimes called the oleum nigrum plant, from the dark colour of the oil. The plant is of the nature of a scandent shrub. It is from the seeds that the dark red oil is extracted. This is acrid and pungent in flavour, and has a tendency to deposit a fat when kept. Medicinally the oil is used in India for beri-beri, rheumatism, dropsy, and also as a diuretic, diaphoretic and nervine stimulant. Among the natives of Ceylon it is considered to strengthen the brain, purify the blood and cure internal and external sores and boils, while it is highly recommended for external application in rheumatic and gouty pains.

2. Iriya Oil.—This is the product of *Myristica irya* (Myristicaceae) a moderate-sized evergreen tree. The oil from the bark is used in the treatment of sores.

3. Wal-del Oil.—This is the produce of *Artocarpus nobilis* (Urticaceae) a fairly large-sized tree. The juice of the bark is used to kill maggots and is said to be used in other ways in cattle treatment. The oil which is not made mention of in any botanical works I have had access to, is, as I am informed, extracted from the seeds, and as the outer shell of the seed when roasted is considered good eating, the oil is probably also edible.

4. Makulu Oil.—This is the product of *Hydnocarpus venenata* (Bixineae) a large tree generally found on the banks of rivers. The seed yields an oil of the consistence of soft butter, known in South India (Kanara) as *Thertag* oil. Externally the oil is used in cutaneoms diseases, and is considered specially valuable in the treatment of leprosy, being recommended as a substitute for the well-known chalmugra oil (got from *Gynocardia odorata*).

5. Divikaduru Oil.—This is the product of *Tabernaemontana dichotoma* (Apocynaceae) also known as the "forbidden fruit," and "Eve's apple. The tree is small in size. The oil is extracted from the seeds and is used in the treatment of sores and ulcers.

6. Madol Oil.—This is the product of *Garcinia echinocarpa* (Guttiferae),—a tall tree of the forests in the lower mountain zone. The thick oil is extracted from the seeds. Thwaites mentions that it is burnt but yields a poor light. The leaves and bark are used in dropsical affections, and also as a vermifuge: no mention is, however, made of the oil being medicinally employed.

(*To be concluded*).

MILCH CATTLE AND THEIR PRODUCE.

The latest volume of Transactions of the Highland and Agricultural Society contains an instructive paper entitled "Lessons of a Milk Record," in which important deductions from a properly-kept record (which every dairy farmer should have) are given by the writer for the benefit of dairy farmers.

In keeping a milk record it is recommended that the milk should not be measured but weighed, and the most convenient way of doing this is by using a spring balance in which the scale is so set that no deduction is necessary for the can.

There are so many causes that affect the quality and quantity of milk that only a long series of records and tests can be expected to supply data for reliable deductions. Rough treatment, exposure to rain and rough weather, change of diet, change of milkers, rapidity of milking, length of interval between milking, unusual excitement, or sickness, all tend to temporarily affect the richness of milk and the quantity yielded; while it is the case that some cows' milk varies considerably *without any apparent cause.*

Cream tables for testing the percentage of cream in milk are to be at once put down as absolutely unreliable. In testing the milk of 20 cows, it was found that while the percentage of cream as

shown by setting varied from 4·7 to 20·3, the percentage of butter fat varied only from 3·2 to 5·6, these limits being exceptional, the majority of fat records approximating 3·5 per cent, while the cream records were very inconsistent.

En passant, the writer gives his vote in favour of separating over cream raising, in view of the former producing more constant and larger percentages of cream and butter.

The most convenient and rapid way of ascertaining the percentage of fat in milk is by using Dr. Babcock's machine.

The percentage of fat as recorded in the case of a milking herd through a period of 5 years varied from 3·45 to 3·68.

The milk was richest when the majority of cows were pretty far on in the period of lactation, exemplifying the old story that when the quantity decreases the quality increases.

Again, cows were found to give richer milk when young than they did after they reached the age of 8 years or upwards. At the commencement of keeping the record in 1894 it took 25 lbs. of milk to make 1 lb. of butter, and with the same cows 5 years later the quality had degenerated so much, that 27½ lbs. were required for the same result. Such facts as these, it will be admitted, are most important to the dairy-farmer, and prove the value of milk records.

As regards milking we are told that a good milker will get more and richer milk than one who does not put life into his work. Continental experiments all point to one conclusion—rapidity of execution and thorough stripping are essential to good dairying. But, as remarked before, there are cases which baffle the most careful experimenters, where every condition may be favourable and yet the precentage of fat is abnormally low.

With milking records available we have the best means of selecting not only our dairy cows but also (what is of more importance) the stud bulls of the farm. It would, therefore, appear that a little time given to the testing of milk as to quantity and quality (it need not be every day, but, regularly) will greatly facilitate our own work and the work of others in the dairy, and help to make dairying a more exact science than it is at present.

QUARTER-ILL.

This is a highly fatal disease that effects the bovine species. It may effect other animals but this must be considered as very exceptional. The cause of the disease is the entrance into the system of a specific germ—the quarter-ill bacillus. The germ is most readily found in the tumours localised in the muscular parts of the body, such as the quarter, shoulder, &c.

Quarter-ill, like distemper in the dog, affects young growing animals. There is a difference of opinion as to a plethoric or non-plethoric condition being predisposing, but the majority of authorities rather incline to favour the former view. Very young calves and full-grown animals are, as indicated above, never attacked except under the rarest circumstances, so that it is to be inferred that the muscular tissues are at a particular age a fit habitat for the bacillus, which thus enters the animal organism from the soil where it first exists.

The most striking symptom is the localised, painful and hot swellings generally about the quarters and shoulder. The chief character of these tumours is the crackling sensation they impart to the touch—due to the pressure of gas within them. As a rule, lameness follows, depending in degree on the localisation and severity of the tumours. Fever and other indications of derangement in the healthy condition of the body are apparent on examination.

There may be said to be three methods of treating quarter-ill:—(1.) The depletory method recognises the use of purgatives, setoning, &c., which are employed also as preventative measures. (2,) Preventative inoculation advocated by French Veterinarians. (3.) Natural prevention, which consists of preserving the surroundings of the animals in a condition that is distateful to the bacillus.

The germ, like most other germs thrives in the soil under certain conditions, and therefore may be said to have a limited existence in it. Contaminated soils would be most prolific in the propagation of the germ, so that it is only reasonable that the greatest precautions should be taken in the disposal of quarter-ill carcases which are best burnt or buried deep with lime.

Land, on which quarter-ill has prevailed, should be well drained and cultivated, though it is problematic whether it is safe to allow the stock to consume the fodder: under any circumstances it is best to prevent all young from grazing on such land.

INTRODUCTION TO ENTOMOLOGY.

(MISS ELEANOR A. ORMEROD.)

Larva (Maggot, Grub, Caterpillar, &c.).—If an insect-egg about to hatch is held against the light, or examined as a transparent object by means of a strong magnifier, it will be seen that there is a speck inside which increases in size and becomes more regular in shape daily, until it is too large for the egg to contain, when it breaks through this thin film which serves as an egg-shell, and often begins life by eating it. This is the larva. It is usually hatched from an egg, but sometimes is produced alive (as some fly-maggots, or Aphides during the summer months). When it is coloured and has many feet, it is usually called a caterpillar; white fleshy larvae, such as those of many Beetles or Flies, are commonly known as grubs or maggots; such as resemble the parent insect are usually known by the name of this insect; but the term of "worm" or "slug" is objectionable, as it leads to confusion.

Larvae differ very much in appearance: some are legless, cylindrical, or blunt at the tail, and tapering at the head end, with the head (which is soft and furnished with hooks by way of feeding apparatus) capable of being drawn some way back into the maggot; many Fly-maggots are of this kind.

Some larave are legless or with the mere rudiments of a pair of legs on each of the three rings behind the head, fleshy, smallest at the tail, and furnished with distiuct head and jaws; such are some kinds of Beetle—and Wasp-grubs; others are strong and fat, a few inches iu length, with three pairs of legs well developed—as the Cockchafer grub.

The caterpillars of the Butterflies and Moths are often beautifully marked, and have for the most part a pair of articulated feet on each of the three segments behind the head, and pairs of fleshy appendages called sucker-feet on some of the other segments and at the end of the tail, not exceeding sixteen in all. These "Sucker-feet" enable the caterpillars to hold firmly to the twigs they frequent. Proceeding onwards still by number of feet, the caterpillars of the Sawflies will be found in every case (Corn Sawfly, *C. pygmoeus*, excepted) to have, besides the three pairs of true feet, five, six, or seven pairs of sucker-feet, and also the pair at the end of the tail (known as the caudal pro-leg).

Sometimes, as with Grasshoppers, Locust, Aphides or Green Fly, Plant Bugs, &c., the young in the first stage—whether produced alive or hatched from the egg—much resembles the parent, that is, has a distinct insect shape, of head with horns, trunk or thorax, furnished with six legs, and abdomen; and differs mainly in size and in being wingless; but, whether in this shape, or what is known as grub, maggot, or caterpillar, or whatever kind of insect it may belong to in this stage, it is scientifically *A. Larva*.

In this larval stage the insect feeds voraciously and often grows fast: the skin does not expand beyoud certain limits, and when this point is arrived at, the larva ceases feeding for a while; the skin loosens, cracks, and is cast of by the creature inside, which comes out in a fresh coat, sometimes like the previous one, sometimes of a different colour or differently marked. This operation is known as moulting, and occurs from time to time till the larva has reached its full growth. The duration of life in the first or larval state is various; in some instances it only extends over a week or two; in some (as with the wireworm and caterpillar of the goat moth) it lasts for a period of three, four, or five years.

As far as observations go at present—that is to say, with such kinds as have at present been obscured—larvae are not injured by an amount of cold much beyond what they are commonly called on to bear in this country, but they are liable to injury from over supply of moisture, whether from sudden rain in warm weather or from full flow of sap of their food-plant, and in this point of their constitutions we have a principle that may help much towards getting rid of them.

When the larva has reached its full growth it ceases feeding, and (in the forms known as caterpillar, grub, or maggot) it usually either goes down into the ground and forms a cell in the earth, or spins a "cocoon" (that is, a web) round itself of threads drawn from the lower lip (as in the well-known silkworm-cocoon), or in some way it makes or seeks a shelter in which it changes from the state or *larva* to that of *pupa*. These various changes are not mere matters of curious enquiry, but can be used very serviceably, in prevention of recurrence of attack.

COMPOSITION OF INDIAN COWS' AND BUFFALOES' MILK.

Agricultural Ledger (Calcutta), No. 19, treats of this subject.

The information on the compositiou of Indian Cows' and Buffaloes' Milk is very meagre. One analysis of cows' and one of buffaloes' milk was published in the Proceedings of the Madras Board of Revenue in 1892 (*vide* Board's Proceedings No. 387, dated 25th May, 1892), and the average composition of each kind of milk is published in Mr. Collins' Agricultural Chemistry, page 28. The latter were deduced from a number of analyses which Mr. Collins made at Poona, but unfortunately the Note Books containing the details were lost in transit by rail in 1898.

The composition of cows' milk has been found in England to be very regular for different breeds, and to possess a relationship between the several component parts for all the breeds. It is of importance to know whether these relationships hold good for Indian breeds of cows, and to what extent they vary in the case of the buffalo.

The analyses published by the Madras Board of Revenue are only two in number, and are therefore quite insufficient for the purpose in any case. In addition, however, they show the proportions of Proteids and Lactose to be alltogether different from anything met with in the case of English cow's milk.

Mr. Collins found, on the other hand, that the composition of the milk of the several breeds of cows at Poona coincided with that of English breeds. The milk of the buffalo he discovered was characterised by a high proportion of butter-fat and considerably more Proteids than that of the cow. Owing to the loss of the detailed notes, it seemed to me very desirable that the work should be repeated, and in the following pages I give the composition of the milk of some of the cows and buffaloes at Poona, and that of the cows at the Saidapet Agricultural College Farm. This information is set out in the accompanying Statements Nos. I., II. and III.

It has been found in England that (*a*) there exists a relationship between the Solids-not-Fat, the fat and the specific gravity, and (*b*) between the proportions of Proteids, Lactose and Mineral matter (ash), and that these relationships are constant, within certain limits, for all the several breeds.

Regarding the former, several formulæ exist. That of Richmoud (*vide* "Analyst," Vol. XX., p. 57) is expressed, thus:—$S = \cdot 25G + \cdot 2F + \cdot 14$. Another recently worked out by Leonard is expressed:—$F = \frac{4}{5}\left(T - \frac{G}{4}\right) + (0 \cdot 3 - 0 \cdot 004T - 0 \cdot 01G)$ where T = Total Solids; S = Solids-not-fat; F = Fat; G = the excess of gravity over 1,000. The latter formula gives results which differ only slightly from Richmond's. The proportions of

Proteids, Lactose and Mineral matter in English cows' milk has been found to be approximately as 9 : 13 : 2. It is of interest then to consider in how far those relationships hold good for Indian cow's milk.

In the case of the Poona cows' milk, the specific gravity was not determined, but this was done for the milk at Saidapet. The results are set out in the lower part of Statement No. III., from which it will be seen that the relation between the Solids-not-fat, the Fat and the Specific gravity is the same as it is in the milk of English cows, the variation between the proportion found by analysis and that calculated by Richmond's formula lying within the error of experiment. Similarly, in the lower part of statement No. II. is set out the proportion of Solids-not-Fat found and calculated for those buffalo milks in which the specific gravity was determined at Poona, and here also the relationship holds good and is the same as for English and Indian cows' milk.

Regarding the relation between the proportions of Proteids, Lactose, and Mineral matter, Statement No. IV. exhibits it for two samples of the average milk of the Poona cows, for three samples of the average cows' milk at Saidapet, and for the average buffalo milk at Poona.

Statement No. IV.

	Proteids.	Lactose.	Mineral matter.
Cows' milk, Poona, average, 6th February, 1899	9·20	12·86	1·94
Cows' milk, Poona, average, 28th February, 1899	9·25	12·72	2·03
Cows' milk, Saidapet, average, 29th March, 1900...	8·66	12·25	2·09
Cows' milk, Saidapet, average, 4th April, 1900 ...	8·71	13·25	2·04
Cows' milk, Saidapet, average, 7th April, 1900 ...	8·74	13·31	1·95
Buffaloes' milk, Poona, average, 6th March, 1899	10·78	11·33	1·89

From these figures it is evident that in this respect also, the milk of the Indian cow corresponds to that of the English one, and that the proportions of Proteids, Lactose and Mineral matter is approximately as 9 : 13 : 2. In the case of the buffalo milk the relationship is different, that of Proteids being distinctly higher, that of Lactose lower than in cow's milk,

Generally, it may be said that :—(*a*) The milk of the Indian cow containsa high proportion of butter-fat, varying from 4 up to 6 per cent. Buffaloes' milk contains usually much more, varying from 5 or 6 per cent up to as much as 10 per cent. (*b*) The percentage of Proteids (Albumen and Casein) usually varies in cows' milk from 3·1 up to 3·5 ; in buffaloes' milk from 3·5 up to 4·3. The buffalo, Nevasi, was exceptional. Such proportions as 5·0 and 5·2 per cent of Proteids as stated in the Madras publication referred to, are never found ; (*c*) The percentage of milk sugar (Lactose) in the cow's milk varies from 4·4 to 5·0, and in buffaloes' milk it is present in about the same proportion. It is never so low as is stated in the Madras publication ; (*d*) The percentage of Mineral matter in the cow's and buffaloe's milk varies from about 7 to 8 as it does in English milk.

ORIGIN OF THE SEEDLESS ORANGE.

The first seedless orange-trees were apparently freaks of nature. Their counterparts have never been found. In the summer of 1872 William F. Judson, United States Consul at Bahia, Brazil, heard an account from natives of a few trees in the swamps on the north bank of the Amazon, some sixty miles inland, that bore oranges without seeds. He had heard of the starting of orange groves in Florida, and he believed that seedless orange-trees were well worth experimenting with there. So he sent a native up the river to cut some shoots of the trees and get some of the fruit. When the native returned the Consul was delighted with the specimens. Forthwith he sent six of the orange-tree shoots, carefully packed in wet moss and clay, to the Agricultural Department at Washington for propagation. The trees did not excite as much attention in the Department as the enthusiastic Consul had expected. Two of the shoots, which were no bigger than horse-whips, died from lack of care in the Department grounds, and the others were almost forgotten in a few months.

In the winter of 1873, Mrs. Horatio Tibbetts, who was collecting specimens of fruits and shrubs suitable for experimental propagation in southern California, among other things got from the Department grounds the four surviving orange-tree shoots from Brazil. The trees reached Mr. Tibbets safely at Riverdale, Cal., a week later and were immediately planted. That was in December, 1873. Two of the shoots died from neglect and another was broken and chewed up by a cow. Five years passed and the two surviving trees came into bearing. In the winter of 1878-9 they bore sixteen oranges, the first seedless oranges ever grown in North America. The specimens were carried about southern California, and shown to all ranchmen and fruit-growers. There were many who doubted whether the trees would annually bear such royal specimens of orange culture. Nearly everyone believed that the fruit would become coarse and tough in a few years more. So the second crop was awaited with curiosity among the neighbours. There were about a box of oranges in the second yield, and they were even better than those of the first crop.

The planting of groves of seedless orange trees propagated from buds from the two original trees on the Tibbetts' place began in earnest throughout southern California in the winter of 1882.

A year or two after the orange trees that had been propagated from the Tibbetts' trees began to bear, and they themselves furnished tens of thousands of navel buds as good as those from the two original trees. Then the first navel orange groves began to bear fruit, and from that time the boom in naval orange groves has continued.—*New York Sun.*

GENERAL ITEMS.

A curious way of dwarfing plants for table decoration, says an exchange, is to take an orange, and, having cut a small hole in the peel, to remove all pulp and juice, fill the skin thus emptied with some coconut fibre, fine moss, and charcoal. just stiffened with a little loam. In the centre of this put an acorn, date stone, or the kernel of any tree that it is proposed to obtain a dwarf from. Place the orange peel in a tumbler or vase in a window, and moisten the contents occasionally with a little water through the hole in the peel, and sprinkle the surface with fine wood ashes. In due time the tree will push up its stem through the compost and its roots through the orange peel. The roots must then be cut flush with the peel, and the process repeated frequently for some time. The stem of the tree will assume a stunted gnarled appearance, making it look like an old tree. When the ends of the roots are cut for the last time, the orange peel which curiously enough does not rot, may be painted black and varnished. Has any one given this a trial? It is worth trying whether it will succeed with us in a tropical climate.

Mr. Ranglaret, a Frenchman, has discovered a very simple means of stopping bolting horses. It consists of a pair of moveable blinkers fixed with the ordinary blinkers, and connected by means of a string which passing through a ring attached to the collar or saddle is held by the driver. On the horse bolting the string is simply pulled till the false blinkers close up the eyes of the horse so that he cannot see and stops bolting. It is said that experiments carried out before the French Minister of War proved entirely satisfactory.

The imperial cwt. of 112 lbs. may be taken in an average fed animal as representing 64 lbs. carcass or dead weight. Prime animals would give a larger percentage of carcass, perhaps as high as 72 lbs. in very choice bullocks, anp inferior cattle a less proportion down to 60 lbs. per cwt. live weight.

The following is recommended as the best ration for a horse during a sea voyage: 5 lbs. oats, 5 lbs. bran, 10 lbs. (about 3 cubic feet) hay, 8 lbs. straw, ½ gill vinegar, ½ oz. nitre, and 8 gallons water.

To avoid the labour of constantly stirring jam, in the course of preparation, place half a crown in the bottom of the cooking pan, before putting the fruit in. You will find (says the *Australian Farm and Home*) that the trouble will be overcome. The movement of the coin caused by the operation of boiling prevents burning quite as much as stirring will. Remember that the effect will be spoiled if any stirring is done.

The TROPICAL AGRICULTURIST MONTHLY.

XX. COLOMBO, APRIL 1st, 1901. No. 10.

CACAO PODS AND THEIR SEED.

(By J. B. Carruthers, F.L.S.)

CACAO is grown for its seed, and the value of the fruit depends upon the quality and weight of the seed contained in it.

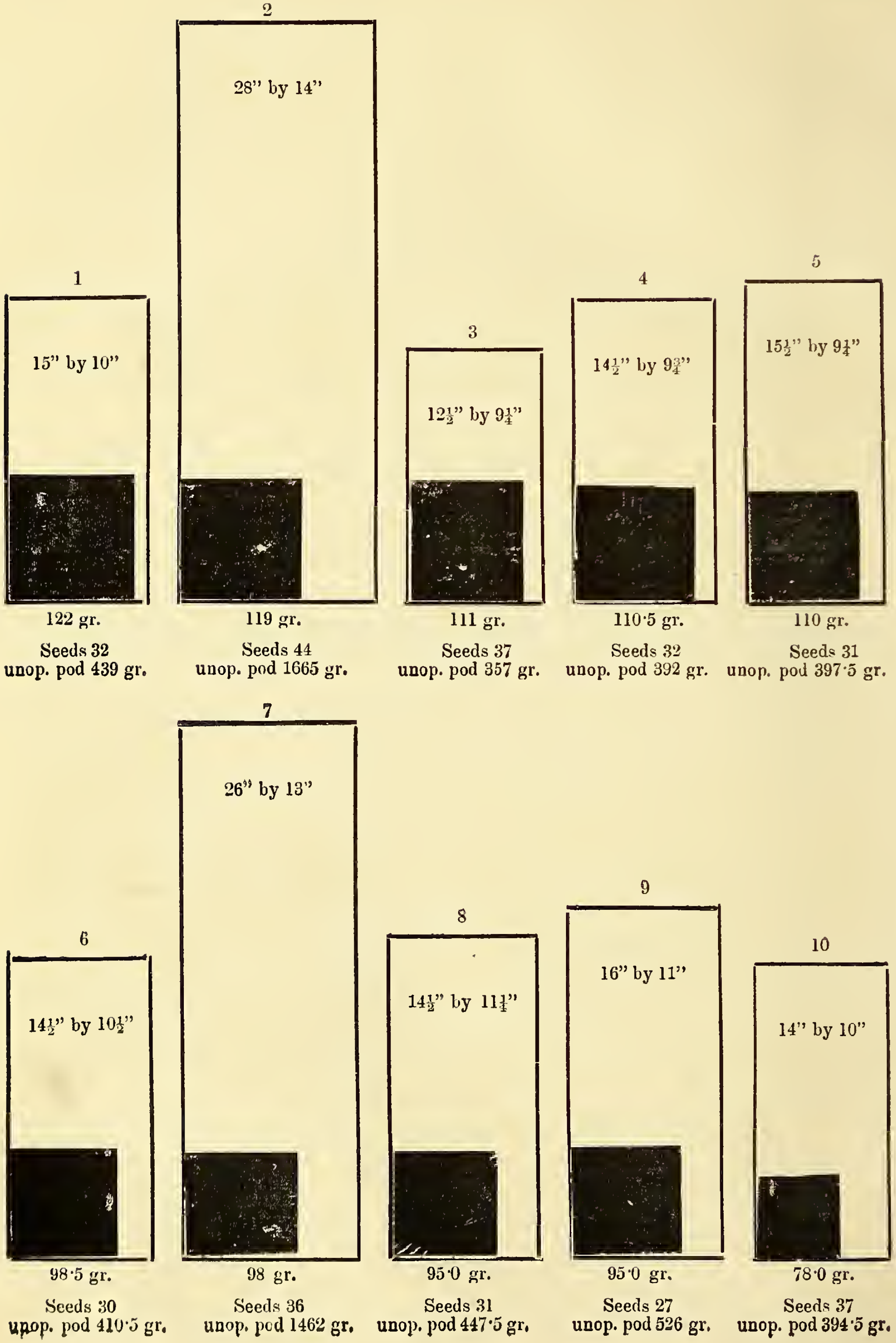
In selecting Cacao pods for seed planting, it is important to know if any external characteristics can be used as guides. As a rule, in Ceylon, Cacao planters have their individual methods of selection by colour, shape, size or other character. Thus, one man chooses the biggest pods, another the longest which have a knobby fruit wall, another those of a certain shade of colour.

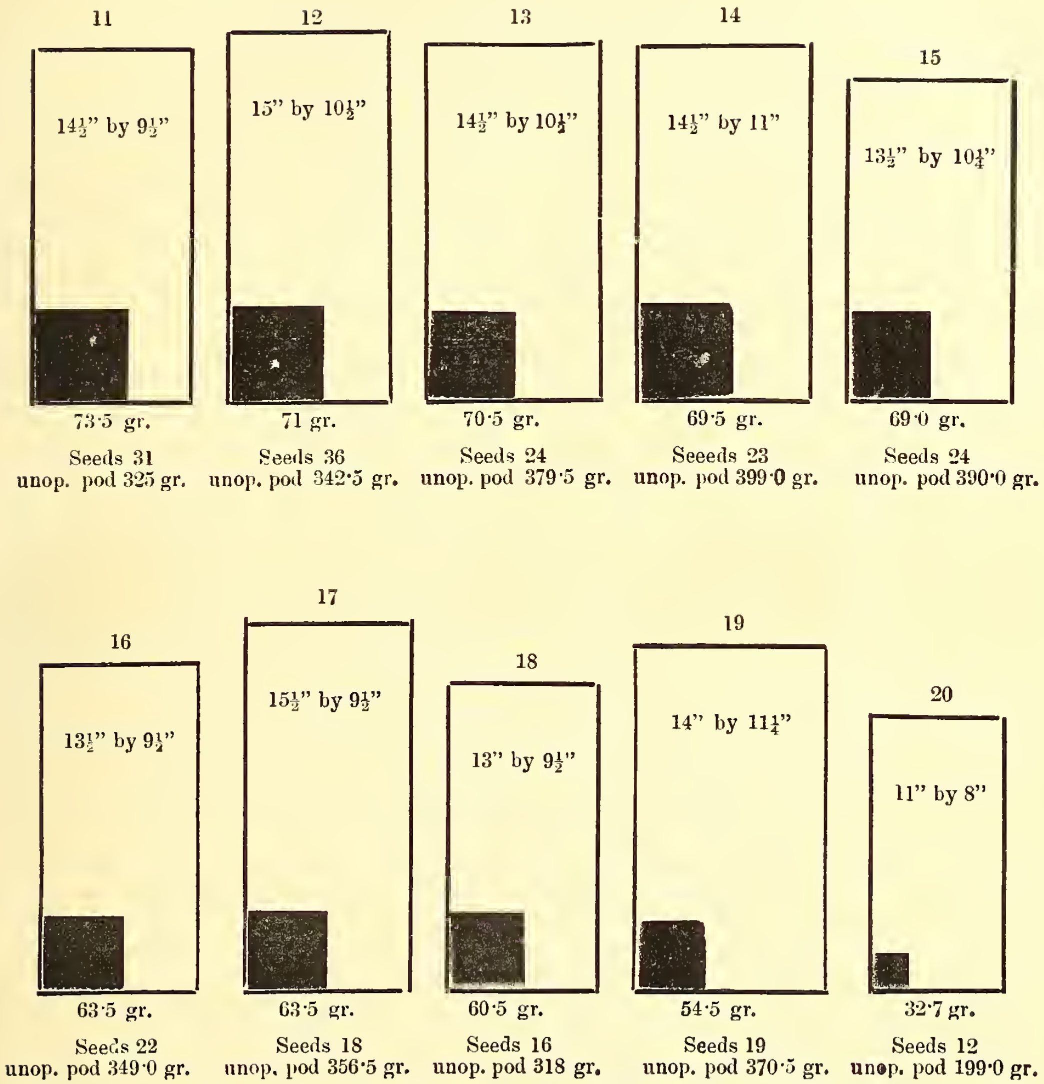
In order to test the value of characters such as these, I have begun to measure and weigh a series of pods of different varieties, grown under varying conditions, and so far as my experiments have gone (only to the examination of some two or three hundred), the characters of size and weight of the fruit do not afford any criterion of the weight of contained seed, which is the only consideration to the planter growing Cacao for the market.

The diagrams (pp. 656-657) are drawn to scale, and they show so far as they go that the size of the fruit is due chiefly to the thickness of the fruit wall and gives no clue to the number or weight of the seeds in the pod.

The investigation of these and other pods points to the uselessness of any selection of pods for seed by external appearance. A more hopeful method and one calculated to improve the Cacao plant, is the selection of seed from parents possessing marked advantages over their fellows, such as abnormally large and regular production of fruit, *i.e.*, large number of pods on the tree or large number of heavy seeds in the pod, hardiness against varying conditions, production of fruit at a suitable dry season of the year, quickness in growing to maturity and the fruit-producing period. These and similar advantageous qualities in parents should by selection be perpetuated as far as possible.

When a larger number of records of these measurements and weights of the fruit of Cacao have been collected, more definite knowledge will be gained as to methods of selection by fruit characters. The diagrams, however, of these twenty fruits will perhaps induce planters to make such observations, and so gain information as to the nature of the Cacao pod which would give the best return to the cultivator and the least waste, so that selection should be carried on in the right direction. The waste material in pods 2 and 7 is in the proportion of 13 to 1, whereas in 1, 3 and 4 it is less than 4 to 1. The magnificent proportions of pods like these two (2 and 7) must be considered in the calm light of the commercial value of the seeds which at once brings them on a level with pods of an average or even diminutive size, and the tree in producing the latter is not using its forces to form so much material which brings no monetary return.


1
15" by 10"
122 gr.
Seeds 32
unop. pod 439 gr.
2
28" by 14"
119 gr.
Seeds 44
unop. pod 1665 gr.
3
12½" by 9¼"
111 gr.
Seeds 37
unop. pod 357 gr.
4
14½" by 9¾"
110·5 gr.
Seeds 32
unop. pod 392 gr.
5
15½" by 9¼"
110 gr.
Seeds 31
unop. pod 397·5 gr.
6
14½" by 10½"
98·5 gr.
Seeds 30
unop. pod 410·5 gr.
7
26" by 13"
98 gr.
Seeds 36
unop. pod 1462 gr.
8
14½" by 11¼"
95·0 gr.
Seeds 31
unop. pod 447·5 gr.
9
16" by 11"
95·0 gr.
Seeds 27
unop. pod 526 gr.
10
14" by 10"
78·0 gr.
Seeds 37
unop. pod 394·5 gr.



The figures in the unshaded part of the diagrams are the two perimeters, *i.e.*, measurement round lengthways and circumference at the thickest part, in inches. The figures under the shaded part are the weights in grammes of the seeds in the pod. The total weight of unopened pod and number of seeds are given below each figure.

TEA SALES IN COLOMBO LAST YEAR.

The local "Times" has been compiling the estate and total averages for last year's Colombo Sales. On the whole, the result is encouraging for supporters of the Colombo Sales, and we trust the day is not far distant when through the abolition of the absurdly anomalous import duty (accompanied by expert Customs inspection) the business and importance of the local Sales may increase, leading to the arrival of more buyers to what ought to be one of the greatest tea markets in the world. Meantime here are the results :—

ANNUAL TOTAL AND AVERAGE.

	lbs.	cts.		lbs.	cts.
1891	9,578,611	41	1896	25,402,624	41
1892	11,578,869	41	1897	26,512,099	36½
1893	14,365,017	43	1898	28,847,212	35
1894	15,723,020	43	1899	32,472,010	38¼
1895	19,668,116	47	1900	38,442,926	34½

HIGHEST ESTATE AVERAGES FOR 1900:

	lbs.	cts.
High Forest	278,000	59
Monkswood	173,600	55
Palmerston	92,000	55
Devonford	67,000	54
Sutton	43,500	53
Glassaugh	203,000	53
St. John's	136,500	53
Naseby	108,000	52
Mocha	177,000	52
Warleigh	21,500	52
Summer Hill	188,800	51
New Galway	17,000	50
Agra Elbedde	97,000	49
Tymawr	170,000	48
Agra Ouvah	373,000	48
Errollwood	86,000	46
Gonapatiya	160,600	47
Dunbar	95,400	47
Avoca	62,000	47
Ireby	99,000	47
Stafford	35,000	47
Iona	104,000	47
Strathspey	53,000	46
Ovoca	62,000	45
Glasgow	380,000	45
Kenmare	23,000	45
Hatton	91,800	45
Middleton	102,000	45
Cleveland	62,000	45
Roeberry	212,000	45
Fetteresso	17,000	44
Mt. Everest	113,800	44
Wallaha	73,000	44
Bunyan	10,000	44
Eton	24,000	44
Lynsted	50,400	44
Haputalewelle	12,000	43
Dambagastalawa	84,000	43
Adisham	45,000	43
Cullen	37,000	43
Stamford Hill	105,000	43
Forest Creek	317,000	43
Warwick	51,500	43
Carfax	66,200	43
Marigold	138,000	43
Seenagolla	65,000	43
Clarendon	32,000	43
Annandale	107,000	43
Fairlawn	79,000	42
Harrow	121,000	42
Nahavilla	136,000	42
New Valley	128,000	42

	lbs.	cts
Gomalia	30,100	42
Ardlaw & Wishford	174,000	42
Bittacy	65,000	42
Ben Nevis	53,000	42
Queensland	130,000	42
Rahatungoda	101 500	42
Osborne	56,500	42
Drayton	89,000	41
Killarney	108,000	41
Glentilt	23,000	41
Birnam	9,000	41
Choisy	103,000	41
Frogmore	24,300	41
Harrington	116,300	41
Lindupatna	58,000	41
Blinkbonnie	86,000	41
Columbia	85 500	40
Troup	15,000	40
Inverness	90,000	40
Oakwell	17,000	40
Passara Group	141,000	40
St. Pauls'	186,000	40
Fairfield	66,000	40
Doonhinde	47,000	40
Anchor Mark	34,000	40
Tonacombe	280,000	40
Mansfield	109,000	40
Templestowe	185,000	40
Pendle	38,000	40
Tyspane	40,000	40
Rothes	25,000	39
Kirrekelle	37,500	39
Passara	40,000	39
Marlborough	80,000	39
Callander	71,800	39
Non Pariel	22,600	39
Castlereagh	213,000	39
Ruanwella	123,700	39
Maskeliya	141,000	39
Gampaha	158,000	39
Dunkeld	212,000	39
Mandara Newara	59,700	39
Mossend	25,000	39
Lameliere	112,000	39
Rowley	66,900	38
Erlsmere	138 000	38
Hornsey	156,500	38
Rookwood	248,000	38
Oonoogaloya	114,000	38
Munukattia	85,600	38
Aberdeen	137,000	38

	lbs.	cts.
Maha Uva	280,000	38
Mt. Vernon	62,000	38
Mousakella	95,000	38
BandaraEliya	276,000	38
Lyegrove	28,000	38
Gangawatte	173,000	37
Stockholm	19,000	37
Bargany	50,700	37
Beverley	16,200	37
Corfu	58,000	37
Ohiya	55,000	37
Brownlow	306,000	37
Yapame	37,000	37
Walton	47,500	37
Kelaneiya and Braemar	112,000	37
Deaculla	138,500	37
Kolapatna	34,000	37
Whyddon	71,000	37
Oakham	46,000	37
Parsloes	100,600	37
Galapitakanda	97,000	37
Penrhos	202,000	37
St. Heliers	95,600	37
Ottery	159,000	36
Gonavy	155,000	36
Deyanilla	15,000	36
Gingran Oya	39,500	36
Nillomally	165,800	36
Luckyland	18,000	36
Hopewell	69,000	36
Loughton	55,000	36
Kirklees	140,000	36
Ingrogalla	77,000	36
Battawatte	169,000	36
Grange Garden	79,000	36
Mahanilu	139,000	36
Galella	100,000	36
Deniyaya	141,000	36
Great Valley	231,000	36
Dickapittia	115,000	35
Doragalla	210,500	35
Elchico	60,000	35
Agars Land	29,000	35
Glengariffe	135,000	35
Maldeniya	89,000	35
Ferndale	115,000	35
Nyanza	134,000	35
Coreen	70 000	35
Battalgalla	83,500	35
Coslanda	67,000	35
Theydon Bois	110,000	35
Dammeria	254,000	35
Rambodde	74,600	35
Lonach	159,300	35
Mora Ella	101,000	35
Bidbury	20,500	35
Patisgama	97,000	35
Galloola	135,000	35
Perth	120,000	35
Little Valley	89,000	34
Orpington	15,500	34
Cotswold	46,000	34
Attampettia	15,000	34
Dalhousie	70,000	34
Maragalla	39,300	34
Agra Oya	108,000	34
Telbedde	38,000	34
Ouvahkellie	14.000	34
Hayes	267,500	34
Pallegodda	308,000	34
Cooroondoowatte	90,000	34
Old Maddegamme	102,000	34
Arapolakande	267,000	34
Clyde	187,000	34
Woodstock	12,200	34

	lbs.	cts.
Kandaloya	156,500	34
Kellebokke	43,000	34
Wadhurst	16,000	34
Oonankande	26,500	34
Oonanagalla	27,000	34
Weemalla	20 000	34
Yakka	26,000	34
Jak Tree Hill	37,700	34
Gwernet	23,000	34
Macaldenia	77,000	34
Rickarton	20,500	34
Digdola	76,000	33
Meddakande	61,300	33
Tembiligalla	115,000	33
Yarrow	173,000	33
Suduganga	57,000	33
Theberton	41,700	33
Ravana	54,000	33
Ranasinghapatna	174,000	33
Bollagalla	62,000	33
Palawatte	11,000	33
Waitalawa	103,000	33
Dea Ella	73,000	33
Kotagaloya	17,000	33
Yahalatenne	22,000	33
St. Johns Wood	10,000	33
Villehena	33,500	33
Stisted	44,000	33
Kincora	121,000	33
Hopton	155,000	33
Glenden	131,000	33
Malvern	91,000	33
Massena	63,500	33
Cairn Hill	29,500	33
Thedden	79,500	33
Tientsin	9,000	32
Koslande	72,000	32
Aberfoyle	48,000	32
Dryburgh	65 000	32
Haugran Oya	152,000	32
Glenalmond	21,000	32
Monte Christo	46.000	32
Matale	88,000	32
Farnham	118,000	32
Tavalamtenne	35,000	32
New Rasagalla	60,900	32
Morankande	70,000	32
Sapitiyagoda	67,700	32
Meddegodde	79,400	32
St. Catherine	30,000	32
Pine Hill	190,500	32
Richmond Hill	24,500	32
Gampai	50,000	32
Wahagapitiya	8,000	32
Vogan	446,000	32
Ella Oya	118,600	32
Chesterford	334,000	32
Glencorse	183,000	32
Anningkanda	77.500	32
Mapitigama	63,000	32
Galphele	93,000	32
Evalgolla	46,000	32
Panilkande	113,500	32
St. Martin	24,000	32
Raven Oya	12,800	32
Murraythwaite	88,000	32
Morahela	151,500	32
Rondura	190,000	32
Hiralouvah	361,000	31
Choughleigh	33,500	31
Pindeniya	37,600	31
Kelani	212,000	31
Torwood	170,000	31
Weyungawatte	193,000	31
Putupaula	191,000	31
Irex	106,000	31

	lbs.	cst.
Ganapalla	264,000	31
Pitadeniya	22,000	31
Harrisland	28,500	31
Bloomfield	63,600	31
Gansarapolla	22,500	31
Waratenne	63,700	31
Ardnthie	9,000	31
Dalukoya	68,000	31
Amblakande	56,000	31
Claremont	33,600	31
Kurunegalle Estate Co.	45,500	31
Ravenscraig	82,800	31
Galpottagama	17,000	31
Hentleys	25,000	31
Galkadua	59,500	31
Talgaswella	197,600	31
Bevey	12,000	31
Neboda	191,600	31
Raven Oya	15,800	31
Walpita	92,000	31
Yataderia	58,000	31
Raygam	250,000	31
Siriniwasa	106,000	31
Mel Villa	13,600	31
Eadella	47,000	31
St Edwards	16,300	31
Elston	51,700	31
Kurnwathai	21,300	31
Bickley	68,000	31
Shrubs Hill	212,000	31
Freds Ruhe	134,000	31
Gallawatte	136,000	31
Holmsdale	35,000	30
Yellangowry	22,700	30
Sindumallay	49,000	30
Mahapahagalla	18,000	30
Ewhurst	18,700	30
Kitulgalle	65,000	30
Erracht	222,000	30
Amblangoda	60,800	30
K. P. W.	211,000	30
Halwatura	198,000	30
Kakiriskande	16,700	30
Knavesmire	326,000	30
Wewawatte	20,600	30
Kotuagedere	101,000	30
Lower Dikoya	53,000	30
Maddagedera	103,000	30
Horagoda	44,000	30
Kosgama	34 000	30
Wewatenne	40,000	30
Forest Hill	52,000	30
KeenagahaElla	63,000	30
Auburn	40,900	30
Hapugastenne	84,700	30
Tempo	80,000	30
Weoya	191,000	30
Yaha Ella	24,000	30
Syston	44,000	30
Woodthorpe	45,800	30
Neuchatel	208,500	30
Mahatenne	88·400	30
Halgolla	105,000	30
Ratwatte	73,000	30
Handrokande	11 000	30
Roseneath	72,000	30
Harangalla	211,000	30
Doonevale	8,500	30
Dikmukalana	62,000	29
Ladysmith	176,000	29
Havilland	51,000	29
Narangoda	113,000	29
Carney	53,000	29
Warakamnre	182,000	29
Mary Hill	63,000	29
Sirikandura	70,500	29
Kalupahana	18,000	29
Nugagalla	69,000	29
Torrington	61,500	29

	lbs.	cts.
Nillicollay-watte	41,500	29
Polgahakanda	104,000	29
Silverton	55,000	29
Lyndhurst	64,500	29
Bodawa	13,600	29
Ninfield	58,500	29
Holton	60,000	29
Beaumont	106,000	29
Ascot	21,000	29
Doranakande	169,000	29
Yellateune	10,000	29
Clunes	200,000	29
Weriatenne	21,000	29
Nuawella	51,500	29
Carendon	34,000	29
Monrovia	119,000	29
Hatdowa	90,000	29
Kahatagalla	8 000	29
Myraganga	266,000	29
Gangwarily	69,000	29
Wendura	31,500	29
Mousa Eliya	30,000	29
Caledonia	11,500	29
Eladuwa	37,000	29
Moragalla	20,000	29
Kanangama	97,000	29
Sada Mulla	43,000	29
Ingeriya	103,000	29
Honiton	60 900	29
Ferriby	116,000	29
Eilandhu	25,000	29
Labugama	66,000	29
Depedene	112,000	29
Graceland	23,700	29
Mahayaya	27,400	29
Pannawatte	17,000	29
Waragalande	22,000	29
Mahalla	36,600	29
Oakfield	25,000	29
Udapolla	27,000	29
Ettie	16,000	28
Henhurst	46,000	28
Mary Land	15,000	28
Manickwate	52,000	28
Kurulugalla	67,000	28
Hanagama	113,000	28
Beausijour	36,000	28
Salawe	75,000	28
Paradise	43,600	28
Welgampola	24,000	28
Bellongalla	106,000	28
Eila	227,000	28
Geragama	233,000	28
Ambragalla	225,000	28
Galkanda	47,000	28
Bokutua	8,500	28
Yatiyana	30,000	28
Polatagama	405,000	28
Primrose Hill	33,000	28
Palm Garden	22,500	28
Pansalatenne	90,000	28
Dooroomadelle	51,000	28
Gleuesk	41,000	28
Bogahagoda-watte	42,000	28
Wilpita	39,000	28
Horagaskelle	8,600	28
Charlie Hill	35,000	28
Selvawatee	23,000	28
Hapugas-		28
mulle	49,000	28
Killin	59,300	28
Kadienlena	26,000	28
New Angamana	28,000	28
Puspone	60,600	28
Woodend	222,400	28
Halbarawe	22,000	27
Lunugalla	48,000	27
Hanwela	27,500	27

	lbs.	cts.
Poilakande	238,000	27
Yspa	21,000	27
Neetiagoda	8,000	27
Avisawella	212,000	27
Oaklands	64,000	27
Allagalla	16,800	27
Mawiliganga-watte	187,000	
St. Leonards		27
on Sea	52,900	27
T. Vila	50,800	27
Natuwakelle	38,000	27
Yogama	18,000	27
Vincit	63,500	27
Damblagolla	36,600	27
Elkaduwa	28,500	27
Riseland	15,000	27
Ketadola	31,000	27
Mousakanda	41,500	27
Patulpana	17,000	27
Citrus	95,100	27
Labuduwa	11,000	27
Ettapolla	15,000	27
Mt. Clare	57,000	27
Hurstpierpoint	11,000	26
Bope	12,000	26
Uragalla	10,000	26
Mount Temple	36,500	26
Mount Pleasant	5,500	26
Nakiadeniya	81,500	26
Kurulana	18,000	26

	lbs.	cts.
California	25,300	26
Ambalawa	57,700	26
Halloowella	9,800	26
Danawakande	9,400	26
Bloom Park	19,000	26
Udabage	37,000	26
Kosgahahena	31,300	25
Kosgalla	38,300	25
Maligatenne	62,000	25
Paragabakande	23,100	25
Tiddydale	36,400	25
Orange Field	26,800	25
Sangaly Toppe	8,000	25
Mossville	7,500	25
Dumbarton	16,600	25
Uda	30,000	24
Koladeniya	31,000	24
Pituville	10,000	24
Bowhill	11,000	24
Florida	25,000	24
Illukettia	20,000	24
Ossington	32,000	24
Attiville	67,000	23
Ahamad	27,000	23
Kerenvilla	18 000	23
Akkara Totum	9,700	23
Dartry	16,800	23
Trewardene	10,800	22
Kananke	14,000	22
Mahaousa	38,000	21
Dehiowita	26,000	20

THE AGRICULTURAL CHEMIST TO THE GOVERNMENT OF MYSORE.

The following are Extracts from the Report of the Agricultural Chemist to the Government of Mysore for the year 1899-1900 :—

LABORATORY.

As a Chemical Laboratory is a matter of prime importance to an Agricultural Chemist, several plans for such a laboratory were prepared by the Agricultural Chemists and State Geologist. The plan selected by the Government provides for the chemical work of the Geological Department being done in the same building as that containing the laboratories and office of the Department of Agriculture. In it the present "Geological Laboratory" is included. The fixtures are being made similar to those of the laboratory of the Central Experimental Farm, Ottawa, Canada, and will, it is hoped, prove as eminently satisfactory as those from which they were copied. Before building the necessary additions, the Department of Public Works are kindly undertaking to make all the changes required in the present building to adapt it to the new requirements. This wil give the Chemist some space in which he can begin analytical work before the entire building is completed—a kindness for which he is very grateful to Goverument and their Department of Public Works. The chemical apparatus has beeu selected from various catalogues so as to get the best value. As always, a portion of it had to be made to order to meet special requirements or to embody improvements which appeared desirable. A large portion of it has arrived.

SAMPLES.

Chemical.—Twenty-five samples taken in connection with the study of various problems of general interest to coffee planters are awaiting analysis. In addition to these, ten miscellaneous samples have been received. To dispose of this work only will require at least three or four months, and numerous other samples are waiting to be sent as soon as there is some prospect of their beiug taken in hand.

Mycological.—Eleven samples of plants affected with fungoid diseases were received and disposed of as circumstances permitted. All that could be done was

to recommend the application of Bordeaux mixture where practicable.

Entomological.—Three parcels of larvæ of injurious insects were received during the year. For leaf-eating insects not protected by a covering, an application of Paris green cannot be too strongly recommended, provided care is taken not to poison domestic animals or men. Paris green is an arsenite of copper which has been largely used as a pigment; and is now one of the most popular insecticides. It may be applied either as a spray when suspended in water (about one ounce to ten gallons of water) or dusted on the plants in the dry condition when mixed with 100 times its weight of perfectly dry fine flour or better still "land plaster" (Gypsum) if it can be got. Since the close of the year, several samples of injurious insects and plant diseases have been received. These made it necessary to visit several fields, and have led to a practical demonstration in applying Bordeaux mixture. Paris green could not, unfortunately, be obtained at the time. In the near future it may be necessary to write a bulletin on the subject. When sending insects it is absolutely necessary to provide them with some of the leaves of the plants on which they are feeding.

Much more important than the correspondence, in the way of giving information, were the interviews in the office; and more important still, the talks and lectures on the estates, the villages, or the fields and gardens visited when on tour. But of these no record is kept. In response to an invitation from the United Planters' Association a general outline of plot experiments and some of the fundamental principles of manuring were discussed at their meeting held in Bangalore.

TOURS.

The three principal tours undertaken during the year were:—

1. To Bidadi and Closepet,
2. To Koppa.
3. To Shimoga District and Mangalore,

A tour to Koppa was undertaken in July to become personally acquainted with the effect of the very heavy rains which usually occur during that season of the year in the Malnad Districts. But owing to the practical failure of the monsoon, not even a moderately heavy shower of rain occurred during the stay of nearly two weeks. The time was occupied in noting what could be seen of the diseases of coffee and arecanut. These diseases are of a fungoid nature. The condition of the mcisture which largely influences the growth of the specific fungus, especially Koleroga, is doubtlessly one of the most important factors in the spread of the diseases mentioned. But as the vitality of the trees has doubtlessly something to do with resisting the attack of the disease, the task of finding a remedy is not absolutely hopeless.

The coffee works at Mangalore were visited to see the last step of the preparation of coffee for the European market.—*Planting Opinion.*

RICE CULTIVATION.

(*From a Correspondent.*)

Some weeks ago you published a letter from your South Mysore correspondent which contained, amongst other interesting details of planting news from that locality, an allusion to the fact that some Mysore planters are embarking in rice cultivation, in conjunction with that of their coffee estates. An agricultural undertaking of this description requires practical experience in order to insure its being profitably conducted, and the following particulars may therefore prove useful to those who have not essayed the cultivation of paddy, or to such as have still something to learn on that subject, the more so, as with the acute crisis through which the coffee industry is now passing, every estate proprietor will hail with satisfaction any facilities for augmenting the revenue accruing from his holdings. There are probably many blocks held by planters which either include lands within their boundaries suited to the profitable growth of paddy, or which, from their close proximity to the latter, can be conveniently taken up from Government, or from private landlords, while the advantages of utilising such areas for raising an article of consumption available for the labour employed, both in the growth of the cereal itself and on that engaged on their estates, are so obvious, that it seems strange rice has not hitherto been more largely tried by European planters.

There are two methods by which paddy can be successfully grown in the planting districts, namely, by indigenous, *i.e.*, local labour and by imported coolies, the former being preferable, as it is continuously available, and better trained to this special work. The scale of remuneration ruling for local labour employed on wet lands usually consists of a daily payment in the form of doles of grain, a man receiving for a full day's work approximately 4 lbs. of paddy, and a woman 3 lbs., while one anna in cash is disbursed weekly to such of the former as may have laboured for not less than five days in each week, and twice a year all hands are presented with a couple of coarse white cloths, on the anniversary of their two principal festivals, in April and August. Imported labour is, however, paid in specie at the rate of 4 annas per man and 2½ annas per woman daily. It may be assumed that, on the average, the value of paddy in the planting districts does not exceed R2 per maund, of 82 lbs, and upon such hypothesis the rate of remuneration earned by imported labour is rather more than twice as high as that paid to local coolies. When, therefore, framing an estimate of the necessary outlay incidental to a paddy cultivation, it will be fairest to strike an average, and charge the account with the labour at an all-round rate of 3 annas per diem. A forty-acre stretch of wet land suffices to grow seedlings raised from 40 maunds of carefully winnowed seed grain, and a herd of 40 ploughing buffaloes are essential to work the block successfully. In addition to the initial outlay connected with the first season's cultivation, the cost of bunding the land may have to be met. Good ploughing buffaloes are procurable at about R15 apiece, so that the outlay on the latter, and on the seed grain, would amount to R680. If, however, the land taken up possesses the requisite bunds, from the last ryot's occupancy, no block disbursements on earth work is required, and as this is the rule on tracts thoroughly suited for growing rice, it seems scarcely necessary to allow for special expenditure under this head. The accruing manure from a herd of 40 buffaloes should suffice to liberally fertilise every portion of the land at least once in two years, or to manure half the extent in each season, while the animals are utilised (1) for ploughing and harrowing, and (2) for threshing, *i.e.*, treading out the grain.

Irrespective of the block expenditure on seed grain and on buffaloes, as well as on a few ploughs and tools, a sum of about R750 would be required to cover the whole of the first season's expenses, up to hulling the grain, while in the following year it would be unnecessary to incur any outlay under the three former headings. Paddy, on an average, takes about four months to mature, and on some lands, where special facilities for perennial irrigation are available, two harvests can be raised annually; but as a rule on hill tracts a single crop of grain is grown in each season. There are a couple of methods of cultivating paddy profitably (*a*) from seedlings, and (*b*) by sowing the seed broadcast; but the yield, where the work is well done, is far more satisfactory from the former than the latter plan, and no weeding is required for seedling planted paddy lands, whereas on areas treated the other way weeds and grass cause some loss and trouble. As regards the

yields from paddy grown from seedling, or under the broadcast system, a crop of from 15 to 30 fold is obtained on liberally cultivated lands of the former, but rarely in excess of 15-fold from the latter. The following details of expenditure connected with cultivating a compact block of 40 acres of wet land are based on actual experience of such work, but the figures quoted as regards yield are slightly below what it has been found that fairly good land will bear in favourable and in bad seasons. Where the area treated is smaller, the outlay under all heads except that of supervision is necessarily minimised :—

Block Outlay.	R.	
To cost of 40 ploughing buffaloes ...	600	
To cost of purchase of 40 maunds of seeds grain	80	
To cost of 12 ploughs and tools ...	30	
		710

Revenue Outlay	R.	
To herding 40 buffaloes ...	90	
To ploughing 40 acres of land each square, at least 6 times, before planting, as also cost of repairing bunds ..	270	
Application of manure ...	20	
Sowing seed in seed beds ...	40	
Reaping the grain	40	
Threshing and winnowing ..	40	
Overseer's salary	120	
Rent of land	100	720
		R1,430
Value of crop of 600 maunds of paddy, or 15 fold, at R2	1,200	
Value of straw yielded ..	250	
	R1,450	20
Balance profit ...		R1,450

It will be observed that the first season's operations show merely a nominal profit, because Block expenditure, amounting to R710, is added to current Revenue account ; but the former would not be required in the following year, and hence, the sum so shown would be approximately the net profit on the second season's operations, if the grain is reserved and used as paddy, but a far more lucrative result can be obtained by allotting a moiety of the paddy crop in the husk for the second season's contingencies, and by disposing of the other half as raw rice. The subjoined figures indicate how this scheme works out :—

Cost of hulling 300 maunds of paddy at 3 as per maund ..	R56-4-0	
Value of 7,200 measures of clean rice, accruing from 300 maunds paddy, refined, sold at the rate of 9 measures per rupee ..		R800
Net profit on hulling	..R744-12-0	
	R800-0-0	

The foregoing calculations, which have been framed upon data actually acquired from experience, demonstrate what a highly profitable undertaking rice cultivation can be made when conducted on approved principles, as the value of the produce, that is of 300 maunds paddy, and 7,200 measures clean rice, shows a large margin of profit over working expenditure, irrespective of the value of the straw itself. —*Madras Mail.*

THE DATE PALM (PHŒNIX DACTYLIFERA).

Undoubtedly, next to the cocoanut palm, the date palm is of the most value to man.

It is a beautiful and majestic tree, the stem forming a cylindrical column rising to a height of 50 or 60 feet. From the summit of the trunk it throws out a crown of leaves which are equally graceful in their formation and in their arrangement. We, in Queensland, should ultilise this beautiful palm not only for garden ornamentation, but for its fruits. One reason that this palm has not been more largely planted is that it is diœcious, having the male flowers on one plant and the female or fruiting ones on another. One male plant will fertilise a number of female plants, but it does not appear that a male plant is absolutely necessary to induce a female plant to bear dates. It is probable that the seeds of the dates will, in such a case, not be fertile, but the tendency of the age is to produce fruit without seed. There are at the present time two date palms growing in Brisbane laden with fruit—one in the Botanic Gardens (an illustration of which is here given), and the other in the garden of the late Dr. J. Bancroft, in Ann street. The seeds of these palms may not be fertile, but that is of little moment—the fact remains that the date palm (*Phœnix dactylifera*) will fruit in Queensland, and that freely. This palm should be largely planted—in suitable districts—around water boxes, where they would in a few years form oases in tracts swept by hot winds, and in time they would become a real boon. They might also be planted on the islands along the coast. Plants can be raised from the seed of imported dates, but it is some years before such plants fruit. Offshoots taken from fruiting plants are best for planting, as these will fruit in about five years. A few years ago a number of suckers were imported and distributed by the Acclimatisation Society. Some of these should now be fruiting, and from them offshoots could be obtained.

There are several varieties of *Phœnix*, all of which are called date palms, but which are useless, except for decorative purposes, so care should be taken to obtain *Phœnix dactylifera*, all other kinds being useless for fruit-bearing.

In South Australia the planting of date palms has proved very successful. At Lake Harry (in the far north) the seedings are now from 3 to 5 feet high, and many plants of either sex have flowered. The Algerian palms have made great progress, and some are quite 10 feet high. There have also developed numerous suckers, such as Mr. Pink describes as best for transplanting. Good fruit has also been produced by several of the trees. The variety planted is the "Deglet Nour." At Hergott Springs the fruit has ripened for eight seasons. Here, there are 277 thriving palms. At Lake Harry there are 2,745, and at Oodnadatta 36. Our illustrations, for which we are indebted to the Conservator of Forests of South Australia, give a good idea of the plantation Hergott. —*Queensland Agricultural Journal.*

A NEW ASSAM TIMBER TREE.

BY D. PRAIN, I.M.S., F.L.S., &c.

In October, 1886, Mr. Barker, of the Forest Deparment, called attention to the existence of a tree which he was unable to identify, occurring at the foot of the hills in the North Lakhimpur district and known to the Assamese as the "Sia Nahor." He had submitted specimens for identification to the Forest School at Dehra Dun, but having received no definite reply he sent a flowering example to the Calcutta Herbarium. Mr. Barker's specimen was not a very good one; it sufficed, however, to show that while "Sia Nahor" belongs to the same natural order as the "Nahor" proper (*Guttiferæ*), it is not like "Nahor," a *Mesua* but a *Kayea*. The specimen sent was, as a matter of fact, tentatively referred to *Kayea floribunda*, a not uncommon tree in the lower hill forests of Sikkim, Bhootan, Khasia ! Cachar and Lushai, known in Cachar and Sylhet as "Kurun" (*Wallich*) or "Kurul" (*G. Mann*). The flowers of Mr. Barker's specimen were, however, so much smaller than those of *Kayea floribunda*, that it was clear from the first that "Sia Nahor" was at least a distinct variety of "Kurul."

Nothing further was heard at Calcutta of Sia Nahor for thirteen years when, in December, 1899, Mr. Young, Deputy Conservator, sent a set of specimens, this time in fruit, for identification. Mr. Young writes as follows:—"The tree is to be found on the north bank only, and is most plentiful immediately under the hills in the North Lakhimpur sub-division. This fact probably accounts for its absence from Peal's list of Assam Timber trees, as I understand his collection was confined to the south bank of the Brahmaputra.

"The tree is large, with a straight bole 60 feet and more to the first branches, bark grey, wood close-grained, hard and very heavy. It is said to be very good for structural purposes, but decays rapidly in contact with the soil."

An examination of Mr. Young's fruiting specimens made it clear that the Sia Nahor was not *Kayea floribunda*, but before preparing a formal description, fuller material was desirable. Mr. Young was accordingly asked to send flowering specimens to correspond with the fruiting ones already sent. With this request, Mr. Young very courteously complied in June, 1900. These plainly showed that in "Sia Nahor" we have to deal with a hitherto undescribed species of *Kayea*. To make this absolutely certain, the material now available was submitted to Sir George King, who has kindly compared the specimens with those in the collection at Kew and, in confirming the view that the species has not before been described, has kindly undertaken the joint responsibility as to its name. A formal description of the tree is given below.

Kayea assamica, *King and Prain*.—A tall handsome glabrous tree, bark grey, wood hard, close-grained; young branches pale, slender, cylindric. *Leaves* opposite, firmly coriaceous, entire, ovate lanceolate, base cuneate, apex shortly caudate-acuminate, nerves numerous, equal, slender, one-eighth of an inch apart, not prominent on either surface, upper surface somewhat shining, lower dull; length, 3·5—4·5 in.; width, 1·35—1·75 in.; petiole slender ·4 in. long. *Flowers*, in slender, terminal and axillary panicles, 3—6 in. long, branches of panicle short, slender glabrous, pedicels in flower very slender, ·2 in. long, in fruit elongated and thickened, bracts and bracteoles at base of branchlets, and pedicels 2 opposite small caducous. *Sepals* 4, imbricate, outer pair orbicular ·15 in. long, much enlarged in fruit, inner wide spathulate, apex rounded. *Petals* 4, shorter than sepals, suborbicular, ·1 in. long, thin, white. *Stamens* many, filaments free, capillary, longer than sepals; anthers globose. *Fruit* globose; covered by the thick accrescent calyx, tipped by the remains of the style, ·85 in. across. *Seed* solitary.

Assam; North Lakhimpur, near the foot of the hills, common, *Barker! Young!*

The species is most nearly allied to *Kayea floribunda* which, however, differs markedly in its much longer leaves, narrower for their width, with fewer more arching nerves which are much more prominent beneath; in its more copious racemes with larger flowers and in its much larger fruit which is 1·5 –1·75 in. across.—*Indian Forester.*

PLANTING NOTES.

Sisal Hemp.—Some thousands of Sisal hemp plants have been planted round the island of St. Helena, Queensland's penal establishment. The suckers were put in about twelve months ago, and they now average about 5 feet in height, each plant having from 40 to 50 leaves from 4 to 5 feet in length. If any proof were wanted of the adaptability of our climate to this valuable plant, it is plainly furnished here. If the authorities of the island are provided with facilities to clean the leaves and produce the fibre during the ensuing twelve months, there can no longer remain any doubt as to whether the crop would pay or not, especially if accurate records were kept of the actual amount of labour and time expended from the cutting of the leaves to the baling of the cleaned fibre.—*Queensland Agricultural Journal.*

An Inch of Rain.—What does an inch of rain mean? Few persons have a definite idea. An acre, if calculated out, will prove to be 6,272,640 square inches. An inch deep of water on this acre will be as many cubic inches of water, which, at 231 to the gallon, is equal to 27,154 gallons. This immense quantity of water will weigh 228,190 lb. or 114 tons. One hundredth of an inch (·01) alone is equal to over one ton of water to the acre. In forty-eight hours, during the month of January, 15½ inches of rain fell at Geraldton. This was equal to 420,837 gallons per acre or 1,767 tons, or about one-seventh of the total quantity required to irrigate a crop of sugar-cane during the growing season.—*Ibid.*

Caprification of Figs.—The caprification or cross-pollenisation of figs is described in a recent number of the *Californian Fruitgrower*. The work in Smyrna is performed by women and children, who gather the profichi and suspend them in the branches of the Smyrna tree. In the Meander orchards it is customary to string the hard profichi on the ends of rushes, which are pushed horizontally through the sides of the fig; if the profichi are plentiful, two are strung on each end of the rush, which is then thrown up into the Smyrna tree and caught among the branches. The fig wasp, on emerging from the profichi, enters the figs nearest to hand, not discerning any external difference between the young Smyrna figs and the young mammoni, which it would enter if still in the caprifig tree. But, once inside, the fig wasp discovers that something is wrong, for, instead of finding short-styled male flowers in which it could lay its eggs, there are only female flowers with long styles, which are entirely unfitted to receive the eggs; the insect is unable to escape, and, in darting about in vain efforts to find some male flowers, the pollen with which it was so freely dusted in emerging from the profichi is rubbed into the receptive stigmas of the female flowers. The little wasp finally dies in the fig without having been able to provide for the production of its kind, and, on cutting open a Smyrna fig shortly after caprification, one can usually find the dead insect.—*Ibid.*

Conifers as Rain Gauges.—According to a recent number of the *Revue Horticole*, M. Felix Sahut has lately communicated to the Congrès des Sociétés Savantes observations respecting certain plants that act as registering rain gauges:—"Mention has already been made of the influence of certain more or less severe droughts in the French Mediterranean upon *Pinus Laricio* of Corsica, and Cephalonian Fir. The lengthening of the branches of these two species is always proportionate to the quantity of rain falling during those months of the year when it is most profitable to them. Co-efficients have been established indicating what the degree is for each month of the year. These co-efficients enable the relationship that exists between the amount of rain fallen and the greater or less intensity of the vegetation which it has encouraged to be determined. It is shown that, under these conditions, it is possible to judge approximately the quantity of rain which has fallen by measuring exactly the length of the leader, or of the branch produced yearly on these species of pine, and, if the estimate is not absolutely proportionate to the quantity of rain registered by the rain-gauge, it closely approaches to it; and a still closer estimation may be made by taking into account the relative value of the results produced by rain in the several months of the year. It is, therefore, possible, to a certain extent, to use plants specially selected for this purpose as actual registering rain-gauges."—*Ibid.*

SOIL BACTERIA.

(From *Agricultural Gazette* of New South Wales.)

R. Helms.

The discovery of the important part played by certain bacteria within the soil in converting nitrogenous substances into nitric acid, in which form plants assimilate one of their most important food-stuffs, has created a clearer conception of the processes by which such chemical changes are brought about. This, together with the discovery that certain plants by means of similar minute organisms in their roots can utilise the nitrogen of the atmosphere, has opened out new vistas to scientific agriculture.

Besides these oxidising organisms a number of others occur extensively, which act in the reverse manner by reducing nitric acid to ammonia, or even to nitrogen, and thereby play, on the whole, an even more important part in the economy of nature, although in many instances their action is the reverse of benefical to plant life. These are known as reducing or denitrifying organisms in contradistinction to the first-mentioned, which have been named, nitrifying bacteria.

Anything we can do to increase the dovelopment of the nitrifying bacteria, or to design methods for checking the too rapid multiplication of the reducing organisms, will, at the same time, be the means of increasing the fertility of the soil, improving those soils that are poor, and maintaining the productiveness of more fertile ones, since, of all the factors on which the fruitfulness of land depends, the power of nitrification is undoubtedly the most important.

Investigations with this aim in view, carried on during late years in the greater number of countries where agriculture is pursued according to advanced principles and with modern appliances, have led to promising results, and these researches, together with the better understanding of the value of manures, are beginning to produce a revolution in the theory and practice of agronomy.

Since the functions of these organisms are considerably affected by their surroundings, and they behave differently in different soils and climates these differences may prove to be very pronounced in Australia where both soil and climate are so extremely variable and peculiar. It is therefore not possible to accept as conclusive the results obtained by investigators in other countries, and it becomes necessary to study their behaviour under local conditions.

Before further discussing the different groups of soil bacteria and dwelling upon their characteristics, it is desirable to sketch the history of their discovery in an epitomised form, and to present the results hitherto obtaied by different investigators.

Historical.

As far back as 1862, Pasteur surmised that nitrification in soil was due to micro-organisms. Up to his epoch-making investigations, fermentations were considered to be the result of purely chemical reaction, and it was but natural that, after proving the important part played by the yeast organisms, he should go so far as to consider other phenomena involving complex chemical changes as being connected with similar microbes.

Schloessing and Muntz proved in 1878 that the action of minute organisms caused nitrification, or the transformation of ammonium salts into nitrates by oxidation. This fact was confirmed by Warrington in the same year. A definite knowledge of the specific organisms producing the alteration of nitrous compounds were, however, not obtained.

Heræus was the first who, in 1886, applied the modern methods of bacteriological research to this subject. He claims to have obtained positive results. By means of elaborate investigations on a large number of bacteria obtained from soil, water, and air he managed to produce pure cultures. Among them he credited four distinct bacilli with nitrifying power.

Frank soon after made lengthy investigations on bacteria insolated from several kinds of soil, and obtained entirely negative results. In consequence he disputed the vital process in connection with nitrification.

This conclusion was rebutted by Plath and Baumann in 1887.

Celli and Marino Zucco in the meantime had experimented with five micrococci isolated from the highly nitrated water of Rome, but did not succeed in proving that any of these were the specially-qualified nitrifying organisms.

Warrington examined, in 1888, a large number of bacteria obtained from soil for their nitrifying power without arriving at the desired result; but when, instead of his pure cultures, he took ordinary soil for seeding his food media with, he always succeeded in inducing nitrification. These researches led him to the conclusion that the specific organisms had yet to be found.

Further, Percy Frankland and Grace Frankland have paid attention to this important question. Although they experimented with twelve different organisms isolated from soil, the result was in every case a negative one; but, as with Warrington, when using a little of the soil from which the organisms had been obtained, nitrification was readily excited in the culture fluids.

As these many experiments of such able bacteriologists failed to prove a definite nitrifying organism the result of Schloessing and Muntz were attacked anew, and it was again doubted whether organisms played any part at all in nitrification.

At this stage the famous Winogradsky, of Zurich, took the question up, and by his masterly handling of the subject produced definite and important results,

From the experience gained by experimenting with such a large number of different organisms during several years, and by the foremost bacteriologists, it had become apparent that those capable of introducing nitrification could not be numerous, and that probably only one or two might exclusively possess this characteristic. It had, moreover, become plain to him that the organism in question did not thrive on the ordinary nutrient media composed of organic substances in general use for the official cultivation of pathogenic and other microbes. Winogradsky very ingeniously took advantage of this peculiarity. By showing ordinary gelatine plates with cultures derived from various soil bacteria, he induced a vigorous growth of species that flourished in this medium, and then grafted in suitable fluids from the spots which showed no development. Thus he succeeded in separating the nitrifying organisms. Further discussion of the methods, of manipulation is needless, but he ultimately proved a somewhat oval-shaped organism to be possessed of the characteristic power to nitrify ammonium salts,

The puzzle was solved at last, and led to more definite studies being continued by Winogradsky and others. The technique of bacteriology had meanwhile been enriched by the clever invention of Kuhne, who provided a solid culture medium free from organic substances by gelatinising silica. This allowed of reliable work being done in a more rapid manner.

Several species, or may-be varieties, of nitrate-producing organisms have been detected in soils from different parts of the globe, and it seems fairly certain that nitrifying organisms are universally distributed and found in most soils, but are present in greatest number in fertile areas. Less is known of the nitrate-forming organisms, and

it is surmised by some that these many possibly be a modified stage, so to say, of the former.

From experiments made in laboratories it has been ascertained that in cultures seeded with soil the development of nitrites precedes that of nitrates. Thus ammonia is first converted into nitrous acid, and this latter into nitric acid.

This has led to the conclusion that two physiologically distinct organisms are required to accomplish the transformation of ammonia into nitrates. Winogradsky is of this opinion, and claims to have separated the nitrate-forming microbe.

He has proposed for the group of nitrifying organisms the name of *nitrobacteria*, giving the generic term *Nitrosomonas* to the nitrate-forming types, and *Nitrobacter* to those who transform nitrites into nitrates.

NITROGEN-FIXING BACTERIA.

Besides the nitrifying bacteria which are able to transform ammonium salts found naturally in soil, or have been added thereto, into other nitrogenous compounds, a number of related organisms are met with in many fields which have the power of utilising the free nitrogen of the atmosphere and drawing from this vast store of almost inert gas considerable quantities for plant-food. These are the nitrogen-fixing bacteria.

On the rootlets of many higher plants, more especially on those of the *Leguminosæ*, small nodules in varying numbers are found produced by and filled with bacteria. It is supposed that by the *symbiosis* (a living together) of these lowest forms of plant-life with the higher plants, the latter derive the nitrogenous food which it is proved cannot have been derived from the soil, and therefore must have been obtained from the atmosphere. The process is not yet properly understood, but the general opinion tends towards the assumption that the bacteria fix the free nitrogen within the nodules and that the resulting nitrogenous compounds are assimilated by the host-plant. By some also it is thought that through the peculiar conditions of "living together" the plant is enabled to fix free nitrogen in its foliage.

Whatever may be the correct theory, the effect of this remarkable inter-action between the lower forms and the higher plants is very striking and very variable in extent. Even amongst the *Leguminosæ*, the plants deriving the greatest advantage from this phenomenon, extremes are met with; some deriving apparently but little benefit from it, whilst on the other hand many may very largely depend upon it. Amongst the Lupines, for instance, the yellow-flowering variety is able to entirely dispense with nitrogenous substances in the soil.

Through the exhaustive investigations made first by Professors Hellriegel and Willsarth; and later by Lawest, Gilbert, and others, on nearly all the cultivated leguminous plants, no doubt has been left that the nodules found on the roots are formed through bacteria, and that these are able to fix free nitrogen for the use of the plant they attach themselves to. Until Hellriegel proved that the presence of bacteria is necessary to enable plants to utilise the nitrogen of the atmosphere, and that, for this reason, *Leguminosae* may almost entirely dispense with nitrogenous manuring of the soil they grow upon, and in many instances even enrich the land with nitrogen, these observed facts were not properly understood.

It is well-known in practice that clover and lucerne would grow vigorously for a period of years without being manured, and when flagging could often be invigorated by a dressing with gypsum. This tends to provo that these crops did not sicken for the want of nitrogenous food, but on account of other elements becoming exhausted or unobtainable for some reason from the soil.

A palpable proof that the help of bacteria is almost absolutely necessary to enable plants to assimilate atmospheric nitrogen is afforded by the fact that seedlings, say, of peas, will not thrive unless the soil contains at least some traces of nitrogenous compounds; but as soon as they have made a start and have sent out rootlets upon which the bacteria can form colonies, they prosper independently of the presence of this food in the soil.

During the experiments carried on in several German agricultural establishments it was discovered that every species of legumes was associated with a specially sympathetic bacterium which would not perform the office of fixing nitrogen for other species. Based upon the acquisition of this knowledge, Professor Nobbe, of Tharand, in Saxony, is now preparing a number of pure cultures of these specific bacteria for the purpose of sowing them together with their respective culture plants. These cultures are placed on the market under the name of *Nitragen*, and for some time have been undergoing and still undergo practical tests regarding the efficacy of promoting the growth of plants.

It has not been definitely acertained how long these artificial cultures can retain their vitality unimpaired; and, besides, in some instances, adverse seasons have prevented a definite judgment being arrived at as yet, whether the results obtained in trial plots can be maintained on a larger scale in the field. Considerable attention is being paid to this question at the agricultural stations in Germany as well as in the United States and elsewhere.

THE DE-NITRIFYING BACTERIA.

In addition to the organisms hitherto referred to, all of which are pre-eminently friendly to plant-life, and thus indirectly to man, there are a host of other bacteria met with in soil and water which play an important part in connection with agriculture.

Their action is to reduce the compound organic substances into less complex combinations, or into simple elements, and in this manner make them again available for plants to which otherwise they would be lost, as these can utilise nothing but elements or simple componnds for their nutrition.

It is manifest that, were it not for the decomposition of the many complex substances taken from the earth in the shape of plants and animals, after these have changed from the active state called life to that of inactivity or death, and by this process are redissolved periodically, these substances would be entirely lost to succeeding generations of plants and animals, and this constant drain from the resources now found on the surface of the globe would ultimately exhaust their supply and make life impossible.

That putrefaction and other processes of decompositions are produced by bacteria was suspected for a considerable time, but it was not definitely proved till 1875 by Menzel, and subsequently verified by others. The action of these organisms is so variable that in the decomposition of any given substance probably a dozen species participate.

From this indisputable achievement of scientific research it will be seen that it is in the first instance entirely due to the activity of the minutest organisms that what is of earth goes back to it again by the dissolution into simpler substances of the complex and intricate combinations. Chemical action, no doubt, has also much to do with the redissolution; but it is now accepted that this activity in the generality of instances is secondary to the bacterial, and takes place after these have broken up the compounds.

Without the one process the other would not take place, and from this it is evident that micro-organisms are more closely connected with the productiveness of the soil than was dreamt of less than thirty years ago, and that not only in medicine and industrial pursuits, but also from an agronomic point of view, bacteriology is becoming daily of greater importance.

The organisms intimately connected with the fertility of the soil may conveniently be divided into two groups, namely, assimilating and destructive bacteria.

Under the first group we would classify the nitrifying and the nitrogen-fixing bacteria; and in the second all species which canse putrefaction and decomposition may be included.

The first group, as previously stated, includes nothing but beneficial species which are occupied either in building up nitrogenous compounds in the soil—the nitrifying species—or in fixing nitrogen from the atmosphere—the nitrogen-fixing bacteria—the latter of which, besides assisting plants to use this element, frequently also enrich the soil itself.

Important as is the numerous second group on account of the reducing power of its species, it includes several that act disadvantageously in regard to agriculture.

These objectionable species are the de-nitrifying organisms. By denitrification is understood the deoxidation nitrates and nitrites, which in each case involves a loss by either nitrogen or ammonia being given off. Their activity is perceptible by the pungent smell of ammonia rising from fresh stable manure, particularly from that of horses. Nitrogen being odourless, its loss cannot be perceived by the senses; it nevertheless takes place to some extent during every process of decomposition where nitrogenous compounds are present.

The Aims of Soil Bacteriology.

It now remains to indicate the aims of Bacteriology in connection with agriculture. These are shortly as follows:—

1 To encourage a definite multiplication of the nitrifying organisms found already in the fields, by adding substances that will enable them to retain their vitality and vigour after their activity ceases for the want of nitrogenous material; and in case of their absence from a soil to transplant them thereto, if this can conveniently be done, by adding soil impregnated with the desired baoteria.

2. To secure by the growth of plants favourable to nitrogen-fixing organisms an enrichment of the soil by nitrogenous compounds; and

3. To counteract the sudden and excessive development of the denitrifying organisms, in order to prevent loss of fertilising substances by means of these later.—*Journal of the Department of Agriculture of Western Australia.*

ORANGE CULTIVATION IN CEYLON.

With tea in its present parlous state, it behoves us to look about for some other prodnct to assist the struggling planter and to help him to eke out the lean years. I have seen several references to orange growing in your columns, but do not think the importance of this culture has been sufficiently urged. I am of opinion that orange growing, and the growing of citrus fruits generally, will in many cases not only materially assist many estates suffering from a depressed tea market, but, in suitable locations, lead to the up-rooting of tea to give place to a product infinitely more profitable.

I have found, in course of conversation with planters and others in Ceylon, that they had not seriously looked on orange growing as an industry. For the information of all such I may quote from the Californian State Board of Trade retnrns for 1898, which gives the value of a year's shipment of oranges and lemons out of that State as $7,226,356, or equivalent to R22,000,000. This is from one State alone, and is exclusive of the consumption of the local population numbering a million and a qnarter.

The annual importation of oranges into the United Kingdom exceeds 200,000,000, and this does not includo any of the Californian crop already referred to, which gets no further than the Northern States. Two hundred million oranges seems a large numbers; but it is not six oranges per annum per head of the population, a consumption which cannot be regarded as excessive. It has also to be remembered that in the event of importations being made into the United Kingdom from Ceylon, they would not come into competition with the present imports, as the Ceylon crop would strike the market when it was bare of the fruit, viz., from May to September right through the heat of summer, and just when this delicious thirst-quenching fruit would be most appreciated. On a recent visit to the old country I noted carefully the advent of the season's supply. The first oranges to appear were from Jamaica, and came in at the beginning of November, and sold at from 2d. to 3d. each, and these were followed at intervals up to January, by supplies from Sicily, Italy, &c., when they came in in large quantities. I was informed by a leading firm of London fruit-brokers that shipments received from May to October would undoubtedly command high prices.

The Importations from Jamaica, which I have referred to, are an example for Ceylon of a new industry, which dates its origin from the initiative action of Sir William Robinson, formerly Governor of that island, who in 1891 issued broadcast to the agricultural population a printed message urging the wholesale planting of orange trees, pointing out the large trade that lay at their hands, and offering prizes for the best cultivated blocks under that fruit within a given time. The result of these measures is a steadily-increasing trade with the mother-country. What Jamaica has done Ceylon can do.

That the best varieties of the orange will thrive in many parts of the island is now known, as small importations of grafted trees of good sorts have been made during the past few years, and their success has been snch as to justify their being planted on a commercial scale.

Trees planted three years ago have already begun to bear, and it is here that the great advantage is seen of planting grafted trees instead of seedlings. Not only can the variety and excellence of the fruit produced be calculated on with perfect accuracy, if the young trees are procured from a reliable source, but, under proper cultivation and attention, the trees will begin to bear at from two to three years from planting, as compared with the eight or nine years one has to wait for fruit from a seedling tree, in addition to which there is the uncertainty as to whether the fruit, when it does at last appear, will be an orange or a worthless throw-back of the sweet lime persuasion.

Wickson, the leading Californian authority on orange culture, states in his official decription of the Washington navel orange, which is recognised as the finest variety in the world (and of which there are a few hundred specimens doing well in the island, some having already fruited and been proved true to type) that it begins to bear as early as *one year from the graft.*

The results of the few instances of lemon planting in the island have been even more satisfactory, if possible, than with the orange, by reason of the tree being naturally a more rapid grower. Trees planted three years ago are now bearing well in the Dikoya District. Lemons are always in demand in the London market, and there are periods of the year when high prices are realized for them. The tree is hardier than the orange, and as it apparently does not require such richness of soil and general favourableness of conditions to develop the acid which is the charm of the lemon, as it does for the production of the sugar which is essential to a good orange, the lemon might profitably be grown along with the orange up the inferior portions of a block.

As regards the profits to be made from orange and lemon culture, it would be easy to take the crop produced by a given tree, multiply it by so many trees to the acre and calculate the valne according to the present market price. Were I to do that the result would be such as to make the mouths of many a truggling tea planter water with prospects of riches

beyond the dreams of avarice. This is a calculation, therefore, that I prefer not to make in these columns, but I may mention the fact that there are mature orange trees in Ceylon which produce their crops not by hundreds, but by thousands per annum, that the usual number of trees to the acre is from 100 to 150, and that decent oranges cannot be had in Colombo under five cents a piece! In my opinion it will be a good many years before the local demand for good oranges is satisfied. As soon as they are available, I predict that they will displace the present supply of worthless green and sour fruit which is a disgrace to the age of this colony. It is a matter for surprise that up to date so little has been done to introduce the first-class named varieties of the orange which are well-known in most if not all countries where citrus fruit can be grown. Here an orange is simply an orange and nothing more whereas there are about a dozen distinct named varieties, each with its own special characteristics by means of which identification can be made.

I would urge the advisability of making experimental plantings of the orange and lemon as far as possible all over the island, and especially at elevations between 2,000 and 5,000 feet, which so far seem to suit best the kinds that have been introduced. A variety which does well in the low country would be a boon to Ceylon, as suitable land in the shape of rich flats and easy slopes is more plentiful there than in the hill districts. Such a variety will no doubt be fixed upon before long, as plantings were made last year in different parts of the low country. At present all trees have to be imported, but with local nurseries and a few natives trained to graft and bud the seedling trees, a supply of plants could be produced at a slight cost as compared with the expense of importing the trees, and there is a good opening for anyone who cares to take this nursery business up, although two years' time would necessarily elapse before any saleable stock would be available.—Local "Times."

RISE OF THE SUGAR INDUSTRY OF JAVA.

Under this headidg the *Journal des Fabricants de Sucre* prints an account of the extraordinary conditions of sugar production in Java. According to an official report, the production for the last three years has been as follows:—

Year	Factories in Operation	Production in Tons.
1896	187	534,390
1897	188	586,299
1898	188	725,030

Java, therefore, produces as much sugar as France with less than one-half the number of factories.

The astonishing part, however, is in the yield obtained per acre. The figures are these:—

Year	Cane per hectare in kg.
1896	76,900
1897	85,400
1898	98,700

The yields of beets in Europe is about 25,000 to 30,000 kg. per hectare on an average.

If the foregoing figures are astonishing, the following are simply fabulous. They represent the sugar per hectare in Java:—

Year	Sugar Extracts per hectare in kg.
1896	8,100
1897	8,600
1898	10,100

Compare these figures of 8,000 to 10,000 kilogrammes per hectare to those of Germany, where they have only 4,000 kg.

On the other hand, the yield in the factory went lower than Java. The amount of raw sugar extracted from the sugar cane by weight was as follows:—

Year	Field in per cent
1896	10 55
1897	10·06
1898	10·21

The factories which obtained more than 40,000 kg. of sugar per hectare were only 11 in number in 1896, in 1897 they numbered 30, and 1898 they had reached the number of 87.

Die Deutche Zuckerindustrie says in connection with this subject: "This enormous superiority of the cane-sugar industry over the beet-sugar indnstry would increase still more if the bounty was taken off. The only possibility of keeping up the fight against so privileged a competitor rests in the value added by the bounty to the products of the beet. If by the abolition of the bounty the cane-sugar and the beet-sugar indnstries were placed on an equal footing from the point of view of realising on their products, the fate of the beet-sugar industry would be sealed. And in considering the foregoing results, one speedily acquires the conviction that the progress of the colonial industry is far from having reached its highest point, whereas one hardly perceives any noteworthy progress to be realised in agriculture and manufacturing in Europe."

The French paper agrees with the idea that the development of agriculture and industry in certain countries affords grounds of apprehension for the beet-sugar industry of Europe, but it differs as to the future of the latter. It believes that under the stimulus of necessity it will make great progress and reduce the cost of production so materially that it will have a long series of years of successful existence.—*Planters Monthly.*

ADVENTURES WITH A BISON.

I had often heard stories of people being charged by bison; but as so many men say it has never happened to them, and that really the bison is a most harmless creatnre, I thought the stories were "yarns"; but now I am wiser.

About a week ago, C. and I. started forth to try and slay a bull, of which there are a goodly number in the forests which I have to look after. I had been after them a great many times, but had only been able to get one, rather a poor one. Well, the first day, we came up to a herd, and after a lot of crawling (and this is not easy when you have to crawl with a double 8-bore, weighing 18lbs.) managed to see that there was a good bull in the herd. Here let me digress for a minute, to tell you that it is easy enough to shoot a bison, but to get a good bull out of a herd requires an awful lot of stalking as the confounded cows and young bulls always promenade about and offer such easy shots, at the same time getting right between you and the bull. Perhaps, he, being boss of the show, gives them instructions to do it! Anyhow, it is very annoying of them, and in this particular instance they carried out my lord's orders to perfection, and C., whose shot it was, could not get more than a glimpse of him. After about half-an-hour's waiting, during which the cows—who saw, or smelt, that something was wrong—kept walking about and snorting at us, there was a loud snort and away they went. Well, I fear that I am not getting on very well with my yarn, but I am not used to "writing to the papers." Suffice it to say that two people trudged most of that day without food or drink and never saw the bison again. But next day made up for the disappointment of the first.

We started off at some unearthly hour (about 3 A.M. I should think), and when we got out to the swamp, which is a favourite feeding-ground both of bison and elephants, we came on the tracks of a solitary bull. It was my shot this time, and after a very short track, one of the trusty jungle men spotted

master bison lying down about 5 yards off. I went up to the place, but could see nothing, for those confounded Kurumbers (jungle-men) can see in the dark, and while I was "fooling around," up he got; I caught sight of a great black mountain rushing away acros my front; he was so near (about 6 yards) that I could not resist the temptation, and let drive. Snap-shooting, when you have the above-named 8-bore, loaded with 12 drams of powder, is foolishness, but by a lucky chance I hit the beast and knocked him over. In a minute he got up and went off. We waited a bit to give him time to die as the track was covered with blood on both sides which made us think he was very badly hit, and then we cautiously went after him, mounted on my *shikar* elephant, I in front and C. behind. After about half-a-mile we came to a place where he had lain down, so making the Kurumbers walk behind the elephant we went on. I suddenly caught sight of an ear moving behind a bush about 20 yards in front, and told the *mahout* to stop the elephant, as I wanted to put in a shot where I calculated his shoulder to be. One can't talk out loud to the elephant on these occasions, so the *mahout* touched him on the head. The idiot of an elephant (and really wasn't he an idiot not to see the bison, if I could see it ?) stopped and, imagining, I suppose, that we wanted to get off, promptly sat down. This proceeding was a bit too much for our friend, the bison, who came charging out like an express train straight for us. You bet, the elephant got up sharp enough, and as soon as this operation was finished, I let drive as best I could. No effect; the bison came on and went full tilt into the elephant's forehead; what with the smoke and the elephant's swaying up and down, I could not see to shoot again at once. The bison naturally recoiled somewhat (most people would if they had charged an elephant), but he was not going to be put off, and promptly closed again. This time I was able to lean over the elephant's head, and pour the contents of the second barrel into the broad back of the bull. He subsided gracefully, and then (and thank goodness it wasn't sooner) the elephant turned tail, and bolted. It was a nasty place with a lot of dead bamboos sticking up, and one of these caught C. in the back and knocked him off, rifle, hat and all. I was too much occupied with looking out for bamboos and trees, to pay much attention to C. but I knew he must have fallen rather nearer to the bull than was nice. Well, we managed to stop the elephant, and I ran back (nothing would induce the elephant to go back) expecting to find the bull executing a war-dance on the the top of C., but luckily I found him and the Kurumbers all safe and sound. What was to be done now? That was rather a ticklish question. We could hear the bull lying groaning where he had fallen, but I confess we both decidedly considered discretion the better part, as the beast was lying in the middle of a lot of fallen bamboos and long grass, and if he had tackled us at close quarters—well, we might be there now. However, he got up and moved slowly off. We followed at a respectful distance, and though I saw him again I could not get in a shot, and as it was getting pretty late, we decided to leave him to himself for the night. Next day, as we thought he must be dead, we sent the men to see, but far from being dead he charged them twice, they skipping up trees.

Next day I came up to him, but he bolted before I got a shot, and it was only on the fourth day that I found him standing in some thick jungle, and was able to kill him.

Poor beast, he must have had a bad time of it for those four days, He had eaten nothing and must have been in great pain, and I was really glad, both for his own sake and mine, that I managed to kill him,

He was a very big bull, standing 5 feet 11 inches at the shoulder (measure an ordinary English bull and see what that means), but he had not got a very big head. His horns measured 36 inches across the sweep, and were 19 inches round at the base. The points were very much worn; he had lost 3 teeth, and his hoofs were almost worn down to the bone, so he must have been a veteran, and no doubt a very grumpy old chap, too.

I am afraid I have spun this yarn out much longer than it ought to have been, and if it is very dry reading, well, you need not publish it.

Let me, however, give a small parting word of advice, and that is that anyone who is likely to get any bison shooting when he comes out here should not use a pop-gun. I believe if I had not had an 8 bore on this occasion, and that loaded with 12 drams of powder, I should not be inflicting this interminable yarn on the patience of your readers.—*Indian Forester.*

AMOUNT OF FARM AND GARDEN SEEDS REQUIRED PER ACRE.

It may be of advantage to farmers who have only lately settled on the land and particularly to some who may have entered on the business for the first time in Queensland, to know how much seed to purchase for sowing or planting various crops. Although there are certain crops which may practically be sown and raised all the year round in this favoured climate, yet the regular seasons for most crops are quite as clearly defined as they are in other colder or hotter countries. Some modification of the times for sowing and of the amount of seed to sow will have to be made in different parts of the colony, owing to the wide range of temperature and rainfall, and to the variety of soils and their aspect. But as a general rule, the following will be found fairly correct, the quantities in all cases being per acre:—Barley, broadcast, 1 to 1½ bushels; drilled, ½ bushel. Beans (broad), drilled, 1½ bushels; (French), 1½ bushels; (horse), 2 bushels. Beet (drilled), 5 lb. Buckwheat, broadcast, 1 to 2 bushels. Cabbage (field), in seed beds, 2 lb. Carrots, drilled, 5 to 7 lb. Clover, broadcast, 12 to 20 lb. Grasses, prairie 1 bushel: Italian rye, 4 bushels, perennial rye, 2 bushels; rib, ½ bushel; couch ½ bushel; permanent mixed pasture, 3 bushels; imphee, 20 lb.; khol-rabi, drilled, 2½ lb. Lucerne broadcast, 20 lb.; drilled, 10 lb. Maize, broadcast, 3 bushels; drilled, ½ bushel. Mangolds, drilled 5 to 6 lb. Millet, broadcast, 1 bushel. Oats, broadcast, 2 bushels. Onions, broadcast, 5 lb.; drilled for sets 20 lb. Panicum, broadcast, 20 lb. Parsnips, drilled 8 to 10 lb. Peas, broadcast, 3½ bushels; drilled, 2 bushels. Potatoes, 14 cwt. of cut setts; if planted with the American potato planter, 10 cwt. Rye for grain, broadcast, ¾ bushel. If for saddlers' use, 1½ bushels. Sorghum for grain in drills 10 lb., broadcast for green fodder 20 lb. Swedes, 3 lb. to 4 lb. Turnips, globe and yellow, drilled, 2 lb. Vetches broadcast, 3 bushels. Wheat, broadcast, 1 to 1½ bushels.; drilled, ¾ bushel. Paddy (rice), 30 to 40 lb. Cow Peas, 8 lb. Jerusalem artichoke, 3 to 4 cwt.

The weights per bushel of the principal farm seeds enumerated above are:—

Barley, 50 lb; beans, 60 lb; buckwheat, 50 lb; couch, grass, 40 lb; cocksfoot, 20 lb,; clover, 60 lb; flax, 60 lb; grasses (mixed); 20 lb.; oats, 40 lb.; imphee; 40 lb; prairie grass, 20 lb; perennial rye grass, 20 lb; peas, 60 lb; rye 60 lb; rib grass, 60 lb; sorghum, 40 lb; lucerne; panicum, 60 lb; maize, 56 lb; wheat, 60 lb.—*Queensland Agricultural Journal.*

THE NAGPUR EXPERIMENTAL FARM IN THE CENTRAL PROVINCES.

It is not stated with what object the Ceara rubber plants are being planted, but the experiment is likely to suceed, as many be gathered from the following

notes on the subject collected by Mr. Reuther, I.F.S., and roprodnced below :—

MANIHOT GLAZIOVII (Ceara).

Climate.—Thrives nnder a very wide range of conditions. *M Ceara*, grows even in desert plains with raiufall under 50 inches, where the vegetation is scorched up during the greater part of the year, and thrives also on mountains up to 3,500 feet elevation, where the rainfall reaches 100 inches and the night temperature falls even below 60°. A rainfall of 60 inches to 70 inches is ordinarily sufficient, but about 100 inches suits the tree better. In Ceylon, thrives up to 3,000 feet elevation.

Soil.—M Ceara, thrives best iu scanty soil among granite boulders; never in marshy soil. Though growing readily on hillsides in poor, rocky soil, unsuited to almost any agricultural crop, it thrives best where the ground is covered with shrubs.

In Ceylon, grows on most barren soils.

Characteristics.—A moderate-sized tree, with erect stem 30 feet to 50 feet high and 2½ to 5½ feet girth (at 3 feet from the ground). Rounded crown.

Hardy, adaptable, fast grower; not prone to insect or fungoid attack; requires little or no attention once established.

Readily raised from seed ; can be propagated from cuttings as easily as willow. In every part of the world where it has been introduced, the seed production is abundant, and the seed may be gathered already at 3 to 5 years of age. Large areas could therefore be planted in short time: In Brazil the seed is universally sown directly in the plots which the trees are intended ultimately to occupy (just like teak seed in *taungya* plantations), and nurseries and transplanting are not required.

ARTIFICIAL CULTIVATION.

Spacing.—Recommended to be planted thickly, with judicious thinuing to follow.

Germination.—Seed-coat hard and thick; said to require more than a year to germinate. But germination inducible within two or three weeks by rasping off with a file both edges at the radicular eud (recognizable externally by the two-lobed caruncle).

Development.—In Ceylon, attains in 2½ years a height of 25 feet to 30 feet and girth of 1 foot 9 inches at 3 feet from the ground. Flowers at 18 months of age.

Rubber.—Quality excellent: second only to the best 'Para." Yield equal in quantity to that of "Para."—*ndian Forester.*

THE TAPIOCA PLANT.

An interesting correspondence between Dr, Watt, the Reporter on Economic Products, the Secretary of State for India, and Mr. Robert Thomson, concerning the value of the tubers of the Cassava or Tapioca plant, as an alternative food-stuff in seasons of scarcity and famine, has been published as an "Agricultural Ledger." Mr. Thomson urges that the numerous varieties of the Cassava cultivated in Columbia should be introduced to India where, he declares, if widely distributed as a subsidiary crop to rice it would ward off famine. The Columbian varieties of Cassava, he says, flourish with a total annual rainfall of from 14 to 16 inches, while the plant thrives admirably when droughts extend over six months at a time. It is thus pre-eminently a drought-resisting crop, while rice requires from 50 to 60 inches of rain in a year. Some of the varieties grow in rich soil, and some in exhausted or impoverished soil ; and while certain varieties are cultivated on the hot plains others are grown at elevations up to 6,000 feet above sea level. Dr. Watt declared that he had little faith in the value of acclimatisation in the abstract, in the improvement of the resources of a country, and he doubted whether one per cent of the experiments hitherto performed in India of that nature had proved of practical value. The development of the existing resources by selection was, he stated, infinitely more satisfactory. With that object in view, he was endeavouring to obtain information of the extent of the food supplies of India of the nature mentioned. Mr. Thomson replied that Cassava was chiefly known in India as a source of Tapioca, but the Columbian varieties had been cultivated in that country from time immemorial, and they were the result of slow and gradual selection. His experience ot tropical planting in regard to acclimatisation differed from that of Dr. Watt. To raise new varieties or races from the existing Indian varieties which are found only in restricted areas would, in Mr. Thomson's opinion, take a long period of years, whereas a score of valuable new varieties are immediately obtainable from Columbia. There is every reason to believe, he observes, that these would readily accommodate themselves to a wide area of India. The last word so far, however, falls to Dr. Watt who, as the Editor of the "Agricultural Leder," remarks in a foot-note that it is probable that a few years would suffice to reduce all the various forms to which Mr. Thomson alludes to two or three, and that these would not differ materially from the acclimatised varieties already met with in India.—*The Indian Agriculturist.*

CAOUTCHOUC PLANTATIONS IN ASSAM.

BY W. R. FISHER, B.A., I.F.S.

I see, in the report on the caoutchouc plantations in Assam, a statement that the Bomani Hill plantation yielded 9·5 lb. of clean rubber per acre, and that the Charduar plantation yielded 9·4 lb., there being 92 trees per acre on the Bomani Hill and 14 per acre on the Charduar. Mr. McKee remarks that this proves that a densely-planted area does not yield more rubber than one sparsely planted, while it must have cost more to plant out originally and to establish as a going concern.

I chose the site for both these plantations in 1873-74, and managed them for about two years. In the Charduar plantation, lines forty feet wide were cut one hundred feet apart in dense evergreen forest, full of cane-brakes, large Ficus trees and other difficulties. Colonel Keating, the Chief Commissioner of Assam, was struck with the waste of timber this involved and the great expense of clearing the line, and directed that an experimental plantation should be made on grass land near the Brahmaputra River. Mr. Mann, the Conservator of Forests, considered that trees grown on grass land would not yield anything like the same supply of caoutchouc, as trees grown in the humid air of the evergreen forest, and his opinion was based on the fact that some large trees that had been tapped in Tejpur yielded very little rubber. The plantation on grass land at Bomani Hill was therefore limited to a small experimental area. The expenditure on it, however, was a mere fraction of the cost of the Charduar plantation, as far as I remember, and it would be interesting if the Assam Forest Department were to publish figures showing the comparative cost of the two plantations per acre, now that it has been proved that they return an equal yield per acre.

If grass land plantations like that at Bomani Hill will afford as good a yield as the forest land plantations in Charduar, a great future may be predicted for rubber-planting in Assam, and there are, or were in my time, enormous areas of waste grass land in that Province.—*Indian Forester.*

RICE AS A FOOD.

Dr. John Haddon, M.D., writes to the *Rangoon Gazette* :—

In coming to Rangoon, I noticed that there were two ways of boiling rice on board the ship. The rice for the passengers, boiled by a native cook, was put on with cold water, and poured as we pour potatoes. That for the lascars, also prepared by a native cook, was put into a measured quantity of water boiling very fast, and allowed to boil, until all the water was absorbed. It was not poured. Now some may not know that a large amount of the nutritive material of the rice goes into the water in which it is boiled; but that is a fact well-known to chemists. It is thus evident that pouring the rice we are lessening its food value. Some are inclined to regard rice as of comparatively little value as a food, and it is not uncommon to hear Anglo-Indians saying that the natives, who live mostly upon rice, have to eat an enormous quantity of it. If it be really necessary, in living upon rice, to eat a larger quantity than the stomach can accommodate with comfort, how careful should those who so live be not to deprive the rice of any of its nutritive material, since it is evident that if a certain quantity of dry rice must be eaten to support life (according to the calculation of physiological, chemists) those who pour their rice will not be so well fed, as those who do not pour it, if they both eat the same quantity of dry rice? And again, if the natives require to take an enormous quantity of rice, to live upon it alone, they will require to take more of that which has been poured, than of that which has not been poured and retains more of its nutritive value. Granting my premises then, the logical conclusion is that rice must not be poured and, from personal experience, I believe it is best to put the rice into the water when it is boiling fast, but I do not wish to say more about that at present.

Perhaps the most important question with regard to rice, is as to its cleaning, or milling. We require, in a perfect food, a certain proportion of albuminoid, carbonaceous, and mineral material. Unless we have these in proper proportions, our health suffers. The albumenoids go to supply the waste of our tissues, caused by the vital processes, and the amount of muscular effort put forth in work. The carbonaceous goes to supply us with energy. It is like the coal in the fire, the combustion of which heats the boiler, and makes the steam, which gives the engine all its power. Starch is one of the principal ingredients in our food for the supply of energy, and it exists in large quantity in all our cereals. The mineral material goes to the formation of bone, and supplies us with salts which are absolutely necessary for health. We are only just beginning to realise that it is the want of these mineral salts in animal food (its sin of omission, as it were) which helps to produce gout in its protean forms, making such ravages, as it does, in those of sedentary habits, who indulge in the pleasures of the table. A London physician, who has been studying the question of diet, in relation to gout, is endeavouring to obtain the ashes of vegetables which contain so largely what we may call these anti-gouty salts in such a form that it could be used instead of our ordinary table salt, but surely it would be wiser to eat such food as contains these salts. If we examine wheat, we find that these salts are contained in the bran, which is entirely removed from wheat by millers in making the fine white flour, and given to cattle. The bran, however, contains not only the salts, but a large proportion of albuminoid material, which we require to build up the waste of our tissues. Such knowledge has induced some doctors to recommend the used of bread made from whole wheat meal, and many who have found the benefit derived from eating such bread keep handmills in which they grind the wheat as got from the farmer, just as they require it; and they find the bread made from such freshly-ground meal much better than that from meal which they can buy, seeing that such meal does not keep well. Dr. Keith, who visited Rangoon two years ago, made some enquiries as to rice, which he put into an article in *Chambers' Journal.* He states that so much as 16 per cent of what is called rice meal is taken from the rice, in the process of milling. An analysis of the rice meal made by Messrs. Duncan and Flockhart, of Edinburgh proves that rice meal (which is sold for feeding cattle) contains 12½ per cent of albuminoids, and 4½ per cent of phosphoric acid, which, in union with lime, as phosphate of lime, makes up the greater part of the ash amounting to 7¾ per cent. Parkes gives 5 per cent as the proportion of albuminoids in white rice. Thus we learn that rice meal has more than double the amount of albuminoids that the best rice contains, and as it has in addition all the mineral salts, which we know to be so necessary for the system, it is evident that rice meal is a valuable food, and that in taking it off the rice we are making the same mistake, as we so long did in taking the bran off wheat and giving it to cattle.

What then is the lesson we should learn from these facts? It is very evident. We should leave as much as possible of what rice meal consists of on the rice, and use it in that state for human food. If we could keep it all, we would have instead of only 5 per cent of albuminoids, and no mineral salts, 17½ per cent of albuminoids and plenty of the mineral salts, so that in that state rice alone would be an excellent food. The natives mix dal with their rice, and in doing so they do well, so long as they use white rice, since the dal is rich in albuminiond material, but if they used the brown rice they would not require any dal. This is a question which ought to interest all who have the welfare of the natives in this country at heart and the Government might do something to encourage the millers to turn out the rice with its invaluable nutritive material retained. If it will not keep long enough for exportation all ground up, as we grind our wheat, when we make whole wheat meal, it might be sent home in the brown state, and ground in mills there, for home consumption. In that state it makes an excellent porridge, and might be used by our

peasantry instead of the oatmeal porridge upon which their foretathers lived and which their degenerate children have almost entirely discarded. How greatly such a change would increase the consumption of rice at home! I trust that these facts with regard to a food so wholesome and invigorating as rice may reach those interested in that industry, and that brown rice may be properly appreciated in the near future.—*The Indian Agriculturist.*

FLOWERING OF THE BAMBOO IN THE C. P

By A. Smythies, B.A., I.F.S.

A somewhat remarkable event is taking place in the Chanda district of the Central Provinces, and that is the flowering on a large scale of the ordinary bamboo (*Dendrocalamus strictus*). The area over which the flowering extends is estimated at 1,200 square miles, and in this area, although a few clumps here and there have escaped, the phenomenon is universal. But the extraordinary point about it is that clumps of all ages are flowering —not only mature clumps but quite slender seedlings of six or seven years' growth, or even less. I send you some specimens to illustrate this; the rhizomes show that those clumps are quite young. Last year the droughts affected the bamboos in the Dhaba Range of this district, and the bamboo flowered over a small area, and produced a kind of manna, which was described in the Forester (Vol. XXVI., page 363). Many thousands of people were kept alive for some weeks on the seed. This year the area is infinitely larger, and the whole population will, in course of time, flock to the forests to gather the seed.

The consequences to the people in the vicinity of this flowering and subsequent death of the bamboo will be rather serious, as, for many years to come, they will not be able to find sufficient stores to satisfy the numerous wants of the agricultural population to the north and west of Chanda—at any rate, the price of bamboos will be very much higher.

The Government revenue which now amounts to about R20,000 from this source will also suffer, as, when the dead bamboos have been utilized, there will be no more available for some 15 years or so. It would be interesting to ascertain whether such a universal flowering of this particular species has been recorded before. Needles to say, the oldest inhabitant has no recollection of such an event, and the flowering of the smallest clumps is believed to be unique.

It is probable that in this district, at least, the bamboo does flower gregariously over fairly large areas, as three of the oldest inhabitants informed me that they had seen the bamboo flower twice: first, when they were about 10 years old. Their ages were probably quite 70. Hence it is not unlikely that this bamboo flowers at intervals of about 30 years.

[*We would refer our readers to Volume XXV. (1899) of the "Indian Forester," pages* 1—25, *and* 305, 306.—*Hon. Ed*]

PYTHON-BREEDING AT THE CALCUTTA ZOO.

It is not often that one has the opportunity of seeing a pythoness hatching its eggs, and those who were lucky enough to visit the Zoological Gardens last May might have witnessed the unique sight. The eggs are about twice the size of duck's eggs, and exhibit a leathery crumpled-up appearance, as if they were small bladders not properly distended with air, their colour, however, is a dirty white, and their covering might be compared to the skin of a mushroom. The pythoness which appears to be aboutthirteen feet in length, and whose body in its thickest part must be nearly two feet in diameter, is nursing her eggs in a curious manner. She has coiled herself up in a symmetrical heap till she resembles a basket of which the sides and the lid are her coils; and within this arrangement she has piled up the eggs, which she is so assiduously hatching. It will be interesting to see the little pythons when they make their entrance into the world, for to judge from the size of the eggs, they should be quite six inches in length. The poor mother was so stared at by sight-seers that the authorities took pity upon her and covered up the glass face of the cage with a screen.—*Statesman.*

TREE GROWTH ON IRON SOILS.

In the course of examining a forest area for the purpose of marking off areas of approximately equal capability, I had to walk over two large hills from 1,750 to 1,850 feet high. These hills are covered with dense spear grass, about 3 feet high, among which are hidden boulders of various sizes. There is scarcely a tree over an area of 100 to 150 acres, although an adjacent higher hill is well clothed. The very few trees that do exist are evidently not happy, and consist of dwarf, badly-grown individuals of *Anogeissus*, *Lagerstrœmia*, *Terminalia tomentosa*, *Schrebera*, and *Buchanania*. The hills have often been burnt, but not more so than the adjacent stocked ones. On examination of the boulders I found that they were full of an ore of iron, and would be interested to learn whether there are other cases which point to soil so constituted being inimical to tree growth. Iron occurs in many parts of this district, but I have not observed it in such large quantities elsewhere, nor any marked effect on the crop. Iron.—*Indian Forester.*

Chlorosis in Plants.—Recent researches by Dr. Roux confirm the notion that the yellow condition of the leaves known as chlorosis is due to some deficiency in the chemical constituents of the soil. The liquid absorbed by the roots has an excess of lime, and deficiency of potash and phosphorous. The consequence is a stoppage of the work done in the leaves, and of transpiration ending in the degeneration and death of the cells from starvation.—*ibid.*

Cape Fruit.—Since our last note on this subject, two ships of the Union Castle line have arrived with consignments of some importance, the *Tantallon Castle* bringing 189 boxes of Plums, and 212 boxes of Peaches; and the *Dunottar Castle* with 280 boxes of Plums, 820 boxes of Peaches, and in 18 of Nectarines, from Cape Town. (Since the above was in type we are asked to note the arrival of the *Briton* at Southampton with 2,124 packages of Peaches; 98 of Plums; 120 of Nectarines; and 27 packages of Pines).—*Ibid.*

THE PLUMBAGO MINING COMPANY.

It is refreshing to note the manly enterprising tone which distinguishes the proceedings at this Company's meeting reported on page 762. In the face of multiplied discouragements through unexpected obstacles to work, and repeated disappointments as to "paying veins," there is not a word of idle grumbling in the Directors' Report nor the Chairman's Speech, nor in any of the speakers' remarks. All are determined as plucky Englishmen to persevere and do the fullest justice to the "Kingsbury" mine; and we sincerely trust that this Company may prove a very notable exception to the general rule in Ceylon, that European capitalists do not succeeed in the digging for plumbago; and that worthy, experienced Capt. Tregay may have his faith in the mine amply justified; while Directors and Shareholders may secure a full reward for their courage and persistency.

ARRIVAL OF TROUT OVA FOR THE C.F.C.

FROM WALES.

The N.L. ss. "Prinz Regent Luitpold," which arrived today from London, brought out the first of three consignments of trout ova for the Ceylon Fishing Club for this year. As has previously been stated, owing to the failure of the ova hitherto imported from the Surrey Hatchery of Andrews and Andrews, the Club has indented for the ova from other hatcheries this year; and the consignment which arrived today was shipped on the 30th January last and consists of 15,000 rainbow trout ova and 5,000 brown trout ova from Earl Denbigh's hatcheries in North Wales. Great hopes are entertained of this batch which was received from the ship's hold today by Mr. H D Elhart, who is in charge of the hatcheries and stew ponds of the Ceylon Fishing Club at Nuwara Eliya. He will take the consignment up by tonight's mail train and the boxes will be opened tomorrow morning when the ova will at once be sorted and put out to hatch. It is of course impossible to know at present how the ova has fared during the voyage, but it would appear that great care was bestowed on it while on board and from what Mr. Elhart could judge there would seem to be no smell indicative of decomposition or any such damage and the liveliest anxiety is felt as to the success of the importation. It may be of interest to note that hitherto the P. & O. Company's steamers always brought out the ova and great care was said to have been bestowed on it on the voyage and the C.F.C. has even given gratuities to the stewards of the vessels for devoting such attention to the matter.

THE DELFT BREEDING EXPERIMENT.

RETURN OF DR. STURGESS.

Dr. G. W. Sturgess, Government Veterinary Surgeon, returned from Jaffna this morning by the ss. "Lady Gordon," after a fortnight's absence in the north, on his six-monthly visit to the islands of Delft and Iranativu, where the Government horse-

breeding experiment, dating from three or four years back, continues to be carried on with success. Dr. Sturgess, who was seen by our representative this morning, states that there is no disease—either on Delft where the brood mares and foals are kept, or on Iranativu whither the latter are transferred to be reared after reaching a certain age. On Delft there are now about 60 mares and 25 foals, while on Iranativu the young animals number no less than 46. During the present trip 7 three-year-olds (by Raeburn) have been removed from Iranativu to Jaffna, where they are available for sale, and where particulars may be had on application to the Government Agent.

The Value of Ammonia, &c.—Mr. Mitchell Henry (aged 75), trained as a Surgeon and at one time M.P. for Galway, succeeding Governor Gregory when he came to Ceylon, in the course of a letter of reminiscences to the *Spectator* has the following:—"I would ask, what keeps the blood-fluid in the veins and arteries? It is the presence or absence of free ammonia. This remedy was taken up by Mr. Baker Browne, the father of Mr. Lennox Browne, and he discovered and showed that by the administration of ammonia (common smelling-salts) scarlet fever, pneumonia, and other diseases caused by a stasis, or stoppage of the blood in the blood-vessels, could be completely overcome. He wrote a treatise on the treatment of scarlatina, and proved that by the early administration of small doses of ammonia in water, not mixed with anything else, no one need fear scarlatina. I have seen much of this disease, and can confidently corroborate this statement. Any one, however, who goes out of the ordinary line in medicine is called a quack, and that was the fate of Mr. Baker Browne. I learned much from him, and he was the first to perform ovariotomy, which was subsequently taken up by Sir Spencer Wells, who owned Golder's Hill at Hampstead, now bought by the London County Council. But the virtues of ammonia penetrated to Lancashire, and in the large soap factory of the Messrs. Thom, who always kept at their works a large barrel of ammonia and water, every woman used to obtain and keep by her a bottle of this fluid sweetened with a little sugar, to administer to any child who got feverish, a sure sign of incipient stasis of the blood. In my hunting days I have saved several horses, which got pumped out by running and stood breathless with cold ears not able to breathe, by getting some smelling-salts and mixing it with water, and so administering it. Lastly, I will mention another thing that I was taught by Mr. Raetger, a Hungarian. He collected the blood, say of a bullock in a barrel, and when the yellow serum floated on the top, he cut it off and left the black blood corpuscules behind. To those he added a little powdered quicklime, mixed it with bran, and preserved it in brown paper bags hung up in the kitchen like hams, and gave some to his young stock of horses, turkeys and fowls. They throve in a remarkable way, and if others will give some to their domestic fowls with the grain they feed them on, they will see the avidity with which it is consumed and the remarkable effect it has on the birds or on fowls."

THE AGRA TEA COMPANY OF CEYLON LTD.

THE REPORT.

The following is the report :—

The Directors have the pleasure of submitting their report on the transactions of the Company for the year ending 31st December, 1900.

The acreage of the Company's property is as under :—

Tea in full bearing ..	295 acres,	
Do in partial bearing..	27 do	
Do not in bearing ..	8 do	
		330 acres.
Forest		27 do
Grass, waste land, &c. ..		10 do
Total area ..		367 acres.

The estimated crop for 1900 was 180,000 lb. and the out-turn 203,860 lb. or a surplus of 23,860 lb. This crop realized R80,178·64, equivalent to 39·33 cents per lb. as against 41·79 cents in 1899. The expenditure, as shown in the accompanying accounts, was R57,070·60, or about 28 cents per lb. as against 26·89 cents in 1899.

After deduction of R4,158·58 for depreciation on buildings and machinery, the profit on working account for the year amounts to R18,363·96 representing rather more than 4½ per cent on the value of the property as shown in the Balance Sheet.

The net profit for the year amounts to R9,637·76, to which has to be added the sum of R6,337·12 brought forward from 1899. An interim dividend of 2 per cent absorbing R5,590 has been paid, and the balance now at the credit of the Profit and Loss Account is R10,384·88. In view of the fact that funds will shortly be required for the purpose of paying off part of the Standard Life Assurance Company's mortgage, the Directors do not think it advisable to pay any further dividend now, but they propose to transfer R9,888·97 to the General Reserve Account, thus bringing the total of that account up to R24,000; and to carry the balance of R495·91 forward to next year's accounts.

Since the issue of last year's report, the vendors of the Kalkudah estate have taken back that property for the price paid by the Company, and have surrendered shares to the value of R60,000, and refunded in cash the amount expended upon the property by the Company. Out of the cash so received the loan of R15,000 over the properties of the Company has been paid off.

The estimated crop for 1901 is 200,000 lb. tea, to be produced at 28 cents per lb., which includes a fair allowance for manuring.

The condition of the Sacharawatte estate continues to be satisfactory in all respects.

In terms of the Articles of Association, Mr. Joseph Fraser retires form the Board of Directors, but is eligible for re-election.

The appointment of an Auditor will rest with the meeting.

PLUMBAGO MINING COMPANY.

THE REPORT.

The Directors have pleasure in presenting to the Shareholders their Report and Accounts for Season ended 31st December, 1900, which represents a period of about nine months from the time the Company was incorporated. The Accounts are brought out up to this date so that the 1st January may commence the financial year of the Company.

The new Shaft started on the 26th March, and now called the "Kingsbury" shaft had been sunk to a depth of 78 feet, and the Cornish Pump imported from England had been erected.

Considerable trouble was experienced in getting the Machinery to the Mine and putting it in working order, but things are now working satisfactorily.

It will be noticed that the Accounts shew Cash in hand to be only R3,924·92, and it will probably be necessary to raise more Capital for the further development of the Mine; this matter will be discussed at the Meeting.

As Captain Tregay is going down on inspection in a few days' time and a full Report will be obtained from him for presentation to the Meeting further details are unnecessary.

In terms of the Articles of Association all the Directors retire, but being eligible offer themselves for re-election.

The Auditor, Mr. J D Forbes, also offers his services for 1901.

CAPTAIN TREGAY'S REPORT.

Gentlemen,—In handing you this my report for your General Meeting on the 2nd March next, I cannot help expressing a wish that the meeting had been postponed for a couple of months or so, to allow of more extensive explorations being made from the bottom of the Kingsbury shaft which would, doubtless, have enabled me to place before you more definite information as to your prospects than I am in a position to do at present. As you are aware the mine was floated largely on the strength of the two veins intercepted at the 46 feet level of the old shaft, these being the only veins of plumbago I was able to see at the time of my first visit to the mine.

These veins have not yet been tapped at the Kingsbury shaft, consequently I am unable to give you any further information upon your prospects there than I gave you in my first report on the mine.

In sinking the Kingsbury shaft several small veins of plumbago were passed through and numerous very promising indications were met with, which goes to show that the district is highly mineralized, but the fact remains that the two veins seen in the 46 feet level of the old shaft, have not been touched upon yet at a deeper level, and therefore we cannot say if these veins improve in depth or not. This I need hardly say is a most important question to settle.

Your explorations have now reached a very interesting stage, but, nothing definite has actually been arrived at yet.

A very short time now will bring you into touch with the two veins of the 46 feet level, and it is towards this end all our operations hitherto have been directed, hence the wish I expressed at the beginning of this report, that your meeting had been postponed. For the purpose of this report I visited the Iddagoda Mine on the 16th instant, and I am very pleased to say that I found everything going smoothly. Pump and steam-power working well and keeping the water down with ease. Of the difficulties encountered in getting the boiler to the mine and starting the machinery, &c., &c., you are all doubtless aware, and they need not be repeated here. All I need say is they were many and troublesome, and caused an expenditure in time and money that had not been anticipated or estimated for. At the time of my visit the Kingsbury shaft was down 84 feet from surface and at this level a cross-cut had been put out east to intersect some veins of ore passed through in the shaft. At 9 feet from the shaft these veins were intercepted and driven upon in both directions, north 20 feet, and south 17 feet. There are three veins of plumbago here varying in width from 1 inch to 3 inches wide, on an average, with occasional spots up to 4 or 5 inches wide. These veins are in close proximity and in the northern drive they appear to the converging towards each other, and, should it by come together will, in all probability, develope one a highly productive vein of ore. More cannot be said on this point at the present stage of the exploration.

In the bottom of the Kingsbury shaft directly where sinking was temporarily discontinued, a very promising looking vein of plumbago was met with. This vein is from 3 to 4 inches wide of good quality ore and, I may say here, that all the veins

at this depth show plumbago of better quality than that to be seen in the 46 feet level of the old shaft.

This points to one of two things, either the veins discovered in the Kingsbury shaft carry better ore throughout than those met with in the old shaft, or that the quality of the mineral is improving in depth and I am of opinion it is the latter and that we shall find a oorresponding improvement in quality in the veins ooming down from the 46 feet level.

In addition to the drivages eastward of the Kingsbury shaft, before referred to, a cross-cut has heen started west, and driven at the time of my visit about 5 feet, with the object of intercepting the two veins driven npon at the 46 feet level of the old shaft.

I should have preferred sinking the Kingsbury shaft another 20 or 30 feet before cross-cutting to those veins, as better results might be looked for at a deeper level, hut this would take time and I am hoping that, at the level we are now we shall see an encouraging improvement in the veins referred to and therefore I instrncted Mr. Hutchings to push on the driving of this oross-cut with all speed and I bope in a montb, or less from this, to reach the point aimed at.

The chief object in sinking the Kingsbury shaft was to explore the veins discovered in the old shaft, at a deeper level and at better advantage than was obtainable at the old shaft. Thus will be seen the importance of continuing to a finish the oross-cut now started, and it will not be out of place here to say that unless this is done little will have been gained by the expenditure incurred up to the present.

As I said before I should like much to have gone deeper before tapping these veins, hut the cross-cut now going in will show them some 30 feet deeper than where they were seen before and I am not without hope of seeing an improvement even at this depth and if my anticipations prove correct we may safely look for still better things as we go down.

I feel it my duty therefore to advise the carrying ont of the exploratious now in hand at the Kingsbury shaft as, with a comparatively small expenditnre now yon will attain the object sought namely prove, if the mine is likely be a profitable undertaking or not. So far, although the real object aimed at has not been attained the operations have not been without some good results.

New veins of ore have been discovered that, if not of very great value in themselves, show up the highly mineralized character of the district and point to an improvement in the quality of the ore the deeper you go. These facts are important in that when numerous small veins are met with it is usually inferred, and often proves to be true, that a large or mother vein exists somewhere in the near neighbourhood and I can see no reason why this may not be the case at Iddagoda.

Before closing I may say that your prospects of opening up a productive mine at Iddagoda have in no way lessened by recent operations. On the contrary I consider they have been enhanced by the discoveries made in the Kingsbury shaft and I have no hesitation in recommending a vigorous prosecution of the exploration of the mine.—I am, gentlemen, your obedient servant, LEONARD TREGAY.

Monerakande, February 25th, 1901.

THE HORREKELLEY ESTATE CO., LTD.

The Directors have pleasure in submitting the accounts of the Company for the year ending 31st December, 1900, shewing, after writing off R5,893·57 for depreciation on Buildings, Plant and Machinery. a profit of R25,104·77, which, with the halance of R563·03 hrought forward from 1899, gives a total of R25,667·80 available for distribution.

The Directors recommend that a dividend at the rate of six per cent on the Capital of the Company be declared. This will absorb R24,000,—and leave a balance of R1,667·80 to be carried forward to 1901.

The working of the estate for the years 1898, 1899 and 1900 compares as follows:—

	1898.	1899.	1900.
Expenditure on Estate and in Colombo office	37,014·85	R36,754·67	R35,761·59
Number of Coconuts produced	1,437,885	1,305,429	1,502,298
Quantity of Coir Fibre made Ballots	35,474	28,324	22,592

Two Directors—Messrs. F W Bois and C E H Symous retire by rotation, and are eligible for reelection.

Tho Shareholders have to appoint an Auditor for 1901.

The current year's prospects are favourable.

ESTATES COMPANY OF UVA.

ACREAGE :

31st December, 1900.

	Tea in full bearing.	Tea in partial bearing.	Tea not in bearing.	Total Tea.	Other Products.	Timber, Grass, Forest and Waste Land.	Total.
Dammeria	515	60	29	604	30	556	1190
Battawatte and Forest Hill	413	178	...	591	..	164	755
Gampaha	455	78	57	590	45	231	866
	1383	316	86	1785	75	951	2811

The Directors have now to present to the shareholders the accounts of the Company for the past year.

The crops secured amounted to 667,101 lb. tea, 72½ bushels coffee, 167 lb. cardamoms and 41 cwt. cocoa. During the year 95,320 lb. tea were manufactured on Gampaha for other estates. The average nett price realised for the tea was 34·60 cents per lb., and 98·77 cents per lb. for cardamoms, whilst the cocoa realised about R46 per cwt.

After writing off for depreciation of buildings and machinery the sum R13,591·72, the nett profit for the year amounts to R34,720·26 equal to 4·88 per cent on the capital of the Company. To this has to be added the balance brought forward from 1899 of R13,090·04, less the sum of R409·17 overestimated for tea unsold at the end of that year. There is therefore a sum of R47,401·13 available for distribution.

The Directors recommeud the payment of a dividend of 4 per cent, that the sum of R10,000 be placed to credit of an Extension Fund Account, and that the balance amounting to RS,981·13 be carried forward to the current season's account.

During the year nnder review a sum of R21,228·97 has been spent under capital account, in instalment due on construction of the Battawate Road, additions to buildings and machinery, and upkeep of young tea.

The mortgage of R100,000 referred to in the 1898 report falling due, the Directors have paid this off, and negociated a fresh loan for £7,000 sterling on more advantageous terms.

The crops for the current year are estimated at 632,000 lb. tea, 25 bushels coffee, 60 cwt cocoa, and 150 lb. cardamoms on an expenditure of R183,855·35.

During the year Mr. G H Alston resigued his seat on the Board on his departure for England, and the Hon. Mr. W H Figg was appointed in his place. In terms of the Articles of Associa

tion Mr. F G A Lane now retires from the Directorate.

The appointment of an Auditor for the current year rests with the meeting.

CLYDE ESTATE COMPANY.

The report was as follows:—

Your Directors beg to submit their Report and Accounts for the year ending 31 December, 1900.

The quantity of tea made was: from Estate leaf 171,621 lb. and from bought leaf 13,610 lb. The yield for the year from tea in full bearing equals 385 lb. per acre.

The cost of tea, including transport but exclusive of manuring and other extraneous expenditure, was R42,457·26 or say 24·75 cents per lb. The net amount realised for the total crop (185,131 lb.) was R59,476·81, an average of 32·13 cents as compared with 35·73 cents per lb. in 1899.

All expenditure on the young tea has been charged against revenue. The cost of manuring during the year (R1,444·44) has been similarly dealt with. A sum of R7,418·33 has been set aside to meet doubtful debts, and the year's provision for depreciation in value of buildings and machinery amounts to R3,255·52. The available balance then remaining is R2,543·13, which the Directors recommend being carried forward.

Under the Articles of Association, Mr. E D Harrison retires from the Board, and being eligible offers himself for re-election.

The Shareholders have to appoint an Auditor for 1901.

UNION ESTATES COMPANY.

ANNUAL MEETING

ACREAGE.

	Tea in full bearing.	Tea not in bearing.	Cocoa.	Cardamons.	Total Cultivated.	Grass, jungle & Waste land.	Total.
Hayes Group	518	3	—	25	546	1,665	2,211
Dea Ella	248	—	91	—	339	147	486
	766	3	91	25	885	1,812	2,697

The Directors have now to present to the shareholders the accounts of the Company for the past year.

The tea crops secured were 87,416 lb. on Dea Ella (including 42,330 lb. purchased leaf) and 271,822 lb. on Hayes. The average nett prices realised were R31·44 cents per lb. for Dea Ella and R30·75 cents per lb. for Hayes, as against 36 cents and R38·65 cents respectively in 1899. The Dea Ella cocoa crop amounted to about 100 cwts., which sold at an average of R44·30 per cwt., and the Hayes cardamom crop sold realised R1·21 per lb. nett.

The plant for the electrical transmission of power to the factory on Hayes estate continues to work most satisfactorily.

After making provision for the depreciation of buildings and machinery, writing off a sum of R180·82 cents for irrecoverable coast advances and allowing for the balance of R1,818·86 cents brought forward from 1899 account, the result of the year's working shews a loss of R6,286·26 cents to be carried forward to the current year's account.

The Directors deeply regret this disappointing result which is entirely attributable to the extremely low prices ruling during the year for teas of the description manufactured by the Company's estates. Under the circumstances the Directors and Agents have decided to refund half their fees for the year.

The amount expended upon capital account during 1900 was R13,256·68 cents for instalment due on the construction of Hayes Cart Road, additions to buidings and machinery on Hayes, and upkeep of tea and cocoa on Dea Ella not yet in bearing.

The estimate for this year is 359,250 lb. tea, 120 cwts. cocoa, 12,000 coconuts and 600 lb. cardamoms, on an expenditure of R104,998·60 cents which includes R1,310 on capital account to be expended on upkeep of cocoa clearings on Dea Ella and the planting up of a further 10 acres in cardamoms on Hayes.

In term of the articles of Association the Hon. Mr. W H Figg now retires from the Board, but is eligible for re-election.

The appointment of an Auditor for the current year rests with the meeting.

HIGHEST PRICE FOR CINCHONA SEED.

We are indebted to Mr. Standen, Director of the Government Cinchona Plantation, Nilgiris, for the following memorandum:—

"From the Report of the Director of the Dutch Government Cinchona Plantations for the quarter ending 31st December, 1900, I see that the highest price paid for a packet of 25 grammes of cinchona seed was 555 guilders or 22·2 guilders per gramme. This is equivalent to 10069·69 guilders or R12,587 per pound."

AN EXPERIMENT IN PISCICULTURE.

A recent number of the *Fishing Gazette* contains an interesting account, by Captain Stuart Godfrey, of the attempts made by a small body of enthusiastic anglers to introduce the English trout into Kashmir waters. We briefly chronicled the failure of the initatory endeavour in this direction, the misadventure being due to the carelessness of the agents entrusted with the sending out of the trout ova. But, though disappointed, the promoters have not been disheartened, and we shall hope to hear very shortly of the success of their second experiment. Meanwhile it is worth while glancing at the history of this attempt to improve the sporting qualities of the waters of Kashmir. Experience has proved that trout ova could be successfully conveyed to South Africa, New Zealand, and elsewhere; and there seemed no reason, says Captain Godfrey, why, despite the long road journey from Rawalpindi to Srinagar, the ova should not during the cold season, be brought out by a line steamer to Bombay or Karachi, and thence conveyed to Rawalpindi and Srinagar. Colonel Unwin headed the subscription list which was started for this purpose, and support was also forthcoming from a few others interested in Kashmir. The State authorities approved of the scheme and promised certain assistance, such as a site for the breeding shed, a supply of water, and the setting aside if necessary of a portion of the Dal or some other lake for the purpose of the experiment. The Duke of Bedford also kindly offered a present of 10,000 ova to start the proceedings. Elaborate arrangements had been made in India for the reception of the ova. A railway carriage was sent to the Karachi docks with slings fitted in it to support the ova box. Ice had been got ready for the train journey, and

every possible precaution taken to ensure the safe transit of the future trout from the seaboard to Rawalpindi. Meanwhile, for the road portion of the journey, Mr Dhahjhidboy had prepared a special torga, and arrangements had been made with the tehsildars all along the road to Kashmir for an ample supply of ice and snow at each halting station. The Collector of Customs, too, at Karachi had also promised to see that there was no delay in clearing the eggs. All these careful preparations were unfortunately rendered useless by the action of the home forwarding agent who actually sent out the ova in a slow steamer, unprovided either with ice or a cool room, so that there was nothing to take over at Karachi but a mass of putrid eggs. The Duke of Bedford, however, has again come forward with a fresh present of ova, which reached Bombay a few weeks since in the *Caledonia*, but regarding the arrival of which in Kashmir we are at present without any information. Pending the receipt of this, however, it may be of interest to consider the chances of successfully acclimatising English or American trout in the lakes and rivers of the Himalaya.

Captain Godfrey thinks that there is every chance of success. He points out that those interested in the present venture have several important points in their favour. These are: (1) water supplied in pipes from a glacier-fed stream filtered in the reservoir; (2) ice and snow within easy reach costing even in summer only two days' coolie wage for a man's load; (3) a community of sportsmen always in the country, from whom assistance may be relied on; (4) a temperate climate little dissimilar to that of Switzerland or Scotland, except for a short hot weather; and (5) the assistance of the Kashmir State officials. There is a good deal no doubt in this list of advantages, but yet the Kashmir Fishing Club would do well not to be too confident. Success in matters of this kind is not to be expected at the outset. We say this, not for the purpose of throwing cold water on the scheme, but rather with a view to encouraging those interested to persevere in their attempts even though they be met at the outset with many unmitigated failures. It was only after numerous failures that the English trout was at length successfully acclimatised in places such as New Zealand and Tasmania. In the Nilgiri Hills, too, there have been many endeavours to introduce the English trout, but so far with practically no real success. A careful examination of all the various ponds and streams in that district wherein trout have been from time to time deposited, lately revealed their almost complete absence. A few unhealthy-looking fish were, it is true to be found, the sole remnant of the thousands imported. But there had been apparently no attempt on the part of these to perpetuate their species, and the Nilgiri attempts, so far as our information goes, must be written down a failure. It remains to be seen what will happen in Kashmir. It would be difficult to exaggerate the nature and extent of the many obstacles to be overcome before trout can be successfully acclimatised. Kashmir presents certain solid advantages for an attempt of this nature but the list of these as presented by Captain Godfrey does not necessarily ensure success. We will assume, for instance, that the ova are landed in Kashmir in a healthy condition, that is, with the usual percentage of bad or unfruitful eggs. This is no small assumption by the way. The next thing to do is to hatch out the eggs. Here undoubtedly the supply of pure cold water mentioned by Captain Godfrey will come in useful. Such a supply is the very first desideratum in trout culture. If all goes well the fish in due course are hatched out. For a certain period after their entry into this world they feed on the contents of the umbilical sac with which nature provides them. There soon comes a time, however, when this source is pretty nearly exhausted and it is necessary for the young fry to obtain other food. The glacier water will certainly contain no food, so that recourse must be had to other means. Artificial feeding is seldom satisfactory, and the difficulties in carrying it out would be enormously increased in the case of a country like Kashmir, especially as there is no skilled professional pisciculturist on the spot. It will be necessary therefore to fall back on the natural food present in minute particles in the water of the lake or some neighbouring stream which runs, not through a rocky channel, but through weeds. There ought to be plenty of such water available for the Kashmir experiments, and no doubt there will be plenty of food in it. The question which remains to be settled, however, is whether such food will be suitable and acceptable to English trout fry. If it is, well and good. The experiment will have advanced to a notable extent, and barring accidents, the young trout will soon grow to a respectable size. Here the temptation to turn the trout at large may be felt, but it is to be hoped will be strenuously resisted. Turning them out at such an early stage would simply mean that they would never be seen again. The Kashmir lakes and rivers swarm with the so-called Kashmir trout, a fish of the most pronounced cannibal tendencies, and running to over twenty pounds in weight. These fish would certainly soon make short work of such interesting strangers as yearling English trout. Even if thousands of two-year-old trout were turned out into unenclosed Kashmir waters, it is doubtful if any of them would be met with again. The extent of water is enormous, and the cannibal instincts of the native fish, together with the inroads of the mahseer during the summer months, would easily account for their early disappearance. No; the only way to go to work with any chance of success is to get out from England relays of ova. These must be hatched out in succession and kept in separate partitions until a respectable size. They could then be turned out into a carefully partitioned-off part of, say, the Dal lake, care being taken that only fish much of the same size were placed in the same position in order to prevent cannibalism. These partitioned-off spaces of natural water could be gradually enlarged as the trout grew larger. In time the fish might begin to breed, and then the success of the experiment would be assured. The management would be able to secure as many ova as they required on the spot, without having to go through the risky and expensive operation of importing them from Europe. It would then be possible to turn out from time to time some of the larger fish into open waters, and as the hatching and breeding operations would be kept up and more and more fish turned out into the open, a time would eventually arrive when it would be possible to truthfully assert that the English trout had at length been thoroughly acclimatised in India.

Exactly what this would mean, it would be difficult to exaggerate. The attractions of Kash-

mir as a holiday resort would be doubled, and it might be quite possible to extend the Indian habitat of the trout to such streams as the Poonch and the Giri. Generally speaking the fish could only be introduced into the Himalayan streams, for in waters whose temperature rises for considerable periods over 60 degrees Fahrenheit, the salmon family do not thrive. Still the success of one serious attempt at pisciculture might give rise to others. Why not try and cultivate the mahseer, for instance? There are not wanting signs that this truly sporting fish, what with the enormous increase of poaching and the greatly extended operations of anglers, will in time begin to get scarce in many of the more get-at-able waters. What has already happened to the salmon in many home streams will in course of time happen also to the mahseer, unless Art steps into assist the operations of Nature. When once a certain amount of practical experience has been gained by Indian sportsmen in the art of fish-rearing as carried out in Kashmir, it would be a comparatively cheap and simple matter to rear young mahseer in suitable localities, and thus add enormously to the sporting value of the selected rivers. The experiment now being carried out in Kashmir is consequently one which is capable of great results, and the progress of the operations will be watched with anxiety by all who take an interest in the improvement of sport. So far the cost of the Kashmir trials has been borne by a few, but we feel confident that if experiments on a small scale give any promise of success, there will be money enough forthcoming from the sporting community to enable them to be prosecuted on a more ambitious scale.—*Pioneer*, February 8.

A TROPICAL BEAT FOR BLACK BEAR IN KASHMIR.

All the arrrangements had been made the day before by "Whiskers," my *shikari* (so-called because his hirsute appendages stuck out like a cat's), for 50 coolies and 3 tom-tomwallahs to turn up at 6 a.m., which means 8 a.m. Consequently when they arrived talking only as Kashmiris can talk at 9 a.m., it did not matter much, as it is considered rude to disturb a bear in his early morning sleep. As a matter of fact, it is easier to drive them in the middle of the day when it is hot. Off we started —Kashmiris, tom-tomwallahs, hangers-on and swells, *tous ensemble*—to a narrow strip of forest on a steep side of a hill about one mile away. The coolies and tom-tomwallahs, &c., were distributed, according to the drive, at either end of the forest, to beat both ways and eventually meet in the middle. In the meantime after a stiffish climb myself and *shikari*, who was fairly agog with excitement, reached the top and planted ourselves, after much deliberation on my *shikari's* part, by a boundary pillar with a view down either side, along the ridge, for about 100 yards along a cut line, with perfectly dead ground at my feet. This I tried to explain would be very awkward with a lively bear. However, there was no time to change now as the faint sound of tom-toming was heard in the distance. All the rifles and guns were loaded and I tried to get comfortable; but deodar needles are not the best of friends with thin trousers. On came the beat with the coolies whistling and shouting, all making as much noise as an English school-boy does when he gets a half-holiday. Suddenly—"What's that?" from my *shikari*, accompanied by a nudge in my short ribs, as a breaking of branches was heard below us to the left. I grasped my faithful ·500 and waited; the noise came nearer, and then I saw something black. "Shoot, shoot," cried the *shikari*, "Baloo, Baloo"; but I was not such a fool as to do so until I had seen what it was; for to shoot a cow in Kashmir is considered much worse than polishing off a human being; and right enough, after about three minutes, out wandered a small black heifer across the cut line. My *shikari* was quite overcome, wagging his head and clasping his hands and muttering prayers to *Allah* in his whiskers. But there was no time for this, so I woke him up with the butt-end of my rifle. In the meantime the beat had been drawing nearer and nearer, and the whistles sounded like a lot of gallery boys in a theatre on the Surrey side of the river. Suddenly another nudge from my *shikari*, and right enough, in the bushes to my left, about 100 yards away, below the cut line, I saw something move. I turned round and got into as comfortable a position as I could when out bolted a bear across the line. Bang! I let drive, and what a row he kicked up, which was good to hear as I knew I had hit him as he disappeared down the other side of the hill. The *shikari* was simply bursting with joy, so I had to quiet him again with the butt-end of my rifle. The beat now was coming to an end, and the *shikari* was thinking of stopping it, when suddenly—"Wough-wough," and a grunt at my feet; of course, just where nobody was looking; and out of a bush from this very dead ground appeared the sleek head of a fine black bear. I don't know who was the most surprised—the bear, the *shikari*, or myself. Anyhow the bear bolted before I had time to swing round on deodar needles (a very painful performance) and get a shot. The brute evidently broke back through the beaters as he never appeared again. This made old "Whiskers" very wroth, and so he hurled invectives at all the coolies' and tom-tomwallahs' grandmothers as they turned up, in which performance the poor man made himself quite hoarse.

The beat being over, great excitement was evident amongst the coolies, especially as my *shikari* had informed them that the bear I had shot was at least 12 feet long. The next business was to track up the wounded bear; and for this purpose village dogs were sent for. These amused themselves for the first half hour in pulling each other to pieces, and judging from the fur that flew, they did. However, with the help of many sticks, they were brought under subjection. In the meantime my gallant *shikari* had disappeared, taking with him, without my knowledge, my 12-bore loaded with ball. Suddenly, bang-bang, far down the hill. I collared my rifle and legged it for all I was worth to where the sounds came from, through thick brushwood, which was almost as nasty as the deodar needles. I came upon my trembling *shikari*; probably he was in a funk on account of his having disobeyed orders in shooting, and not from being alone in the proximity of a wounded bear. He informed me that he suddenly came across the bear lying down, and that he let him have it, right and left, straight into the brute's back. This evidently woke him up, as he had gone down hill; but the dogs soon rounded him up: so I took the 12-bore and descended to where the dogs were baiting the bear behind a large deodar tree. I could see nothing, so sat down about 20 yards away above the tree and awaited results. Presently a black head appeared round the corner, so I gave the beast a ball in his neck which settled him. The plucky dogs, finding the bear dead, immediately began to maul the carcass and to pull it down the very steep hill side. However, the coolies soon drove them off, and when in about an hour's time 10 coolies came staggering under the load, I had him measured—a full 4 feet ten inches. So much for the 12-footer. I found that my first shot had hit him a few inches behind the shoulder and had torn him about terribly. The *shikari's* shots had further blown great holes into him; and it was a wonder, the animal being so small, that he ever got away at all—a fact which shows their extreme vitality. I had two or three more beats after this with no luck; but as moral: "Keep an eye on the *shikari*."—*Indian Forester*. E. Radcliffe.

RUBBER COLLECTION AND CULTIVATION.

The various reports coming from our consuls and agents in different parts of the world contain a large amount of very interesting matter respecting the collection and cultivation of rubber in the various parts of the world where this useful article can be obtained. Considerable attention has been paid to the subject, with the result that the rubber has arrived on the market in a very much better condition and more suitable for manufacture than previously. Where the work has been left to natives, their only idea being to get as much as they can for their work on the spot, they have not troubled much about the future, the consequence of which was that they loaded the raw material with all kinds of sand, stones and rubbish, so as to make their parcels of rubber heavier and so obtain a larger remuneration. Rubber collected in this way has given a vast amount of trouble to india-rubber manufacturers, who have been compelled to inspect every piece of rubber very carefully before putting it into their machines, otherwise great damage might have been done to them. Another difficulty was with regard to the condition in which the rubber arrived upon this market; being badly prepared, it had deteriorated very considerably by the time it reached the rubber manufacturer, and, consequently, the loss in washing and drying was very considerable, but now that the requirements of the Trade have been more generally known, especially in the foreign countries and our own colonies, the result is that the rubber comes to the market in a much cleaner condition than it used to. Owing, however, to the more speedy means of transit, the rubber, as it now arrives, contains more moisture than it originally did, when it took some months to get from the point of collection to the port of shipment, and some months to the English ports. Now, owing to our ocean greyhounds, the rubber can be brought from far up the country to the English manufacturer in the space of a very few weeks. Manufacturers must not, however, be led away by the clean appearance of the rubber and should allow for the additional moisture which it contains. It is all very well to take the average of past years as a basis, but we hear on all sides from manufacturers that the loss on washing and drying raw rubbers keeps on increasing every year, in spite of the improvements which have been made in the condition of the rubber. Experiments are being continually made to find out the best means of curing, and we suppose that it will not be many years before some satisfactory method is adopted whereby rubber can be bought on the English market, which is practically pure and ready for immediate working without the usual process of washing and drying. The past century has seen vast improvements in the Rubber Trade, but we anticipate that in the early years of the present century much more will be known about this useful material, and considerable strides will be made in the collection of the raw material, especially in those districts where the cultivation has been carried on upon proper lines. There are various processes of coagulation which have been tried, but none seems to have answered so well as the old-fashioned process of smoking carried on in Brazil; but, still, time will prove.—*India-Rubber Journal*, Jan. 21.

RUBBER PLANTING IN BRAZIL.

An interesting account of rubber planting reaches us from Brazil. The centre of the rubber plantations in the State of Minas is Bagagem where at least 150,000 shoots have been planted during the last two years. On one plantation the trees had already reached the height of 5 metres (16 feet 3 inches) some of them of little more than a year's growth. The trunks, however, have not developed in proportion and only measure, so far about 20 to 30 centimetres (10 inches to 12 inches). This plantation is situated on high gravelly soil and counts some 10,000 trees. The older trees planted two or three years ago show signs of abundant latex, which exudes from the tender shoots and solidifies the stems. The growth of the trees was greatly retarded in the winter months, from June to August, but afterwards the development was surprising, nearly 3ft in three months. The trees were raised from seeds planted three together, the holes being at distances of 12 to 15 hands from one another in regular lines. Only one weeding is necessary per annum. The climate of Minnas is cold, falling below freezing point in some localities during the winter, and as Manicoba appears to be peculiarly susceptible to cold, it is necessary to choose the ground carefully. Within a few years the Manicoba industry may be expected to give important results.—*India rubber Journal*, February 4.

TWO NEW PLANTING DISTRICTS.

We have now decided to separate from the Kurunegala district, the following estates to be included in a

GALAGEDARA DISTRICT,

namely :—Aluta, Betworth (late Isabel), Dea Ella, Greenwood, Malgré Moi, Mousava, Morankande, Nella-Oola, Rockhill, Sunnyside, all of which are served by the Post Office at Galagedara, to which will be added Belgodde (P.O. Rambukkana) and Moorock, Muttettudeniya, Rookgolle and Woodslee (P. O. Weuda); as well as Bollagalla Upper and Lower, with Kandy as post station. We may as well also transfer a number of places which have "Madawalatenne" as post station, though most of these are now "uncultivated": — Ancumbura,, Battagolla, Beragama (Peradeniya), Boccawella, Bon Accord, Dunira Falton's, Tennekoon's and Wilson's Land, Galanne, Goddehena, Hatbawa, Hingulgalla, Iddegodde, Kallugallatenne (Kandy), Kandewatte (Peradeniya), Mahatenne (Kandy), Palagalla (Peradeniya), Richgrove (Kandy), Riverside, St. Julia, Thornhill and Wattagalla) (Kandy). Any proprietor or manager who objects to such transfer, or any one wishing to include a further estate, will kindly communicate with this office at once.

Then we are urged to establish a

SOUTH MATALE DISTRICT,

as we have Matale North, West and East; and Mr. H. Storey is good enough to suggest the following estates for this new district:—Benveula, Ballacadua, Barton, Duncrub, Goruluhela, Kaduwella, Kotuwagedera, Kuruwille, Marakona, Malvern, Meegastenne, Muwagala, Pansalatenne, Ratwatte, Syston, The Grove, Ukuwella, Vellana, Warriapolla, Warakamure, Wyamita—21 estates all described as truly of "Matale South," taking the town of Matale as a centre. Here again we are in the hands of proprietors and managers. If any object to this proposal, or wish to modify it in any way, let them write at once.

TEA "REFUSE" AND CAFFEINE; ALSO CINCHONA PROSPECTS.

Mr. F. L. Seely,—the very worthy and well-informed representative of a big American drug house—has been giving us some useful information about tea refuse and caffeine. Mr. Seely is chiefly interested in cinchona and quinine, and he tells us plainly that Java commands—and must for many years command—the "bark" market with her 25,000 acres of old trees, chiefly Calisaya, which, if the price justified the export, could supply five or six million lb. in place of the normal one million lb, of bark, each month. Last year Java supplied 12,000,000 lb. of cinchona bark and manufactured one-tenth (one million ounces) of the world's supply of quinine. There is, therefore, no special encouragement to grow cinchona in Ceylon, save as an adjunct to other products; and in this direction, a good deal may be safely done, because the Java planters are bound to keep up the price for their own protection. Mr. Seely ran up to Kandy, Hatton and Blair Athol; but finding it took him four hours to find as many cinchona trees (!), he thought he had better hurry over to India.

But now to turn to refuse tea and caffeine, Mr. Seely estimates that the world's requirements in caffeine equal 50,000 lb. at least and may shortly rise to 100,000 lb. To produce this quantity, chemists require from five to ten million lb. of refuse tea. The firm of Messrs. Bohringer, as representing the great Mannheim Chemical Manufactory, have hitherto been the chief purchasers of such refuse; but they find a difficulty in dealing with planters, because of their fear lest any of the tea should be sold for food consumption. Of course, such an idea is absurd in the case of a house of the standing of Messrs. Bohringer. But Mr. Seely suggests a very easy check. The addition of some lime to refuse tea would prevent its use for food consumption, while it would aid, even expedite, the work of the chemist. If, therefore, the planters consigned their refuse tea to Messrs. Bohringer's store in Colombo, a representative of the Planters' Association or "Thirty Committee" could, once a month or once a quarter, check the consignments and see the lime duly added. We give this suggestion for what it is worth. Certainly the transfer of some 5,000,000 lb. of refuse or rubbishy teas to the chemist ought to be an object worthy of attention from the Association and Chamber's Committees.

COCOA AND CHOCOLATE:

THE NEW LOCAL INDUSTRY.

(*Communicated.*)

OF late years, manufacturers in some parts of the world have complacently claimed the credit to themselves of giving to the consumer an article of diet of great excellence, as if the excellence was not in the bean itself before it went into the manufacturer's hands. Long before the days of elaborate machinery and the necessity for laws against adulteration of foodstuffs the Mexican ground his cocoa paste in the primitive grindstone of the aborigine; and in golden goblets, we are told, did the kings sip this ambrosia of the gods. If, therefore the manufacturer could take credit for aught he could of a verity only claim credit for leaving well alone. To him, indeed, could a discriminating public say in these days of popularised science—for he can take away much of the purity and strength of cocoa with the aid of starch. as he could increase its solubility by the addition of deleterious chemicals:—"Nothing extenuate, put down nought in malice." The medical faculty may, in the case of those with a weak digestion, demand a reduction of the natural fat found in the cocoa. But this is readily extracted by the use of a press, while the cocoa is still in a liquid state, as it flows out of the mill, and the confectioner as readily takes it away at double the price paid for the nib. The residuum is what the manufacturer is pleased to call essence! Such is the romance which attaches to cocoa.

OUR VIEW OF BARK AND A BROKER'S.

Readers who have followed our articles on cinchona and quinine during the last three years will be especially interested in a letter recently issued by Messrs. Woodhouse & Co., the well-known bark brokers. There is nothing remarkable in the fact that this firm interprets the figures relating to cinchona as we do, for it is difficult to see how anyone taking a wide survey of the situation can come to any other conclusion. The only people who doubt the evident conclusion are those who expect that if the natural position of an article is strong the article should stand any amount of rushing by speculators without having reactions. Messrs. Woodhouse's way, however, of putting certain points are, perhaps, curiously like ours. As the letter is lengthy, we can only, of course, refer here to scattered passages.

First, the fact is noted that 1900 is memorable as being the first for many years in which the value of the unit in bark did not fall below 1d per pound, and the price of quinine below 1s per ounce. The average units for bark were, for 1900, 10.13 cents in Holland and 2d in London, as against 7.05 cents and 1⅜d in 1899, and 4.78 cents and 15-16d in 1898. One noteworthy point to which we drew attention is here emphasised—viz., that whereas in 1899, at the point when the unit reached 10.90 cents, manufacturers raised quinine to 1s 9d, in 1900 the alkaloid was never above 1s 7d, though 12.25 cents was the unit in September. A calculation is also made, showing cost of quinine in bark, this cost plus that of manufacturing, and the selling price. Taken in the order named these factors are:—1900, 1s, 1s 4d, 1s 5½d; 1899, 8d, 1s, 1s 3d; 1898, 5½d, 9½d, 11d. This reveals at once how the general trend of bark and quinine has been strongly upwards, and how a healthier situation is being promoted by the closer approach of cost and selling price. In the broker's letter the cost of manufacture is put at 4d per oz; we think 3d is a fairer figure.

Turning to the question of consumption and production, some carefully compiled tables are given, which, however, we will leave for later consideration. At present we may simply say that the conclusion from these is the one we have repeated again and again, viz, that consumption has overtaken production. In these tables the production is probably stated rather too low; indeed, alkaloids other than quinine

sulphate are purposely excluded. The figures given for the last three years, set out as ounces of quinine, are as follows:

	1900.	1899.	1898.
Production ...	12,261,000	12,447,000	12,855,000
Consumption ...	14,818,000	14,861,000	14,464,000

Thus we have been drawing on stocks of bark, that in London having fallen from nearly 20,000 packages to less than 10,000. Allowing for the increase in stocks of quinine, the net reduction in the last year of bark and quinine stocks is given as 1,213,000 oz. of the latter.

Moreover, Java bark has been falling off in quality as well as quantity. In 1897, 5,315,000 kilos offered gave 10,256,000 ounces of quinine; in 1900, 5,260,000 kilos only gave 8,735,000 ounces. About 900,000 ounces of quinine have been sold in Java during 1900. This manufacture locally has undoubtedly had the marked influence, as stated, of forcing European makers to maintain a good unit for bark and a low price for quinine. Java planters have thus the matter in their own hands (irrespective of financial obligations) and, if they behave sensibly, we ought to see higher prices still this year.—*British and Colonial Druggist*, Feb. 15.

THE WORLD'S SUPPLY OF CRUDE RUBBER.

NO CHANCE OF A MONOPOLY.

There is no real scarcity of rubber. Vast supplies exist in forests which have never yet been "worked," and there is rubber in warehouses in many markets, and afloat on the seas, for all who have the money to pay for it. Every country that ever yielded any rubber continues to do so; every grade of rubber that ever came to market is still coming; the world's total production, as rule, becomes greater every year. All who have use for rubber goods of any sort find the market amply supplied. Where, then, is the scarcity? It is true that, now and then, consumption gains on the rate of production of the raw material, and prices may rise in consequence, but this very fact starts more gatherers to work, and prices tend downward again. Of course all crude rubber costs more than formerly, but this is true of many other things, and consumers now are as able to pay for the rubber goods they need as people ever were.

No fear need be felt that the supply of rubber will ever be monopolised. Could such a thing be done, the manufacturer, first, and the consumer of rubber goods, in the end, might be made to suffer exactions hard to bear. But a consolidation of all the firms, in various parts of the world, who have capital invested in handling crude rubber, would be out of the question, if only for the reason that the rubber business is as a rule carried on in connection with other trading, from which it would be difficult to separate it. A complete monopoly of rubber, then, would mean a great general trading company constantly liable to competition from new sources, in respect not only to rubber but to all the other commodities. The success of the Standard Oil Co., a notable example of monopoly, is due to their complete control of the natural supplies, confined to a limited and accessible territory, and to handling their products on a very large scale, making great economies possible. Rubber, on the other hand, is obtained throughout a wide belt, extending around the world, but mostly in regions remote from civilised centres, unsuited for white men; it comes in driblets to innumerable initial markets, from millions of gatherers, whose labor practically is beyond control. Moreover, if all the forests now yielding rubber, and all the rubber gatherers at work, and all the houses trading in rubber in America, Europe, Asia, and Africa, were brought under a single control, the possibility would exist of new forests being explored, new workers found, and new trading houses opened, every one of which facts would tend to the overthrow of the monopoly.

As for the future of rubber prices, certain considerations are worthy of attention. In the first place, the great increase in the demand for raw material in recent years has been due both to new uses of rubber, and to the introduction of the use of rubber goods into new fields. In not a few cases the recent rate of growth doubtless is meeting a check for the present, whereas the production of rubber seems likely to continue, in which event it would seem that prices should decline. On the other hand, a very marked decline in prices would lead to still further new uses of rubber, which would prevent the cost from sinking to former levels, or at least from staying there very long. In this connection may be mentioned the widespread interest in planting rubber, the outcome of which can hardly fail to be, within ten or twenty years, a considerable addition to the world's supply of this commodity, which will further enable its use to be extended.

The constant fluctuations in the price of rubber are most inconvenient at times for manufacturers, especially where contracts are made for supplying goods at a certain price, which price may fail to yield a profit on account of a heavy and unexpected advance in the cost of the raw material. Here is involved, by the way, the whole question of speculation in rubber prices by manufacturers, to which a further article will be devoted in a latter issue. But manufacturers have it in their power, to a certain extent, to protect themselves against some of the unpleasant effects of fluctuations in prices by keeping on hand larger stocks of rubber instead of the "hand to mouth" policy of buying that so many of them pursue.—*India Rubber World*, Feb. 1.

TEA PLANTING IN JAVA.

PAYING WELL: BUT EXTENSIONS NOT PUSHED!

Tea-growing pays so well in Java that the area under the staple shows increase. Yet capitalists, as a rule, shrink from investing money in this line of enterprise. The Batavia *Nieuwsblad* deplores this lack of interest at the present time, when coffee is on the down grade and when, owing to the abandonment of many coffee estates, thousands of labourers thrown out of employment can be started on tea-planting. Investors object that tea-growing stands under the disadvantage of no dividends being available in the early years of an estate. The reply is that this is made good by the heavy dividends sure to come once the estate has begun to bear.—*Straits Times*, Feb. 25.

FIBRE PRODUCTION BY INDIGO PLANTERS.—The cultivation of fibre-producing plants has lately been taken up rather extensively in India, particularly in the indigo districts; and there would appear to be every promise of satisfactory returns being obtained by the planters. A sample of agave fibre, decorticated by Faure's machine, recently sent home, has been valued at £24 a ton, which should make its production a fairly profitable one to the grower.—*Englishman*.

ROYAL BOTANIC GARDENS, PERADENIYA.

The Director and his Staff, aided by the Government Printer, deserve great credit for the promptitude with which their interesting and valuable Reports for 1900 have seen the light. We hope through the courteous aid of the same indispensable Printer, to give our readers the advantage of reading the bulk of the Reports in the very convenient and reliable form in which they are officially issued. And meantime we can only say that it is evident the Staff —Director and Botanist, Mycologist, Entomologist, Consulting Chemist and temporary Assistant, besides the Curator at Peradeniya and the Superintendent at Hakgalla are now in full working order, and that much good should result. "The losses by disease are enormous and to save even 5 per cent of them," it is rightly said, would be "a great gain." Camphor, citronella, tobacco and sericulture are new or minor industries to be investigated. The total cost of the Department for 1900 was R71,740 against R58,822 in 1899; the receipts from sales fell off owing to lower price of rubber seed and aggregated last year R4,659. The paragraph of most general interest and importance at this time is that on our staple from Mr. Willis:—

As the extension of cultivation, though practically over in Ceylon, is still going on in South India, Java, and elsewhere, it is probable that the full effect of over-production has yet to be felt, and that the tea industry has now to pass through a trying period, which may lead to considerable alterations and reorganisations in methods of working, &c. Greater specialisation, larger factories under specially-trained managers, manuring and plucking for quality rather than for quantity, selection of the best and most suitable jâts as regards quality of tea and power of resisting disease, replacement of inferior bushes and fields by better and by other products, careful precautions against disease, and improvements in methods of cultivation and manufacture, are some of the directions in which relief may be looked for. Tea has been comparatively free from serious outbreaks of blights during the year (see supplements). A commencement, which may lead to important developments, has been made in the manufacture of green teas suited to the American markets. If this extend, it will temporarily relieve the overproduction difficulty.

Mr. Carruthers deals with Cacao and also with Tea Blights; while the list of "enemies" dealt with or described by Mr. Green is very formidable; but it shews how keenly he is on the alert. Mr. Macmillan and Mr. Nock also supply interesting reports; but we must close for the present with the Director's notable reference to Trimen's "Flora of Ceylon":—

The fifth and last volume of the Flora of Ceylon appeared early in the year, written by the veteran botanist, Sir J D Hooker. The Colony now posscsses perhaps the best existing Colonial Flora. At the same time, this flora is anything but complete; there are yet many new species to be discovered, and many occur in other localities than those mentioned. For the filling up of the gap we must rely largely on the help of local botanists and an attempt will shortly be made to interest more of the public than have hitherto cared for such things in the study of this most fascinating of the sciences. Suggestions to this end will be cordially welcomed.

MINOR PRODUCTS REPORT.

London, Feb. 14.

Coca Leaves.—Offered, 32 packages. Sold 0. Ceylon leaves of the Huanoco character were bought in at 1s 6d, and broken Truxillo leaves at 1s 2d.

Cinchona Bark.—The London bark auctions for February were held this week. The offerings and sales were rather lower than at the last auction. Out of 1,343 packages offered, 1,132 were sold. The weight offered was 285,394 lb, of which 230,549 lb were sold. The unit was 1½d. The following prices were paid:—Calisaya, cultivated Bolivia quills were sold at 7½d to 8⅝d. Ledger, Java chips were sold at 3d to 4⅜d; branch, at ⅜d. East India chips were sold at 4⅜d to 4⅛d. Officinalis, East Indian chips were sold at 2½d to 8d. Ceylon, branch, 2½d; hybrid stems chips, 3¼d. Succirubra: Ceylon chips sold at 2⅜d to 4d; and roots 4d to 4⅝d; Hybrid chips at 3⅜d.—*British and Colonial Druggist,*

RUBBER IN MEXICO.

The British Commercial Agent in the United States has sent the following report upon the development of the rubber industry in Mexico by American capital:—

The report states that out of the interest in the subject of planting rubber in Mexico has grown a series of companies operating in the Ubero district on the Isthmus of Tehuantepec, whose prospects seem encouraging. Two companies have existed for some time past having their headquarters at Indianopolis. These are the Mexican Coffee & Rubber Company, and the Ubero Plantation Company, of Indianopolis.

The Ubero Plantation Company was incorporated under the laws of Maine, August 10th, 1900, with 1,000,000 dollars capital. The company owns 3,000 acres, adjoining the original Ubero tract, on which it proposes planting 1,000,000 coffee trees, 400,000 rubber trees, and 1,000,000 pineapple plants.

The Isthmus Rubber Company of Ubero, now being organised, will have a New Jersey charter and its principal offices in New York.

Tehuantepec Rubber Culture Company, Canton Mintitlan, State of Vera Cruz, Mexico.—The personnel of this company were all in the organisation of the Woolson Spice Company. The original stock of the Woolson Company was 37,500 dollars; it paid in dividends in six years over 1,000'000 dollars, and the company was then sold for 2,200,000 dollars. The Dos Rios plantation has also been a marked success.

Mexican Plantation Company, State of Vera Cruz, Mexico.—This comnpany was incorporated under the laws of Indiana on November 20th, 1900, with 10,000 dollars capital, fully paid. It has acquired 600 acres on the Tesechoacon River, 90 miles from the gulf port of Alvarado, and purpose planting 125,000 rubber trees in the spring.

La Zacualpa Rubber Plantation Company, State of Chiapa, Mexico.—A report recently issued by this company states that during the last year 600,000 rubber trees were transplanted, 1,000,000 rubber plants were placed in nurseries for transplanting in 1901, 1,000,000 plants were started in seed-beds for transplanting to the nursery.

The Leavenworth Coffee & Rubber Company, Leaven worth, Kansas, is mentioned as having a tract of 2,000 acres just above the Dos Rios plantation, on the Isthmus of Hehuantepec. Some coffee, rubber, and vanilla have been planted.—*India-Rubber Trades' Journal,* Feb. 4.

AVERAGES FOR TEA SALE.

FEBRUARY 27TH, 1901.

[From Messrs. Forbes & Walker's Circular]

Estate	Total Quantity	Average Price.	Estate	Total Quantity.	Average Price.
Adisham	35p	42	Kuruwathai	38c	28
Agra Oya	54c	25	Labuduwa	14c	19
Agra Ouvah	143p	47	Little Valley	60c	24
Ahamad	24c	15	M.	114p	22
Amupitiya	18c	20	Maha Uva	53p	32
Annandale	88½c	48	Maldenia	69p	24
Ardlaw & Wishford	58p	41	Marlborough	245p	41
Avisawella	65c	23	Mawiligangawatte	93c	43
Battalgalla	58c	38	Middleton	77p	45
Battawatte	54c	24	Morah la	54c	26
Ben Nevis	61p	45	Nahaviila	67c	37
Bittacy	61p	40	Ninfield	61c	21
Brownlow	72p	38	Nugawella	47c	24
Carberry	64c	24	Oakham	77p	39
Castlereagh	69c	38	Old Meddegama	75c	30
Citrus	57c	16	Oodoowera	12c	39
Clyde	201c	22	Oonoogaloya	61c	43
Cold Stream Group	170p	37	Penrhos	69p	39
Corfu	110½c	32	Pine Hill	119p	39
Damblagolla	90p	22	Poilakande	74c	23
Dammeria	101c	30	Primrose Hill	27c	23
Dea Ella	83½c	31	Primston	33½c	21
Deniyaya	73c	27	Pungetty	41p	38
Doragalla	93c	33	Queensland	29c	42
Dryburgh	39p	26	Ratwatte	60c	21
Dumbar	95p	46	Ravana	106½c	32
Dunnottar	90c	33	Robgili	79p	46
Eila	162c	20	Rookatenne	47c	32
Eltton	87c	29	Rowley	35½c	31
Erracht	89c	22	R. S.	19c	25
Fairlawn	51p	38	Ruanwella	79c	21
Florida	73c	14	St. Heilier's	59p	28
Forest Creek	123c	45	St. John's	61½c	52
Forest Hill	27c	27	St. Martin	72½c	20
Gabbala	23½c	19	St. Pauls	163½c	32
Galloola	69c	31	Sadamulle	49c	14
Ganapalla	107c	23	Seenagolla	47½c	59
Glasgow	109p	48	Sirikandura	38c	25
Glassaugh	82p	52	South Africa	75c	27
Glenalla	66c	25	Summer Hill	166c	50
Glen Almond	19c	25	Sylvakandy	110p	42
Glenesk	35c	23	Tavalamtenne	93½c	23
Glentilt	92c	36	Do	61½c	30
Geragama	111c	21	Do	53½c	32
Gonapitiya	104½c	52	Tismada	36c	20
Gwernet	48p	22	Tonacombe	145c	35
Hangranoya	64c	29	Torwood	79c	25
High Forest	80½c	59	Vogan	103c	31
Holton	20c	23	Wadhurst	27c	30
Hornsey	101p	44	Waitalawa	112½c	37
Jak Tree Hill	20c	24	Warakamure	61c	26
Kandaloya	114½c	29	Warratenne	83c	19
Kelani	59c	29	Weemalla	23c	28
Kirklees	66p	36	Wewalkande	38½c	16
K. P. W.	90½c	23	Weyungewatte	60c	26
Kadukande	20c	14	Whyddon	40c	32
Kumaragalla	45p	22	Woodthorpe	50c	23

NOTE.—c stands for chests, ½c for half chests, b for boxes and p for packages.

CRUDE RUBBER COMBINES.

There is, perhaps, no cry—says the *India-rubber Journal*, Feb. 4th—which appeals so much to Englishmen in their love of freedom as that of "No Monopoly." It is only necessary to start the cry and immediately all ranks rally round the standard to break down the work of any individual or association who endeavours to monopolise any industry or interest. Monopolies, as a rule, are only short-lived, but they are liable to disturb the equilibrium of trade, and produce results which have a baneful influence upon commercial life in general. A combination formed to control the crude rubber market can only have a result which would be disastrous either to the industry or to the promoters. Considerable excitement has been recently caused by the reports that a combination has been in process of formation in the United States to control the crude rubber market. Different figures have been stated as to the proposed capital, varying from 10,000,000 to 30,000,000 dollars. It is unnecessary to enter into the alleged objects of this combination, and it is difficult to say what the effect of it would be on the British raw rubber market. From inquiries we have made we are left in an uncertain state of mind as to whether this combination will actually come into being, but the majority of firms with whom we have consulted, allege that the whole thing has fallen through. The report on the market that this failure has come about is doubtless responsible for the fall in price of Para rubber by 2d per lb during the last week. We know many rubber manufacturers who would prefer that the price of the crude material should remain fairly stable, so that they can found their mixings and prices upon a firm basis, which would allow them a fair margin of profit should the market rise or fall but slightly. When, as we have seen during the last ten years, the price of Para can fluctuate from 1s 11d to 5s per lb, the calculations of the manufacturers are upset and considerable trouble is caused. The laws of supply and demand naturally affect the price of raw materials, but supply and demand is not responsible for such startling fluctuations as sometimes prevail. Crude rubber will always be the subject of that speculation which is common to all similar articles, and we can indicate nothing which is likely to prevent such speculation. It may be as well, however, to remind the promoters of such combinations as are here referred to of previous failures, and of the fact that the manufacturer is an important factor in the situation and can do much to upset the plans of would-be monopolists.

A LADY BOTANIST FOR KOREA.

TWO YEARS' SOJOURN IN THE INTERESTS OF SCIENCE.

Miss Constance Taylor, a London botanist, will sail for Korea on February 27, and for two years will be semi-officially botanising in Korea. As Miss Taylor explained to a *Daily Mail* representative yesterday, it all comes about through Korea being largely an unknown quantity as far as the botanical world goes. There are not many places so open to civilisation as Korea, the botany of which is so little known, and it is much more important than appears at first sight to have the botany of a place cut and dried and reduced to specimens. Miss Taylor, while travelling for a few weeks in Korea, became enamoured of the land. And as she is a devoted scientist, and has studied botany very deeply at King's College and other places, her present scheme gradually shaped itself. The Botanical Society, the British Museum, the Anthropological Society, and the Linnæan Society welcomed her idea, and have given her something in the nature of commissions. She will work for them. The Korean Government cordially invites Miss Taylor to submit her results to them.

"Of course, I cannot do it exhaustively in two years," said Miss Taylor, "but I can do a lot. As soon as I get there I shall start collecting all the specimens that are to be obtained, and as I collect them I shall paint them in water-colours. That has to be done most carefully. Then all the

specimens will have to be carefully classified, and in the end the Korean Government may publish the results of my work with all the pictures of flowers, etc. Nobody is going out with me. I shall have no assistance, and very little kit is necessary."

And Miss Taylor is delighted with the project of her two years' sojourn among the Koreans.—*Daily Mail.* Feb. 13.

CINCHONA BARK SHIPMENTS.

According to our cable advices the total quantity of cinchona bark shipped from Java to Europe during January 1901 was 500,000 kilos. as compared with 550,000 kilos. during December 1900, and 307,000 kilos. during January 1900. In the following table we give figures showing the quantity of bark shipped during each month since January 1, 1899 :—

	1899 Kilos.	1900 Kilos.	1901 Kilos.
January	255,000	307,000	500,000
February	465,000	320,000	—
March	488,500	325,000	—
April	498,500	265,000	—
May	476,500	408,000	—
June	566,450	433,000	—
July	470,000	314,500	—
August	601,200	488,500	—
September	616,000	683,000	—
October	479,000	550,000	—
November	681,000	745,000	—
December	313,000	550,000	—
	5,910,150	5,389,000	

[Equal to 13,002,330 lb. in 1899 and 12,856,000 lb. in 1900.—Ed, *C.O.*]

During the first half of last month the shipments amounted to about 300,000 kilos. and in some quarters it was expected that the total shipments for the whole month would again be large and on a par with those during the last five months of 1900. It is true that the shipments were larger as compared with the first half of 1900, but, from the fact that since November there has been a slight falling off each month, those who have been of the opinion that all available supplies in Java were rushed forward to take advantage of the high prices which prevailed during the last part of last year, derive some encouragement. Bark shipments, as we have said many times before, are always uncertain, but the opinion is now very general that shipments will show a further falling off during February and also during March, unless there is a substantial advance at the coming Amsterdam bark auction on the 21st Feb.—*New York Drug Reporter.*

THE CAUSE OF YELLOW FEVER

The Liverpool School of Tropical Diseases has received a report from the late Dr Myers and Dr Murham, members of the commission appointed to investigate yellow fever in tropical climates. They say that there are in all cases of yellow fever minute bacilli, and they state that they are of opinion that this is the cause of the disease. They consider that yellow fever is not due to an animal parasite like malaria, nor do they consider that the mosquito plays any very important part in the transference of yellow fever from person to person. —*Daily Mail*, Feb. 18.

IVORY CARVING IN THE PUNJAB.

As the machinery of the administration in India becomes more intricate, the District Officer has less time than of old to study the habits, customs and occupations of the people. It is all the more noteworthy, therefore, to find a young Assistant Commissioner in the Punjab turning aside from the daily routine to trace the development of one of the most interesting of the art industries of the country. Whatever be its limitations and imperfections, the monograph on ivory carving in the Punjab, which Mr. T P Ellis has just published, is an effort on which the anthor and the service to which he belongs may be congratnlated. Generally speaking, the art of ivory carving in the Punjab is much as it was described by Mr. Lockwood Kipling some twenty years ago: it is not an art that flourishes. "At Amritsar great quantities of combs are made, an industry which probably originated with the Sikhs, who are Nazarenes in the treatment of their hair and beard. The ivory combs, paper-cutters and card-cases of Amritsar are ornamented with geometrical open-work patterns of some delicacy of execution, but no great interest in design. Figure-work is but seldom wrought in the Province owing to the predominance of Mussalman notions, and the only figure-carver at Delhi, Fakir Chand, does not appear to meet with much encouragement." Since then, however, says Mr. Ellis, ivory carving in Delhi has improved, and inlaying in Hoshiarpur, but in both Patiala and Amritsar the industry has fallen upon evil days. The ivory used in India is drawn from three sources: Africa Burma and India itself, and the indigenous article is everywhere at a discount owing to its inferiority of quality, due, according to experts, to the food of the animals, but also to inferiority of breed, climate and surronndings. Except in a few instances, the ivory industry is confined to the large towns; purchasers being mostly Europeans, work is necessarily conducted near some centre frequented by them. Ivory carving proper may be said to be confined to Delhi, Amritsar and the Patiala State capital. In the former city, Lala Fakir Chand of the Dariba (already referred to) practically monopolises the trade, and, in fact, no one in the Province can compete with him. Bangle-turning, though general throughout the Province, has its chief centres at Amritsar, Dera Ghazi Khan, Gujranwala, Mooltan and Lahore Districts. The great centre of the inlaid work industry is Hoshiarpur, the work of Basi Ghulam Hussan being famous not only in India but throughout Europe and America.

IVORY CARVING IN DELHI

is almost exclusively a hereditary occupation, the system of training being long and arduous, tending to limit the acquisition of the art to families. Thus the family of Fakir Chand has carried on this work for four generations. The training of the would-be artist begins usually when the boy is about ten or twelve. A good deal depends upon individual aptitude, but even with the advantages of hereditary instinct, application, and natnral gifts, a period of from twenty to twenty-five years of careful training is required before a workman can be trusted and is considered proficient in all the branches of the art. The master-craftsman employs his carvers at fixed wages, varying according to the capabilities of the man, supplies him with material, sets his task, he himself taking the risk of sale, destruction of material, and the long period of waiting before a return is made for the outlay. Everything is done under the supervision of the head worker, and no one is allowed to take work home with him, as is common enough in the case of other handicrafts. In Lala Fakir Chand's factory the workers congregate in a small room along with wood carvers and miniature painters; some sitting on balconies or on the stairs, and others at the open doors and lattices to obtain sufficient light to work by, and, surrounded by their various implements; the whole scene forms

A TYPICAL PICTURE OF THE INDIAN ARTIST AT WORK.

The whole trade of Delhi may be said to be in the hands of Fakir Chand, who practically supplies all the jewellers in Chandni Chowk. Neither there nor in Amritsar is any special caste identified exclusively with the art, like the *sunar* of the gold and silver industry. Profits vary, of course, but all round it cannot at best be termed a remunerative business. The necessary tools, although rude, are numerous (some 38); altogether considerable outlay is incurred, and returns are long in coming. Good prices are sometimes obtained; in the winter of 1899, for instance, a certain *chef d'œuvre* realised £500; another beautiful carving of some Hindu gods was valued at R2,500; but the latter was executed fifty years before it found a purchaser. The prevailing inadequacy of prices, indeed, is considered to affect greatly the quality of the work in general. It is to be noted, however, that when goods are specially ordered, the greatest skill is devoted to their production, and amongst these the best specimens of work are to be found.

IN AMRITSAR,

the work being of a much less ambitious character than in Delhi, the apprenticeship to be served is shorter and less arduous. Lads at from ten to twelve are bound for six mouths or a year to a master-craftsman, who sets them to work in soft woods, then on to harder and harder, until hand and eye can be trusted to be employed on the costly ivory, the pay gradually mounting with the degree of skill attained. Here the most that even trained workmen expect to earn is from R8 to R18 a month —a very poor wage compared to that of superior workers in Delhi, but then the best of Amritsar carved work can only be compared with the cheap goods turned out by Lala Chand. The work in Amritsar consists of (1) bangle-making, and (2) toy, figures, and such ordinary useful articles as combs, paper cutters, *zurmadani* (little boxes to contain the black antimony wherewith the Eastern belle intensifies the blackness of her eyelashes), card cases, as also the geometrical and floral designs for inlaying work in wood or metal. Hoshiarpur is described as the main centre of the inlaying industry and manufacture of decorative furniture, although bangle-turning is also carried on to a certain extent. One learns with regret that the future of the ivory carving trade in Delhi is generally regarded as by no means assured, although Mr. Ellis takes a less gloomy view. Naturally the arts are no longer patronised as they once were by Native Courts, while the classes to whom most wealth has come under British rule have unfortunately small pretensions to artistic taste. On the other hand, the market has widened in another direction; year by year the swarms of tourists increase in volume, and artistic products are eagerly sought and purchased, though not always, or perhaps often, with much discrimination.—*Pioneer*, March 2nd.

CHEAP ESTATES IN THE WEST INDIES.

Reviewing a paper in *Blackwood* for February 9th, the *Spectator* says :—

The author of "My House in the West Indies" not only gives a charming picture of the delights of winter residence on the shores of the Caribbean Sea, but throws a good deal of light on the economic situation in a typical West Indian island, in which sugar has been superseded by arrowroot and cacao, and the constitutionally indolent natives are confronted with increasing difficulty in finding the rent to pay for their provision-grounds. The only hope of financial salvation, in the writer's view, is the influx of new blood and new capital; "not winter residents like myself, but young men with enough money, after paying for their estates (which may now be had cheaply enough), to work a small sugar-plantation up to the first crop without borrowed money."

THE UVAKELLIE TEA COMPANY OF CEYLON, LTD.

THE REPORT

was submitted as follows :—

REPORT OF THE DIRECTORS.

The Directors have now to submit their Report and Accounts for the year ending 31st December, 1900.

The crop amounted to 162,110 lb. Tea costing 26·95 cts. per lb. against 152,660 lb., costing 26·82 cts. in 1899. The amount of profit earned is R24,422·54 which is equal to 10 per cent on the Capital of the Company.

After estimating the unsold tea at a safe figure, the crop has realized 43·39 cts. per lb against 41·67 cts. in 1899 which the Directors consider highly satisfactory.

After adding R925·19 surplus proceeds of tea estimated last year and R187·30 balance brought forward, the amount available for distribution is R25,535·03. After paying an interim Dividend of 3 per cent and writing off 7½ per cent for Depreciation on Buildings and Machinery, the profit amounts to R16,297·15, and the Directors recommend that this amount be disposed of as follows :—

By the payment of a final Dividend of 5½ per cent (making 8½ per cent for the year) absorbing...	R13,200·00
By carrying a sum to Reserve, of...	2,000·00
By the payment of Bonus to Superintendent of	500·00
By carrying forward the balance of	597·15
	R16,297·15

The Estimate for the current year is 162,000 lb. Tea to cost R45,739·50.

In terms of the Articles of Association Mr. W Kingsbury retires from the Board, but being eligible offers himself for re-election. It will also be necessary to appoint an Auditor for 1901. By order of the Board of Directors, J. M. ROBERTSON & Co., Agents and Secretaries.

Colombo, March 1st, 1901.

The CHAIRMAN, in submitting the report, said that as it had been in their hands for some time it might be taken as read. There was not much to say on it. Their tea showed a profit of 16·44 cents per lb and even in their plucking there was a profit of R57·86 this year for each acre. The price realised for the tea this year was 43·39 cents as against 41·67 last year. This profit, he thought, was largely due to the good work done by their Superintendent. He then moved the adoption of the report.

KNAVESMIRE ESTATES COMPANY.

THE REPORT

was submitted as follows :—

The Directors have the pleasure to submit the balance sheet and profit and loss account for the year ended 31st December, 1900, duly audited.

The profit for the year is R24,488·38, to which must be added R4,081·71 balance from 1899.

An interim dividend of 2½ per cent absorbing R10,375 was paid last September, and the Directors propose that a further dividend of 1½ per cent be paid absorbing R6,225, and that the balance R5,294·68 after providing for Directors' fees be carried forward.

The profit earned represents a return of R5·90 per cent on the capital of the Company, and is equal to R50·40 per acre on the area in bearing.

The total tea crop secured was 323,118 lb., or 23,118 lb. more than estimated for. The plucking area was 486 acres giving 664 lb. per acre. Total amount of tea for disposal was 337,232 lb. including 14,114 lb. made from purchased leaf. Tea sold to end 31st Dec. was 285,135 lb. netting R28·49 cents per lb. leaving

52,097 lb., to be disposed of estimated to net R22·43 cents per lb.

Cost of production including all charges and including cost of bought leaf was R20·355 cents per lb. of made tea.

The Company's property consisted on 31st December, 1900, of:—

Tea in bearing	486	acres.
Tea not ,,	15	,,
Jungle	88	,,
Buildings and Waste	5	,,
Total	594	acres.

Estimated crop for 1901 is 300,000 lb. to cost R20·31 cents per lb.

PLUMBAGO.—The mining rights were leased in March to a Syndicate on terms of 1-5th royalty and work was immediately started. The nine months' work since that date has been mostly of a prospecting character, for the land near the first prospecting shaft, which was so favourably reported on by Capt. Tregay, turned out quite barren of plumbago. Two distinct tunnels have been made, and from both cross cuts have been cut. Roughly, 10 tons have been won to end of December, 1900, at which time prospects may be said to have been better than at any time since the work was started.

THE ROEBERY TEA COMPANY OF CEYLON.

THE REPORT.

of the Directors was submitted as follows:—

ACREAGE.

Tea in bearing	497	acres.
,, 3 years old	109	,,
,, 2 ,,	36	,,
	642	acres.
Cardamoms	4	,,
	646	acres in cultivation.

The Directors have now to submit their fifth annual report and accounts, being those for the year ending 31st December, 1900. The yield of tea during the period has been 237,228 lb. costing R26·89 cents per lb., as against R30·32 cents last year; and realising R41·60 cents as against R40·46 cents for the same period.

After providing for commission due to Superintendent and making a liberal allowance for depreciation of buildings and machinery, the amount at credit of Profit and loss is R22,529·61 cents. To this must be added the sum R541·15 cents brought forward from last year, making a total of R23,070·76 cents now available for distribution.

The Directors recommend the payment of a dividend at the rate of 5 per cent on the paid up capital of the Company, which will absorb R15,000·00; that a sum of R7,500·00 be placed to extension account, and the balance R570·76 cents be carried forward to current season's account.

The Directors are pleased to state that £1,000 of the mortgage has been paid off during the year, and their future policy will be to finally liquidiate the indebtedness as soon as possible.

The estimate for this year is 250,000 lb. tea on an expenditure of R65,825·00, which includes a sum of R900·00 for clearing and planting up 10 acres of jungle.

The retiring Director is the Hon'ble W H Figg, who is eligble for re-election.

The appointment of an Auditor for the current year rests with the meeting.

THE REPORT

ACREAGE OF THE ESTATE.

	Queensland. acres.	Palmerston. acres.	Total. acres.
Tea in Bearing	254	205	459
Young Tea	4	0	4
Total Tea	258	205	463
Jungle	19	0	19
Timber	0	7	7
Grass, &c.	4	0	4
Total Acreages	281	212	493

The Directors have now to submit their Fifth Annual Report and Accounts, being those for the year ending 31st December last. The yield of tea during the period has been 235,579 lb., costing cts. 26·74 as against cts. 28·08 last year, and realising 44·17 as against 45·63.

As will be seen from the accounts, the net profits for the year amount to R28,277·21 after writing off the sum of R5,261·88 for depreciation on Factory and Machinery. An interim dividend of 5 per cent. was paid on 7th August absorbing R20,500, and the Directors recommend that a final dividend of 1½ per cent. be declared, making a total of 6½ per cent. for the year, and leaving a sum of R1,627·21 to be carried forward.

In terms of the Articles of Association, Mr. Stanley Bois now retires from the Board, but is eligible for re-election.

The appointment of an Auditor for the current year rests with the Meeting.

PRODUCE AND PLANTING.

COLD COMFORT.—The circular issued by members of the sub-committee of the Indian Tea Association, which we printed last week, does not meet with the commendation of the "Grocer." That part of the circular in which "all interested in the production of tea" are invited to communicate with their M. P.'s irrespective of party, asking them to support Sir H. Seymour King in an endeavour to get the tea tax reduced to its former rate of 4d per lb, is the subject of special criticism as "not altogether wise." Says the journal mentioned: "The next thing will be, we suppose, to denounce the Government as exacting 'tribute' from India; and possibly that may be followed by an outcry in India itself which may have the gravest effects far beyond the effects of any duty on tea. Then we hear of 'the mischief' and the great damage done by the imposition last year,' and so on. Is it fair to blame the Government either in such a tone or on such a ground? If 'great damage' was done last year, was it not mainly the fault of those in the trade who intercepted part of an impost which would have fallen wholly on the consumer? No one can say with fairness that tea at the price the consumer now obtains it is excessively dear; on the contrary, it is excessively cheap compared with what it was only a generation ago. With as little reason can the fair taxation of tea be condemned. All alcoholic beverages are already heavily taxed (and rightly so), and there is no good economic reason why teetotallers should wholly escape taxation. Providing we do not thereby restrict or render unduly dear the supplies of the people, especially the poor, there is no reason why an article like tea which is almost universally consumed, should not bear a fair import tax for the purposes of revenue. The real question seems to be whether the tax falls or has fallen on the right shoulders. That is to say, in any change of duty, is it of such an amount as to be readily passed on to the consumer, who should rightly bear it? That is a question on which experts in the wholesale trade may and should offer valuable advice to a Chancellor of the Exchequer, but that can surely be done without raising dangerous political questions

and creating imaginary grievances. Granting that the incidence of the duty is not necessarily upon the producer, the latter's hardship should be but of a very temporary nature unless the tax be so high as to destroy trade—which nobody can in this instance pretend it is"

"IMAGINARY GRIEVANCES."—Without attempting to fathom the meaning of the references to "tribute from India" and "those in the trade who intercepted part of an impost which should have fallen wholly on the consumer," we suppose the moral of this is that Indian and Ceylon tea-planters should look on placidly while the industry they have built up is crushed out by the Juggernaut of circumstances over which no one in particular has any control. So long as the tax does not quite destroy their trade planters, instead of worrying the Government and other people with their "imaginary grievances," should bear their troubles with equanimity, and turn their thoughts to political economy and taxation problems. When a man is in danger of drowning, arguments about the depth of the water and how he got into it have no interest for him. The *Grocer* goes on to say:—"The producers in India and Ceylon appear to be suffering mainly from miscalculations—either made by themselves or by those who advised them. Secondly, they are suffering from the miserable failure to arrive at an understanding throughout the trade whereby it might have been possible to pass on the duty to the consumer, on whom that impost was meant to fall. Thirdly, they are suffering from the shortsightedness, not to say foolish avarice, which caused some of them to dump down upon this country so-called 'tea' which was merely rubbish, and should have been treated as rubbish in India and Ceylon. With every desire to show practical sympathy for the Indian and Ceylon planters, we cannot help feeling that they a little over-reached themselves last year; and that their best course now is to pull themselves together without bothering about Government action on this side; and if, rather than stretch again on the rack people such as the income-tax payers under Schedule D who already pay too much, Parliament should think well again to interfere with tea or sugar or what not, it is to be hoped that the producers and importers concerned may be found to have profited by the lesson of last year on the disadvantage of non-combination." To this the producer can say, "Thank you for nothing." Sympathy of the kind here tendered does not amount to much.

THE CALIFORNIA ORANGE CROP.

Estimates of the California orange yield grow larger as the season advances. The estimate of all citrus fruits for 1901, in the San Francisco *Chronicle* annual, was 22,000 carloads, of which 1,145 were set down for central California. The railroad authorities are said to now estimate the southern crop of oranges alone at between 19,000 and 20,000 carloads, of which up to January 19, 4,400 carloads had been shipped, which breaks all records to that date, while 850 carloads have gone forward from the central part of the state. Our contemporary's estimate of the shipments from the district of which Oroville is the centre was 500 carloads, and the Southern Pacific Company now estimates the total crop from that district at between 900 and 1,000, which goes to show that new groves are coming into bearing of which no one knew anything. It is probable, as is usual in good years, that the citrus crop will exceed all estimates and that this will be the most prosperous year California citrus growers have ever known. The abundant rains which have fallen in the southern counties will improve the quality of the fruit and strengthen the vitality of the trees to produce next year's crop.—*Home paper.*

THE TEA DUTY.

[To the Editor of the *Home & Colonial Mail.*]

Sir,—We would solicit your powerful aid towards arousing public attention to the subject of the taxation of tea. It will be fresh in your recollection that last year's Budget laid on this article an additional duty of 2d a lb, being an increase of no less than 50 per cent. We contend that the fiscal burden is wholly excessive, and is alike unjust to consumer and producer.

It is unjust to the consumer. Tea, with a duty of 6d per lb, now contributes about six millions sterling to the Exchequer, or 5 per cent. of the national revenues. The duty exceeds the wholesale price of the great bulk of the tea consumed in this country, seventy five per cent. of the quantity imported being now sold in bond at 6d per lb and under. Thus the duty falls most severely on the poorer classes, and infringes a fundamental law of political economy. If there is one thing which should be encouraged in this country above another it is the supply of a harmless beverage in universal demand. The evils arising from the extensive use of intoxicating drinks are too patent to need enlarging upon; and all interested in promoting the cause of temperance should join in condemning the excessive taxation of tea.

It is unjust to the producer. Under ordinary circumstances the greater portion of the enhanced duty should have been borne by the consumer. But markets are so abnormal as to render this impossible. Prices have fallen in a direct ratio with the enhanced duty. In other words, the latter is being largely paid by the producer. The following table, showing three years' fluctuations in the price of type-tea, places this fact in a clear light:—

Description of Tea.	1899.	1900.	1901.
Indian Pekoes ..	7·73	7·20	5·97
Ceylon Pekoes ..	7·81	7·25	5·21

But this process has its limits. In view of the cost of growing and manufacturing tea, and transporting it 6,000 miles and upwards, it is clear that this burden cannot continue to be borne by the producer. The enhancement in the retail price caused by the increased duty must re-act on the demand to his detriment. The deep injury inflicted on the industry is shown in a serious shrinkage in the value of tea companies' shares, and in a general depression which has no parallel.

The effect of the existing duty on the countries of production is equally prejudicial. Their congested areas are relieved of surplus population by a steady flow of emigrants to the tea districts, and if famine is to be fought it must be by precisely similar means to those employed by the planter. His ruin would be severely felt by the peasantry of India and Ceylon, and the consequent check to the influx of British capital would lower the standard of existence and be prejudical to the interests of both countries.

The industry thus heavily handicapped is one which should be fostered by every legitimate means. Tea differs radically from sugar, which stands in the same category as a constituent of our diet, but pays not a farthing to the Exhequer. Tea employs £30,000,000 of British capital, and is essentially a creation of British enterprise. Half a century back the whole consumption of these islands was supplied by China. In spite of many failures through losses which would have daunted most men, and at a vast sacrifice of life and money, we have succeeded in distancing

our rivals; and the great bulk of our tea is now produced within the limits of the Empire. The following figures are pregnant with suggestion for the Chancellor of the Exchequer. They represent our imports in cwts. of tea and sugar in 1899:—

Importations of	From British Empire Cwt.	From foreign countries. Cwt.
Tea ..	.. 2,188,000	.. 391,102
Sugar ..	.. 1,582,337	.. 29,348,553

In other words, while 84 per cent. of our tea is produced by fellow subjects beyond the seas, 94 per cent. of our sugar is sent us by commercial rivals aided by State bounties.

With apologies for trespassing on your space, We are, Sir, your obedient servants,

D Cruickshank, A Bryans, Vice-Chairmen, the Indian Tea Association, London. Ernest Tye, Secretary.

Indian Tea Association,
14, St. Mary Axe, London, February 21.

RESTRICTION OF OUTPUT.

(To the Editor of the *Home and Colonial Mail.*)

Dear Sir,—The telegrams, of which copies are enclosed, may be of interest to your readers. The planters' resolution referred to, passed at the annual meeting of the Planters' Association on the 16th inst., was in favour of restricting the output of black tea by reducing the plucking area by 10 per cent., and by the manufacture of green tea,—Yours faithfully,

Wm. Martin Leake,
Secretary, Ceylon Association in London.

The following telegrams have been received from Ceylon by the Ceylon Association in London:—"Kandy, February 18th. Ceylon taking steps to reduce 10 per cent. acreage." "Colombo, February 20th, Rosling (Chairman Planters' Association) is very anxious to have the planters' resolution carried out. Colombo agents are waiting instructions from principals. Steps must be taken immediately. Ascertain at once and telegraph." —*H and C Mail*, Feb. 22.

THE DEADLY MOSQUITO.

CHILDREN DIE WHOLESALE IN LAGOS.

Lagos, Jan. 28.—The arrival in Lagos of the Governor, Sir William MacGregor, who was originally a doctor in Fiji, has been followed by a noticeable impetus in medical affairs, just as the rule of Governor McCallum, an engineer, did much for the public works. The present Governor is credited with the determination to wage ceaseless war on the dreaded mosquito, convicted of being a malaria propagandist. An excellent hospital has been maintained here, and it has been said with grim humour that a man in Lagos dies luxuriously in comparison with some ports less advanced. The advice to a newcomer of the old coaster at one port: "Keep friendly with the Wesleyans, they have a hearse," is quite unnecessary here; and certainly the death-rate during the last year or two shows signs of marked improvement—as regards the white community. The children, however, are not so fortunate. Nearly half the negro children born here die before reaching twelve months. According to the latest returns available—those for 1899—out of 1,929 births registered 864 children died within their first year, a death-rate of 447·9 per thousand, or nearly one half.

It is supposed that this dreadful mortality is caused by malaria. Every child born has to pass through the ordeal of acclimatisation—at least, the blood of those examined has revealed the presence in large numbers of the malarial parasites. To thoroughly sift a question so vital to the population of the Colony, a Commission has been formed, consisting of one European doctor, one native doctor, and a lay member, to inquire into the probable causes and cure of this mortality. If the inquiry shows this to be due to malaria, then it is probable that the compulsory administration of quinine among the native children, in conjunction with other measures in view for the destruction of the breeding places of the anopheles mosquito, may do much to save many infant lives.—*Daily Express*, Feb. 19.

Value of Bees.—A scientist estimates that bees in an ordinary colony will visit 2,000,000 flowers in a day or 200,000,000 in a season. If they fertilize one-tenth this number, and the fertilization of 20,000 workers is worth 1c., then a single colony is worth $10 a year for this purpose alone.—*American Agriculturist.*

Coconut Oil.—We are much obliged to the mercantile correspondent who throws so much light on the trade in, and distribution of, one of our most important staples, in the letter we give elsewhere. The fact that America has been buying coconut oil in the London market last year, shows how difficult it is to arrive at exact conclusions as to distribution.

Cocoa.—The consumption of cocoa is steadily going ahead. Germany heads the list of consumers, taking 39¾ million lb. in only eleven months, whilst the United States come next with an estimated consumption in twelve months of 39 million lb., and the United Kingdom is third with 38 million lb.; then comes France (34½ millions), Holland (24 millions), Belgium, Spain, and Austria. Russia, who, with its 94 millions of population in Europe alone, her cold climate, and large army, might be looked on as a likely customer for cocoa and chocolate, evidently is not so, for her name does not appear in a recently published list at all. The total quantity consumed by the countries mentioned amounted to 194 million lb. last year, against 107 millions in 1894.—*Home & Colonial Mail*, Feb. 22nd.

Coffee.—There is no doubt the cost of production [of coffee] is constantly changing in all countries. What the real cost of production is, and what will check increase of production of coffee, nobody has so far been able to determine in a satisfactory way, and as production is still increasing, not decreasing, all talk from coffee-growing countries everywhere in reference to the hardships of present prices may be dismissed from the minds of coffee people. It is apparent that the coffee world at large continues very nervous, and at the slighest improvement, due to any cause, no matter how slight, speculators are for ever claiming or clamouring for higher values under the misconception that minor causes can materially alter conditions.—*W. H. Crossman & Bros'. Circular.*

LORD CURZON AND TEA PLANTERS.

We direct special attention to the following important extracts from the recent speech of the Viceroy, dealing with the "Exchange" and "Tea Overproduction" questions. These give the official view of the Exchange problem in opposition to Mr. R. H. Elliot, and afford most sensible advice in regard to promoting a taste for tea throughout India. It would pay if the planters set aside 10 per cent—that is of inferior grades up to that proportion—to be devoted to exploiting both the opposite Continent and this island, in the way Lord Curzon points out:—

THE EXCHANGE QUESTION.

In his concluding speech on the Assam Labour Bill at the last meeting of the Supreme Legislative Council, the Viceroy remarked:—

There is another claim that was specially put forward by the Hon. Sir Allan Arthur which I must equally decline to accept. It is the claim that we owe some special reparation to the planters for the currency policy, which, by raising the rate of exchange, is alleged to have raised against them the cost of production. Now this case was argued before the Currency Commission in London in 1898 by prominent representatives of the planting interest, and I do not hesitate to say that it completely broke down. It was conclusively proved before that Commission that the depression in the industry was due not to the closing of the Mints by the Government of India, not to the fiscal policy of the Chancellor of the Exchequer in raising the tea duty, but over-speculation, over-competition, and over-production. I have gone very carefully into the figures, and they show most conclusively that whereas in the nine years preceding the closing of the Mints, *i e.* from 1885 to 1893 inclusive, the area under tea cultivation in India increased by 39 per cent and the quantity produced by 85 per cent in the six years following upon the closure of the mints, namely 1894 to 1899, the area increased by a further 43 per cent, and the produce by a further 76 per cent., while in 1899 the increase in production was double what it had been in any previous year. So much for all India. I will next take the case of Assam alone. In the nine years from 1885 to 1893, the increase in area was 39 per cent., in production 75 per cent. in the six years from 1894 to 1899 it was 18 per cent. in area and 67 per cent. in production. Further, if we eliminate the years 1893 to 1897 while the rupee was steadily rising from 13d to 16d, and if we take the years posterior to 1897 only, during which the rupee reached and maintained stability, we shall find that in the two years 1897-99 there was an increase of 20,000 acres in Assam alone brought under cultivation, and of 21 million pounds of tea produced. Moreover, the fall in the price of tea, about which we have heard so much, continued long after exchange had become stable. It is clear, therefore, to me that the argument derived from the closure of the Mints is of very little value: and that the tea industry has been disastrously affected not by the currency policy of the Government of India, but by the ill-considered rush of speculation, and by the production of more tea than there were markets to purchase or mouths to swallow.

A TEA MARKET IN INDIA.

The Viceroy continued later:—

"I am a believer in the policy of helping those who know how to help themselves. I see the tea merchants of India and Ceylon scrambling for the markets of England, the Continent, and the United States of America. Why do the Assam planters not recognise that there lies the most splendid market in the world at their doors? Millions of Indians now burn kerosene oil, consume ice, carry umbrellas, and smoke cigarettes. Twenty-five years ago these habits would have been scouted as impossible. Now they are common and in some cases universal. Why do you not tempt these people also to drink tea? What is the good of scouring the world for the thousands? You have the millions at your gate. If I were a planter in Assam I would never rest till the pluckings of my garden became the staple drink, of the Indian artisan in place of the spirituous poison which he is now tempted, for want of anything better, to pour down his throat. I give you this suggestion for what it is worth; and, whether it be taken or not, I hope that Honourable Members will at least admit that throughout the controversial discussion of today the Government has shown itself a critical but not unfriendly champion of the composite interests of the most interesting Province of Assam.

DUM-DUM BULLETS FOR USE IN SPORT.

NOTES ON THE ·300.

(*To the Editor of the Asian.*)

Sir,—In a former letter, written from Ceylon, I mentioned that the mark IV hollow-nosed bullet could not be relied upon to expand properly, even in so tough a creature as a crocodile. Sometimes these bullets expand perfectly; at others, under apparently the same circumstances, they make a wound but little larger than that caused by the ordinary Mark II bullet. I have lately been trying the dum-dum bullet on blackbuck, chinkara, crocodiles and smaller animals. I have come to the conclusion that it also is very unreliable for shooting game. A crocodile hit about the right place through the shoulders got back to the water without any signs of distress. Another one raked fore and aft, left his sunny sand-bank with great nimbleness. In neither case was there any after disturbance of the calm water to show that the reptiles were suffering pains below. On another occasion I fired at a black buck, the range being about 180 yards. The buck fell to the shot, but almost immediately recovered himself and made off. I followed after him and fired two more shots which, as they produced no visible effects, I took to be misses. The buck moved away slowly and by keeping out of sight behind some scrub, I was enabled to get a fourth shot which killed him. I then found that all four of my shots had hit the antelope, and moreover that any one of them, had it expanded, would have killed or disabled the animal at once. Another case was that of a chinkara. He was hit far back in the haunch with a Dum-Dum bullet, and made away slowly. I eventually cut him off, and killed him at short range with a 192-grain hollow-fronted sporting bullet. The difference in the two wounds was most noticeable, the Dum-Dum had not expanded at all, while the sporting bullet had made an enormous hole. A jackal hit about amidships with a Dum-Dum ran fifty yards

before falling. A Sarus crane, shot through the points of both wings, ran seventy or eighty yards and then fell dead. I have heard it asserted that the soft-nosed sporting ·303 bullet is badly balanced, and that it does not shoot accurately. My own experience has been that it is most satisfactory in every way. I have also no fault to find with the 192-grain hollow-point; this last bullet from its lighter weight has no doubt a higher muzzle velocity than the 215-grain bullets, and this extra speed makes it break up all the more thoroughly. The Geffery split jacketed bullets I have not tried myself. There is no doubt, however, that they are noisy in flight, less accurate than the other types, and that when the nose is cut off as well as the jacket slit, they occasionally break up in the barrel. They are, however, very effective on game. The hollow-fronted 192-grain bullet is somewhat safer than the Dum-Dum, as it is more likely to break up on striking the ground. The Dum-Dum is a most alarming missile in a thickly-populated country, as after passing through a buck and striking the ground beyond, it goes humming away with energy enough to kill a man hundreds of yards further on. Altogether I think the ·303 is a most unsafe weapon for black buck shooting, as these antelope are so often found right among the cultivation with natives on all sides of them.

A further objection to the ·303 is the amount of trouble that is necessary in order to keep it properly clean. Of course pull-throughs alone are not sufficient; a clearing rod is necessary and the bolt should be removed, and the rifle thoroughly cleaned out from the breech, an old brush with worn-down bristles is an excellent thing to put a rag round, and much less trouble than the ordinary jag. I found this out with a ·250 rifle; for the rod and brush of a Morris tube proved first rate for wiping it out, when the diameter of the brush had been slightly increased by placing a bit of thin rag around it. Curiously enough I see that Mr. Tippins in his book, "modern rifle shooting in peace, war, and sport" mentions that he too has found an old brush, with the bristles shortened, the best form of jag for rifle cleaning, as the bristles hold the rag firmly, and the cleaning flannel thus used never gets stuck fast in the barrel, as it does sometimes with a pull through. A ·303 wants very conscientious cleaning to keep it in good condition. One may wipe out a rifle most thoroughly and oil it carefully, and the very next day a rag passed through will come out black. My own method is to wipe the rifle as clean as possible, directly after shooting, and oil it well with the usual ·303 oil, which contains mustic soda. The following day I wipe thoroughly clean again, and oil afresh; then about the third or fourth day, I wipe out all the oil and coat the bore with vaseline. The rifle can then be left to take care of itself till it is next wanted. If some such precautions are not taken, a ·303 will soon go off its shooting. I think there is a tendency now-a-days to make rifles too light. It is much easier to shoot with a weapon of moderate weight, say about 8 lb., than with these feather-weights of under seven. Any ordinary man can carry an eight-pound rifle without fatigue, and would probably find that he shot better with it, on the whole, than with a lighter weapon. As an example, the extra light weight, 1886 Model Winchester, which weighs from 6¼ lb, to 7¼ lb., according to whether it is a "Take down" or not, requires to be differently sighted, if it is to be used with smokeless powder. The ordinary sporting Model 1886 rifle of 8¾ lb. shoots alike with the same sighting whether black or smokeless cartridges are used. The cartridge used in the extra light-weight 1886 Model is the ·45—70, which as well as the ·45—90 one can now obtain loaded with smokeless powder.

The sole reason which makes the modern small bore rifle so dangerous for use in thickly populated districts, is the length and weight of the bullets employed. A short light bullet, which would expand readily, would get rid of most of the danger, and be quite sufficiently deadly for chinkara and black-buck. I believe a soft-nosed bullet of 150 grains would be just about right. A considerable amount of muzzle velocity would moreover be gained with a light projectile, and the trajectory flattened over sporting ranges.— "FLEUR-DE-LYS."

THE INTRODUCTION OF TROUT INTO KASHMIR.

PROCESS OF THE EXPERIMENT IN PISCICULTURE.

(To the Editor of the Pioneer.)

SIR,—I have read the article in your paper dated 8th February 1901 regarding the experiment now being made to introduce trout *(salemo fario)* into the streams and lakes of Kashmir and as I have been entrusted with the care of the ova I am in a position to give you an account of the progress made so far and of the facts which have been established. Under the care of my friend Mr. J S MacDonell who went from Kashmir to Bombay for the purpose, the box containing the ova reached Srinagar on 19th December 1900, and on opening it, we discovered to our joy that the contents were in as good condition as could be expected after the long journey. A few improvements in the method of packing the ova suggest themselves, but without going into considerable detail it is not possible to describe them here, nor would they be of general interest to your readers. The main fact is that out of 10,000 ova shipped 7,000 were, on arrival at Srinagar, considered fit to be transferred into the hatching boxes, but of these a certain number were as was to be expected, doubtful. Had the ova which was shipped in 1899 arrived safely, I would have been in a better position to make the experiment, as His Highness the Maharajah had then permitted the use of the Dilwar Khan Bagh for the purpose. In it the hatching boxes and rearing tanks would have been close together and there would have been no risk in transferring the fry from the one to the other. Owing to a mistaken idea that the experiment had proved a failure and had been abandoned finally, the Dilwar Khan Bagh had been assigned for other purposes and was not available when a cable advising despatch of the ova arrived. I had therefore to

CONDUCT THE EXPERIMENT IN MY OWN VERANDAH

and as it turned out it was just as well that I did so. I am however indebted to His Highness the Maharajah for the use of the town-pipe water for the first part of the experiment, viz. the hatching and care of the "alevins"—also for the use of a suitable stream for the second part of the experiment, viz. the rearing of the fry after they have emerged from the "alevin" stage until they are fit to take care of themselves in the great struggle for existence which lies before them. I may here explain that an "alevin" is an

embryo trout just emerged from the ova with the umbilical sac which provides it with its first nourishment: a very quaint-looking object indeed and delicate in the extreme. For the first two days after the ova had been placed in the hatching boxes, a considerable number of bad eggs had to be removed, an operation requiring the most careful manipulation: a certain number of "alevins" were also hatched out. But for the next eight days the number of white, and burst eggs dropped to an average of between 20 and 30 daily and the hatching out ceased almost entirely.

On 29th December, 1900, the pipe water was suddenly cut off without warning for a period of four hours and I had to put my servants on to carry water from a well in the compound in order to maintain a steady flow through the hatching boxes. On the re-opening of the pipe supply a rush of very dirty water followed, overflowing the filter-boxes and it took another four hours' work before we could get the deposit removed from the ova and hatching boxes and then only with the loss of many broken eggs. The burst eggs seem in many cases to be due to the "alevins" trying to hatch out head first, the result, no doubt, of the shaking the ova has been subjected to. Sometimes we are able to assist nature, but in most cases the eggs are lost when this takes place. The rise in temperature when using well water hurried on the hatching which went on much more quickly until the night of 7th January 1901 when the water was again cut off from 10 p.m. till 9 a.m. on the 8th, during which time a

CONSTANT STREAM OF WELL WATER WAS MAINTAINED

by buckets. The change of temperature had again a marked effect and the hatching out was completed with the exception of some 20 or 30 ova, most of which ultimately proved to be bad. The change also had a bad effect on the "alevins" and nearly 100 dead ones had to be removed when the grills were lifted after the hatching out was completed. For the next few days the casualties did not exceed four or five daily till the 11th January when the pipe water was for the third time cut off and well water had again to be used, causing some 30 deaths. At this stage of the proceedings, although the bulk of the "alevins" seemed fairly healthy, they remained bunched up in a torpid state at the lower end of the hatching boxes; some however seemed to suffer from dropsy or blue swelling, but as they appeared to do best when left alone, I did not attempt to treat these to the pinprick remedy suggested by some rearers.

On the morning of 19th January, heavy snow having fallen during the night, I took out 65 dead "alevins," the cause of death being apparently dropsy; and the climatic change had evidently hastened the end of the delicate ones. On the following day 35 dead ones were found and from this time forward till the 7th February 357 in all were removed.

On the 7th February, the fish having to a great extent absorbed their umbilical sacs, I commenced feeding with excellent results, and from that date I have only lost 24 fish in all, although there are still some deformities which can hardly be expected to survive. I estimate, however, that there are now

NOT FAR SHORT OF 5,000 HEALTHY FRY IN THE HATCHING BOXES,

and the fact is therefore established beyond all possibility of dispute that trout ova can be successfully imported into Kashmir. I should mention that on 16th January and again on 29th January I found a large shrimp in the hatching boxes. These had no doubt been introduced with the well water; but whether they had penetrated the filter screens as tiny microbes, or had climbed over the screens in a more advanced stage it is difficult to say. I have little doubt that they were fattening on the helpless "alevins" when discovered.

On the 3rd, 4th, 5th, and 7th February I took out smaller shrimps dead. In these cases I think the tables had been turned and the shrimps had been killed by the stronger "alevins." These freshwater shrimps which are found in nearly all Kashmir waters will prove excellent food for the trout hereafter, and I think there need be no anxiety as to the food supply if once the fish are able to take care of themselves. The experiments made by the 5th Gurkhas under Captain Kitchen's direction in 1896 have proved that

TROUT THRIVE AND INCREASE IN SIZE RAPIDLY WHEN PUT INTO A SUITABLE STREAM,

and if that is the case at Abbotabad the same or even better result, may be hoped for in Kashmir. The first stage of the experiment may now be regarded as a success, but there are great difficulties still to be surmounted before your readers will have a chance of luring my speckled beauties with an artful fly. Indeed the second stage of the experiment, now about to be undertaken, gives me almost as much anxiety as the initial one. The rearing tanks are situated at a distance of 12 miles from the hatching boxes, and I fear I shall lose a lot of fry in transporting them to their new home. Every care will be taken, but only those who have tried it know how difficult it is to guard against loss. I can only hope for the best. In the meantime Captain Godfrey writes that our good friend the Duke of Bedford is sending out

ANOTHER SUPPLY OF OVA, WHICH IS DUE IN BOMBAY ON 22ND MARCH.

If we are able to afford the funds, the same care will be taken to get this consignment up safely as was bestowed on the last one. When on this subject I may mention that the Punjab Banking Company, Srinagar, are the Treasurers for the "Kashmir Fishing Club;" and that subscriptions are urgently wanted from Messes, Clubs and private purses: *bis dat quicito dat.* There are many people to whom I would like to exprees the thanks of the Fishing Club: to the Steam Navigation Company who brought out the ova, and especially the chief officer of the vessel in which it came; to the Customs and Railway authorities in Bombay, and to Mr Dhanjhibhoy, the proprietor of the Imperial Carrying Company; but perhaps I had better leave this pleasing duty to the Honorary Secretary, Coaptain Godfrey, who is expected to reach Karachi on his return from furlough about the 15th March —*Srinagar.* F. L. MITCHELL,

Pioneer, March 4th.

COCA-LEAVES are decidedly scarce. There is a good inquiry for Bolivian leaves, but there are no good green to be had. The nominal value is from 1s 1d to 1s 2d per lb. Sales of Truxillo have been made this week at 1s 3d per lb, leaving a stock of less than 5 cwt in hand.—*Chemist and Druggist*, Feb, 23.

FRUIT SEASON AT NUWARA ELIYA.

A VISIT TO MR. JOHN COTTON'S ORCHARD.—Our Nuwara Eliya correspondent writes :—

Visitors to Mr. John Cotton's orchard at Lake View will be agreeably surprised at the loads of English and Australian fruit that may be seen on the trees. Most noticeable for colour and appearauce are the plums, five varieties of which have been successfully grown, viz. :—(1) The Red Heart Plum, (2) the Burbank, (3 and 4) Japanese Plums of two sorts, (5) the ordinary variety. Of the above varieties the Red Heart is the best in the orchard. The trees (which are three years old and now carry their first crop) were grown from cuttings from grafts produced in the orchard. Many of the fruits borne by them have attained the size of the smaller apples of the Ceylon market, while the smallest are larger and plumper than the largest plums that have ever been grown in Ceylon. The colour of the frnit when ripe is blood-red. The flavour is delicious, albeit a poiut of appreciable acidity prevails, as is the case with all plums. Two of these plum trees yielded 6 lb of fruit at one gathering. The Burbank Plum is much the same as the Red Heart in appearance, except that the colour is not so dark, being of a yellowish red. The flavour too is not so delicious owing to what is called a "woody" taste, peculiar to the latter. The parent tree, on which these and other plum grafts were produced, was brought out as a cutting by Mr. H W Kellow at Mr. Cotton's request, and may be still seen in the orchard. The Japanese trees are not in fruit, being too young to bear; but they look very promising. A fruiting bush that has been very successfully grown is the Currant (the black and the red). These are perhaps the best specimens of growth that may be seen anywhere in the island.

The pears and peaches are not what may be correctly called prolific; but the fruit on the trees is second to none in Nuwara Eliya in point of size. Lemons too have borne well.

A plot of strawberries (about 30 by 40 ft) yielded as much as 300 lb of fruit, at a gathering towards the end of the last year aud the beginning of this, and Mr Cotton says that he can safely count on another hundred pounds before the season goes out.

Three English (grafted) Apple trees in the orchard look very promising, and are at present covered with foliage.

Fruits, all about the place, are doing exceptionally well and Mr Cotton is to be congratulated upon his intrroduction and successful cultivation of the beautiful pums. Vegetables are not so flourishing up here and it is seldom one sees such good cabbages, celery and leeks here as those that come from Kandapola, Uda Pussellawa and Hakgalla way.—Local "Times."

MYSORE PLANTING NOTES.

SOUTH MYSORE, March 11th.—The coffee blossom which resulted from the recent rains has, ou most estates, been a particularly disappointiug oue. Young coffee has, however, done well, and on this class of coffee the quantity of blossom was all that could have been desired. Old coffee which requires longer to bud up will have another nice blossom later on if we are only favoured with a month of fine weather. Crops, however, on the whole will this year be surprisingly bad, as the recent heavy bearing and severe attack of leaf-disease late last season have left their usual legacy in the way of dry trees. Some splendid results have of late years been obtained from the application of tank silt and lime in this District. In a bad season, like the present one, it is particulary noticeable how well coffee looks under the jak tree. In going round coffee estates looking at the recent blossom, one could not fail to notice how vigorous the coffee was looking under this formerly much-abused shade tree. The show of blossom, too, was good, being far better than the show under many other descriptions of shade in the vicinity. The fact that the jak tree, apart from its mulching and manuring deposits, is an *evergreen* tree and does not expose the coffee beneath it to the sudden trausition from dense shade to the open at the termination of the South-West Monsoon—as is the case with many other shade trees, the Geraweggay and Howligay especially—is undoubtedly one of the chief factors in bringing about this result. The ravages of the borer and the bad after-effects of leaf disease are minimised under this excellent shadtree.—*Madras Mail*, March 14.

PORTMORE TEA CO. OF CEYLON.

REPORT OF THE DIRECTORS.

The Directors have the pleasure to submit the General Balance Sheet and Profit and Loss Account for the year ending 31st December, 1900, duly audited.

	£	s.	d.	£	s.	d
The net amount at credit of Profit and Loss after providing for General Expenses, Income Tax, &c.				5,407	1	4
To which should be added Balances brought forward from last year				477	13	7
				5,884	14	11
An interim Dividend of 5 of per cent was paid July 30, amounting to	2,000	0	0			
It is proposed to pay a final Dividend of 8 per cent (making 13 per cent in all, free of Income Tax) which will absorb	3,200	0	0			
And to carry forward to next year	684	14	11			
				5,884	14	11

In presenting their Fourth Annual Report, the Directors have pleasure in recommending a dividend of 13 per cent.

The Tea Crop from the Estates for year ending 31st December, 1900, has been 265,710 lb, being at the rate of 553 lb per acre against 510 lb per acre last year, the highest previous yield, and this increase has been attained by tne ordinary system of cultivation and not by the application of manure.

The cost of production has been £4,653 15s 11d, being at the rate of 4·20d per pound, and the crop has netted £10,544 0s 9d, being 9·52d per pound equal to a profit on the capital of the Company of 14·72 per cent.

The average rate of exchange has been 1s 4 9·64d against 1s 4 13·64d during 1899.

Mr. R C Bowie retires from the Board by rotation, but beiug eligible offers himself for re-election.

The latest reports from the Manager in Ceylon show that Estates, Buildings and Machinery are in a satisfactory condition, and the estimate of crop and expenditure give promise of continued good results, but in accordance with the scheme put forward by the Indian and Ceylon Associations the Board has issued instructions to the Manager in Ceylon to reduce the plucking area during the current year.

The Directors feel that great credit is due to Mr R G Grant, the Manager, and Mr. H A Grigg, the Superintendent, in Ceylon for the way in which they have cultivated the Estates and maintained the high quality of the Tea during the past year.

By Order of the Board,
SHAND, HALDANE & Co., Secretaries.

TEA IN THE ANDAMANS AND NICOBAR ISLANDS.—We direct attention to the interesting summary of progress with the tea experiment in the Andamans, on page 692. So much in earnest are the promoters that the nearest markets, the Nicobars, are being worked for all they are worth; and alcoholic drinks only too popular there, are being rapidly displaced by gifts of tea-pots with the tea introduced.

THE MAZAWATTE TEA COMPANY:

HOW TEA PAYS THE BIG DISTRIBUTORS.

By the mail we have received a circular inviting applications for 26,000 five-per-cent. cumulative preference shares in this Company, of £5 each (all the unissued preference shares), at a premium of 5/- per share. Applicants may, on allotment, pay up the whole balance in advance, and will be allowed interest at the rate of £4 per cent. per annum on the amount so paid in advance. Dividends will be payable in the months of July and January for the half-years ending 31st June and 31st December. The first payment will be calculated from the dates fixed for payment of the respective instalments up to 21st June, 1901. The minimum subscription on which the directors may proceed to allotment is £100,000. It is added :—During the past year the process of consolidating the Company's business premises has been proceeding; the building of the new factory at New Cross has been pressed on; the tea department is now established there; the necessary new buildings to enable the Company to commence business in cocoa and its allied trades have also been proceeded with and are in course of rapid completion. The registered office and sale rooms have been removed from Eastcheap to the Tower Hill Warehouses, which have been converted and altered for the purpose, and when finished will form a complete business establishment in a fine position. Owing to the very much greater volume of trade, the rise in the tea duties, and the extension of the basis of the Company's operations, a larger amount of working capital is required. The Company's capital has been increased accordingly by 20,000 five per cent. cumulative preference shares of £5 each, and 50,000 ordinary shares of £1 each, making the total capital of the Company £400,000 in preference and £400,000 in ordinary shares. All the un-issued preference shares (26,000 in number) are now offered at the price of £5 5s per share. The 50,000 further ordinary shares are kept in reserve to provide for future capital requirements, and may be issued as and when the directors think fit, but at a premium of not less than 10s per share. The directors do not contemplate issuing any debentures, and the articles of Association provide that no issue of debentures or debenture stock shall be made without the authority of an extraordinary resolution duly passed by the Company in general meeting. The last annual report and accounts show £75,000 has been placed to reserve in the five years of the Company's trading:

The dividends paid by the Company on its ordinary shares have been as follows :—

1896..	8 per cent
1897..	8 per cent
1898..	8 per cent
1899...8 per cent with a bonus of 1 per cent =	9 per cent
1900...8 per cent with a bonus of 1 per cent =	9 per cent

The preference shares at the price of issue will return to the investor £4 15s 3d per cent. It will be seen from the profits of the past eight years that the dividend is very amply secured. The amount required to pay the dividend on the whole 80,000 preference shares is only £20,000.

"MANURES" REQUIRED TO IMPROVE THE QUALITY OF TEA:

MR. MANN INSTANCES THE PARALLEL CASE OF VIRGINIAN TOBACCO

One of the most interesting speeches made at the Calcutta meeting of the Indian Tea Association was by the Scientific Expert, Mr. Mann. We quote the remarks in full as of special interest to Ceylon producers at this time :—

MR. MANN said : The Chairman has asked me to say something about the tour recently made by me in the tea districts and in the course of which I visited almost every section in Assam. There was nothing which struck me more during the whole of that tour than the fact that during the past few years there has been a continual expansion of tea, and really without any effort or very little being made to keep up the production of the area already under tea; in fact one or two gardens which I saw gave figures that seem to show that with the area doubled the product of tea was precisely the same as it had been before. I cannot help the conviction that the whole of that decreased reduction per acre under tea cannot be explained by any method of finer plucking. What we need is a concentration of attention to the area already under tea. To say the least, it is a bad thing to go on extending the tea area without giving time, attention or money to keeping up the production of the area already under tea. At the present moment it does not seem the idea of the Committee or of the tea industry to increase production at all. The idea is more that we should devote our attention to improving the quality, or rather keeping up the quality we have already attained to. There seems to be no doubt that during the past ten years the quality of the tea from a very large number of the Assam gardens has deteriorated; that is more especially the case on those districts which have up to the present been famed for a high quality of tea. I am at present devoting more attention to this point than to any other. My investigations at present are directed to finding what constituents in the soil render it capable of producing high quality tea and what constituents are present in those gardens which are or have been famed for the quality of the tea they have produced. This improvement of retentive quality may be dealt with in different ways; one is fine plucking. Here I should like to make a distinction which is not always made between fine and close plucking. Fine plucking I don't think will improve the quality of the tea to any great extent; on the other hand, close plucking will undoubtedly do so, but at the expense of the tea bush. Therefore one will have to balance the gain by an increased product with the injury to the tea bush caused by close plucking. Another way of dealing with the subject is to ascertain what measures are likely to improve the quality. This has been the line which has been followed in America in relation to other industries with great success. I might instance tobacco in Maryland and Massachusetts where the quality has been improved to a very appreciable extent, and on similar lines I think we may im-

prove the quality of our tea. At any rate I am at present working on these lines, not so much to increase the quantity per acre as to improve the quality from the same garden. The questions such as pests, blights, the manufacture of tea etc., I hope to deal with later. But at the present time the question of the improvement of tea in quality by methods of plucking, pruning, and manuring seems to be the most important, and to that I am devoting my chief attention. (Applause.)

TEA IN THE ANDAMAN AND NICOBAR ISLANDS.

The Government Tea Plantation in the Andaman Islands has been doing well. The latest report issued states that 80,000 lb. of tea were made during the year and sold at a net profit of R13,000. The labour employed on the gardens is all convict labour, and as sufficient of it cannot be spared to work them efficiently their out-turn has suffered. The manager states that he could have made more tea, had he had the labour. Owing to the extensive building operations on the Islands, that were in progress at the time, it was not found possible to detail more than a small portion of the labour force for the work of the tea gardens. Now, however, that the tea gardens have passed the experimental stage, and have proved themselves a paying speculation, it is probable the Administration will arrange to amply supply the manager's requirements. There is a good demand for the tea produced, so much so that the supply is not equal to it.

An attempt has been made to create a taste for tea amongst the natives of the Nicobar Islands, who are very partial to the fermented beverage known under the name of *Tari*, or in truth of any description of ardent spirits they can get hold of. Under the influence of arrack, and other vile concoctions surreptitiously introduced, the otherwise peaceable aborigines have been giving the officials responsible for their welfare a considerable amount of trouble. To supplant the place of the various alcholic drinks, the Andaman Island officials have introduced into the Nicobar Islands packets of Port Blair tea together with teapots. The tea and the pots have been distributed amongst the influential inhabitants of the islands, and they have been instructed in the art of brewing tea. It is hoped that by these means the islanders will mend their ways and ultimately give preference to the cup which cheers but does not inebriate. The experiment is certainly a step in the right direction, and is an example the Indian Government might well follow. In connection with this subject we would suggest that prisoners in Indian jails should be supplied with tea and be moreover taught the proper way to brew it. As prisoners do not get liquor in jail, were tea supplied a taste would be created for the beverage, and on their release the prisoners would purchase tea, having once got accustomed to it. Every little helps a little, so we put forward the suggestion for what it is worth.—*I. P.G.*, March 9th.

GAME AND FISH PRESERVATION ON THE NILGIRIS.

A perusal of the last annual report of the Nilgiri Game and Fish Preservation Association, while satisfactory in respect to the efforts of that body to preserve the indigenous game of the district, is disappointing in so far as it shows that nothing was done by way of importing exotic birds and beasts, which at one time formed no inconsiderable part of the Association's operations and rendered the district an attraction to the sportsman. That was ten or eleven years ago, when chikore were imported, pheasants reared in captivity and subsequently let loose in the sholas that abound on the Nilgiris, and rabbits, partridges and peafowl introduced. In 1892, for instance, 39 chikore were turned out, and in that year two were seen in a state of liberty and in the next a covey of 15, but nothing afterwards. The obvious inference is that the birds either failed to breed or were shot down, and no subsequent attempt to introduce them appears to have been made. Several members of the Game Association tried to introduce pheasants to the hills, but their efforts proved unsuccessful. Mr. Hodgson on one occasion brought 12 birds with him from home the previous year. They were under the personal care of the importer for some time, and are said to have laid eggs; but at that stage the progress of the experiment terminated, so far as anybody knows. Mr. G Oakes spent over a thousand rupees in importing pheasants from England at his own expense, but he seems to have arrived at the same conclusion as Mr. Hodgson did, namely, that there was something inimical in the climate. The last batch of his pheasants, however, did not prove this, for they fell a prey to a marauding jackal which gained entrance into the pen where the birds were kept during the night. Rabbits appear to have been thought of in consequence of a reported scarcity of hares: but doubt was expressed whether the hares were really being killed off, and so no very great interest was taken in watching this part of the Association's efforts. The

EXPERIENCE OF CEYLON AND OF AUSTRALIA,

too, in regard to rabbits, rather alarmed the members, and the first or second importation was not repeated. Patridges and peafowl were tried, birds were procured and distributed, but these efforts were afterwards relaxed, except by Mr. Hodgson who successfully reared them at Kartairy. Guinea-fowl also were tried, but abandoned before much success attended the experiment. It is a curious fact that, in the first years of the existence of the Game Association of the Nilgiris, many sportsmen spent considerable sums in introducing game birds, such as guinea-fowl, partridges, pea-fowl, Himalayan pheasants, and the like, at a time when the law gave no protection to these exotic birds, but now that the Game Act has been so amended as to do so effectually, nobody has enterprise enough to carry on the experiment. The Association, in order to develop this part of its work, is anxious to raise the annual gun license from 30 to 50 rupees, but there is little hope of success for this proposal, as a large number of licensees are protesting against the enhancement, and it is very probable their remonstrances may influence the Madras Government, especially as the principal argument relied upon is the necessity for the destruction of wild pig and porcupine, which cause much damage to growing crops.—*Pioneer*, March 11th.

RUBBER IN SOUTHERN NIGERIA.

HOW THE INDUSTRY IS FOSTERED—GOVERNMENT REGULATIONS.

Major H L Gallwey, Acting High Commissioner for Southern Nigeria, reporting on the administration of the Protectorate during the year ended 31st March last, says that the general condition of the colony, both as regards finances and the prospects of future development, may be considered very satisfactory. "In a climate like this," he adds, "where for more than half the year any real efforts towards opening up country are defeated by the heavy rains, progress must necessarily be slow, although it is probably very sure. The very low type of native which inhabits the greater part of the Protectorate is also a factor which has to be considered when taking account of the actual progress made. The natives of the Protectorate, without exception, are conservative to a degree, especially among the older chiefs, and it is with the greatest difficulty that improvements of any kind can be introduced amongst them, and the only way by which this has been achieved has been by the use of the greatest patience, energy, and tact. It is needleess to say that from time to time punitive action has had to be taken in order to put down wholesale massacres, cannibalism, and closing of trade routes, but such punitive means are never resorted to unless all efforts of a pacific nature have utterly failed. The factor, the conservatism of the people, must also be considered when the work which has been performed in this Protectorate during the nine years of its existence is looked into. The work of opening up inland from the coast has been slow, and must always be so, for if done in a hurry and with no thought for the welfare and improvement of the people, it would take a very short time for the country to fall back again into its former state." The total trade during the period under review came to £1,614,753 as against £1,507,288 in the previous year. Imports fell off nearly £7,000, but exports moved up over £14,000, so that the net result was a fair increase. The principal commodities sent out are palm kernels and palm oil, but rubber is beginning to take an important place in the list: Last year 1,450,567 lb of the value of £105,117 was exported, as against 874,298 lb of the value of £60,608 in 1898-9, an advance of more than 65 per cent. Very great care is exercised in developing the rubber industry. It is practically under the control of the Forestry Department, which has issued regulations designed to preserve the trees and foster trade. The Forestry Inspector, referring to the way these regulations work, says :—" I endeavoured to make them preventively operative by personally inspecting and assessing the value of rubber forests belonging to nearly 100 Bini towns and villages; by creating, in accordance with the extent of forest staffs, *ex-officio* rubber inspectors in each of them; by instructing the inhabitants of all of them in the only safe regulated way of tapping suited to local circumstances; by explaining in detail the rubber regulations prohibiting tapping during the dry season; and by constituting every Bini an ex-officio policeman to bring to justice any rubber gatherer infringing the regulations. ... ... Fortunately the Binis, whose eyes I have opened on every possible occasion to the value of their rubber forests, responded with alacrity, and today exercise such restraining influence on prohibited rubber-tapping and adulterated rubber-producing that not a single rubber-gatherer is free from close 'shadowing,' and not a single ball of rubber and prohibited root rubber could work its undetected way to Lagos or our own trading factories. Even though gathered out of this Protectorate, it could not work its way down unchallenged, provided t had to pass any portion of the Benin City territories. This is so in every part of the territories—even in the newly-acquired districts stretching eastwards." It is only in the Benin territories that such regulations are in force, as the other rubber forests in the Protectorate lie in those parts where native councils do not exist, and it has not been found possible to enact native laws by which the regulations can there be rendered effective. Major Gallwey thinks it will probably be advisable to issue a proclamation dealing with rubber forests throughout the whole of the colony. Nurseries have been established in some centres, the object being to form plantations close to villages for seed-producing purposes. This will eventually allow every village to collect its own seed in order to sow in the bush at the commencement of the rainy season. It is also interesting to note that, out of an approximate length of roadway in the Benin territories of 450 miles, the Forestry Inspector has planted 250 miles with rubber seed, four deep on each side of the road. Before very long it is not improbable that the Government will establish rubber reservations in different parts of the Protectorate.—*Financial Times.*

A BIG "BASKET."

(To the Editor of the *Pioneer.*)

Sir,—The following record of fish recently killed in the Jumna by Mr. Herbert Vansittart of Goodrich Castle, Dehra. Dun, may prove of interest to your angling readers.

February 19th, morning—1 gonch, lb 40.

,, ,, afternoon—1 gonch, lb 125. (weighed in camp not counting loss of blood.) This enormous fish was hooked about 4 p.m. and landed between 6 and 7, after being first drawn into shallow water, where its backbone was severed with axes. It took four men to carry it to camp. Length, 6 feet, girth round shoulders 40 inches. With this fish, Mr. Vansittart has beaten his previous record for the Dun by 5 lb.

Feb. 20th, Mahseer, 31 lb, 30 lb. 22 lb, 11 lb, 14½ lb, 15½ lb, 23 lb, 18¼ lb, 15 lb and 21st Feb. Mahseer, 38 lb, Gonch, 96 lb.

Feb. 22nd, blank day. Water coloured, unfishable.

,, 23rd	Mahseer	lb	44
,, 24th	,,	,,	30½

making a total of lb 553¾ in six days' fishing. The tackle used was ordinary American salmon line, wire trace and treble hook on a fifteen foot bamboo rod. The fish were all taken with dead bait.

H. G. Mainwaring, Colonel.

Meerut, March 7. —*Pioneer*, March 13.

PENSIONS WITH TEA.

COMBINATION OF SHOPPING AND INSURANCE.

Widows, tea merchants, and insurance offices will be interested in a case that is to be heard in the High Court about May.

This is the appeal of Messrs. Thomas Nelson and Co., tea merchants, who were prosecuted for doing assurance business without depositing £20,000 with the Board of Trade, as is required by the Insurance Act. To every widow who has purchased half a pound of their tea every week for a year before

her husband's death Messrs. Nelson promise a pension of 10s a week until death or re-marriage. Widows who have purchased a quarter of a pound of tea instead of half a pound receive 5s a week.

Whatever its legal aspect, the scheme is novel and ingenious. According to Messrs. Nelson and Co., although they only started in January 1898 their yearly turnover has reached £250,000, and their pension-roll £35,000 per annum. The widows' cheques are posted every Friday from the head offices at Louth, in Lincolnshire. Last Friday, when an *Express* representative was invited to see them despatched, in proof that there was no deception, the total was 1,832, and a dozen male and female clerks toiled against time to catch the post.

"How do we make our profit?" said the manager. "By simple arithmetic. Of every hundred women who become regular customers only an average of 1¼ become widows. The remaining 98¾ pay for the pensions of their less fortunate sisters and at the same time provide for themselves and their families, should they in turn lose the bread-winner.

"It pays us better to push our tea in this way than to spend mammoth sums in advertising.

"No, we don't sell cheap tea. We sell the best Indian."

"We claim that this is not only a good business scheme, but a step as well towards the solution of the Old Age Pension Question."—*Daily Express*, Feb. 26.

THE WORLD'S TIMBER SUPPLY.

At the Society of Arts on Wednesday Dr W Schlich read a paper on the "Outlook for the World's Timber Supply." Sir W T Thiselton-Dyer was in the chair.

The first part of the paper was occupied with statistical details on the export and import of timber in the various countries of the world. As regards Europe Dr Schlich reached the conclusion that the present deficiency of 2,620,000 tons was sure to increase because the European sources of supply were not likely to meet the additonal 600,000 required annually; personally he would not be surprised, if ten years hence the deficiency amounted to three or four times the present quantity. Of the importing non-European countries taken altogether there was no doubt the net imports would increase as time went on. Of the exporting countries, the regions round the Caribbean Sea exported mahogany and other furniture woods, but they also imported so much lumber that their net exports were only 13,000 tons a year. The West Coast of Africa exported various hardwoods but they were so expensive that they hardly affected the question. British India could not do more than send some teak and furniture woods. In Asiatic Russia, even supposing there was a surplus of production for export, the cost of transport would be practically prohibitive. The Timbers of Central Africa were not of the sort required in Europe in large quantities, apart from cost of transport, and in South America matters were in a similar position. It would not be possible, he felt sure, for the United States to meet for any length of time the increased demand which they had supplied for the last few years. Their present annual production, estimated at 75 million tons, was exceeded by the present annual consumption by 33 per cent, and this meant that they consumed annually not only the legitimate growth or increment but also a portion of their capital unless decided steps were taken at once to start thorough protection and systematic management on selected areas, or, as they might be called, reserved State forests. There should be no difficulty in permanently reserving 100 million acres, and if half the annual revenue—£700,000—derived from Canadian forests were devoted to that purpose, substantial progress could at once be made to secure not only the present, but an increased, output for any length of time, leading ultimately to a revenue tenfold, or more, the present amount and securing a permanent supply of coniferous and other timber for the world. In the second part of his paper Dr Schlich drew attention to a few lessons that might be learned as regards the British Empire as a whole and these islands in particular. With all the forest wealth of the colonies, we imported into the Empire timber valued at nearly 18 millions sterling every year, and the sum lately had risen at the rate of £771,000 annually. Surely the time had come for a more vigorous forest policy on sensible lines throughout the Empire. Systematic forest management should be introduced, more particularly into Canada and Australia, and, above all, let the self-governing colonies consider a little more seriously than hitherto the magnificent example set by India. But we should begin by putting our own house in order. The imports of timber into the United Kingdom in 1899 were valued at 25 millions sterling, and of late years they had increased at the rate of 332,000 tons, £919,000, annually. Eighty-seven per cent of the total consisted of pine and fir, the sources of which were specially exposed to exhaustion, and where were we to obtain the nine or ten million tons of coniferous timber we required when the countries round the Baltic, and perhaps also Canada, had begun to fail us? Yet we had sufficient, and more, surplus land at home to produce all this timber without putting a single acre out of cultivation. There were 12 million acres of waste land and 13 million acres of mountain and heath land from which to choose the necessary six or seven millions, and surely £25,000,000 going out of the country every year was money enough to take some trouble about.

Sir W T Thiselton-Dyer, in opening the short discussion which followed, pointed out that of coal and timber—the two sources for the sustentation of human comfort and industry supplied by solar activity—the former was limited in amount and there was no hope that it could be reproduced, but in the case of the latter nature had a regenerative power, so that, except when the perversity of mankind interfered, one tree when felled was succeeded by another. But there was no question more hard to drive into the head of the administrator or politician than that of afforestation; he was always anxious to reserve it for his successor. Still, a forest service had been established in India, which was an example to civilisation, and more recently others of our dependencies had been induced to do something for their forests. There was, however, no good in being unreasonable in the matter. We were told that we paid 25 millions sterling a year for imported timber, but he personally was not so deeply impressed by this fact as the lecturer seemed to be. We were a business nation, and as such bought in the cheapest markets and he did not think we could be made to grow our own timber merely as a matter of sentiment. He doubted if people in this country would engage in forestry unless they could be convinced of a return of 4 per cent. on their money, and he could not see the way to that at present.—London *Times*, March 1st.

Potatoes in China.—The Chinese are just taking to the cultivation of the Potato. Though this most indispensable vegetable has been cultivated in England for the last two and a half centuries, it is believed that the Spanish introduced it from Peru in the beginning of the sixteenth century, but it was not till two hundred years later that it came into general use in Germany and France, and even then popular prejudice was so much against it in Prussia, where it was credited with causing leprosy and fevers, that Frederick the Great had to resort to legislation to promote its use.—*The Gardener*, (March.)

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop ; August-September delivery, 1901, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round. 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—" I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year."

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery, 1901, booking necessary before the end of March ; large quantities on special terms ; Plants in Wardian cases.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter, in sending an order for this seed, wrote on the 22nd August, 1900:—" If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Kickxia Elastica.—(*Funtumia Elastica*).—Seeds and Plants, orders booked. (Lagos rubber.)

Ficus Elastica.—Seeds available in May-June ; booking necessary before the end of March ; also plants.

Urceola Esculenta and **U. Elastica.**—Same as above. (Burma rubber.)

Parameria Glandulifera.—Orders booked for seeds for January-February delivery ; also plants, immediate booking necessary. (A good rubber creeper of Malacca.)

Landolphia Kirkii.—Seeds in July-August, early booking necessary. Plants can be supplied all the year round. (A highly-recommended species.)

Chonemorpha Macrophylla.—Seeds and Plants ; orders booked. (A very valuable rubber-yielding creeper.)

Memusops Globosa and **Payena Leerii.**—Seeds and plants in July-August, booking necessary before April.

Achras Sapota, Willughbeia Firma, W. Edulis and other **Rubber and Gutta Percha** yielding Trees and Creepers, Seeds and Plants.

Cinnamomum Zeylanicum (Cinnamon superior variety). New crop of seed in April to June, booking necessary before the end of February ; also plants.

Coffea Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April ; immediate booking necessary.

Cinchona Ledgeriana.—Seeds now ready, also other varieties.

Seeds and Plants of Nutmeg, Clove, Sandalwood (white and red), Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products of Foreign countries for 1901-1902, now being prepared, and will be ready in a few months.

" South Africa."—The great authority on South African affairs of 25th March, 1899, says:—" An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Price List of Seeds and Plants for Ceylon use post free on application.

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants ; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Orchids, Bulbs, Dracænas, now being prepared, and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address:
William, Veyangoda, Ceylon.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

Correspondence.

To the Editor.

A RAILWAY FOR NYASSALAND, B. C. AFRICA.

Jan. 12.

Dear Sir,—I cover latest prospectus for the B.C.A. Railway sent to me by Mr. T H Lloyd. It is supposed by those who know that some London capitalists will be got to take the matter up, and that we will get our Railway soon. The transport difficulties are really serious; goods lie sometimes a year or more at the river terminus for want of carriers to bring them upcountry.—Yours truly, H. B.

	£
Capital ..	250,000
Permanent way constuction ..	230,000
Rolling stock ..	20,000
Revenue—Freights.	
1. Import, 4,650 tons at £4 ..	18,600
2. Export, 1,250 tons at £2 ..	2,500
Passengers—	
1. Europeans, 400 at £5 ..	2,000
2. Natives, 1,000 at 5s. ..	250
Mails, subsidy ..	200
Passengers' luggage ..	100
	£23,650
Working Expenditure—	
Depreciation, 10 per cent on £20,000	2,000
Insurance fee, 10 per cent on capital	2,500
Wages—	
Superintendent of line, Traffic Manager, 2 accountants, 3 clerks, 4 drivers ..	3,000
Native wages ..	1,000
Fuel—	
20,000 yards at 1s. 3d. ..	1,000
Paints; oils, grease, iron, etc., for repairs to engines, trucks and permanent way ..	1,000
	£10,800

Nett profits—£13,150 on £250,000 = 5·42 per cent.

N.B.—It is to be noted that the statistics of tonnage deals with *dead weight* only, the method in which the road and river dues are collected. The Transport Companies have the option of charging by measurement. This makes a difference in their favour of more than *one-third* in the returns. The Railway Company would have a similar option. Allowing for this we have roughly £23,650 plus £7,000, *i.e.*, £30,650 total receipts, less expenses £10,500. In other words, a profit of £20,150 instead of £13,150 or 8 per cent.

CEYLON COCOA IN LONDON.

Feb. 15.

Dear Sir,—Cacao growers in Ceylon must be struck with the extremely high prices which are being paid for Ceylon cocoa. For several weeks past now, values, particularly for the finest, have been gradually in the upward direction until 108s. 6d per cwt has been realised. In the last sale, we would mention that for our friends we secured the record price of the sale notwithstanding the fact that there was better quality sold at 3s or 4s per cwt. below our price.

Looking into the near future we cannot hold out a very glowing prospect for cocoa; as we cannot but feel that, notwithstanding the fact that, taking Cocoa as a whole, prices are lower than has been the case for some time, yet the position is not altogether the same. There is no getting away from the fact that cocoa production is making rapid strides and at the same time those who are constantly in communication with the leading cocoa manufacturers of the country know that the manufacture of the prepared article also is being greatly pushed and that consumption is going ahead. Supplies are now coming in freely and we fear that for medium and common cocoa, especially common, we shall see lower prices; we should not be at all surprised to see native Ceylon, which is now in the neighbourhood of 72s, down to 64s or 65s per cwt.

Fine cocoa, as we have said above, will take care of itself; there is a keen demand for the fine pale break Ceylon cocoa. At the sales on the 12th inst., 2,704 bags Ceylon were catalogued. 1,041 bags found buyers, small at 54s 6d to 69s 6d, common to fair dull 66s 6d to 75s, middling to good 78s to 90s 6d, fine 96s to 102s 6d per cwt.—Yours faithfully,

p. p. JOHN HADDON & CO., G. F. A.

DISTRIBUTION OF COCONUT OIL IN 1900:—OSCILLATIONS EXPLAINED.

Dear Sir,—Referring to your article in Saturday evening's *Observer*, the oscillations to which you refer are more easily explained than you appear to think. During the past year the Presidential Elections in America caused the usual disorganisation in trade and were the cause of that country taking less Coconut Oil than usual; but it is not to be supposed that the figures given in the Chamber of Commerce Returns expressed the total quantity of Ceylon Coconut Oil taken by America in 1900. As a matter of fact very large purchases of Ceylon Coconut Oil were made *in London* last year by American buyers who found it cheaper to buy in London than in Colombo!

As regards shipments to the Far East, Singapore has now a large Copra mill of its own, which supplies the demand which Ceylon used to meet. A little Coconut Oil is still shipped to Penang from this port, but not much.

The Indian demand for Coconut Oil is a very steady one, and when the Ceylon exports to India are small it is well-known that Cochin has made up the deficiency. Last year comparatively very little Cochin Oil went to Europe or America, the bulk going to Indian ports, principally Calcutta.

Hoping these explanations may be of some use to you,—Yours truly,

COCONUT OIL.

TEA-PLUCKING AND THE MAKING OF GOOD TEA.

Colombo, March 15.

Dear Sir,—I beg to quote the following extract from Mr. Jas. Sinclair's letter, which appeared in your issue of the 12th inst.:—

"Exorcising from their minds some of the senseless cuckoo cries always rampant in Ceylon, such as 'tea is made in the fields,' which is only the case in the same sense as that porridge is made in the oat-fields.'"

When I was an assistant on a tea estate in Dikoya; my "P.D." always impressed upon me the importance of carefully plucking the tea bushes in order that a good tea might

be made. As this does not seem to agree with Mr. Sinclair's statement, might I ask the favour of your advice on the matter, as I am anxious to know the right course to pursue? Thanking you in anticipation of your reply,—I am, dear sir, yours faitfully,

JOHN F. WILMAN.

[We have no hesitation in saying that, in his justifiable desire to show the importance of greater attention to factory work than has, perhaps, hitherto, been generally shown in Ceylon,—Mr. James Sinclair went too far in minimising the importance of careful work in the field, and more especially in the careful plucking of leaf. For, we suppose, it will be generally admitted that good and fine teas cannot be made by the most careful attention in the factory, if coarse unsuitable leaf only is supplied? Careful plucking, careful withering (for which plenty of room is indispensable) and careful manufacture generally, all undoubtedly go to the turning out of the best tea any particular plantation is capable of; but we see Mr. Mann, the scientific expert for the North Indian planters, declaring that "quality" is most likely to be improved by suitable manures.—ED. *T.A.*]

PEPPER GROWING ON THE ANAIMALAIS.

Pollachi, March 17.

DEAR SIR,—I see in your March number of "*T.A.*" that a correspondent of the *Madras Mail*, writing about these hills—the Anaimalais—says he believes the elevation is too great for pepper to do well at. Can you or any of your experienced readers give me an opinion on this, confirming or refuting the suggestion, as I am now arranging to put down several thousand cuttings?

In my experience in Mysore at this elevation, 3,000—3,500, with the same class of forest, but with twice the rainfall (300 inches), the plant *grew* well and sturdily, fruiting well for a few years and then becoming subject to a blight which materially reduced crops,—too much wet perhaps.—Yours faithfully, "ANAIMALAIS."

[We have never heard of pepper-growing above 2,500 feet in Ceylon, while the most successful culture in the time of the Dutch was quite in the lowcountry, indeed, at Madampe and Kalutara near the seashore and in the Kegalla and Matara districts a few hundred feet above the sea level. Still, Dr. Thwaites and his successors have cultivated pepper successfully at the Peradeniya Gardens near Kandy, say 1,600 feet elevation; but we should doubt very much the pepper vine fruiting successfully at 3,000 feet or over in Ceylon, and the chance should be less farther north on the Anaimalais or in Mysore?—ED. *T. A.*]

A BIG PYTHON.

Kalutara South, March 24.

DEAR SIR,—I send you measurements below of a Rock Snake (in Sinhalese, "Pimbura") caught yesterday and afterwards killed:

Length while in its natural state	$9\frac{1}{2}$ feet
Circumference	$15\frac{3}{4}$ inches
Stretched out and in motion ...	$17\frac{1}{2}$ feet
Circumference	12 inches

Has this ever been beaten? W. A. L.

[Tennent in his "Natural History" says of the Python:—One that was brought to me tied in this way measured seventeen feet with a proportionate thickness: but one more fully grown, which crossed my path on a coffee estate on the Peacock Mountain at Pussellawa, considerably exceeded these dimensions. Another which I watched in the garden at Elie House, near Colombo, surprised me by the ease with which it erected itself almost perpendicularly in order to scale a wall upwards of ten feet high."—ED. *T.A.*]

BIG PYTHONS.

Galle Face Hotel, Colombo, March 25.

DEAR SIR,—A correspondent in today's issue of the *Observer*, while giving the dimensions of a python killed in Kalutara South, asks:—"Has this ever been beaten?" Some years ago, when a party of planters in the Kalutara district were hunting for red deer, they missed one of their beagles, and, on searching for him, found him enveloped in the folds of a python. The animal was shot; and on being measured found to be 22 feet long and 22 inches in circumference. I had these figures from two of the gentlemen who were present. Natives have got an exaggerated idea of the size to which pythons grow, as the following story shows:—A party of honey-hunters rested to cook their afternoon meal and finding a log convenient sat down upon it, placing two stones to form a fire-place, the log forming the third support. When the meal was nearly cooked, a queer motion was observed in the log, and on examining it closely lo! it was a python. Needless to say the party did not stay to partake of that meal.

W. J.

[Are both stories equally reliable?!—ED. *T. A.*]

ENORMOUS COFFEE CARGO.—The arrival in the port of New York of the Lamport & Holt's Line steamer "Rossetti" with a cargo of 126,000 bags coffee from the port of Santos is quite significant as marking a new era in the coffee-carrying trade. The Lamport & Holt's Line is the oldest established line of steamers in the coffee-carrying business from Brazil to the United States, and this line owns an enormous quantity of tonnage. Going back some twenty, years it was considered quite an event to get a cargo of coffee from Santos in excess of a total of 10,000 bags or from Rio of about 30,000 bags, and in the old days of the Baltimore clippers it was quite a circumstance to have a whole cargo of 12,000 or 15,000 bags of coffee come in here belonging to one firm. The enormous jump during the interval can be understood when we look at the cargo by the "Rossetti" of which nearly 75,000 bags belong to one house in New York, representing a total value of about $750,000.—*Rio News*, Feb. 5.

THE TONACOMBE ESTATES COMPANY OF CEYLON, LIMITED.

THE REPORT.

The following is the report :—

ACREAGE.

The acreage of the Company's Estates is as follows :—

		acres.	
Tea in bearing	..	578	
Tea not in bearing	..	12	
Tea seed bearers	..	3	acres.
			593
Cardamoms in bearing	..	..	101
Reserved Forest	..	..	24
Fnel trees	..	..	20
Chena and Patana	..	..	1,142
		Total ...	1,880

The total quantity of Tea secured dnring the year was 225,178 lb. which has been sold at an average of 38·01 cents per lb. nett as against 42·74 cents per lb. realised last year.

The total Cardamom crop was 10,469 lb. which realised R1·70 per lb. nett as against R1·76 per lb. last year.

The total expenditnre on Working Account amonnted to R65,001·29.

During the year the permanent improvements on Capital Account inclnde the erection of a set of 12 roomy lines.

The balance available, after providing for depreciation amounts to Rs 28,459-05, and the Directors propose to pay a dividend for the year at the rate of 5 per cent, absorbing Rs 14,000; to write off the balance standing to debit of New Clearings Account Rs 5,841·95 and Cart Road Rs 1,061·73= Rs 20,902·68, and to carry forward Rs 7,555·37 to next account.

The Directors have pleasure in reporting that the Debenture debt has been further reduced by £1,000 during the year.

In terms of the bond no further repaymeuts can be insisted on by either party before 30th June, 1902, but the Directors are negotiating with a view to repayment of £1,300 or more on 30th September next on terms which they consider favourable to all interested.

The Coast advances have been still further reduced from Rs 5,125·98 on 31st December, 1899, to Rs 2,955·16 on 31st December, 1900.

The Crops for 1902 are estimated at
230,000 lb Tea
10,000 lb Cardamoms
against an expenditnre of Rs 68,951·93.

During the year Mr R S Templer and Mr G H Alston resigned their seats on the Board, and Mr H Cumberbatch and the Hon'ble Mr W H Figg were appointed in their places.

Of the Direotors Mr H Cumberbatch retires by rotation, bnt is eligible for re-election.

The appointment of an Auditor for the current year will rest with the meeting.

THE UDABAGE COMPANY, LTD.

REPORT :—ACREAGE.

215	acres in full bearing	
84	,,	4 years old
36	,,	3½ ,, ,,
164	,,	2½ ,, ,,
499	acres	cultivated
641	,,	available reserve
1,140	acres more or less	

The Directors beg to submit to the Shareholders the accounts for the year ending 31st December, 1900.

The Crops secured amounted to 157,295 lbs. made Tea against an estimate of 165,000 lbs., and realized R39,769·04, or an average of 25·29 cents per lb. against an expenditure (exclusive of cost of works on capital account) of R40,375·16, or an average cost of 25·67 cents per lb.

The disastrons condition of the Tea Market in the latter part of the year for all low-country production, coupled with the financial embarrssments of the Company, caused by the exhaustion of all available working Capital; has resulted in a serions loss in the season under review, and the Shareholders will be called upon to consider proposals (1) for liquidating the debts of the Company, or (2) a sale of the property, subject to the existing first mortgage debeutures amounting to R100,000.

The Directors issue with this Report a scheme advanced by tbe Agents and Secretaries, for reconstruction of the Company, which will be considered at an Extraordinary General Meeting held immediately after the Annual General Meeting called as above, and all Shareholders are earnestly requested to be present to consider the proposal and decide on tbe course to be adopted.

The Estimate for the current season is, iucluding 7,500 lbs. of Tea from brought leaf, 232,500 lbs. made Tea.

To complete the extensions deemed necessary in the Factory and supply the required equipment in Machinery for the manufacture of Green Tea, a further expenditure in Capital Account this season will be necessary, but the Directors consider that ample provision will then have been made for the manufacture of 300,000-350,000 lbs. Tea which may be regarded as a maximum Crop from the present cultivated area.

Green Teas.—The necessary machinery has been supplied to the Estate for tbe manufacture of Green Teas, and if the state of the market warrants their manufacture in preference to Black Teas, they can be produced at a small additional cost. The facilities provided for the manipulation of Green Tea will, the Superintendent estimates, be sufficient to deal with 150,000 lbs. made Tea ont of an anticipated Crop of 232,500 lbs. Samples already reported on and valued by Messrs. Forbes & Walker are eminently satisfactory.

Mr. J P Anderson, the Company's Visitiug Agent, reported as follows as to the condition of the property, namely :—"I visited the Estate on the 22nd and 23rd January and found the Estate in excellent order, clean, and all works up to date," from which it will be seen that given the necessary Working Capital it only requires an improvement in the Tea Market to ensure tbe future success of the Company.

Coast Advances.—Of the amount R26,239·09 shown as ontstanding in the Balance Sheet, the Superintendent reports R10,669·25 as recoverable, R13,969·84 as doubtful, and R1,600 are irrecoverable.

In terms oftbe Memorandum and Articles of Association of the Company Mr. W Shakspeare retires from the Directorate and does not offer himself for re-election.

The appointment of an Auditor for the current year rests with the Meeting.

THE CEYLON TEA AND COCONUT ESTATES CO., LIMITED.

REPORT OF THE DIRECTORS.

ACREAGE.—*Tea.*—In bearing, 402·1·32 acres ; in partial bearing, 8·0·30 acres=410·2·22 acres; coconuts, 559·3·3 acres ; cinnamon, 21·2·30 acres ; rubber, 35·0·0 acres ; grass, forest and chena, 380·2·38 acres ; total 1,407·3·13 acres.

The Directors have now to snbmit to the shareholders the accounts for the past year.

Tea Division.—The crop secnred amounted to 132,186 lb. being abont 12,814 lb. nnder the estimate which is accounted for by the extremely bad season, and because at the beginning of the year the tea still suffered to a certain extent from the effects of the attack of Grey Blight referred to in last year's

report, but the Directors are glad to say that the bushes have fully recovered, and are now in a more healtby condition than ever.

The nett average price realized was 30·68 cents, against 36 43 cents in 1899.

Coconut Divison.—This crop was 20,884 nuts short of the estimate entirely owing to the unfavourable season. The total crop gathered during 1900 was 579.116 nuts of which 2,118 nuts were sold on the estate at R30 per thousands nuts. The remainder were made into copra—Candies 444·4·0 18 and sold at a nett average of R44·93 per candy, as compared with candies 421·0·2·8 in 1899 which realised an average of R44·20 per candy.

The estimates for this year are: *Tea.* 180,000 lb. against an expenditure on working account of R39,285·75. *Coconuts,*—700,000 nuts on an expenditure of R14,440.

After making the usual provision for depreciation of buildings and machinery, the result of the year's working shows a loss of R9,715·92 as compared with R5,993·30 in 1899.

Mr G H Alston having resigned his seat on the board, the Hon W H Figg was appointed to fill the vacancy. The vacancy caused by the resignation of Mr F Capper was filled by the appointment of Mr H H Capper, and on his subsequent resignation, the Directors appointed Mr F Crosbie Roles to the vacant seat.

In terms of the articles of Association, Mr H Tarrant retires from the board of Directors, but is eligible for re-election.

The appointment of an Auditor for the current year ill rest with the meeting

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THE NAHVILLA ESTATE CO., LTD.

REPORT.

The Directors herewith present their Report for the season ended 31st December, 1900, together with a duly audited Statement of Accounts for the same period.

Conditions generally throughout the year were favourable for yield, and the Tea crop amounted to 539,974 lb., against an estimate of 390,000 lb. It is also very largely in excess of the output of last season.

The Coffee crop, nearly all of which came from Nahavilla estate, amounted to 1,176 bushels of parchment, and is about 400 bushels more than had been expected at the beginning of the year.

Tea prices show a falling-off from season 1899, the net average per lb. being 35·42 cts. and 40 cts. respectively, but the cost of producing the crop and placing it on the market has been reduced from 30·32 cts. to 29·42 cts. per lb., including one cent per lb. for manure.

The working is still rather expensive owing to the large acreage of Tea in partial bearing, but further reduction will be possible as these fields reach maturity.

The total profit on the working of the several estates for the year under review is R50,212·61, which, after allowing for interest on mortgages, &c., is equal to about 9 per cent. on the paid-up capital of the Company, a highly satisfactory result, having regard to the fact that Ceylon Teas have receded so much in value of late, and that there is still a large acreage of young Tea (nearly a third) from which little or no leaf has yet been gathered.

The Directors regret, nevertheless, that the financial position of the Company does not in their opinion justify the payment of a dividend, and they recommend therefore that the balance as per Profit and Loss Account, namely R32,914·51, should be carried forward to Extension Account.

Since the Company was formed, a sum of about R250,000 has been spent on improving and developing the estates, with the result that we have now close on 1,500 acres of Tea in place of 837 at starting, and new Factories have been erected on Ury and Nahavilla, which, although fairly complete in themselves, will require some further extensions in the near future as the returns of leaf increase.

This expenditure has been partly met by money raised from time to time on mortgages of the Estates, at reasonable rates of interest, but there is still a considerable sum outstanding, and at the beginning of the year the Shareholders were invited to come forward and assist the Directors in placing the Company on a sound financial basis by subscribing to an issue of Preference Shares, the object being to pay off these mortgages and provide funds for any additonal expenditure that might be required for the completion of the Buildings, and for bringing the young fields of Tea into bearing.

The response to this Circular was not such as to admit of the scheme being put through, and other suggestions for providing the necessary funds having for various reasons also fallen through, the Directors feel that there is now no alternative but to adopt the course they have suggested in respect to the disposal of last year's surplus.

With regard to the future there is more land that could be planted with tea on some of the estates, but all that is at present contemplated is to bring into bearing the fields which have already been opened and improve the Factories on Ury and Nahavilla in such a way as to place the respective Superintendents in a position to do full justice to the requirements of an increasing output of tea.

The expenditure necessary for the above purposes is roughly computed at R30,000, but this does not include the erection of a Factory on Galella which may perhaps be undertaken if funds are available at some future time though not just at present.

As already intimated there is a large acreage of young tea on the Company's estates to come into bearing yet; and the capital cost of the property per acre when fully developed will probably be about R400 on the cultivated area, which is fairly moderate for a good going concern with a large reserve of land and a steadily increasing yield.

We are, however, in need of money, and although the present may not be an opportune time for attempting to provide what is required in this connection and enable the Shareholders to participate in the annual profits, it is hoped that the commercial aspect of Tea may improve in the near future and afford opportunities for putting the affairs of the Company on a good financial footing.

From an agricultural point of view the outlook on the Company's Estates continues satisfactory, the estimates for the new season being 565,000 lb of Tea and 520 bushels Coffee against an expenditure of R162,388, including manure which, however, is to be sparingly used.

ACREAGE.

	Nahavilla.	Ury.	M.P.G.	Galella.	Total.
Tea in full bearing ...	288	309	217	287	1,101
" partial bearing ...	35	212	35	—	282
" not in " ...	84	16	—	—	100
Coffee ...	78	41	—	—	119
Cardamoms ..	—	15	5	—	20
Forest ..	45	41	—	72	158
Grass, Fuel Trees and Patana ...	71	132	84	254	541
	601	766	341	613	2,321

Mr. E S Grigson retires from the Board of Directors by rotation, and is eligible for re-election.

The appointment of an Auditor rests with the Meeting—By order of the Directors,

GEORGE STEUART & Co.,
Agents and Secretaries,

Colombo, 1st March, 1901.

CLAREMONT ESTATE COMPANY.

REPORT OF THE DIRECTORS.

The Directors submit herewith the accounts for the year ended 31st December, 1900.

The crop secured was 86,374 lb. as against 81,281 lb. in 1899, and the cost of putting it on the market was 24·58 cents, realizing 26·40 cents nett, as against 24·54 and 34·97 cents respectively in 1899.

The estimate of crop for the current year is put down at 95,000 lb. to cost in Colombo 24·08 cents.

Interest on mortgage (£3,000) has been paid to the end of September, 1900, and the next payment will be due on the 31st March, 1901. Interest on the mortgage debentures remains as yet unpaid.

A change of Superintendent was deemed necessary during the year, and the present arrangements are giving satisfaction.

In consequence of the poor results of the year's working, the Directors have written back their fees.

The mortgage of £3,500 was called up during the year. The Directors, however, were able to effect a fresh mortgage of £3,000, and secondary mortgage debentures to the extent of R23,500 were raised to cover the balance of the old mortgage and the amount due to Syndicate appearing in last year's balance sheet.

During the year Mr. J G Russell resigned his seat on the board, and Mr. W P Barber was elected a Director. In terms of the articles of Association Messrs. A. Orchard and R. Huyshe Eliot retire from the office of Directors, but are eligible for re-election.

The appointment of an Auditor for the current year also rests with the meeting.

TEMPLESTOWE ESTATE COMPANY.

THE REPORT

of the Directors was submitted as follows :—

The Directors have the pleasure to submit their report and accounts for the year ending 31st December, 1900.

The crop amounted to 202,405 lb. tea costing about 26¾ cents per pound, and the price realised was about 37 cents per pound, shewing a profit of fully 10 cents per pound, which, in view of the low prices ruling, especially during the latter half of the year, may be considered satisfactory.

An interim dividend of three per cent on the preference shares and two per cent on the ordinary shares was paid in September last, and after allowing for this the amount now available is R11,939·46, which your Directors recommend should be disposed of as follows, viz. :—

	R c.
By the payment of a final Dividend of three per cent on the Preference shares (making six per cent for the year)	3,258 00
By the payment of a final Dividend of two per cent on the Ordinary shares (making four per cent for the year)	3,284 00
By transfer to Depreciation account	3,375 00
By carrying forward the balance of..	2,022 46
	R11,939 46

In terms of the articles of Association, Mr Giles F Walker retires from the Board, but being eligible offers himself for re-election.

It will also be necessary to appoint an Auditor for 1901.

A MALARIAL EXPERIMENT.

The *Indian Medical Gazette* reports that Captain C J Fearnside, I.M.S., of Rajamundry, succeeded in inoculating himself experimentally with malarial fever by means of mosquitoes. On the 17th December, 1900, several anopheles (of a light fawn colour) were fed on the blood of a person known to be affected with spring tertian fever. On the 12th day, 29th December, two of these infected mosquitoes were made to bite Captain Fearnside's arm. The presence of zygotoblasts in thes veneno-salivary glands was verified by microscopic examination. Other infected mosquitoes also bit him on 1st January and 8th January, 1901; on January 12th, 14 days after the first bites by infected mosquitoes, he felt "seedy." His indisposition became more marked and on the 18th he felt distinctly ill. On examination of his blood there were found much pigment in the leucocytes, young spring tertian hæmamœbae and pigmented spheres. The fever lasted all night and he was too ill to work on the 19th. There can be no doubt of the genuineness of this experiment, or that it was produced by the infected mosquitoes. We are glad to state that Captain Fearnside has taken plenty of quinine and is now none the worse for his scientific experiment.

CARDAMON CULTIVATION.

For the three districts—Medamahanuwara, Nitre Cave and Rangalla—we showed 1891 acres in our last Directory as under Cardamoms. A planter, thinking of native gardens, considered we were much below the mark in reference to the first-named district, but referred to a well-known resident as the best authority. This gentleman, on being appealed to, dissented, as we expected, from the larger estimate, and shows that Mr. de Silva's Kandewatte and some of the bigger gardens might aggregate 200 acres apart from very small gardens of other natives. We do not think, therefore, that there can be now more than 3,000 acres under cardamoms in all the three districts, including native gardens. Even at 100 lb. an acre, such an area would yield more than half the total export from Ceylon for last year which was 538.000 lb. Of course, the greater the area already planted, the greater the discouragement to extend cultivation ; but Ceylon has nearly got to the end of its suitable land, and it is in India that there is a risk of overdoing cardamoms, as well as tea, unless planters there take warning in time.

COCONUTS IN THE KELANI VALLEY.

We have few regular returns from estates ; but we hear generally that a great many tea estates in "the Valley" have fields planted up with coconut palms at 30 to 40 feet apart. This is carried out up to 1,000, 1,300 and even to 1,600 feet above sea-level, and so far the palms flourish. The oldest planting in the district is from 6 to 7 years, so that the time has not come for bearing. Most of the seed nuts have come from Mr. Beven's well-known Franklands property in the Veyangoda district. We do not find fault with—in fact we highly approve of—this plan of having a second product in the Kelani plantations ; but at the same time we are quite sure that proprietors should lay to account the getting of smaller returns from the tea when the palms—voracious feeders with wide-spreading roots—come into bearing. At the same time we should expect the crop of nuts to more than compensate for any deficiency in the tea.

INTERESTING NEW TROPICAL PLANTS.

The new orchid, Lœlio-Cattleya, called after the Empress of Russia, is a hybrid between the Cattleya Mendeli and Lœlia Digbyana. A single plant sold in England for £200. It is the result of skilled experiments by Maron, and attracted much attention at the Paris Exhibition.

Another new plant is the red banana with purple foliage, discovered at the Catholic Mission of Brazzaville, and found elsewhere in the French Congo. The fruit is long, without seed, and good for making fritters. The plant is highly ornamental, and is likely to figure in European gardens or conservatories.

Of new flowering shrubs the Rhododendron Halopeanum, a hybrid with rosy white blossoms, is notable, but requires a mild climate like that of South or Central France. The Dahlia "President Viger," produced at the Lyons Botanical Garden, is likely to found a new race.—*Globe*, March 1.

THE ÆRIAL STEEL ROPE TRAMWAY.

ON THE KANAN DEVAN HILLS.

(*Communicated.*)

So many enquiries have been made about the Ropeway recently erected from the Plains to the Kanan Devan Hills Produce Company's property in North Travancore that the following notes are penned in the hope they will interest your readers and answer the enquiries that have been made from time to time.

The first Ropeway line surveyed was about six miles long and the country was very difficult, added to which one span was about 2,700 feet which, as any one acquainted with Ropeways knows, greatly lessens a rope's efficiency because the weight of the rope itself between the standards, 2,700 feet apart, would have been nearly 1½ ton, whereas with the present longest span between of 1,400 feet, the weight of the rope between the standards is about ⅘ of a ton and the difference (⅘ of a ton) can be carried in line load (*i.e.*, goods) instead of the strength of the installation being expended carrying its own weight. Another disadvantage of this line was that part of it was very flat and part very steep so that there would have been a continual variation of the load on the driving motors when heavy loads left the flatter portions and got on to the steeper ones. The apparent difficulties of this line decided me to try a new trace and it was laid in following pretty closely an old cooly track with the result that we got a line 2·6 miles long at a comparatively even gradient touching a point at the foot of the ghaut to which a railway could conveniently be brought and a point near the top of the ghaut to which a cart road or tramway could be brought and we had then got the skeleton of a complete scheme which has gradually been filled in.

From the end of the old cart road on the plains, a railway trace was laid—10 miles long, 4½ of which ran over the plains and 5½ ran into a narrow valley with grades from one in 80 to one in 25 for the last three miles and curves of 100 feet radius. The bridges are all steel structures running up to 60 feet long and safely capable of carrying narrow-gauge engines and the concession granted by the Indian Government to a Madras Firm (Messrs. Wilson & Co.), for the construction of a narrow gauge railway from Amanayakannur to Utamapalium includes a branch to the foot of the Ropeway. From the top terminus of the Ropeway some 40 miles of cart road and tramways have been cut stretching to Munnar and in various directions therefrom, tapping the Company's estates and factories.

These tramways and roads, the former especially, a Ewing's one-rail tram, may form the subject of a separate monograph ; but for the present we will 'return to our muttons' and deal with

THE ROPEWAY ALONE.

The distance between the upper and lower Termini is 2·6 miles, the difference in elevation 4,000 feet; the steep country is naturally very rough and the lower half a very deadly climate.

The first thing we did was to cut a 5-feet bridle path approximately along the Rope line to transport the material for the Ropeway construction along. Estimates were called for from the most eminent English and local Ropeway Engineers, but not one would undertake *its erection in this deadly ghaut* (which showed their wisdom, as events proved) and an offer was made to the Directors to design, construct and erect the Ropeway locally if they would not hold the worker responsible for any failure, and if they would not protect themselves by engaging a competent Consulting Engineer, and to this they agreed, and the work was placed in the hands of Mr. W Kemlo, whose great ability and training under Lord Kelvin marked him out for the task. One of first difficulties was how to drive the horse-power to be provided (and in this connection the difference in horse-power considered necessary by two great Ropeway Firms was very striking). Another point to be decided was the form of Ropeway, whether of the fixed Rope type, or a moving rope carrying its own loads. After great consideration it was decided that the latter form would be the more suitable, *provided grips could be designed* which would be effective on such a steep Ropeway. Believing that *we* could design what was wanted the plans were prepared.

In order to keep the driving station in as healthy a point as practicable we put it half way up the rope, and divided the Ropeway into two halves at this point, the reasons for the latter being: (1) that if a breakdown occured at any time on one half of the rope, the other one half could still go on working and, (secondly) had the whole 2·6 miles of Ropeway running down 4,000 feet vertical been in one piece, the wear on the rope at the upper end and on the gear there, due to the weight of the rope itself, would have been very excessive.

The next point we decided on was the driving arrangements and as at a convenient point we were able to get in Beeton wheels, having a vertical fall of water operating them of over 700 feet and developing 100 H.P., we fixed this as the Power Station and transmitted the power through a 28 E.H.P. Dynamo one mile over a thin cable to the Centre Station where the motor in its turn operates the Ropeway. By actual results the whole Ropeway requires only about 20 H.P. to drive it, full of loads, at two miles an hour, but of course the power required is greatly regulated by the amount of *up or down loads* at any given time. The dynamo is capable of driving it fully loaded on the *up going side only* at two miles an hour. To save risks of accident we put in duplicated peltons, dynamos and motors.

The erection of the 1,500 feet of pipe and the 1,500 feet of spouting in the watercourse as well as the Peltons was slow and expensive and was done by Mr Kemlo's brother. The country is very rugged, and deadly unhealthy, and the spouting as well as much of the pipe had to be carried on iron supports and there were two bridges made for the spouting, one 80 feet long. The Ropewire is ⅞ inch diameter best plow steel and was brought out in eight pieces, each 3,000 to 4,000 feet long, wound on a drum. These were all bored for the same axle and the rolls of wire hauled along the track by block and tackle till they came into the Ropeway line where the wheels were fixed and the rope hauled out, the drum revolving on the axle. This was a very neat locally designed arrangement, made at home, and worked perfectly.

Everything comes to him who waits and; after much sickness and great trouble, we got the rope up and splices all completed and

PREPARED TO MAKE A START

when the starting resistance sent specially by the providers of the dynamo fused and we had a grand example of pantomime magnesium lights. Part of the current went through Mr Kemlo's thumb and the place smelt of beefsteaks, while the natives went over that ghaut like another flash.

Mr. Kemlo designed and made with native carpenters a salt and water resistance Box which is working very well and cost a few rupees and that difficulty was got over and the rope started.

You can imagine our disgust and annoyance when we found the rope grips supplied from home so badly made that they would not work, and we had to have new jaws made locally in brass which although not sufficiently strong have worked well and now new jaws of annealed steel are being put in and are working very perfectly.

These jaws, which are the secret of the Rope's success, I will describe later when a patent has been granted. Suffice it to say that they automatically grip the rope at any point desired, go up to the top, and automatically leave the rope and run on to the rail. The pulleys on the standard heads have such deep grooves that the rope cannot get off by any chance and the result of this combination of essential points is that the life of the Rope itself is greatly prolonged and probably more than doubled, while accidents have been reduced till, I believe, 8,000 loads passed over the rope before the last accident, due to a defective pulley and not in any way connected with the grips, and it really did not do any damage to speak of.

The Ropeway *running at half speed two miles an hour* is fully loaded with 66 grips which with loss of time loading and unloading do three rounds a day. Each load should be two cwts. and this equals 40 tons of out and in traffic a day and assuming that it worked only 250 days in the year this equals 10,000 tons of traffic which is far more than sufficient for present purposes. When it is worked up to 10,000 tons it will certainly show a profit of £10,000 as compared with what it would have cost to move this weight up and down the ghaut by cattle and ponies and donkeys of which we had about 3,000 at work, when the writer came out three years ago. So I think the most captious critic will admit that it is a magnificent success. The greatest credit is due to Mr W Kemlo who has designed and had constructed every detail of it from beginning to finish and to his Assistant.

The automatic working of the Ropeway is very attractive and everyone who has seen it says he or she would not have missed the sight for a good deal. L. DAVIDSON.

ABYSSINIAN COFFEE.

A British consular report from Harrar, printed in the London *Grocer*, says: "The Harrar coffee is of a very good quality, known in the London market as 'Moka long berry;' where it is preferred to the real Moka. Occasionally its price in London is higher than that of Moka. Plantations of coffee are increasing slowly, because the natives prefer to cultivate the Kiatt (*Celastrus edulis*) as more lucrative, one pound of leaves of which are sold for $1 and sometimes $2; the natives, as in Arabia, eating these leaves. Nevertheless, more than 150,000 coffee trees have recently been planted, especially in the districts of Chercher and Itto. The Abyssinian coffee is wild and grows in Kaffa (whence the name), Limmu, Gimma, Gumma, Ghera, Ennarea, and Hillu. It has a very good aroma, and if cultivated it would be a very keen competitor of the real Moka. Monseigneur Massaya (afterwards Cardinal), when Bishop of the Gallas some forty-five years ago, cultivated in Ennarea 3,000 trees and obtained a quality much superior to the real Moka, both in flavour and aroma. This coffee used to be imported here from the above countries *via* Addis Abiba, and exported to Europe after being cleaned in Aden. In the European market it is known as Abyssinian coffee, but, on account of the present low prices of American coffee, the export of this coffee is decreasing. Most of the import is stocked in Harrar, and now the imports from the interior are next to nothing, the price, $4 per farasla, not covering the expenses of transport from the above-named countries. Should the American crop fail, the increase of export of Abyssinian coffee would recommence. On representations made by the merchants of Harrar, the Emperor Menelik has abolished the export duty of 8 per cent on Abyssinian coffee this year.—*Rio News*, Feb. 5.

PLANTING NOTES.

Coffee in Venezuela.—Coffee planters in Venezuela are lamenting the condition of the coffee trade. In a memorial from the Caracas Chamber of Commerce to the President of Venezuela, the text of which has been brought by the mail, it is urged that the condition of the coffee trade has been for some time lamentable, owing to the steady fall in price, through well-known causes, and that the measures which the present Government have just taken have aggravated this position, by putting on the highest tariff, which will cause the trade to lose the French market, where hitherto the greater part of the Venezuelan crop has been sold. The abolition of the Venezuelan export duty on coffee is recommended. The duty amounts to 3 bolivars 22 centimes per quintal.—*Home and Colonial Mail*, March 8.

Nilgiris Game and Fish Preservation Society.—Further interesting particulars of the work of this active society, in which Ceylon Fishing Club and Game Protection members will doubtless be interested, appear elsewhere. But the reference to Ceylon, as being troubled with rabbits, shows curious ignorance. There is an agitation, we see, for an increased gun license. Elsewhere we have also quoted Mr. F L Mitchell's most recent letter (from Singapore) regarding the introduction of trout into Kashmir.

ROYAL BOTANIC GARDENS.

EXTRACTS FROM THE REPORT OF THE DIRECTOR FOR 1900.

1.—Changes and Movements in the Staff.

THE Director was absent in India on privilege leave from December 6 to the end of the year, during which period Mr. J. B. Carruthers acted as Director. The staff has been enlarged during the year by the appointment of Mr. Carruthers as Assistant Director and Mycologist, and by the retention of Mr. M. Kelway Bamber as Chemist, paid by fees for work done for the Department up to a guaranteed amount of at least Rs. 3,000 per year. Mr. Carruthers entered upon his duties on March 30, but was absent on leave from April 16 to May 24, owing to the results of a serious accident. Mr. Bamber's duties were begun on July 1. Under the vote for Skilled Assistance the services of Mr. H. Wright have been obtained from June 28. In the early part of the year this vote was partly expended in the salary of Arunar Chinnappu, who was employed as tobacco curer in the experiments in progress.

On April 11 the late Head Clerk, Mr. J. Ferdinandus, died in Colombo; he had served efficiently from 1894, and his loss was much felt. He was succeeded on June 1 by Mr. R. H. Pereira, of the Colonial Secretary's Office, formerly employed in this Department.

2.—General.

The past year has been marked by a considerable increase in the sphere of activity of the Department, which enters upon the new century with an increased scientific staff and equipment. The permanent staff now includes the Director, who also acts as the Botanist; the Mycologist, who attends to all questions of diseases of plants other than those due to insects; the Entomologist, who attends to all questions of economic entomology; and the Chemist, who attends to questions of analysis of soils, economic products, &c. There is also the temporary Assistant, who devotes himself to the detailed study of some one particular question.

The new Laboratory was completed and handed over by the Public Works Department in February, but there was a considerable delay in the completion of the furniture, and it was not till the end of the year that it was really ready for work. The equipment of the Laboratory with apparatus will be gradual, but it already contains a good supply of all the ordinary utensils, chemicals, &c., required for scientific work. Since its completion the building has been largely used, and has proved very convenient and well arranged in most respects. A number of botanists from abroad are now working here, and a noteworthy and gratifying feature is the large number of visitors who have been sent officially by various Governments during the year to study the organization and working of the Department.

The Mycologist and Entomologist have carried out a great deal of work during the year, and their departments are becoming gradually organized on the lines which experience shows to be most useful. The bulk of their time is of course taken up with researches into the nature and life history of the numerous insects and fungi which are or may become of importance with regard to agriculture, but they have also travelled through many districts of the Island to investigate diseases and to give advice and assistance in dealing with their attacks. One method employed with some success has been for one of them to attend a meeting of the local Planters' Association in a given district, and there to discuss particular diseases and the modes of dealing with them, subsequently visiting selected estates to give practical instructions and to study the diseases more in detail. Such work is at present considerably handicapped by the extreme reluctance of cultivators to say or do anything that may seem to confess the presence of disease among their crops, but as time goes on the advantages of taking early advice and action will become more evident, and this source of difficulty and friction be lessened. Detailed reports of both officers are given as appendices.

The organization of a department to deal with prevention of disease is a new and a very important, though perhaps a less showy, line of work than that of the introduction of new industries. The losses caused by disease are enormous, and to save even 5 per cent. of them is a great gain.

The establishment of other industries has, however, not been lost sight of. The Botanist and the recently appointed Chemist have devoted much attention during the year to camphor, which seems, owing to the action of the Government of Japan, likely to prove worth cultivation in Ceylon. They have also commenced a detailed investigation into the chemistry and botany of the citronella and tobacco industries, with a view to discovering what improvements are possible that may avert the threatened danger of collapse from overproduction and foreign competition. Further details are given below.

The office and clerical work of the Department has increased very much during the year. The correspondence with planters and others on diseases, modes of cultivation, &c., is rapidly increasing, and takes up a very large part of the time of the scientific staff. It is hoped to relieve this pressure during the next year by the publication of more frequent circulars, &c., which may be distributed instead of letters in answer to many of the most frequently recurring questions. A lithographic press has been recently obtained, and it is intended in future to illustrate the circulars, a proceeding which should add to their usefulness. Their circulation continues to increase, and they seem to meet with approval from the agricultural public.

The Library has been much improved during the year. The catalogue has been completed and sent to press, and will appear early in 1901. The offices of the clerks have been moved from their former inconvenient position near the Curator's office to two small rooms at the back of the Museum, and thus close to the Director's office. Office space is needed for the Entomologist and Mycologist, and can be provided at a very small cost by the alteration of two of the rooms under the Library, at present only available as godowns on account of their want of windows.

In the Botanic Gardens themselves there is little to chronicle of special importance. Their general condition has been steadily improved. Many new plants have been introduced, and the buildings, conservatories, &c., have been put into better repair. In the two chief gardens and at Badulla the general condition of the plants is good, the buildings, &c., in good repair, and the work of the staff is efficiently carried on. The other gardens are not at present in a satisfactory state, and will be overhauled during 1901.

The experimental plots of economic and useful plants have been extended as much as possible during the year, but the space at our command is too small to allow of really satisfactory experimental cultivation.

A reorganization of the gardening and subordinate staff was proposed and sanctioned during the year (see Sessional Paper XVI. of 1900), and will be gradually put into operation as vacancies occur. An incremental scheme has been adopted, and the prospects of the officers concerned improved. Two posts, those of Assistant Plant Collector and Kankani, will be abolished, and three new ones, those of Herbarium Assistant, Clerk to the Curator, and Sixth Gardener, created. The total cost under the new scheme will remain as before. The total cost of the Department, including special votes, has been Rs. 71,740, against Rs. 58,822 last year. The increase is due to the salaries of the Mycologist and Entomologist, and the retaining fee to the Chemist, with the slight increases in the other votes rendered necessary by the increase of the staff. The receipts from sales have been Rs. 4,658·52, against Rs. 6,114·41; the decrease is due to the lower price of rubber seed.

3.—Notes on Economic and other Plants.

Tea.—The past year has been one of depression for the industry. The export has risen in an unprecedented and unexpected manner to 148,431,639 lb. against 129,894,156 lb. in 1899. Fortunately the export to Russia, now one of the largest consumers of Ceylon tea, has risen to 8,917,185 lb., an increase of 5 millions over 1899, and the exports to Australia and America show increases of 2 million lb. and 1 million respectively, while there has also been an increased export to France and other European countries. Nevertheless, so great has been the increase in production that 10 million lb. more than in 1899 have been sent to the markets of Great Britain, an increase of 10 per cent., which has been accompanied by a decrease of 10 per cent. in the average price (7·20*d.* as against 7·96*d.* in the preceding year). The rise in the duty from 4*d.* to 6*d.* per lb. has also helped to depress prices, especially of the lower grade teas. As the extension of cultivation, though practically over in Ceylon, is still going on in South India, Java, and elsewhere, it is probable that the full effect of overproduction has yet to be felt, and that the tea industry has now to pass through a trying period, which may lead to considerable alterations and reorganizations in methods of working, &c. Greater specialization, larger factories under specially trained managers, manuring and plucking for quality rather than for quantity, selection of the best and most suitable jâts as regards quality of tea and power of resisting disease, replacement of inferior bushes and fields by better and by other products, careful precautions against disease, and improvements in methods of cultivation and manufacture, are some of the directions in which relief may be looked for.

Tea has been comparatively free from serious outbreaks of blights during the year (see supplements).

A commencement, which may lead to important developments, has been made in the manufacture of green teas suited to the American markets. If this extend, it will temporarily relieve the overproduction difficulty.

An important paper on Ceylon Tea Soils and their influence on the quantity of tea has been published by Mr. Bamber during the year.

Coffee.—The rise in the exports during 1899 was a mere temporary one, and in 1900 the total export was only 10,777 cwt. as against 18,542. This is the lowest figure that has been reached since the beginning of the decline in the industry.

Cacao.—The Assistant Director, who now takes charge of all matters connected with this product, reports as follows :—

> The exports for 1900 show a considerable decrease, from 42,745 cwt. to 33,476. This, however, may be explained in a variety of ways. The year from January 1 to December 31 is not the best period for a record of cacao yield, and it is probable that the pickings of the last few weeks of the year and of the first weeks of 1901 will to some extent make up the deficiency, the crop in 1900 having been later than usual. That the canker of stem and pod and the attacks of Helopeltis, &c., are a factor in lessening the yield, is no doubt true, but a large diminution in fruit crop has occurred in trees which have no disease. In fact an unusual number of dull and rainy days in some cacao districts has told against the production of fruit and in favour of the blackening of pods and the growth of canker.
>
> The prices which have been obtained for Ceylon cacaos show that the quality of our cacaos is still up to a high level, and encourage cultivators to devote attention to further improvements of their methods of curing.
>
> The canker and blackening of pods still causes a serious diminution of crop on many estates where little or no care is taken to combat these evils, but where preventive and curative treatment is thoroughly carried out a marked decrease has resulted, and in some cases estates which two or three years ago were seriously handicapped have been almost entirely freed from the disease. Local attacks of Helopeltis on the pods have been more virulent than usual. The cacao industry will, however, be benefited by these evils to some extent, as they have undoubtedly led to more sanitary methods of cultivation, and such advances, as well as efforts to improve our varieties by selection and other means, tend to an increase of profit from this fruit tree, which grows vigorously in different climates in Ceylon.

Cardamoms.—The export rose from 499,959 to 537,455 lb., a slightly larger figure than in 1897, hitherto the largest recorded. Extension of cultivation continues both here and in South India, and the price shows signs of a considerable fall in the not very distant future.

Cinnamon.—The export of both bales and chips has risen, the former from 2,515,031 lb. to 2,678,111, the latter from 1,829,127 lb. to 1,863,406. The export of the "wild cinnamon" mentioned in last year's report has enormously decreased, to 43,339 lb. bales and 105,914 lb. chips. The price of this material has fallen very low. The export of oil has also fallen largely, from 118,778 to 72,904 oz.

Cocoanuts.—Extension of cultivation continues, and there has been a great rise in the export figures for all the various products of this palm, which has now become a very large staple. The export of oil has risen from 400,979 cwt. to 443,959, of copra from 325,401 cwt. to 362,467, of desiccated cocoanut from 13,571,084 lb. to 13,604,913, of poonac from 174,786 cwt. to 185,992, of nuts from 11,723,392 to 14,995,909, of coir rope from 12,090 to 12,572 cwt., of coir yarn from 75,525 to 87,415 cwt., and of coir fibre from 91,588 to 115,090 cwt. The industry seems in a prosperous condition, and the trees are on the whole remarkably free from any serious disease, considering how long they have been cultivated in the Island.

Other Palms.—The export of palmirah and kitul fibres has risen, though not to the figures of 1898. The sago palm continues to do well at Peradeniya, and should be tried in swampy places in the low-country, where it might prove a valuable source of food for local consumption, if not for export.

Indiarubber.—Extension of cultivation of both Hevea and Castilloa continues in favourable localities, and very good valuations have been received of rubber sent home from certain estates. The demand for seed has been less than last year, and the supply much larger. A very large quantity of seed has been exported from Ceylon to Burmah and the Straits, where Hevea cultivation is now becoming an important industry. Very favourable reports have been received from Europe on samples prepared in the Botanic Gardens by Mr. Parkin's methods, and it is hoped during 1901 to test these on a commercial scale with certain modifications that have been found beneficial.

Guttapercha.—There has been no demand for this during the year, and it is doubtful if it will ever be taken up by private planters.

Fibre.—There has been a small demand for sisal hemp and other fibre plants, but there seems no prospect at present of any one seriously engaging in the cultivation of any new fibres in Ceylon. The palm fibres have been mentioned above.

Cinchona.—The Assistant Director reports as follows:—

> The export shows a further decrease, being 510,462 lb., against 618,921 lb. last year. There has been an increased demand for information relating to the various hybrids and the conditions of successful cultivation, and an unusually large amount of seed has been purchased (chiefly abroad) and planted during the year. Specimens of various kinds of barks from different localities in Ceylon were obtained, and these will be worked out in Europe by M. Reimers, who is devoting himself to the study of chemical and botanical questions in cinchona.

Camphor.—This product has come much into prominence during the year as a possible paying adjunct to tea in many districts. The bulk of the world's supply at present comes from Formosa, and a monopoly has now been established by the Government of Japan, resulting in a rise and a steadying of the price of crude camphor, which is now from 185 to 200 shillings per cwt. At this price there seems a fair prospect of a paying return, now that it is certain that camphor can be distilled from the leaves and twigs of quite young trees. It must, however, be remembered that what can be done here can also be done in Japan, and probably at least as cheaply. The plant succeeds well in many districts of Ceylon, from sea-level to 6,000 feet; its cultivation is easy, and there is no great difficulty or expense involved in cropping and distillation. A series of distillation experiments have been carried on by the Chemist in the latter part of the year, with varying but fairly promising results. When completed, a circular will be published giving all details as to planting, harvesting, distillation, &c.

Tobacco.—Much attention has been given to this product also in the past year, but the problems in hand will require many years for solution. While at present this industry is fairly prosperous and profitable, there is great risk of overproduction when the new railway and irrigation works come into operation and the Vanni country, which contains much land suited to tobacco, is opened up. The market for Ceylon tobacco is confined to Ceylon and parts of South India, and may easily be flooded. With the aid of the Chemist and of native cultivators and others experiments have been begun to test the qualities of our tobaccos and the soils on which they grow, and to see whether Ceylon (like South India) cannot grow something marketable in Europe, thus enlarging the demand and enabling more land to be profitably opened. That Ceylon should grow first-rate cigar or wrapper tobaccos is unlikely, but there seems no reason why it should not produce a good filler, which may be wrapped in Sumatra or Borneo leaf. The seeds of Cuban and other tobaccos distributed last year to native growers in the Northern Province and elsewhere mostly cropped fairly well, though in the Peradeniya Gardens and in the Central Province they were almost completely destroyed by a grub described in the Entomologist's report. The crop, however, was not appreciated for the local market, as it was lighter and less pungent than the coarse native kinds. Probably for the formation of an export trade in tobacco some form between the two will prove best suited for cultivation.

Oils.—Cinnamon and cocoanut oils have been mentioned above. There has been a decrease in the export of citronella oil from 1,478,756 lb. in 1899 (the largest recorded) to 1,409,058 lb. The price of this product, in consequence of overproduction, adulteration, and foreign competition, continues to fall, and is now barely remunerative, and the industry, one of the most important minor ones in the Island, is in a depressed state. The plumbago "boom" took away many of the workers for some time, but this is now over. The Java planters have lately embarked in this industry, and by careful selection and distillation have begun to place upon the market an oil which is far superior to the Ceylon oil, and which fetches a much higher price. This will lead to a further fall in the price of the Ceylon oil unless new markets can be opened, which seems unlikely, or the quality of the oil improved. With this in view the Director and Chemist have made during the year a thorough investigation upon the spot into the industry, and a full report will be published during 1901. The general condition of the industry affords a striking parallel to that of tea, but is distinctly worse.

Fruit.—The supply of fruit plants has been kept up as well as possible to meet the increasing demand for them. This demand, however, is merely for planting round bungalows, and there has been little or no planting on any large scale. Interesting notes on certain fruits will be found in the reports of the two principal gardens.

Fodders.—*Trifolium Johnsonii*, mentioned in last year's report, has now proved a complete failure at Hakgala.

Trees.—Notes on a few on trial at Hakgala will be found in the report of the Superintendent. A detailed study of the Ceylon species of Diospyros and their timbers (ebony, calamander, &c.) has been undertaken by Mr. Wright, whose report is given below.

Ornamental Plants.—Cannas have continued in great request, and are now a conspicuous feature in most Ceylon gardens. Other ornamental plants are also in demand, and the interest in horticulture in the Island seems increasing.

JOHN C. WILLIS,
Director.

Peradeniya, January 25, 1901.

SUPPLEMENTS.

1.—REPORT OF GOVERNMENT MYCOLOGIST AND ASSISTANT DIRECTOR.

DURING the six or seven months that I have been engaged with the work of my appointment nearly 200 inquiries have been dealt with, chiefly dealing with diseases of economic plants. The unusual number of dull days with a humid atmosphere has been most favourable to the growth and spread of parasitic fungi during last year.

Both in the field and laboratory the fungus causing grey blight, *Pestalozzia Guepini*, Desm., has received a great deal of my attention. In order that the life-history of a fungus may be known it is necessary to make cultivations from the spores and continuously watch the growth of the organism with the microscope. These cultures are, as a rule, grown on a gelatinous medium, or some substance favourable to rapid growth ; unfortunately the behaviour of the fungus in this artificial cultivation is often quite different from when it is grown in nature in living tissue.

The spores and living mycelium of Pestalozzia and several other parasitic fungi have been cultivated and examined in this manner in the laboratory, and, with the object of making observations and experiments on the fungus as it grows on the tea leaf, ten healthy bushes from two to five years old were transplanted to an experimental bed outside the laboratory. These were carefully removed without much injury to their root system, and have all continued to grow vigorously. With the help of these experimental bushes and material in the laboratory, it is hoped to work out the complete life-history of Pestalozzia and other parasitic fungi on tea.

A series of experiments has been planned and will shortly be established with a view to obtaining a more exact knowledge of the distribution of spores of grey blight and other leaf disease fungi.

Six stations have been selected at elevations of 50, 1,600, 2,500, 3,000, 4,000, and 5,000 feet respectively. At these places a jute hessian screen or tabernacle open at the top, 9 feet high, 45 feet long, and 8 feet wide, enclosing two rows of 15 tea bushes—*i.e.*, 100th part of an acre—and placed at right angles to the prevalent winds, will be erected.

The bushes inside this enclosure will be pruned (at the same time as the rest of the field) and all leaves taken off the bushes and swept out of the enclosure. Much interesting information should be gained by observation of the conditions as regards "grey blight" and other parasitic fungi of the enclosed bushes and those outside on either side of the tabernacle.

In order to test the practicability of taking off all diseased leaves from tea bushes an experiment was carried out at an estate of 4,000 feet elevation. The bushes first selected had gone 12 months from pruning ; they were big healthy bushes with little, if any, disease apparent. All leaves with any spot due to fungus or insect were taken off, as it is impossible to instruct coolies as to any special blight. A quick "podian" plucked the leaves, and was closely watched to see that no leaves with any spot were left. The time taken was nearly 6 minutes per bush, or 10 bushes per hour, and about 60 leaves were taken from each bush. Ten weeks later these bushes were examined and only three leaves were found on 15 bushes with "grey blight," and a few with insect injuries. The surrounding tea was, however, not attacked to any extent. A second series of bushes in a field which had gone 22 months from pruning were treated in the same way ; the bushes were healthy, but the leaves were spotted, and a large quantity of dead leaves were on the ground. In this case the time taken was 41 minutes to a bush, and nearly 3,000 leaves were plucked from each bush ; in some cases 90 per cent. of the leaves were taken off.

It appears from this trial that such measures to prevent the spread of leaf blights when adopted should be taken as soon as possible after pruning, when the number of spotted leaves is few ; and no doubt the most economic and most effectual method will be found to carry out this treatment periodically with the plucking by making the pluckers take off all diseased leaves.

If this were generally done, an immense decrease in the amount of "grey blight" in the Island would no doubt result. It is, however, the lack of co-operation in these sanitary matters that vitiates the good work done by the few.

Though the climatic conditions have not been at all unfavourable to the growth of fungi, yet the amount of grey blight on growing tea has not increased, and in many localities has lessened to a considerable extent. This may be to some extent explained by the measures taken by not a few in burning or burying with lime diseased leaves and so destroying vast quantities of spores, and also to the close pruning of some large areas of badly affected tea.

A less encouraging circumstance with regard to "grey blight" is that I have found it on the leaf stalk as well as on the leaf. Specimens of such diseased stalks have been collected and sent to me from various localities, and on them the fungus and its characteristic spores were abundant.

This calls for careful observation on the part of planters, as it is most important that any such attack should be at once stopped by pruning back the bushes below the browned and diseased parts and carefully burning the prunings. The chief reason why "grey blight" has not done more harm to tea is that, as a rule, it only attacks the leaf, and when the diseased leaves fall the bush is free from disease ; were it to spread to the permanent portions of the plant it would become a more serious enemy. It will be of advantage if any planter finding the leaf stalks discoloured, and suspecting this to be due to grey blight, will at once forward specimens for determination.

Another leaf fungus, *Cladosporium herbarum*, Pers., was found on the leaves of tea bushes among which Liberian coffee was growing. I observed on the coffee leaves (which were also attacked by *Hemileia vastatrix*, Berk.), a disease which produced the concentrically marked grey patches associated with grey blight. On examination this proved to be due to another fungus, the Cladosporium mentioned above, and on investigating similar patches on the leaves of neighbouring tea bushes this same fungus was found. *Cladosporium herbarium* is a common fungus on dead plant tissues, but also occurs as a parasite on the living leaves of many plants ; it is recorded on such varying hosts as wheat, peas, apple, raspberry, cycads, agave, and pine seedlings. It has a greenish grey septate mycelium and oval conidiospores.

A report was sent on a leaf disease on tea which is common both here and in Indian tea districts. It is caused by a lichen, *Cephaleurous mycoidea*, Karsten, which produces characteristic reddish and white or grey spots on the leaf ; it is partially parasitic, but it does very little harm and can spread only very slowly, and is consequently not a matter for such serious attention as a fungus parasite.

A root disease of tea has been investigated in regard to its habits and the best methods of combating it. It is caused by a fungus, *Rosellinia radiciperda*, Massee, and most frequently found in clearings where the stumps of jungle trees are left, more especially those with soft wood, but any decaying wood under ground either of stem or root, if the soil is in a moist condition, may be the harbourer of this fungus. It has been found in Ceylon on stumps of various jungle trees, buried logs, stakes put in beside young plants, and buried prunings ; from these it frequently spreads to and invades the roots of living tea bushes, and when it has once attacked a tea bush it gradually decreases the vigour of the plant, and in the end, as a rule, kills it. It can be recognized by its white felty mycelium, which forms strands as thick as or thicker than a piece of cotton, and runs underground from one host to another.

The fruit—which is not so commonly found underground, but can be seen on pieces of wood which have been on the surface after it has been permeated by the fungus for some time—is black and consists of numerous globose bodies.

The best preventive means against the spreading of this root enemy—as indeed against many other root parasites—are to take out the dead or dying bush, burn the roots, thoroughly lime the hole, also to cut a trench not less than two feet deep round the bushes affected, not only round the dead one, but those neighbouring which may be attacked in a less degree, in order to isolate the patch from the rest of the tea bushes. Lime forked in the infected patch will often kill the mycelium and save some of the other bushes. The trenches also have the effect, if properly cut, of draining the place and so removing the conditions which favour the progress of the fungus.

This disease is fairly common in various districts, in some cases three or four supplies in succession having been killed where the new plant has been put in without taking out the old roots. It, however, is generally very local in its effects and rarely occurs where the soil is thoroughly drained. In fields where it is found it is inadvisable to bury any prunings until the disease is entirely eradicated.

An experiment with regard to the treatment of isolation and liming the infected area was carried out on an up-country estate with encouraging results. A trench two feet deep and one foot wide was cut round a patch on which one bush had been killed by the attacks of Rosellinia and some

others were "shuck"; the space inside was heavily limed, slanting holes being made with an alavanga and lime put in. By this means lime can be introduced more intimately round the roots than by surface liming or forking. No bushes have died or appear to be affected without the trench, and some of the bushes inside are recovering.

The question of the effect of Lichens on the stems of tea bushes was inquired about and attention given to it. In the first place, *Physcia speciosa*, Fr., a lichen with a leaden blue coloured flattish thallus bearing on the under surface black hairs, was observed. This lichen is found on exposed branches and stems not protected from the sun and rain, and thus is commonest on the less vigorous bushes. It is not parasitic on the living tissues of the tea plant, and can be cultivated on glass or stone, if suitable conditions are obtained. It gets its nourishment independently of the plant on the surface of which it lives, it does not prevent leafbuds from being formed, and it is probable that its habit of growing on exposed older portions of stem and branches has originated the belief that to its effects are due the lack of vigour of the bush on which it is seen. Some of the less conspicuous lichens which lie closer to the bark will be investigated and the results mentioned in a future report. That lichens and other epiphytes are a sign that the best conditions for the tea are not present is in most cases true, but their removal at more or less cost does not take away the reason for any lack of vigour in the bushes on which they grow.

Several inquiries relating to cacao canker, *Nectria* sp., both on stem and pods, have been received and advised on. In more than one case it has been sent as an entirely new disease which has not been noticed or heard of by the cultivator before. The life-history of the canker having been worked out and the methods of counteracting its evil effects having been laid down, and during the last two years carried out with a large amount of success, it is most important that all growers of cacao, either European or native, should be on the constant lookout to detect the first appearance of this fungus and take steps to get rid of it before any serious loss has accrued and its removal becomes a more difficult and costly matter. Their neglect is also a serious injury to other cacao planters. Other work in regard to cacao is mentioned later.

In connection with the investigation of Pestalozzia, the leaves of some thirty or forty different jungle and garden plants attacked by fungi have been examined, but in no case have the spores of Pestalozzia been found, though in all cases badly "grey-blighted" tea was near or around the plants searched. The injuries which in most cases by their similarity in appearance—to the naked eye—with grey blight being due to other causes, it is important, from an economic point of view, that any invasion of another plant other than tea by the Pestalozzia should be noted and measures taken to prevent increasing the amount of the disease. Seedlings have been submitted suffering from "damping," a disease caused by a fungus, *Pythium De Baryanum*, Hesse, which spreads with great rapidity through a bed, generally so damaging the young plants at the "collar" that they fall down. It, as a rule, implies that the seed bed is too damp, and where it is noticed all dying and dead seedlings should be taken out of the bed immediately. Before the bed is again used it should be sterilised by thoroughly baking all the soil, either by burning bushwood above it or by heating it piecemeal over a fire on a shovel, in order to kill the spores of this and other fungi which grow with great vigour and rapidity in the soft tissues of seedlings.

In sending diseased plants or parts of diseased plants for diagnosis it is important that the specimens sent should show as far as possible the different stages of the disease and not only the last stage when the plant is killed; also that the conditions and environment of the plants diseased should be given and any special circumstances which may have affected them.

All diseases of plants are the effect of a conjunction of many factors, and the most essential and prominent factor is called the cause, as in the case of parasitic fungi. It is often not sufficient to know only one of the factors causing the lack of health; we must know what other conditions are concerned in the effect produced.

The work of a pathologist and therapeutist is to learn all about the life-history and habits of a fungus or other organism which has an injurious effect on a plant, and by studying the relationship between it and its host and the conditions and environment which encourage it, to discover at what time and by what means the prosperity of the parasite can be most easily interfered with.

A good many matters relative to the cultivation of cacao and its improvement have been investigated and are still being worked out. Two of the most striking things in the cultivated varieties of cacao are the amount of blossom produced in relation to the fruit ripened and the number of small fruits, from half an inch to four inches long, which die off without being attacked by any specific disease.

In some cases the weight per tree of these withered fruits has been found equal to ten to twelve ripe pods. This waste energy is clearly a disadvantage to the attainment of greatest profitable yield in a cacao tree.

The fertilization and subsequent ripening of the fruit in cacao is therefore a most important question. The method of pollination is not thoroughly known, and with this in view the flower is being studied ; when the method of pollination is discovered some experiments will be initiated to endeavour to produce an increased fertilization.

A cacao tree has been under observation at Keenakelle, Badulla, elevation 3,800 ft., of the Caracas variety, but not very typical—probably a hybrid—which has for the last five years borne on average of 434 harvested ripe pods per annum. The tree is about 17 years old, 22½ feet high, with a spread of 30 feet, and an abnormally abundant leaf production.

The propagation of cuttings from this tree has been tried, but so far without success, and a series of experiments as to the best method of striking cacao cuttings is in progress. However, any experiments in this direction by planters or others which add to our knowledge will be welcomed, as the ability to perpetuate the characters of any specially fruitful tree would be of great economic importance.

198 seeds from eight pods on this tree were sown in an experimental plot. Each seed was weighed, and those above the average weight (3·4 grammes) were placed in one-half of the plot, and those below the weight in the other half. The plots were further divided into beds according to the pods from which the seeds came, the shape, size, weight, and thickness of wall of the pods being recorded. By this means data will be gained which will show the best directions in which to work in selecting cacao fruits for seed.

For the same reasons a large number of cacao pods have been examined, measured, and weighed to find out what relation, if any, there exists between the size and shape of the pod and the number and weight of the seeds it contains. So far as the investigation has gone no such relationship has been found to be constant, the size of the pod in many cases being simply due to a thickening of the fruit wall, and in many cases the largest pods contain fewer seeds than are found in smaller fruits, but a definite conclusion cannot be formed until a much larger number of different pods have been so examined.

Experiments as to the fermentation of cacao seeds before drying have been made with a view to finding whether the process can be accelerated with good results, and these will be carried on as far as possible.

I have visited various planting districts to make observations and collect information and material for laboratory research, and have attended several meetings of District Planters' Associations, where matters of scientific and economic interest have been discussed and explanations given of certain technical points.

J. B. CARRUTHERS,
Government Mycologist and Assistant Director.

2.—REPORT OF THE ENTOMOLOGIST.

THE following circulars have been issued from the Entomological Department during the year:—

No. 17.—Tea Mites and some suggested Experimental Work against them.
No. 18 (Supplement).—Insect Pests attacking Timber and Shade Trees in Ceylon.
No. 19.—Some Caterpillar Pests of the Tea Plant.

CORRESPONDENCE.—485 letters on entomological subjects were received and filed, and close upon 600 letters on similar subjects were despatched from the Department.

OFFICIAL TOURS AND ENTOMOLOGICAL VISITS.

A tour through the Badulla and Passara districts and across country to Batticaloa was undertaken in April, occupying sixteen days. The main object of the tour was to study a caterpillar pest that was seriously affecting the cocoanut palms in the neighbourhood of Batticaloa. On badly attacked estates the fronds of the palms were being completely skeletonized. A few trees are killed outright; but this is exceptional. I was informed that they usually recover from the attack, but that their bearing capacity is seriously diminished for several years. It was found, as expected, that the properties that were suffering most severely were those on which no efforts had been made to check the pest, or on which unsuitable methods had been employed. On estates where prompt and intelligent action had been taken from the commencement of the attack, comparatively little damage was incurred. The only course to adopt is to watch for the earliest signs of the pest, which are quite easily detected, and immediately to cut off and burn the affected fronds. It is useless to wait until the leaves have been killed before removing them. By that time the caterpillars will have deserted such fronds and migrated to fresh ones. The insect responsible for all this damage is the caterpillar of a small moth belonging to the family *Gelechiidæ*. The species appears

to be undescribed, but specimens have been sent to England for determination. The caterpillar may be recognized by the black head and second segment, the hinder parts being of a pale yellowish tint. It conceals itself beneath galleries composed of silk and sawdust-like pellets of excrementitious matter. The resulting moth is of a pale gray colour with minute black specks on the front wings. It measures about one inch in expanse.

A short visit was paid to Kurunegala in September. This was partly to visit a cacao estate suffering from an attack of *Thrips*, an account of which insect is given below; and partly to examine the feverish parts of the locality in connection with the Mosquito-malaria Theory. Though, from the shortness of the time at my disposal, the larvæ of Anopheles (the particular genus of mosquito associated with this disease) were actually captured in only one pool, I satisfied myself that the available breeding places of the insect were practically unlimited, and that it would be quite hopeless to attempt to exterminate the mosquito by either obliterating or chemically treating the Anopheles pools. The large extents of paddy fields alone would be sufficient to keep up the supply of mosquitoes. I am of opinion that preventive measures—*i.e.*, protection against the actual bite of the mosquito, coupled with the removal of the principal source of infection by the enforced medical treatment of every case of malarial fever, is the only rational course of action. The Mosquito-malaria question is discussed more fully elsewhere in my report.

A third tour, occupying one week early in November, was made in the Kelani Valley district. Many tea estates were visited, a meeting of the local branch of the Planters' Association was attended, and advice was given to the planters with reference to *Helopeltis* and other insect pests.

The past year has not been marked by any very startling outbreak of insect pests, though many cases of more or less serious injury, due to insect agency, have been observed and recorded.

The following are some of the principal species that have attracted attention :—

Heterusia cingala, Moore.—The caterpillars of this moth, locally known as "Red Slug," were prevalent in the Lunugala district in April, where a considerable acreage of tea was completely defoliated. Fortunately the damage was of a temporary nature. The caterpillars were collected and destroyed in large numbers, and in some cases the fields were heavily pruned and the prunings burned. Similar damage was reported from Rangalla in June. During my tour in the Kelani Valley district the caterpillars were observed very commonly on the tea, though no serious injury had been noticed there. It is, however, a dangerous insect to neglect, and whenever the caterpillar is seen search should be made for the rest of the brood.

The "Croton Caterpillar" (*Amyna selenampha*, Guen.).—Croton oil plants in both the Matale and Peradeniya districts suffered rather severely from this caterpillar, repeated broods following each other in rapid succession, devouring the fresh foliage as fast as it was produced. In Matale the principal attacks were in the months of January and June, while a fresh outbreak was reported in December. The pest was observed in Peradeniya in July, only after it had reached its crisis. Experiments were conducted with insecticides, some of the trees being sprayed with Macdougall's insecticide wash, and others with a preparation of arsenate of copper sold under the name of "green arsenoid." It was noticed that the former, applied in the proportion of 1 pound to 4 gallons of water, caused the almost immediate death of the caterpillars ; but experiments with the arsenoid, which acts through the alimentary system, were negative, being vitiated by the fact that the caterpillars were already dying off from a bacterial disease. The pest did not reappear on this plot of croton trees.

"*Nettle Grubs.*"—Several species of these stinging caterpillars have been noticeable during the year. The species responsible for most damage appears to have been *Natada nararia*, Moore, which was very destructive to tea in the Passara district early in the year. Over 100 acres of tea on one estate were completely defoliated, and hundreds of coolies were employed in collecting and destroying the insects.

The larvæ of *Thosea cana*, Walker, were received from Elpitiya ; *Thosea recta*, Hampson, from Morowak korale and Yatiyantota ; and *Spatulifimbria castaneiceps*, Hampson, from several parts of the Kelani Valley. The first three species have been fully described in my circular on "Some Caterpillar Pests of the Tea Plant." The fourth has only recently attracted attention as a tea pest. It is a small and inconspicuous grub, of a chocolate brown colour, with a reddish saddle-shaped mark on the middle of the back and a few yellow spots. Though belonging to the family of "nettle grubs," this particular species is unprovided with the usual urticating spines. The cocoon is very small, broadly oval, smooth and compact. The male moth is uniform dark purplish brown, with indistinct darker transverse bars across the fore wings, the expanded wings measuring just half an inch. The female moth is rather larger, measuring three quarters of an inch across the wings, and is of a much paler shade of brown.

If left to their own devices, any of these caterpillars may suddenly appear in such numbers as to prove a serious pest. The only safe way to treat them is to take them in time, which is when

they first appear. If the earlier broods are systematically collected and destroyed, no further trouble will be experienced.

When visiting in the Kelani Valley recently, I was informed that crows were very active agents in destroying "nettle grubs." During a bad attack of the pest the crows were said to have gorged themselves with the caterpillars until they could scarcely rise from the ground. They should be encouraged in every way.

Dichocrosis punctiferalis, Guen.—The "Cocoa-pod Borer," which is the caterpillar of the Pyralid moth, *D. punctiferalis*, was troublesome in the Kandy district in March. The local treatment, which appears to be very successful, is to employ a force of small boys to examine the growing fruit. Whenever signs of the borer are observed, a few drops of kerosine oil are run into the tunnel of the insect, when the little grub immediately wriggles out and is captured. When the hole does not penetrate into the seed cavity, the application does not injure the pod.

"*Tobacco Pest.*"—What may prove to be a rather serious pest has destroyed all the young tobacco plants in the experimental plots in the Peradeniya Gardens. The disease is characterized by a swollen condition of the stem, producing very much the appearance of a half-grown knol-kohl plant. On cutting open this swollen part the tunnels of a small caterpillar are found. Eventually decomposition is set up, and the plant rots away. Specimens of the caterpillars, kept in captivity, turned into minute brown Tineid moths, examples of which have been forwarded to England for determination. The pest was noticed this year only in Peradeniya, but a Tamil cultivator from Jaffna reports that the same disease is known in the north of the Island. The only possible treatment is the immediate removal and destruction of the affected plants. On inquiry from the Botanic Gardens, Buitenzorg, Java, I am informed that an identical or closely related disease occurs on the tobacco plant there. This disease is there locally known by the name of "dikbuikziekte," which may be literally translated as the "paunch-belly sickness," a highly descriptive name.

The "Tea Tortrix," *Capua coffearia*, Nietner, still gives occasional trouble upcountry. This pest has been fully dealt with in the Royal Botanic Garden Circular No. 19.

Boarmia bhurmitra, Walker.—A case of rather extensive injury caused by caterpillars of this moth affords an interesting instance of how a hitherto obscure insect may suddenly assert itself as a dangerous pest. The caterpillar belongs to the family *Geometridæ*, many of which assume, when at rest, the appearance of a piece of dead stick. The species is by no means uncommon, but, until this last year, has not gained any notoriety as an enemy to cultivated plants. It has, however, quite recently appeared in immense numbers on a few estates in the Kandy District, and, after defoliating the Grevillea trees, has attacked the tea. When full grown, the caterpillar buries itself in the ground and turns into a smooth reddish chrysalis. The moth is of a dull brown colour, very finely mottled with darker specks, and is difficult to distinguish when resting on a rock or tree trunk, though, when found, it is easily captured, as it seldom attempts to fly away. The coolies soon become adept at seeing and catching them. On one estate it was estimated that over 50,000 had been killed in this manner. At the time of my visit the caterpillars were dying off from some fungal disease. It was noticeable that there were few birds on these particular estates. Where there are abundant small birds they would be most valuable asistants in checking the increase of the pest.

"*Cardamom Borer*" (*Dichocrosis evaxalis*, Walker).—The larvae of a Pyralid moth, *D. evaxalis*, have been troublesome in parts of the Matale and Rangala districts. The caterpillar tunnels into the mature stems of cardamom plants, making its entrance at one side and boring either upwards or downwards, eating the pith and causing the death of those particular stems. After the caterpillar has vacated them the tunnels often become tenanted by ants, the presence of which first attracts the attention of the superintendent, who, not unnaturally, attributes the damage to the ants themselves. The presence of the borer may be detected by the accumulation of pellets of excrement at the base of the injured stems. The affected stems should be at once cut and destroyed.

Nepita conferta, Walker.—In August immense numbers of the small hairy caterpillars of this moth were invading the bungalows, swarming upon every rock and piece of brickwork, and wandering over the roads and garden paths. This insect is not mentioned here on account of any damage attributable to it, for, with the exception of inconvenience caused by its occasionally coming in accidental contact with one's person and leaving its irritating hairs in one's skin, it is quite harmless. The caterpillar feeds only upon minute lichens and algæ growing on rocks and stones, and will not touch any of the higher plants. But the appearance of such thousands of caterpillars often causes unnecessary alarm to those who do not know the habits of the insect.

Agrotis C-nigrum, Linn.—The sudden appearance of the caterpillar of this moth on a young tea clearing in Bogawantalawa is another instance of the unexpected increase of an insect hitherto considered somewhat of a rarity in Ceylon. The attack seems to have been only temporary, the pest disappearing almost as suddenly as it arrived.

The "*Mango Pyral*" (*Orthaza euadrusalis*, Walker).—It is a by no means uncommon thing to find the foliage on one side of a mango tree completely destroyed, the leaves withered and riddled with holes and matted together with web. I have recently ascertained that the insect responsible for this damage is the caterpillar of a pyralid moth, *Orthaza euadrusalis*.

Helopeltis Antonii, Signoret.—This well-known insect, sometimes called "Mosquito Blight" from a fancied resemblance to the common mosquito, has been a source of considerable annoyance to both tea and cacao planters. On tea estates in the Kelani Valley and Kalutara Districts the pest annually causes an enormous loss of flush. This may possibly be considered a not unmixed evil by those who are now advocating a reduction of our outturn of made tea; but as the loss falls very unevenly, it can scarcely be considered a beneficial insect. Although the knowledge of the breeding habits of the insect enables us to attack it at its most vulnerable stage, much yet remains to be discovered of its life-history. The most pressing problem is, What becomes of the insect during the months when it deserts the tea plant? It is only careful observation at a number of different stations that can give us any clue to the solution of this mystery. A circular is now being prepared, setting forth what is known about *Helopeltis* and what remains to be discovered.

The *Helopeltis* insect attacks the cacao plant in a different manner. Though there is occasional injury from the puncturing of the young cacao leaves, the principal damage is confined to the pods, which are often so badly punctured when quite young that they are unable to develop properly, or may even be killed outright. I have suggested the spraying of the young pods, at the time when the eggs of the insect are being deposited, with Macdougall's solution or some similar insecticide. This treatment is now being carried out on a few estates with apparently good effects.

Thrips.—A serious attack of Thrips was reported from Kurunegala District in September. The species appear to be the same as has been recorded from the tea plant, but in this case it was injuring cacao trees. I made a personal visit to the estate in question, and found the damage had been really severe. The insect is a most minute one, only just visible to the naked eye. But the work of myriads of individuals results in an excessive loss of leaf and endangers the safety of the crop. The symptoms of attack are a yellowish blotchy appearance of the upper surface and a brownish discolouration on the under surface, which is also covered with small black spots due to the deposition of the excreta of the insect. No eggs could be found; but on crushing the body of the female insect and examining it with the microscope a powerful serrate ovipositor is noticeable, which suggests a probability of the eggs being embedded in the tissues of the plant. It is probable that they are deposited in the younger leaves after these have attained their full size, but before they have become hard. On such leaves the adult insects are found, but few, if any, of the immature individuals. The actual injury to the leaf occurs after it has reached maturity. It was most noticeable that plants growing under dense shade were less affected by the pest than those in more exposed situations. It was also apparent that hardy hybrids, when once they have reached the fruiting stage, are able to withstand the attack very much better than do the old red varieties. The young hybrid plants do not share this immunity, and often succumb to a bad attack. On this account, although it would be quite impracticable to treat a large area with many trees over 20 feet high, attention may be given to the supplies with great benefit, to enable them to reach the immune stage. Such supplies might be sprayed with any of the soapy insecticides in the market. It may be necessary to repeat the treatment at intervals during the critical period.

A case of death from the sting of the common hornet, *Vespa cincta*, Fabr., has been brought to my notice. It appears that a cooly boy, aged about twenty, disturbed a hornet's nest while pruning a tea bush. He was badly stung at 3 P.M., and died before midnight.

A case of bite from the so-called "Tarantula spider," *Poecilotheria subfusca*, occurred in the gardens. The man had been struck in the foot and appeared to be suffering considerable pain. I could find no definite wound. Six days later he was still laid up and was complaining of pain in both arms and legs. His eyes were affected, the surrounding parts swollen. On the day after the bite he was unable to see clearly, but this symptom was slowly passing off. There was no local suppuration or inflammation.

Mosquitoes and Malaria.—So much attention has recently been drawn to the connection between malaria and mosquitoes, and the question is of such importance, that a few remarks on the subject may not be out of place here. Whatever the opinion may be as to whether it is the sole cause, I believe that no one who has investigated the evidence fails to acknowledge that the mosquito (or rather one particular genus of mosquitoes) is a material cause of infection. If we believe that the mosquito plays its part in the dissemination of the disease, we must also recognize the importance of offensive and defensive action against the insect that carries the germs that induce malarial fever. Offensive action is practicable only under favourable conditions. In some towns and situations, where the nature of the land allows of free drainage, or where there is little surface water, it may be

quite possible to exterminate the malarial mosquito by depriving it of its only breeding grounds. But such conditions are seldom found in Ceylon.

Defensive action, on the other hand, is always possible. The malarial mosquito (*Anopheles* species) flies only after sundown. It seldom flies high above the ground. Mosquito netting and upstair bungalows will be the logical policy to meet these two cases. There is of course a period, between sundown and bedtime, when—unless we have made our houses mosquito proof—we are unprotected by mosquito netting. During the evening the feet and ankles are particularly liable to attack. To guard against this it may be suggested that boots might be worn in the evening instead of shoes. The after-dinner nap is another dangerous time, when the mosquito can take his fill without interference. It would be easy to fit up a small mosquito-proof retreat in the verandah of most bungalows, large enough to contain a small table and a couple of chairs, where it would be possible to read (or sleep) in safety and comfort. Those who (like myself) have satisfied themselves of the accuracy of the facts recorded by recent distinguished investigators, that the Anopheles is the sole carrier of infection, and that the malaria parasite cannot exist outside the body of either the man or the mosquito, recognize the importance of isolating and medically treating every single case of malarial fever, and of so preventing the mosquito from acquiring fresh infection, for, unless the Anopheles has previously drawn a supply of the malarial parasite from some fever-stricken patient, its bite is quite harmless. Natives who have to sleep in malarious localities may protect themselves by covering the exposed parts of the body with oil.

In connection with the Mosquito-malaria Theory, the British Museum authorities have called for specimens of all the different species of mosquitoes to be found in various parts of the world. I have sent to England, for determination, some fifteen distinct species, and I understand that other collections have been made and forwarded by members of the Medical Service.

Besides the danger of malarial infection from the bites of Anopheles, the discomfort and irritation caused by the bites of the ordinary species of Culex are not to be disregarded. These species can find convenient breeding places in any chance accumulations of water about a bungalow. Tubs of water should not be allowed to stand undisturbed, or will soon become filled with the small wriggling larvæ of the mosquitoes. Water standing in the saucers of flower pots, in any discarded cans or tins or broken bottles, will also serve to increase the number of insects. All such receptacles should be repeatedly emptied. Another prolific source of mosquitoes is to be found in the hollows of the bamboo stumps after the stems have been cut down. I have recently made a careful examination of the giant bamboo clumps in the Botanic Gardens, and have estimated the number of mosquito larvæ existing in the stumps at any one time. The result of my calculations worked out at the enormous figure of 57,000 larvæ within the area of the Peradeniya Gardens. The larval and pupal stages of the insect occupy from ten to fifteen days according to temperature. Allowing for two generations only per month, for the eight months during which water is likely to remain in the bamboo stumps, we must multiply the above figure by sixteen, producing the total of 912,000 (close on one million) mosquitoes raised from these bamboo clumps in one year. To the above must be added the number breeding in the stumps of the common yellow bamboo, which remains to be estimated. This vast swarm of mosquitoes may (and in future will) be prevented by the simple expedient of trimming off the bamboo stumps to the next knot and leaving no receptacle for the accumulation of water.

Beneficial Insects.—I regret to have to report the final loss of the small colony of imported ladybirds that has been cultivated for the last three years. These beetles were received from the Cape, where the species (*Exochomus nigromaculatus*) is said to be most useful in checking some of the local scale insects. But it is apparently unsuited to our work in Ceylon. It does not breed sufficiently rapidly, and in fact ceased to breed at all after the first eighteen or twenty months. The adult beetles remained alive for a surprising length of time, but died off one by one until the colony became extinct. The several lots of beetles liberated from time to time have shown no signs of having established themselves, and have presumably acted in the same way as those kept in captivity. This failure does not necessarily mean that the introduction of beneficial insects to fight existing insect enemies is useless. It only means that we have not yet introduced the right kind of insect for our purpose.

I have been experimenting on the introduction of the cochineal insect (*Coccus cacti*) and the lac insect (*Tachardia lacca*). Through the kindness of Mr. Lounsbury, Government Entomologist at Cape Town, I have received living colonies of the cochineal insect, and have found no difficulty in establishing them on plants of both *Opuntia Coccinellifera* and *O. Dillenii*. Similar attempts to procure living colonies of the lac insect from India have so far failed. Through the courtesy of Dr. George Watt, I have received repeated consignments of the insects from various districts, but in each case the young larvæ have died in transit.

There has been some correspondence between the Ceylon Government and a company desirous of starting Sericulture in Ceylon. It is unfortunate that the negotiations broke down. If once properly started, this industry would be of great benefit to the native population. The rearing of silkworms is a work which the Sinhalese would soon learn, and which could be carried on in addition to their usual occupations, the cocoons being sold to central factories.

Experiments in the destruction of termites (white ants) by the use of bisulphide of carbon have been conducted with considerable success. But the very limited supply of the chemical obtainable in Ceylon has prevented the continuation of the trials. Three main shafts of a large ant-hill were plugged with the bisulphide, about half a pound in all being used, and all the openings closed with clay. Twelve hours later the nest was opened. A few living insects were observed close to the surface, but lower down the slaughter had been immense. All the comb-like material was blocked with corpses. Unfortunately the queen cell could not be found, so it is uncertain whether that most important individual was killed or not. Even if the poisonous gas failed to reach her, she would probably soon perish for want of attendance, and the mass of putrifying bodies would further poison the air in the lower chambers. The few individuals observed at the top of the nest were doubtless some that had been foraging at the time of treatment and had since returned. I feel satisfied that, if the bisulphide could be obtained cheaply in the Island, it would prove a most valuable agent in checking the ravages of white ants.

Insecticides.—The difficulty of obtaining stock insecticides at prices that will allow of their being freely used has greatly interfered with the treatment of many insect pests. I have now made arrangements with a firm in Colombo to import and stock such articles as may be recommended for the purpose.

E. ERNEST GREEN,
Government Entomologist.

3.—REPORT OF THE SCIENTIFIC ASSISTANT.

I ARRIVED on the 28th June, 1900, and since that time have been engaged in an investigation of the floral and vegetative characters of the genus Diospyros. If time permits, the inquiry will be extended to the members of the other genus—Maba—of the Ceylon Ebenaceæ.

The rarity of flowers and the occurrence of coloured woods (ebony, calamander, &c.) in the genus Diospyros had led to some confusion, and it is hoped that the present investigation will lead to a better understanding of the specific characters of the members included under this head. Hitherto my work has been confined to collecting the vegetative organs and to an analysis of the anatomical features of the seedlings and timbers yielded by the various species of this genus. Evidence has been obtained to show that in the details of the anatomy and disposition of the conducting tissues of the seedlings, specific characters are presented, and these will be used for purposes of classification as is now done in other natural orders by modern systematists.

In studying the development of seedlings of calamander (*Diospyros quæsita*, Thw.), observations have been made which indicate one of the causes threatening the extinction of this valuable timber tree, and these, together with remedial suggestions, will be subsequently published. In analysing the black and variously mottled timbers obtained from these plants, the cause of discolouration has been determined, and experiments have been initiated with the object of inducing a blackening of the timber in the peripheral sapwood.

In consequence of the slow rate of growth and evergreen nature of these trees, it is difficult to obtain an intelligible interpretation of their age, and experiments have been organized at Hakgala, Badulla, Anuradhapura, and Peradeniya, which will assist us in our efforts to obtain a correct elucidation of the seasonal anatomical peculiarities of these and other tropical timbers. In these experiments upwards of 300 observations are being taken every month, and by this means we shall be able to determine what tissues have been formed during any particular period. These facts will then be correlated with the general behaviour of the plants and the climatic conditions under which they are growing. When the flowering period arrives a thorough re-investigation into the morphology of the reproductive organs will be undertaken and correlated with the timber yield of each species. As there is so much doubt in this direction an organized system of collecting will probably be instituted.

The Forest Department of Ceylon has generously forwarded new and rare specimens, and the officials of the Botanic Gardens at Sibpur, Madras, Saharanpur, Singapore, and Mauritius have likewise given every assistance.

H. WRIGHT.

4.—LABORATORY, MUSEUM, HERBARIUM.

The new Laboratory was completed on February 24, but owing to difficulty in obtaining teak the furniture was not ready till nearly the end of the year, and work was carried on with many inconvenient makeshifts. In addition to the regular workers (Director, Mycologist, Entomologist, Assistant), the following visitors have used the Laboratory during the year:—Dr. Preyer of Berlin, January 1 to 19; Mr. R. H. Yapp of Cambridge, February 1 to 15; Dr. Giesenhagen, Lecturer in the University of Munich, March 8 to 30; Dr. W. H. Lang, Lecturer in the University of Glasgow, August 6 to November 24; Mr. A. G. Tansley, Assistant Professor in University College, London, October 1 to November 24; Dr. C. Holtermann, Lecturer in the University of Berlin, November 29 to December 31. The Director was engaged in various economic studies, and in completing the m onograph of the Podostemaceæ (a short tour in Western India was made in the latter part of the year to obtain material for this work and to visit the gardens, &c., of Bombay, Poona, Madras, Ootacamund, privilege leave being granted for the purpose). The work done by the other members of the staff is described in their reports. Dr. Preyer was engaged in the study of certain problems in economic botany, especially cacao and indiarubber; the other workers were occupied with investigations into the anatomy, morphology, and physiology of plants.

The fifth and last volume of the Flora of Ceylon appeared early in the year, written by the veteran botanist, Sir J. D. Hooker. The Colony now possesses perhaps the best existing Colonial Flora. At the same time, this flora is anything but complete; there are yet many new species to be discovered, and many occur in other localities than those mentioned. For the filling up of the gaps we must rely largely on the help of local botanists, and an attempt will shortly be made to interest more of the public than have hitherto cared for such things in the study of this most fascinating of the sciences. Suggestions to this end will be cordially welcomed.

Conifers or Fir Trees.—It is interesting to note that several species of these, chiefly Australian, find here congenial conditions for growth, some of them (the *Araucarias* and *Agathis*) attaining to a great height. The site set specially apart for this order on the highest elevation in the gardens has been laid out to better effect, the number of species being also added to.

Cultivation and Experiments.—It has been found necessary to propagate and maintain an unusually large stock of young plants of fruit, shade, and windbelt trees in order to meet the increased demand for such caused by the recent publication of Circulars on these subjects.

Efforts which at present promise some success have been made to graft the mangosteen (*Garcinia Mangostana*) on the Cochin goraka (*Garcinia Xanthochymus*), a species of quicker growth and easy cultivation.

Partly successful attempts have been made to raise nutmeg plants by layering. This will be of importance if found generally practicable, as the nutmeg tree being unisexual the risk of too many male trees occurring in a plantation made from seedling plants may thus be avoided.

A new kitchen garden, for the purpose of testing the suitability of native and exotic vegetables to local conditions, has been made behind the Palmirah avenue, where it does not mar the view.

A beginning has been made in getting together a collection of all the principal varieties of plantains (bananas) growing in Ceylon, with a view of making the best kinds better known and discarding the worthless ones. Upwards of 23 varieties have so far been obtained.

The mango trees received as grafted plants from Poona in 1884 have not as yet fruited, though some have flowered irregularly since the last seven years. One cause of this is probably that they were too thickly planted (15 by 15 feet). Early in the year some of the trees were cut down with a view of inducing the remainder (10) to come into bearing. Of the latter, some were trenched round then at a distance of 7 feet from the trunk, others supplied with about 12 lb. of salt forked in with the soil round the tree, while the rest were "thrashed" by means of a long bamboo, which acted as a severe form of pruning. These are treatments which are said to be effectual in other countries, but as yet unsuccessful here, though it may yet be too early to expect good results.

In regard to experiments in vegetable or fruit cultivation it may be mentioned that possibly the greatest drawback here is the daring pilfering habits of the natives. For example, sets of selected yams were stolen from the ground after being planted out with particular care for experimental purposes.

The introduction of special varieties of tobacco, referred to in last year's report, has not proved a success. Plots were prepared in different parts of the garden, and the seedlings planted out as soon as strong enough and the weather suitable, viz., in the beginning of April. Shortly after, however, these began to show a swelling of the stem at the ground surface, this being the result of a grub which embedded itself in the young stem and gradually ate away the heart of the plant. Only a few of the plants survived, and these were preserved for seed purposes, a few plots being again planted out with their offspring, which so far have not been similarly attacked.

I would point out, however, that circumstances do not favour such large experiments being carried on within the gardens, and that their undertaking can only be incomplete and at the expense of other important matters.

The Brazil-nut tree (*Bertholletia excelsa*) of Brazil, introduced in 1880; *Pangium edule*, a Java tree with large edible fruits, introduced in 1891; and *Dimorphandra Wora*, a tree of British Guiana with enormously large and edible seed, introduced in 1881, have each produced fruit here during the year for the first time; whilst at Henaratgoda station a tree of the Sugar palm (*Arenga saccharifera*) of the Malay Archipelago has borne (for the first time in Ceylon as far as I can learn) a large quantity of fertile seeds, from which a stock has been raised. Among others which have flowered and fruited for the first time here are *Joannesia princeps*, *Sideroxylon dulcificum*, *Diplothemum maritimum*, *Pritchardia grandis*, *Euryale ferox*, and *Enterolobium cyclocarpum*. The following have flowered only for the first time:—*Acalypha Sanderiana*, *Allamand Wardleana*, *Caryocar nuciferum* (at Henaratgoda), *Glomeria jasminiflora*, *Renanthera alba*, *Sterculia acerifolia*, *Strobilanthes Dyerianus*, *Randia mussænda*, *Lagerstrœmia tomentosa* (?), *Bignonia magnifica*, *Agave glaucescens*, and several orchids.

It may be recorded as a rare occurrence that a tree of "Calamander" (*Diospyros quæsita*), which is becoming very rare in Ceylon, was found in the Province of Sabaragamuwa, in July last, bearing a crop of fruit. Seeds from these have been sent us by the Assistant Conservator of Forests, Western Province, and the plants raised from them are being carefully attended to.

Visitors.—Foreign visitors have been slightly on the increase, judging by the number of signatures (2,780) in the book kept at the entrance lodge. Among these the following botanists may be mentioned, apart from those who have worked at the Laboratory: Mons. Prudhomme, Director of Agriculture, Madagascar; Mr. Maiden, Director of Botanic Gardens, Sydney; Mr. D. G. Fairchild, Agricultural Explorer to the United States Department of Agriculture; Mons. L. Pynaert, Director of Botanic Gardens, Upper Congo, Africa; and Mr. Stanley Arden, Superintendent of Government Experimental Plantations, Federated Malay States. It is interesting to mention that a departmental album (purchased by the staff) has been placed in the Library. This is intended for photographs of scientific visitors as well as European and native officers who have held prominent offices in the Department, with a brief note as to service, &c., accompanying each photograph.

Fences.—Several of the old fences have been repaired, the one round the Lucerne plot was renewed, and a new fence, 128 lineal yards long, made of posts, rails, and wattles, was erected round a plot of land below the young gardeners' rooms. This enclosure is required for an additional nursery and for growing small patches of fodder.

Cinchona.—A small piece of jungle to the north of the camphor plantation has been cut down, cleared, and planted with plants of a special variety of cinchona. The plants were presented by the Manager of the Ceylon Tea Plantations Company. They made a very good start and grew into strong sturdy plants, but unfortunately the sambur deer found them out in the early part of December, and destroyed nearly every one.

Casuarina plantations.—The Casuarina plants, planted in patana land last year, have done very well. The rows which received a handful of lime to each plant show much better growth than those without. Some of these plants have grown to a height of 8 feet. They have, however, suffered much from the attacks of sambur deer, which have on several occasions broken through the fence and eaten off many plants. New plants have been set out to supply those destroyed, and this plantation promises to be a success.

Camphor.—There has been a great demand for camphor plants, and although we have not been able to supply the actual numbers applied for, every applicant has been supplied with some. No seeds have been received during the year, and as cuttings do not strike readily our stock is very nearly exhausted.

Experiments as to the quantity of camphor contained in the trees here have been undertaken by Mr. Kelway Bamber, and the results have been encouraging.

The plants here have continued to grow rapidly, and a few have flowered, though no fruit has set. This plantation is now five years old, and the largest tree is 22 feet high with a spread of branches of 15 feet, the stem being 27 inches in circumference at the base. One tree was partly coppiced on the 8th August, and gave 112 lb. of leaves, branches, and stems: three old stems were left uncut. The shoots from the cut stems number 39, the largest being 4 feet high and 1½ inch in circumference. This is remarkably good growth, and shows how well this plant will stand coppicing. Several plants have been clipped with hedge sheers, and others cut down like tea bushes. All have stood this treatment well and have broken into new growth in a very satisfactory manner. Judging from the way it behaves here, it is a very desirable plant to grow, and is likely to prove profitble.

Oaks.—The plantation of *Quercus ceris*, "Turkey Oak," has now become established, and promises to be successful. Both this species and the common English Oak, *Quercus robur*, broke

out into new growth in October. Several of the last named flowered and a few acorns have set, which proves that the plants are now established.

Holly.—It may be interesting to note that a plant of the common English holly, which was raised from seeds sown in 1895, has borne a few berries this year. I believe this is the first time that holly berries have been produced in this country.

Fruit Trees.—The dry weather appears to have been very beneficial to the foreign fruit trees, as they made very good growth after the light rains in May, especially the apples and plums.

Anona Cherimolia.—It has been generally supposed that the "Cherimoyer," though it grows remarkably well and flowers freely, would not fruit at this elevation—5,600 feet. However, I am glad to be able to report that one of the first plants introduced to Ceylon, and perhaps to the Eastern World, has borne 30 fruits here this year. The fruits, which ripened in November and December, were well shaped, of good size, weighing up to two pounds, with a circumference of 15 inches, and the flavour was delicious. Plants of this desirable fruit grown at elevations from 3,000 to 4,500 feet generally bear fruit in from four to five years from seeds.

The plant mentioned above is 15 or 16 years old, so that the higher the elevation the longer it takes to come into bearing. But the fruiting this year is probably due to the fact that the first 5½ months were very dry and favourable for the ripening of the buds and setting of the flowers.

Porcupines, Hare, and Mouse Deer.—Porcupines were again very destructive to arum and other lilies and bulbous plants at the beginning of the year.

Hares and mouse deer, especially the latter, have been very troublesome all through the year, more particularly among the violets and poppies, which plants they appear to be very fond of, the foliage of the plants being regularly eaten down.

Visitors.—The number of visitors recorded during the year was 1,818, against 1,805 last year. The largest number in any one month was 301 in April against 421 of the same month of the year before. The smallest number in any month was 34 in June against 19 in October last year.

8.—HENARATGODA GARDEN.

This has been kept in fair order during the year; the conservatory has been repaired, and also the bungalow. It is proposed to attach it in 1901 to Peradeniya in a more intimate way than has been the case hitherto, and a plan of working is being drawn up. The garden was visited by 310 visitors.

The average fall for the ten years 1891-1900 is 99·94 in. 162 days.

9.—ANURADHAPURA GARDEN.

This garden has as usual suffered much from drought. It has been kept in fair order, and various interesting experiments have been tried on a small scale. Until the opening of the new railway and irrigation works, there is but little to be done in this district. A small sale of plants goes on, and through the assistance of the Government Agent free distributions of useful plants and seeds are made in the outlying villages, a useful work which is beginning to bear fruit.

10.—BADULLA GARDEN.

This has continued to improve, and is now in very good order. The trees have been considerably thinned out, and the remainder have now room to expand. New and permanent cooly lines are much needed as well as a good plant house. The stock of plants for sale has been kept up, but there has been less inquiry for them than last year. Experiments on a comparatively large scale have been tried with tobacco and other products, but the space available is too small to do much more than keep up one or two plants of each of the kinds likely to be asked for. The main road through the garden was gravelled by aid of a vote of Rs. 100 kindly granted by the Local Board.

PRODUCTION OF COTTON AND COFFEE IN BRAZIL.

The Austro-Hungarian Consul at Rio de Janeiro reports that there are cotton trees throughout the Brazilian territories, which supply the whole of the material for the very numerous cotton factories there, the activity of which is yearly increasing. In the states of Rio de Janeiro and Minas Geraes, there are about thirty factories, having an aggregate of about 16,000 looms; the machinery, which is supplied by England, Germany, and North America, is set in motion by a great many waterfalls by means of hydraulic wheels. The manufacturers of yarn mix the Brazilian cottou with North American and Egyptiau cottou, which ensures greater firmness. The most superior sorts, amongst them the genuine Sea Island, are produced in the neighbourhood of Alcantara, in the state of Maranham. The arrivals in 1899 amounted to 159,029 bales of about 80 kilos each. According to statistical returns the world's stock of coffee on January 1st, 1899, was 387,000 tons, or about 6,450,000 bags, a quantity which has never before been attained at that season of the year, and the 1899-1900 crop promised very abundant yield. The over-production in the Brazils had created a situation which filled even optimists with dismay. Although the cousumptiou, in consequence of the low prices, had considerably augmented, it was feared that the heavy stocks and the large anticipated arrivals would prevent buyers coming forward. In order to counteract such a contingency a union was formed, styled "Centro da Lavouro do Café do Brazil," to carry on an active propaganda in order to augment consumption.—*Chamber of Commerce Journal*, for Feb.

"LES CULTURES COLONIALES."*

We have received a copy of this work (in French) by Henri Jumelle, Science Professor and Lecturer in Marseilles. In two volumes, one on "*Plantes Alimentaires*" and one on the "*Plantes Industrielles et Medicinales.*" The object of the author in these two volumes has been to collect, for the benefit of planters and the pupils in the Colonial Schools, information on the various methods of culture in use in different regions of the sub-tropical zone. There is great variety in these methods, probably owing to special conditions of climate and soil. M. Jumelle has tried, by comparing the climates and soils of countries in which the same product is cultivated, to deduce general laws as to the conditions most favourable to its growth.

This work is in two volumes. The first is devoted to Food Plants. M. Jumelle includes among these not only farinaceous plants, vegetables, cereals, sugar-yielding plants and fruits; but also spices, aromatic plants, and coffee and tea.

In the second volume, M. Jumelle takes up textile growths, oleaginous plants, rubber and gutta plants, perfume and varnish-yielding plants, dyes and tannin, medicinal plants, and those used for chewing and as narcotics, and those for fodder. This volume of 358 pages has 101 illustrations amongst the letterpress, while the former has 104 illustrations and 430 pages. (4 fr. per vol.) Seventeen pages only are devoted to Tea. We have first, broadly given, Habitat, Varieties of Tea and botanic description, their climate, soil and moisture, requisite manure, seeds and nurseries (how arranged,) transplanting, pruning, which is carefully described; harvesting or plucking and the making of tea; machinery, Jackson's roller being specially indicated; also Jackson's and Davidson's Drier. A sorting machine by M.G. Collom, and packing machine of Davidson & Co., are advised. "Green Tea is prepared almost exclusively in China," say they, "and is a little poorer in theine, but richer in tannin and essential oils, and therefore more exciting than ordinary tea." The process of manufacture is carefully described. One page is given to the Diseases of Tea, *i.e.*, to the Tea Bug, and cures, suggested by Dr. Trimen and Mr. Green, are described.

Every cultivated tropical product seems equally carefully disposed of. The work ought to be very valuable to residents in the tropics who can read French and meditate trying some new cultivation. There is a complete index of names of plants, etc., technical, botanical, and popular. The work is likely to be translated into other languages shortly.

* J. B. Baillière et Fils, Rue Hauteville 19, près du Boulevard St. Germain. Paris. 4 fr. per vol.

THE RETAIL SALE OF TEA TO NATIVES.

SHAKE OFF THE SENSE "OF INFRA DIG."

It is to be devoutly hoped that the Tea Association will lose no time in taking to heart the lecture upon self-help contained in the concluding paragraphs of the Viceroy's winding-up speech in the debate upon the Assam Labour Bill. There are two difficulties, however, that present themselves at the outset of driving a country trade in our teas; first, we have to encounter and overcome that unacknowledged but undeniably existing overstrained sense of gentility that pervades all classes of our countrymen when transported to India; anything like shop-keeping as pursued at home being considered *infra dig*, and yet, if we are to create a business in tea among all classes, the patrician toga must be discarded; in the second place, we venture to say there is not a tradesman connected with the Association, and one as an organiser is a *sine qua non*. We have urged repeatedly the opening of stalls at such places in town where the hordes of natives that are constantly on the move could obtain a cup of decent tea for a pice, and last year suggested the setting up of somvas at the large railway halting stations, but no attempt has been made to follow such up although the success as indicated in His Excellency's speech is assured. We are not in Messrs. Cresswell's confidence and, beyond knowing that they are credited with some plan or other for widely distributing tea among the masses, are quite in the dark as to the nature of what proceedings they purpose adopting. As far as Calcutta is concerned we have overwhelming evidence that, were some systematic method devised of furnishing the present peripatetic vendors of made tea with the means of filling their cans with a properly-concocted brew, the already pronounced taste would expand enormously and rapidly. We do not look for more than covering expenses at first, for the scheme must be regarded as a simple advertisement. Hitherto all idea of introducing our teas to the working classes has been centred upon selling small packets, but little ad-

vantage is likely to arise from that, as the consumers we wish to reach have no means of investing in teapots, *chulahs*, pannikins, etc, any more than their compeers at home have, yet the consumption of made tea among the latter is enormous. Our own opinion is that, if tea depots properly supervised were established at the several points where natives congest during the day, European supervision would not be needed for more than a couple of months, as the profits would be ample enough to induce respectable natives to take up the business; and in a very short time depots for the sale of ready-brewed tea would be as numerous as are those now for the sale of ice and the various syrups, while the demand from these places for leaf would go on increasing annually. Putting the matter into figures the returns from one pound work out as follows:—6 annas 1 lb. tea, 2 annas fuel, etc. 128 cups at 1 pice=Rs. 2. We allow one-eighth of an ounce to a cup. Profit enough in all conscience to justify the venture.—*Indian Planters' Gazette*, March 16.

THE ENGLISH AND FRENCH IN ABYSSINIA.

SOME ACCOUNT OF KING MENELIK'S NEW RAILWAYS,

(BY HERBERT VIVIAN.)

The French traders at Addis Ababa are really too fine for their place. They did very well so long as they possessed more or less of a monopoly. One of them, M Chefneux, is partner with M Ilg, Menelik's Swiss Minister for Foreign Affairs, as concessionaire of the Jibuti Railway, and they all consider themselves very great personages indeed. When Menelik grants them an audience, they go away again if he keeps them waiting five minutes. But their day is done. They cannot compete with Indian traders, who bring frugality, industry, and even honesty to bear, and therefore are not easy for a Frenchman to compete with. An Indian is content to travel down to the coast attended by one native servant and just the necessary amount of men to look after his baggage mules or camels. A Frenchman, on the other hand, thinks it necessary to travel like a prince, with a great retinue of armed men, and the expense of this swallows up the greater part of his profits. Moreover, he labours under the delusion that anything is good enough to sell to a native, whereas his system of sharp practice, though it may pay for a moment, cannot do so permanently. Before my departure from Addis Ababa, I had occasion to visit the store of one of

THE LEADING FRENCH TRADERS,

as some of my supplies were running out. He showed me several shelves of bottles, and I noticed in the two lower ones some very elaborate labels—"Grande Marque Extra Fine," and all the rest of it. Moreover, many bottles were done up elaborately in wire, like the very choicest and oldest brands in Europe. My curiosity was pricked as to the market which the man could hope to find for such luxuries in the heart of Abyssinia, but he said with a smile, "I don't recommend those. They are intended for the natives, and contain the filthiest stuff you ever imagined." This struck me as a very eloquent as well as a very frank epigram upon the attitude of French colonial trade.

The advantage which the French obtained by being first in the field is now rapidly fading away before the superiority of our methods and the superiority of our commercial honesty. The French themselves readily admitted Colonel Harrington, our representative at Addis Ababa, is an extremely able diplomatist, and he has certainly secured the confidence of the Emperor in a way that no European diplomatist ever did before. He is feared as well as respected, and Menelik knows that he will stand no nonsense.

"Our influence in Abyssinia," wrote a Frenchman, who has spent many years in the country, "is *nulle archinulle*, and has never existed there, save in the imagination of the promoters of the railway company. . . . The only nation which possesses a real and serious influence, imposed by fear, is the English, who use M Lagarde as their catspaw. The English have at Addis Ababa a master in the art of diplomacy, a man who knows his own mind, who does not humiliate himself with humble entreaties, and who has obtained everything he desires, and will continue to do so, for he exacts it." This is an exaggeration in so far as concerns the statement that French influence never has existed in Abyssinia. Indeed, at one time it was almost paramount, and I believe that an able diplomatist could revive it again. At present, Menelik feels that he cannot trust the French; while, as he told me when he received me in audience, he knows that

WHAT AN ENGLISHMAN SAYS IS A FACT,

and that what he undertakes to do is as good as done.

Just as French laudatory articles on Abyssinia were spread out over many years, to pave the way for the flotation of a French railway into the country, so the whole of my remarks have been intended to lead up to a survey of the past, present, and future of that enterprise. On March 9th, 1894, Menelik conceded to MM. Ilg and Chefneux the right to make a railway from Jibuti to Harrar, on to Addis Ababa, and thence to Kaffa and the White Nile. This railway was started as a commercial enterprise, and money was obtained from ordinary investors, who were actuated by the ordinary expectation of dividends. The promoters knew very well that the railway never could be a commercial success, and that it was impossible that there ever should be any dividends. But they were content with what the articles of association have called "the gratuitous transfer" to the company of their rights in the concession. This, being interpreted, means that they should receive (1) 8,000 shares; (2) £40,000 on the commencement of the second section from Harrar to Addis Ababa: (3) £40,000 more on the commencement of the third section towards Kaffa; (4) 100 founders' shares.

THE KEYNOTE OF FRENCH POLICY IN ABYSSINIA

for a very long time was to raise up an adversary against England in the Valley of the Nile. Menelik lent himself to this idea for what he could get, and negotiations proceeded very far for the advance of a Franco-Abyssinian army against us at the time of Fashoda. Whether or not his professions of friendship for France ever meant anything, he has now certainly come to his senses, and understands that if he weakened himself by a fruitless struggle with Egypt, the only result would be that he would find himself threatened with a French occupation. He gave a concession to the French railway, with the idea that he would obtain arms and ammunition more easily and more cheaply. But he has since realised that, while the railway would make the

transport of his guns easier, it would also enable the French to bring a formidable army into the heart of his empire at a moment's notice. So he hastened to modify his concession, and refused to allow the railway to have a terminus at Harrar. By a quibble, he fixed a place called El-Bah as the terminus, and gave it the name of Addis Harrar or New Harrar. It is sufficiently remote to eliminate danger, and at the same time sufficiently near to make the importation of arms very easy. For the commercial purposes of the railway, however, it will be of very little use, as the railway will not be able to divert the whole trade of Harrar, much of which will continue to follow the old caravan route. But even if the railway did secure the whole existing trade of Harrar, this would not suffice even to repay the expenditure. And this trade is rapidly falling away. During last year not a single Abyssinian merchant, coming from the interior, entered the place, though previously large numbers were wont to do so. The reason is that all the big merchants have already taken the Gallabat route. Gallabat is on the frontier of Abyssinia and Egypt, and the railway from Khartoum will be brought up the Blue Nile very near to it. This is the natural channel for trade, which in two or three years will all go that way; and, railway or no railway, there will only remain to Jibuti and Zaila the trade of the provinces of Harrar and Shoa. The Soudan and Khartoum railway will take all the trade that has hitherto been brought to Harrar from the interior. The Kassala-Suakim Railway, when finished, will also deflect much of the trade which has hitherto been brought to Harrar. From Lake Rudolph to Gallabat, the trade will follow the Nile Railway and Suakim Railway routes. At present one *corja* (*i.e.* twenty pieces of American piece goods), imported *via* Aden, Zaila, and Harrar to the Kaffa and other districts, costs in transport expenses alone about forty-five Maria Theresa dollars, while the cost of importing *via* Alexandria and the Nile Railway to the same district will only be twenty-five dollars. This will kill all Harrar trade with the interior, leaving only the Harrar and Shoa province trade. In two or three years the Harrar trade will be simply a local one in connection with the Harrar river and the Arusi country,—chiefly coffee. Thus the Jibuti Railway, if it reaches Harrar in two years, which is very doubtful, will get, say a quarter or a fifth of the total present trade. As the total

PRESENT TRADE COULD NEVER REPAY THE SHAREHOLDERS

it is bound to be a ruinous concern.

Knowing this, the officials of the railway have been content to allow the enterprise to proceed as slowly as possible, receiving their emoluments and delaying the day of reckoning as long as they can. In this matter they have been assisted considerably by circumstances. When, in Dec. 1897, the Issa tribe of Somalis realised that the first surveys of the railway were being made, and that a railway would take away their only means of livelihood, they gave out that they would make forcible opposition to every step of the undertaking. Accordingly the interim Governor of Jibuti made a provisional arrangement with the Okals (chiefs and elders of the Issas), undertaking not to survey or lay down lines for more than twenty kilometres from Jibuti without further notice. This extraordinary arrangement was intended to secure protection for French caravans going to and from Jibuti, at any rate until it should be necessary to proceed beyond the 20th kilometre. The French, however, have never regarded treaties with natives as binding upon themselves; and so soon as the dry season came and the Issa tribes went off with their flocks in search of fresh pastures, the railway people quietly went on with their surveys further inland. The natural result followed: caravans were attacked, and reprisals only aggravated matters. The authorities of the railway company tried to hush up every outrage and summoned a palaver of the chiefs of the Issas, with whom they concluded a fresh truce. The work of the railway was to be allowed to continue slowly, the Issas undertaking not to interfere, in consideration of the payment of 12,000 rupees. Four thousand rupees were paid in the course of the year 1898, but demands for the balance were resolutely ignored, and the tribesmen again felt that they had been tricked.

And the measures for defending the outposts of the company seem to have been exceedingly insufficient. The outpost at the 62nd kilometre, for instance, found itself on a given day with only forty cartridges. After endless demands and protestations, it succeeded in obtaining a hundred cartridges more from Jibuti. When on February 22nd, 1899, this outpost was attacked by a large band of Issas, the authorities need not have been surprised. Six Italians, one young Swiss, and two native guards were killed, and five Europeans were wounded, including an Italian woman and her child. It is to be hoped that the relatives of some of the victims will take proceedings against the company, whose non-payment of the 8,000 rupees due to the Issas was the direct cause of the attack. So far the only reply obtainable from the company has been that such attacks are to be expected in a state of war. The existence of a state of war upon French territory does not seem to strike the directors of the company or the French authorities as anything extraordinary. Moreover, when the servants of the company were engaged, they were not warned of the likelihood of any danger, lest they should demand heavier wages in consequence. The only consolation offered was that energetic measures would be taken to ensure the security of the works. These energetic measures, however, consisted merely in despatching sixty marines to Jibuti. They landed on March 13th, 1899, but only remained there until June 13th. The withdrawal of the garrison was due to a demand made by Menelik, who threatened to cancel the concession for the railway if so many troops remained in French Somaliland. Meanwhile no protest is directed againt the establishment of an Indian garrison in British territory at Zaila.

NOW COMES OUR OPPORTUNITY.

The Jibuti Railway has failed as a commercial enterprise. We must prevent the French Government from taking it up and utilising it as a stragetic instrument. If they do so, our prestige in Somaliland will perish, even Aden will suffer, and Jibuti may be utilised against us in the Soudan as a second Delagoa Bay. Already the fear of this has induced many merchants to migrate from Zaila to Jibuti.

There are many ways in which England might interfere. The moment is highly auspicious for buying up the shares in the railway, as those in the Suez Canal were bought up by Disraeli. Then we might negotiate with the French Government for the acquisition of French Somaliland by purchase or exchange. I hear that they would not be at all unwilling. Failing that, we ought to lose no time in constructing a railway from Berbera

into the interior. Menelik's consent is not necessary for a line up to our frontier at Ujawaji, a little south-west of Hargeisa, in the direction of Jigjiga. This has already been surveyed, and presents no difficulties, there being a steady rise all the way. The distance on to Jigjiga is only forty miles over a plain, and Menelik should have no objection to a railway terminus at Jigjiga. But even if we only penetrated to our frontier at Ujawaji, all the Harrar and Shoa trade would be attracted, and we should tap all the trade of Ogaden and South-East Abyssinia. Moreover, the tribesmen of the district would be benefited, instead of being ruined, as they will be in the Issa country by the Jibuti line.

I am convinced that the whole future of

BRITISH INFLUENCE IN NORTH-EAST AFRICA IS AT STAKE,

and that, unless prompt measures are taken, our Government will be responsible for a disgraceful and irretrievable surrender.

[The news has just been made public that the French concessionnaires of the Jibuti-Harrar-Addis Ababa Railway, which connects the capital of Abyssinia with the Red Sea, have concluded an agreement with three English companies whereby the latter find the money needed for the construction of the line, and thus practically control the undertaking.—Ed. P.M.M.]

—*Pall Mall Magazine* March.

GRASS FARMS IN INDIA.

Of the nine grass farms in the Bengal command all excepting one showed a saving on the work of the year 1899-1900, the largest amount being R63,696 in the case of the Allahabad farm, and the smallest, R1,634 on the Dinapur farm. The solitary loss was that of 1,146 rupees in the case of the farm at Bareilly The net saving for the year over all the farms amounted to R208,320, and it is the largest which has accrued to the State since the inauguration of grass farms, The increased savings were conspicuous at Allahabad, Cawnpore Lucknow Sitapur; Meerut, and Muttra. The year was not very favourable for grass operations, as the rains were somewhat irregular. The establishment of grass farms has tended to reduce market rates very considerably. This was the experience as far back as 1886 when only one or two grass farms existed. Now the grass produce at the various farms is found sufficient to feed all Government animals on an average for ten months in the year. The abundance of the grass supply from these farms must result in the market being over-stocked with *bhoosa* (trodden straw), with the inevitable consequence of reduced rates. The nine farms range in area between 2,709 acres at Allahabad and seventy acres at Dinapur, and the aggregate area is 9,654 acres, the production of green grass upon which in 1899-1900 was 98,152,102 lb. The scarcity of fodder throughout the country during the year was unparalleled, andthere was a very large demand from native States, even so distant as Baroda. It is in such times that the actual benefits derived by Government from the establishment of grass farms can be adequately realised. If the farms had not existed and Government grass-cutters had been permitted, as in former years, to encroach on the lands of the ryots for grass, the hardships of the latter would have been intensified, while the Government requirements could not have been met without extreme difficulty and heavy expenditure. All Government horses and cattle were fed throughout the year at Cawnpore, Bareilly, and Fyzabad; and at Allahabad also except for about three months, when the transport cattle were fed on *bhoosa*. The balance of produce that remained on hand at the close of the year comprised 4,425,404 lb of silage, and 6,719,410 lb of hay dry bedding. The expenditure during the next few years on manuring operations is expected to be heavier than in past years as it is intended to trench lands more extensively with town rubbish for the cultivation of dub grass. This will not only yield a better quality of grass and a larger output but will obviate objections on sanitary grounds. Experiments on the fattening of cattle were made during the year at Allahabad, and the Government of India have since directed their continuance. The question of extending these investigations to other stations is under consideration. The improvement in the meat is very marked and Capt. D J Meagher, the special forage officer is of opinion that the benefits which will be derived from the fattening of slaughter cattle will more than compensate for the extra cost incurred in the feed. A training class in agriculture and dairying for British soldiers was started in Allahabad early in the year, under the orders of the Government of India. Fifteen students were selected, but they were not all of the stamp of men required for grass farming—probably owing to Government not being able at the time to hold out any definite prospects to applicants. Reverting to the the Government butchery, worked in connection with the grass farm at Allahabad, Brigadier-General Sir Charles Leslie reports that the experiments made in fattening slaughter cattle seem to indicate advantage to Government in not only getting a much superior quality of meat for the soldiers' rations, but in actually procuring these rations at a cheaper rate. He had some of the beef issued to himself and found it to be the best he ever tasted in India.—*Indian Agrilcuturist*, March 1.

WHERE CAMPHOR COMES FROM.

AND THE VARIED USES IT IS PUT TO NOW-A-DAYS.

A page of the March *St. Nicholas* is filled with a paper by Ralph Benton entitled "Talking of Camphor."

"Where does this come from?" asked Sandy McLaurin, picking a block of camphor out of a jar that stood on the counter.

The druggist at the corner near Sandy's home was a good friend to all the boys, and they liked to ask him questions.

"Camphor? That 's a long story." The speaker and questioner sat down behind the prescription counter. "Have you ever noticed that row of lindens down on Fourth Street, near the grammar school? Well, the tree that produces camphor looks very much like any one of those. It grows in China, Japan, and other parts of eastern Asia. Occasionally a camphor-tree becomes so old and so large that it is a veritable land-mark. In 1691, for instance, a traveller in Japan described a tree which he found that was thirty-six feet about the trunk. Almost a century and a half later the same tree was said by another traveller to be fifty feet around.

"Did your grandmother ever make you take a few drops of spirits of camphor? You know what a fiery taste it has, then? You wouldn't think that camphor and the cinnamon sticks that you like so well are first-cousins; but they belong to the same botanical family.

"If you take one of the shiny green leaves from a camphor-tree and rub it gently between two stones, you smell the same odour as comes to you when you take the lid off a camphor-jar. Every part of the tree contains its part of the gum, but the bulk of it comes from the root, trunk, and branches. The first step is to reduce a tree to chips, and these are put into iron vessels having a

cone-shaped cover lined with rice straw. Then the vessels are heated, and the camphor is driven out of the chips. Do you know what I mean when I use the word 'volatile'? No? Well, a thing is volatile that seems to fly off in the air. Now, camphor is volatile; it is capable of being changed into vapor. When heat is applied to the iron vessels the camphor is volatilised, but it condenses almost at once; that is, it is changed to a multitude of tiny little lumps of solid camphor, which fasten themselves on the straw that lines the cover. It is then scraped from the straw, refined and pressed into blocks."

"Is camphor used for anything but medicine and to keep off moths?" asked Sandy.

"I was just coming to that. Strange as it may seem, we can get a substance from it that looks almost like ivory—hard and beautifully white. Go out to the first show-case on the left, and bring me a white comb and one of those hand-mirrors with a white back."

Sandy looked puzzled as he obeyed.

"This material," tapping the back of the mirror, "is called celluloid, and it is made from camphor and cotton. It is used for hair-brushes, soap-boxes, knife-handles, and many other articles. In another field we find that it plays its part in changing the map of the world or shaping the destiny of a nation. Camphor is used in making smokeless gunpowder. Our country certainly learned the value of it in the summer of '98."

"Why," Sandy ventured, "I should think, with all the big armies everywhere, that most of the camphor would be used for powder."

"A great deal of it is. That is why camphor has been so dear for a number of years past."

"Couldn't tar camphor be used?"

"Oh, no! Tar camphor is really not camphor at all, though somebody discovered, about twelve years ago, that it would take the place of camphor in preventing the ravages of moths. For many years it was thrown away; it was a puzzle to get rid of it. It comes, in a roundabout way, from bituminous coal. When this kind of coal is heated in a certain way it is split up into gas (used for lighting), a heavy, black liquid (coal-tar), and coke; and it is from the coal-tar that tar camphor is made. I couldn't begin to tell you all about coal-tar in one night, Sandy. Some other time we'll talk about it again."

INDIAN TEA ASSOCIATION LONON.

The following is part of the proceedings of a meeting of the Committee held on March 5th, 1901, when the following members were present:—Mr D Cruickshank (in the chair), and Messrs A Bryans, J S Hulbert, Robert Lyell, C C McLeod, F A Roberts, A G Stanton, J N Stuart, and C W Wallace.

GREEN TEA.—The correspondence on this question was read, and after discussion it was agreed that the decision come to on June 21st, 1900, should hold good in respect of the current season, viz., "that 1½ annas per lb, up to a maximum of 200,000 lb to be manufactured this season, be allowed out of the funds of the levy on the shipments of green tea for the American market, sent there direct from India, such funds to be distributed as a bounty at the discretion of the Calcutta Committee," the definition of the term "green tea" for the receipt of the bounty being taken to be tea made from the ordinary leaf plucked on the gardens, such as would be ordinarily made into black tea, but which in its altered manufactured state will not compete with the sale of black tea in America or elsewhere. The bounty to be paid on the same quantity as before sanctioned, viz., 200,000lb, until it is seen what success is attained in the manufacture of green tea, the Association in Calcutta to be requested to notify the committee promptly if a larger quantity than 200,000lb is likely to be specially prepared for shipment to America.

FISH CULTURE AT THE CRYSTAL PALACE.—An interesting experiment in fish culture is being made at the Crystal Palace. For some time past trout have been hatched and reared in the aquarium from eggs received from various parts of the country, and the process of treatment from the time when the eggs are placed in the hatching apparatus up to the full growth of the fish may be seen by visitors. The tanks contain a number of fine two and three-year-old trout. The experiment of rearing them has been undertaken by the Crystal Palace Company for the purpose of ascertaining whether the trout will live in the stagnant water of the great lake in the palace grounds. About 150 two-year-old rainbow trout (*Salmo Iridens*) have just been taken from the rearing tanks and placed in the lake. The number will be added to from time to time, and it is hoped that the trout will thrive, as there are no jack in the lake. In course of time, if the experiment succeeds, fly-fishing will be introduced at Sydenham. Anglers in the district are taking great interest in the matter, and a joint committee of various angling clubs is in course of formation with the view of protecting the waters and of arranging conditions under which the trout will be fished for. It has been already agreed that for the first year all fish hooked shall be returned to the water.—London *Times*, March 14.

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1896.	1897.	1898.	1899.	1900	Av of 31yrs.	1901
	Inch	Inch	Inch	Inch.	Inch.	Inch.	Inch.
January ..	2·92	3·81	2·32	6·98	3·72	3·24	11·91
February ..	0·35	1·68	1·98	2·78	0·63	1·89	5 12
March ..	5·64	3·66	4·21	0·88	3·71	4·75	0·99*
April ..	5·93	10·97	22·81	6·66	15·12	11·43	
May ..	9·31	8·30	5·80	17·73	10·63	12·04	
June ..	8·37	10·14	10·94	9·23	7·83	8·35	
July	2·85	5·24	6·15	1·11	6·77	4·30	
August ..	6·35	9·09	0·97	0·62	7·35	3·79	
September	10·99	4·58	6·90	1·48	4·00	4·98	
October ..	16·78	4·71	20·60	12·99	9·47	14 36	
November..	19.81	11·66	17·38	8·58	9·25	12·55	
December..	11·76	8·89	3-05	4·44	5·20	6·35	
Total..	101·06	82·73	103·11	73·48	83·68	88·03	21·57

* From 1st to 3rd April 0·99 inches, that is up to 9·30 a.m on the 4th April —ED. *C.O.*

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	—	900	...
Ceylon Tea and Coconut Estates	500	—	—	...
Castlereagh Tea Co., Ltd.	100	...	...	...
Ceylon Hills Estates Co. Ltd.,	100	—	—	—
Ceylon Provincial Estates Co. Ltd.	500	—	500	..
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	—	75	—
Clyde Estates Co., Ltd.	100		—	--
Doomoo Tea Co., of Ceylon Ltd.	100	60	—	—
Drayton Estate Co., Ltd.	100	...	...	...
Eila Tea Co., of Ceylon, Ltd.	100	..	40	—
Estates Co., of Uva, Ltd.	500	200	250	—
Gangawatta	500	—	—	..
Glasgow Estate Co., Ltd.	500	—	—	—
Great Western Tea Co., Ltd.	500	..	—	—
Hapugahalande Tea Estate Co.	200	—	—	..
High Forests Estates Co., Ltd	500	...	575	...
Do part paid	400	—	...	—
Horekelley Estates Co., Ltd.	100	65	..	66·25
Kalutara Co., Ltd.	500	—	300	—
Kandyan Hills Co., Ltd.	100	35	—	—
Kanapediwatte Ltd.	100	—	85	—
Kelani Tea Garden Co., Ltd.	100	--	—	—
Kirklees Estates Co., Ltd.	100	—	120	...
Knavesmire Estates Co., Ltd.	100	—	62½	—
Maha Uva Estates Co., Ltd	500	—	—	—
Mocha Tea Co., of Ceylon, Ltd.	500	—	..	...
Nahavilla Estate Co., Ltd.	500	—	200	—
Neboda Tea., Co. Ltd	500	..	500	—
Nyassaland Coffee Co. Ltd	100	—	—	..
Ottery Estates Co., Ltd	100	—	—	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co., Ltd.	100	—	100	—
Pine Hill Estate Co., Ltd.	60	—	37·50	—
Pitakanda Tea Company	500	—	—	—
Putupaula Tea Co., Ltd.	100	--	—	..
Ratwatte Cocoa Co., Ltd.	500	—	—	250
Rayigam Tea Co. Ltd.	100	40	...	...
Roeberry Tea Co., Ltd.	100	..	60	...
Ruanwella Tea Co., Ltd.	100	—	30	..
St. Heliers Tea Co., Ltd.	500	—	..	...
Talgaswela Tea Co., Ltd.	100	—	35	...
Do 7 per cent Prefs.	100	..	70	...
Tonacombe Estate Co., Ltd.	500	..	325	...
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	...	200	...
Upper Maskeliya Estates Co. Ltd.	500	—	450	—
Uvakellie Tea Co., of Ceylon, Ltd.	100	—	65	—
Vogan Tea Co., Ltd.	100	52½	60	—
WanarajahTea Co.,Ltd.	500.	..	1060	...
Yataderiya Tea Co., Ltd.	100	—	350	—

CEYLON COMMERCIAL COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	..	30	..
Bristol Hotel Co., Ltd.	100	110	112½	—
Do 7 per cent Debts.	100	105	...	—
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	..	220	—
Ceylon Superaëration Co. Ltd.	100	—	250	200
Colombo Apothecaries' Co. Ltd.	100	140	145	—
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	85	..
Colombo Hotels Company	100	..	295	295
Galle Face Hotel Co., Ltd.	100	..	150	150
Kandy Hotels Co., Ltd.	100	...	125	..
Mount Lavinia Hotel Co., Ltd.	500	—	..	...
New Colombo Ice Co., Ltd.	100	—	...	225
Nuwara Eliya Hotels Co., Ltd.	30	..	30	...
Do 7 per cent prefs.	100	...	100	..
Public Hall Co., Ltd.	20	12½	15	—

LONDON COMPANIES *

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon, Ltd.	10	...	8¾—9¼	..
Anglo-Ceylon General Estates Co.	100	..	35—45	..
Associated Estates Co., of Ceylon	10	--	1½—2½	...
Do. 6 per cent prefs.	10	..	4—6	..
Ceylon Proprietary Co.	1	...	⅜—⅝	..
Ceylon Tea Plantation Co., Ltd.	10	..	24—25	..
Dimbula Valley Co., Ltd.	5	..	5¾—6	..
Do prefs.	5	..	5½—6	...
Eastern Produce & Estates Co. Ltd.	5	...	4½—5	..
Ederapolla Tea Co., Ltd.	10	...	7—10	...
Imperial Tea Estates Co., Ltd.	10	...	4½—5½	..
Kelani Valley Tea Assen., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	6—8	..
Lanka Plantation Co., Ltd.	10	..	4—5	..
Nahalma Estates Co.,Ltd.	1	—	nom	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	...	10—10½	...
Ouvah Coffee Co., Ltd.	10	..	6—7	...
Ragalla Tea Estates Co., Ltd.	10	..	9—10	..
Scottish Ceylon Tea Co.,Ltd.	10	—	13—15	...
Spring Valley Tea Co., Ltd.	10	...	2½—3½	..
Standard Tea Co., Ltd.	6	..	11—11½	..
The Shell Transport and Trading Company, Ltd.	1	..	2⅞—3⅛	..
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	...	6½—7½	...
Do. pref. 6 o/o	10	...	10—10½	..

BY ORDER OF THE COMMITTEE.

Colombo, March 29th, 1901.

* Latest London Prices.

THE LOCAL MARKET.

(By Mr. James Gibson, Baillie St., Fort.)

Colombo, March 28th, 1901.

COFFEE :—		
Estate Parchment per bushel	None.	
Chetty do do	Nil.	
Native Coffee per cwt.	Nil.	
do F. O. B. per cwt.	Nil.	
Liberian coffee :—per bushel	Nil.	
do cleaned coffee:—per cwt.	Nil.	
Cocoa unpicked:—per cwt	R45·00 to 52·00	Market quiet.
do cleaned do	R55·00 to 60·00	Market quiet.
Cardamoms Malabar per lb	R1·40	
do Mysore do	R1·70	
RICE:—		
Soolai per bag of 164 lb. nett	R9·49 to 9·62	
1st quality:—per bushel	R3·65 to 3·70	
Soolai 2 & 3rd. do do	R3·59 to 3·64	
Coast Calunda	none.	
Coast Kara	R3·90 to 4·00	scarce.
Kazala	R3·55 to 3·60	
Muttusamba Ordinary	R4·00 to 5·00	
Cinnamon per lb No 1 to 4	R00·52	
do do 1 and 2	R00·61	
do Chips per candy	R80·00 to 82·50	
Coconuts Ordinary per thousand	R40·00 to 45·00	
do Selected do	R46·00 to 50·00	
Coconut Oil per cwt	R15·00	
do do F. O B. per ton	R300·00	
POONAC :—		
Gingelly per ton	R112·50	
Coconut Chekku do	R115·00	
do Mill (retail) do	R85·00	scarce.
Cotton Seed per ton	R90·00	
Copra per candy		
Kalpitiya do	R49·00	
Marawilla do (Boat)	R49·00	
Cart Copra do	R45·00	
Satinwood per cubic feet.	Nil.	
do Flowered do	Nil.	
Halmilla do	R1·90	
Palu do	R1·00 to 1·12	
Ebony per ton	R10[illegible]·00 to 230·00	
Kitul fibre per cwt	R30·00 to 32·00	
Palmyra do do	R7·50 to 13·00	
Jaffna Black Cleaned per cwt	none	
do mixed do	R10·50 to 12·00	
Indian do	R7·00 to 10·00	
do Cleaned do	R8·50 to 13·00	
Sapanwood per ton	R40·00 to 45·00	
Kerosene oil American per cases,	R6·85 to 7·00	
do bulk Russian, per tin	R2·97 to 2·99	
do Russian per cases	R6·05 to 6·15	
Nux Vomica per cwt	R2·50 to 7·00	
Croton Seed per cwt	R20·00 to 22·00	
Kapok cleaned f o b per cwt	R23·00	
do uncleaned do	R5·00	
Plumbago per ton, according to grade: Large lumps	R225·00 to 550·00	Market dull
Ordinary size lumps	R225·00 to 425·00	Market dull
Chips	R125·00 to 325·00	Market dull
Dust	R60·00 to 125·00	Market dull

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 1st April 1901.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·70
Do. dull medium do. R1·40
Special assortment, 0 and 1 only do. R2·00
Seeds do. R1·40

CINCHONA BARK:—
Per unit of Sulphate of Quinine 12c—1½ to 3 o/o.

CINNAMON:—
Ordinary assortment per lb. 56c.
Nos. 1 and 2 only per lb. 61c.
Nos. 3 and 4 only per lb. 53c.

CINNAMON CHIPS:—
Per candy of 560 lb R82·50

COCOA:—
Finest estate red; unpicked per cwt R60
Medium do do R52
Bright native, unpicked and undried R49
Ordinary do do do R43

COCONUTS—(husked).
Selected per thousand R49·00
Ordinary „ R39·00
Smalls „ R29·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R75·00
Do in bags None

COCONUT (Desiccated).
Assorted all grades per lb 16c

COCONUT OIL—
Dealers' Oil per cwt R15·00.
Coconut Oil in ordinary packages f. o. b. per ton R335·00.

COFFEE.—
Plantation Estate Parchment on the spot per bus.—None.
Plantation Estate Coffee f.o.b. (ready) per cwt.—None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—50c

COPRA—
Boat Copra per candy of 560 lb. R49·00
Calpentyn Copra do do R49·00
Cart do do do R45·00
Estate do do do R50·00

CROTON SEED per cwt—None

EBONY—
Sound per ton at Govt. depot—R230 As per last Govt. sales of Dec 3rd.
Inferior R155.—As per last Govt. sales of Dec 3rd.

FIBRES—
Coconut Bristle No. 1 per cwt R10·50
Do „ 2 „ None
Do mattress „ 1 „ 4·00
Do „ 2 „ 3·00
Coir Yarn, Kogalla „ 1 to 8 18·00
Do Colombo „ 1 to 8 16·00
Kitool all sizes „ None
Palmyrah „ None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R550 } Market dull.
Ordinary lumps do 425
Chips do 325
Dust do 180
Do (Flying) 125

SAPANWOOD— per ton None.
SATINWOOD (ordinary) per cubic ft. None.
Do do per cubic ft. None.

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	63	49	45
Orange Pekoe do	55	43	38
Pekoe do	46	38	33
Pekoe Souchong do	44	33	28
Pekoe Fannings do	38	33	27
Broken mixed—dust, &c per lb	23	22	21

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1900 AND 1901.

COUNTRIES	Black Tea, 1901 lbs.	Black Tea, 1900 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon Bales lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1901 cwt	Coconut Oil. 1900 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts. No.	Plumbago. 1901 cwts.	Plumbago. 1900 cwts.	Fibre. cwts	Ebony cwts.
To U K. ..	26855772	25946316	1486	..	1486	19047	69977	232865	76436	31467	56700	2000	1235353	...	2818705	25520	25317	15264	622
„ Austria ..	16025	2069	..	..	...	...	..	5000	5600	772	2220	8394	18201	-	..	...	..	...	...
„ Belgium ...	5879	1880	53	..	53	...	..	20809	12592	1497	...	14378	96390	4001	...	3157	8523	4417	...
„ France ..	91915	56998	4	...	4	..	1469	12900	3920	...	..	6567	2240	...	..	..	..	246	..
„ Germany ..	71074	88519	.	..	..	804	6883	126600	119908	..	3045	13184	184185	13951	312855	10671	16918	4908	1967
„ Holland ..	11505	2000	...	..	..	..	..	1000	17920	..	...	..	6500	..	..	..	912	569	...
„ Italy ..	2493	1433	..	..	..	..	...	22500	16800	...	..	..	..	..	2000	..	...	...	...
„ Russia ..	1969	2274362	..	..	...	48	764	..	..	...	..	12210	..	..	..	599	...	..	..
„ Spain ..	...727	7470	..	...	..	..	..	35800	19600	..	..	...	10370	...	..	...	.	..	..
„ Sweden ..	17266	21725	...	..	..	..	..	..	..	199	...	...	6450	...	..	..	105	..	...
„ Turkey ..	13067	7061	...	..	...	...	..	..	...	..	...	...	...	...	...	...	...	..	..
„ India ..	475857	1636.2	59	..	59	..	48121	..	.	20510	14328	300	..	...	263900	158	69	..	..
„ Australia ..	3975406	3279815	352	..	352	75	...	1500	14784	94	21	..	202564	..	..	13	210	1506	..
„ America ..	665	1725142	27	..	27	889	..	42100	31516	7007	26253	1	425798	..	..	41213	65345	709	..
„ Africa ..	65581	55798	..	..	..	..	..	..	..	33	...	..	1600	..	243370	...	...	...	..
„ China ..	445098	214060	8	...	8	149	1034	5000	..	707	...	..	65000	..	..	..	..	..	...
„ Singapore ..	35376	18891	..	..	...	646	..	4700	..	...	..	...	..	...	...	..	...	96	...
„ Mauritius ..	8390	...	..	..	..	...	..	..	..	..	..	...	..	...	...	..	..	.	...
„ Malta ..	85150	115178	..	...		..	..	...	..	..	..	..	...	..	..	.	..	..	..
Total export from 1st Jan. to 1st April. 1901	34810986	33982329	1989	...	1939	21658	128248	510765	359076	62286	102567	57034	22546 1	17952	3640830	81450	117[illegible]99	27715	2589

MARKET RATES FOR OLD AND NEW PRODUCTS

(From Lewis & Peat's Fortnightly Price Current, London, March 20th, 1901.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine .	5½d a 6¼d
BEES' WAX, cwt.		
Zanzibar & Bombay White ,,	Good to fine	£6 a £7 10s
Yellow,,	Fair ,,	£6 5s a £6 17s 6d
Madagascar ,,	Dark to good palish	£6 10s a £7 5s
CAMPHOR, China ,,	Fair average quality	175s
Japan ,,	... .	190s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	2s 3d a 2s 4d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon. Mysore ,,	Fair to fine plump ..	1s 6d a 4s d
	Seeds .	1s 11d a 2s 6d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ..	1s a 2s 9d
,, Mangalore ,,	Med brown to good bold	2s a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4½d a 4¾d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s a 45s
CINCHONA BARK.– lb. Ceylon	Ledgeriana Orig. Stem	3d a 6¾d
	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	3⅜d a 5d
	Renewed	5¾d a 7½d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	10d a 1s 6d
2nds	,, ,,	9d a 1s 5d
3rds	,, ,,	8½d a 1s 4d
4ths	,, ,,	8d a 11d
Chips	,, ,,	2¾d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	4½d a 9d
Amboyna ..	Dull to fine	4⅜d a 5½d
Zanzibar and Pemba	Good and fine bright	4½d a 4¾d
	Common dull to fair	4⅓d a 4⅜d
Stems ..	Fair	1⅜d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 110s
	Middling to fine mid .	80s a 90s
	Low mid. and low grown	
	Smalls	50s a 60s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to fine bold	35s a 40s
COCOA, Ceylon ,,	Bold to fine bold	8 s 6d a 102s 6d
	Medium and fair	72s a 80
	Native	55s a 70s
COLOMBO ROOT ,,	Middling to good	12s a 22s 6d
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £13
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	25s a 35s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough,,	Fair	34s
Calicut, Cut A ,,	Good to fine bold	80s a 100s
B & C ,,	Small and medium	37s 6d a 77s 6d
Cochin Rough ,,	Common to fine bold	30s a 36s
	Small and D's	28s a 33s
Japan ,,	Unsplit	29s a 31s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red . .	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 60s
Turkey sorts ,,		50s a 75s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr to gd. almonds	40s a 90s
	Ord. stony and blocky	6s a 25s
KINO ,,	Fine bright	1s 6d a 1s 9d
MYRRH, picked ,,	Fair to fine pale	90s a 107s 6d
Aden sorts ,,	Middling to good	50s a 80s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	17s a 23s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 6d a 2s 7¼d
	Common to foul & mxd.	1s a 2s
Rangoon	Fair to good clean ...	2s a 3s
Borneo	Common to fine	1s a 2s 3d

	QUALITY.	QUOTATIONS.
INDIARUBBER, (Contd)		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 3s
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 2d
	Ordinary to fair Ball ...	1s 10d a 2s 6d
	Low sandy Ball ...	1s 3d a 1s 7d
	Sausage, fair to good ..	2s 6d a 3s 1d
	Liver and Livery Ball ..	2s 4d a 3s
Nyassaland	Fair to fine ball ..	2s 5d a 2s 10d
	Fr to fine pinky & white	2s 6d a 2s 9d
Madagascar ,,	Fair to good black ..	2s a 2s 6d
	Niggers, low to fine .	7d a 2s 3d
INDIGO, E.I.	Bengal—	
	Shipping mid to gd violet	3s 4d a 4s 2d
	Consuming mid. to gd.	3s a 3s 4d
	Ordinary to mid.	2s 8d a 2s 10d
	Mid. to good Kurpah	2s a 2s 8d
	Low to ordinary	1s 9d a 2s
	Mid. to good Madras	1s 9d a 2s 8d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2d 1½d a 2s 6d
Bombay & Penang ,,	110's to 65's	11½d a 2s 1d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED ,,	Fair merchantable	5s 6d
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	4½d
NUTMEG ,,	Dingy to white	1⅜d a 3d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 6d
CITRONELLE ,,	Bright & good flavour	1.d a 1s 0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER - (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	5⅞d a 6½d
Singapore	Fair	6d a 6s 1·16d
Acheen & W. C. Penang	Dull to fine	5¾d a 6⅛d
PLUMBAGO, lump cwt.	Fair to fine bright bold	35s a 40s
	Middling to good small	20s a 32s
chips	Dull to fine bright ..	10s a 20s
dust	Ordinary to fine bright	5s a 40s
SAFFLOWER	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	51s 6d a 59s 6d
SENNA, Tinnevelly lb	Good to fine bold green	5d a 6d
	Fair middling medium	3½d a 4½d
	Common dark and small	¼d a 2¾d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	£3 10s a £4 15s
	D's and B's	
	Small ...	
Mergui ,,	Small to bold ..	£5 12s 6 a £7 10s
Mussel ,,	Small to bold ...	22s a 60s
TAMARINDS, Calcutta... per cwt.	Mid. to fine bl'k not stony	15s a 16s
Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	14s 6d a 24s 6d
TURMERIC, Bengal cwt.	Fair ...	28s nom.
Madras ,,	Finger fair to fine bold bright	22s a 30s
Do. ,,	Bulbs ..	18s
Cochin ,,	Finger ..	24s
	Bulbs ..	6s 9d a 7s
VANILLOES— lb.		
Mauritius ... 1sts	Gd. crysallized 3½ a 9 in	16s a 26s 6d
Bourbon ... 2nds	Foxy & reddish 4½ a 8 ,,	15s a 18s
Seychelles 3rds	Lean and inferior ...	8s a 13s
VERMILION lb.	Fine, pure, bright ...	3s a 3s 3d
WAX, Japan, squares cwt	Good, white hard ...	33s 6d

THE AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for April :—

Vol. XII.] APRIL, 1901. [No. 10.

THE SCHOOL OF AGRICULTURE.

ON the recommendation of the last Commission appointed by Government to deal with this institution, the School was closed on Friday, the 29th March, the end of the first term of the year. Thus terminates an educational venture which, if it was not a complete success, was certainly not a complete failure. We do not for a moment intend to contend that the school fulfilled the object with which it was launched by Mr. H. W. Green, late Director of Public Instruction, but what we do say is that it surely and certainly exercised an influence for good,—by its very existence, if in no other way—on local agricultural ideas and agricultural practice in general. The institution was a centre of various forces, some sharply directed towards it as adverse and very often unjust criticism; some rising out of it as benefits (however insignificant) it conferred on the agriculturists of the Island, while between these opposite forces were others inclined at various degrees representing various other phases of public opinion. The very circumstance of the school, its work, and its object having been a subject of so much criticism and discussion was itself a factor in directing public thought to the latest developments of agricultural teaching, and so of the science and practice of agriculture, and we make bold to say that but for the existence of the school with its much criticised methods of instruction, the advancement of agricultural knowledge, and especially the expansion that has undoubtedly taken place in local ideas regarding agricultural practice, would have taken twice or perhaps three times as long to reach its present stage. In this way we say the school has served its purpose, and it is with some regret that we think of its passing into the region of the "Has Been." We also fancy that there will be some who will miss the old place, for it had its correspondents and enquirers, those who came to look up the library of authorities, or read up the latest information in the excellent agricultural reading-room attached to the school. With the institution will also no doubt go the useful little monthly publication which the school had reason to be proud of, as having appeared regularly since July, 1889. The Magazine will probably cease to be issued after June, when it closes its XIIth Volume.

We are, however, glad of one thing, and that is, that the cause of agricultural education is not to be altogether abandoned, as a new scheme of agricultural instruction (already referred to by us in the March number) has received the sanction of Government. We have reason to believe that this scheme has much to commend it, and we wish it a full measure of practical success.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF FEBRUARY, 1901.

1	Friday ..	Nil	18	Monday ..	·06
2	Saturday ..	Nil	19	Tuesday ..	Nil
3	Sunday ..	Nil	20	Wednesday	·59
4	Monday ..	·12	21	Thursday ..	·21
5	Tuesday ..	Nil	22	Friday ..	·02
6	Wednesday ..	Nil	23	Saturday ..	·50
7	Thursday ..	Nil	24	Sunday ..	Nil
8	Friday ..	Nil	25	Monday ..	Nil
9	Saturday ..	·12	26	Tuesday ..	1·00
10	Sunday ..	Nil	27	Wednesday	Nil
11	Monday ..	Nil	28	Thursday ..	·01
12	Tuesday ..	Nil	1	Friday ..	·01
13	Wednesday ..	Nil			
14	Thursday ..	Nil		Total..	2·64
15	Friday ..	Nil		Mean..	·094
16	Saturday ..	Nil			
17	Sunday ..	Nil			

Greatest amount of rainfall in any 24 hours on the 26th, 1·00 inches.

OCCASIONAL NOTES.

We are greatly in favour of a Veterinary Hospital being established in Colombo, and with the expansion of the Veterinary Department this should be an easy matter and entail very little expense if worked in connection with the Society for the Prevention of Cruelty to Aniamls, as in Bombay. In the last report issued by the Madras Department of Land Records and Agriculture we read:—"The Veterinary Hospital continues to increase in popularity and the number of cases treated has risen from 280 in 1895-6 to 724 in 1890-99 and 804 in 1899-1900."

Mr. J. W. Mollison, late of the Poona Farm and Deputy Director of Agriculture, Bombay Presidency, has been appointed Director-General of Agriculture for India. We do not think a better appointment could have been made. Mr. Mollison, with his mature experience of Indian Agriculture, should make an ideal Director.

An American fruit-grower is said to have discovered a plan by which ants can be kept from getting on to trees, so desirable especially when budding or grafting has been done. This plan is most simple, viz., saturating woollen strings with castor-oil and tying these tightly round the trunks of the trees. It is said that ants will not cross over the wool. Experiments with cotton string and other oils are reported to have been unsuccessful, but some of our Ceylon oils should surely do as well as Castor.

"Preserved eggs" is the name given to eggs that have been kept in a solution of salt and lime. It is said that there is no appreciable difference between them and fresh eggs after nearly six months, and that the plan of preserving eggs in this way enables poultry keepers to wait for good prices when eggs are cheap.

PRACTICAL HINTS TO HORSE-OWNERS.

Chapter III.—Shoeing.

Shoeing may be described as "a necessary evil," and like many other "evils" of civilization requires the greatest attention, in order that the conformity of the foot may as far as possible be preserved. The artificial protection of the foot that is necessary in the case of animals impressed into the service of man, has been secured by various means since the usefulness of the horse was recognized. It was to the interest of horsemen to see that their animals suffered no discomfort arising from bad shoeing. Faulty shoeing not only directly affects the foot, but is indirectly responsible for many forms of lameness. It is on this account that so much importance is put on the shoeing question by all Veterinary Colleges, where both a scientific knowledge as well as a practical acquaintance with the structure of the horses' foot and the means of protecting it by shoes is insisted on.

As this paper is intended for laymen, I do not propose to enter fully into the anatomical and physiological structure of the horses' foot, but will only refer to its constituent parts so as to indicate the true functions which the foot is intended to perform.

Anatomically the foot is divided into three parts, viz., (1) the bone structure; (2), the sensitive structure; (3), the non-sensitive outer covering of the foot or the hoof. The outer hand and horny layer is intended by nature to protect the internal soft and vascular tissue, but this provision fails when the horse is taken from its natural habitat or surroundings, and is put to work on hard and often metalled roads. The object of putting on shoes is to prevent the wasting of the protective structure. which is an out-growth from the coronary band. The outer hoof is generally spoken of as the wall, and is protected by a hard glistening surface called the perioptic layer, which if filed of as is usually done by ignorant smiths gives rise to "brittle hoof" and other troubles.

THE "UNCULTIVATED' OILS OF CEYLON.

(*Continued.*)

7. Dorana Oil.—This is the product of *Dipterocarpus glandulosus* (Dipterocarpaceae), a large tree endemic to Ceylon and found in no great abundance in the moist low-country of the Island. The oil is blackish and resinous, and is said to be a good substitute for the well-known gurgun (the product of *D. turbinatus* and other species) used in the treatment of leprosy. Being got from the wood it is described as a wood oil. With Hal resin (exuded by *Vateria acuminata*) it forms an excellent varnish, and with vermillion in addition, produces a red lacquer.

8. Me Oil.—This is the product of *Bassia longifolia* (Sapotaceae), a very large branched tree common to the dry region. The oil is got from the seeds, and is used in native cookery as well as medicinally in the external treatment of cutaneous diseases. The residual cake after the expression of the oil is called "arappo," and exported to the Indian Coast. This substance is used as a deterrent and also largely employed for washing the hair. The oil when kept settles down into a solid fat.

9. Kekuna Oil.—This is the product of *Aleurites triloba* (Euphorbiaceae), and is sometimes spoken of as candle-nut oil. The seeds yield about 50 per cent of oil which is very suitable for soap-making and cloth-dressing, and for these purposes there is some demand for the oil from abroad. The refuse cake is a valuable fertilizer. Kekuna oil in many ways resembles linseed oil, and may be used as a substitute for the latter in mixing paints. The roasted nut is pleasant to eat but is laxative in its effect.

10. Domba Oil.—This is the product of *Calophyllum inophyllum* (Guttiferae), a moderate-sized tree found in the low-country, principally on the sea-coast. The nuts from which the oil is obtained are to some extent exported to India. The tree is sometimes called the Alexandrian laural. The seeds contain abundant oil, according to some reports even up to 60 per cent of their weight. This oil is used for burning as we

as for caulking vessels, but is chiefly valued as a medicine, being employed externally for rheumatism and also in the treatment of indolent sores. Watt mentions the curious fact that though it cannot compete with castor oil for industrial purposes, it fetches in Burma four-times the Calcutta price of castor oil. Samples of the three last-mentioned oils were submitted to Mr. L. Field, a well-known expert in oils, and in a report submitted by him he speaks very highly of them, and expresses the opinion that a very large demand for them would arise if they could be supplied at a cheap rate.

11. Margosa or Kohomba Oil.—This is the product of *Azadriachta indica* (Meliaceae), a handsome tall tree common in the dry country. It is extensively employed as an external application for rheumatism, also as an anthilmentic and antiseptic. It is invaluable as a cattle medicine in the treatment of wounds, and even foot and mouth disease, owing to its antiseptic properties, and in keeping off flies. The powerful and disgusting odour of the oil is its most objectionable property.

12. Kon Oil.—This is the product of *Schleichera trijuga* (Sapindacaceae), a handsome tree called the Ceylon oak. The oil which is clear and liquid is used for culinary and illuminating purposes. It is reported, says Watt, to be the original Macassar oil, and has recently reappeared in German commerce under that name.

QUARTER-ILL.

We omitted to acknowledge the authorship of the short account of this disease which appeared in the last number of the Magazine, and which was written by Veterinary-Surgeon Chinniah. We make no apology for returning to this subject in view of the report that cases of Quarter-ill occurred in the Government Dairy not long ago, and as an unfamiliar form of disease among local stock, we would quote from an exhaustive article by Veterinary-Surgeon Hutcheon (appearing in the *Cape Agricultural Journal* of January 17th) the reference to "Preventives" in dealing with Quarter-ill:—

The only preventives of Quarter-ill are a complete change of pasture and inocculation. Even if it is impracticable to remove the susceptible cattle to another farm, a change to a different part of the same farm, accompanied by a change of kraal as well, will often arrest the further spread of the disease.

Care should, however, be exercised not to remove any affected animal along with the herd, as that would tend to spread the infection. If it is impossible to arrange for a complete change of pasture, no time should be lost in getting all the young stock inocculated.

Previous to the discovery of inoculation by Arloing, Cornevin and Thomas, a considerable number of preventive remedies for this disease were practised by stock-farmers, and even by the Native tribes. Reasoning from the fact that the young stock which are rapidly improving in condition are the most susceptible to an attack of the disease, a large number of these preventive remedies took the form of measures for lowering the condition of the animal and reducing the richness of its blood, such as bleeding, purging, driving the animals violently for considerable distances, or swimming them through a river or large dam daily, turning them on to poor pasture, or in other ways reducing their allowance of food. "Want of exercise causes an accumulation of lactic acid in the muscles, this favours the germination of the spores." (Salmon.) Inserting a peg or seton in the dewlap is a preventive upon which great reliance is placed. In what manner this seton exercises its beneficial effects has never been properly explained. Many are of opinion that it is the means of introducing septic organisms which have an antagonistic action to the organisms of Quarter-evil. Be that as it may, a firm belief in the efficacy of setoning as a preventive of Quarter-evil was world-wide, and many still believe in its efficacy, notwithstanding that it has completely failed to justify that opinion when submitted to an experimental test. Others again placed great reliance on the introduction of certain medicinal or antidotal agents into the system of the animals to ward off the disease. The following amongst a host of others were largely used: the sulphite and hypo-sulphite of soda, and carbolic acid and its compounds. One writer pins his faith to madder, while another has equal confidence in saltpetre. There are many who believe in the efficacy of a lick made up of common salt, sulphur, copperas, lime and saltpetre, while others again pin their faith to the administration of Stockholm tar. Garlic is another remedy which is largely used in this Colony, not only as a preventive of sponsziekte, but of the majority of the specific diseases of stock, such as Rinderpest, Horse-sickness, &c. There are various methods of using the garlic. Some make a small pocket under the skin in the dewlap, and insert one or two of the bulblets in there, while others insert them into similar pockets under the skin in various parts of the body. Oil of garlic, like oil of mustard, is a germicide; it is also very volatile, permeating the whole system in addition to setting up severe local irritation. It is just possible, therefore, that garlic and some of the other popular remedies may exercise some preventive effect against Quarter-evil for a limited time. It is probable, however, that many of these popular remedies have established their reputation as preventives of the disease from the fact that, during certain years when the remedy has been resorted to, the disease did not occur, the local or general conditions not being favourable; and on other occasions it has ceased to spread owing to the presence of natural causes, concurrent with the application of a certain remedy, but few—if any—of these popular preventive remedies have stood the test of continued experience.

Quarter-evil exhibits certain peculiarities in respect to the manner in which it may appear and disappear amongst cattle on a farm. The disease sometimes appears with great virulence on a farm during one year, and it may then skip one to two years before it reappears. Further, cattle may have been grazing for six, nine, or twelve months on certain pastures without a single case of the disease

occurring, when it will appear suddenly, attacking the young stock in rapid succession. The cattle are then removed to another locality and the disease suddenly ceases. After an absence of one, two, or three months these cattle are brought back to the infected veld, and in the great majority of cases, with perfect impunity, no more cases occurring perhaps for many months. These facts indicate that there are certain local conditions which favour, or otherwise, the development of this disease, in addition to the presence of the spores in the soil. It is also very probable that the beneficial effect of the change upon the cattle themselves renders them less susceptible to the action of the spores of the disease when they return to the tainted pasture. MM. E. Leclainche and H. Vallée give a very clear explanation respecting the manner in which these influences favour or hinder the development of Quarter-evil. The conclusions arrived at by these savants are supported by a series of carefully-conducted experiments; for a description of these see *The Journal of Comparative Pathology and Therapeutics*, vol. xiii., parts 2 and 3. They say Quarter-evil is a disease in which the infection comes from the soil, causing disease only in certain conditions of susceptibility, and due to a sporulating organism. It is probable that the spore derived from the soil does not reach the body charged with toxin, and spores without toxin do not kill. The phagocytes—or living cells which are present in all healthy tissues, and whose main function is to absorb and destroy disease organisms—triumph rapidly over spores that have been deprived of their toxin. But if the spores are protected against the phagocytes by the properties of the toxin, the spores germinate at the place where they have been introduced, and infection takes place. The addition to the spore of lactic acid, potassium lactate, and the application of some simple traumatic injury will produce the same effect as the toxin, in preventing the action of the phagocytes on the spores. Spores that may safely be given in millions will kill with a dose ten times smaller, if one drop of lactic acid is added. The harmlessness of the spore by itself is not due to any attenuation of its virulence produced by heating or other means which deprives it of its toxin; this is shown by the fact that the addition of a certain quantity of toxin or lactic acid restores its virulence, and the pure spore then kills as rapidly as the fresh culture from which it was taken. This is clearly shown by the fact that if the spores are protected by purely mechanical means such as coagulated albumen from the destroying action of the phagocytes, they have time to germinate, and the evolution of the disease is only slightly retarded.

The occurrence of diverse forms of bacteria in the tumours of the disease also exerts an action that is sometimes favouring and sometimes hindering to the development of the disease. Every influence, therefore, which is capable of diminishing the vitality of the tissues and hindering the action of the phagocytes will facilitate the development of the spores, and permit them to manifest their virulence; and per contra, every influence which tends to increase the vitality of the tissues nd thereby favours activity of the phagocytes, will have a tendency to prevent the development of the disease.

If, however, we admit the influence of all these local conditions which under certain circumstances favour or hinder the development of Quarter-evil, are we justified in totally ignoring the temporary effects of many of the popular preventive remedies, which are artificially applied, because we cannot explain how they act?

POULTRY NOTES.

Shade is very necessary for poultry in hot weather. Heat affects them, and they often die by this cause alone. Shelter of some sort must be provided. A supply of fresh and clean water, which should be well shaded from the sun and kept as cool as possible, should always be available. There is no need for very large quantities, and 6 inch or 8 inch flower pots with a cork in the bottom serves the purpose of a water trough excellently; the water is kept cool and the evaporation is less than from a dish or pan.

Green food is a necessary ingredient as a diet for poultry, and it is specially so in hot weather as it is cooling to the blood. A patch of land should be specially devoted to the growth of such food for poultry. When no green stuff is available, give once a week a small quantity of Epsom salts which could be mixed in the water used to make up the soft food for the birds.

Young growing fowls should have a liberal diet containing plenty of bone-forming material which can be provided in the form of ground bone. Bone cutters can be purchased for from 30*s.* upwards, and well repay their cost. A good one is called "The Mann." This "cut green bone" is just what is required for pullets that have begun to lay early; it provides much egg-forming food and lessens the drain on the immature system.

As most people shrink from operations, the following method of curing cup-bound fowls (says a correspondent in the *Queensland Agricultural Journal*) will be read with interest:—Get a piece of window-glass or any ordinary glass and put it on the fire till it bends; then take it out and plunge it into cold water, when it will crumble up quite easily with the tap of the hammer. It makes good sharp girt, but it will not injure the cup in the least. Give the sick bird 1½ tea spoons of this and follow up with a tea spoon of salad oil. Now start working the cup gently with the hand and continue doing so till it is quite pliable in every part. Shut the bird up with nothing to eat, and if its cup is not empty in twelve hours, repeat the dose and keep without food until it is. The secoed dose will not fail.

BACTERIA AND THE DAIRY.

(*By H. Potts, Dairy Expert, Department of Agriculture, Victoria.*)

Bacteriology, whilst one of the youngest sciences, already occupies a prominent place in all the laboratories of the world. Pathologists, botan-

ists, chemists, brewers, dairymen, agriculturists, tobacco manufacturers, tanners, and others are engaged in unravelling the mysteries of this subject in combating disease and prosecuting important manufactures. Some of the organisms which gave it its name were seen as long ago as 1675—when Anton Leeuwenhoeck, a Dutch philosopher, not only made his microscope—a simple one—but applied it to such good purpose, that he discovered and described organisms which are now known as bacteria, bacilli, spirilla, and micrococci. He called them animalculæ, but he failed to discover their object in nature. Subsequently original research was conducted by Muller, Needham, Spallanzani, Schwann, and Davaine. The real initiation of the science dates its birth to Louis Pasteur's classic researches upon fermentation. The question of spontaneous generation and its obscure origin had occupied the attention of great minds, including Liebig. His masterly essay on fermentation with his chemical theory received a rude shock when Pasteur gave forth his startling proclamation in 1860. "No fermentation without germ life." Robert Koch gave the science a lasting stimulus in 1882 by the discovery of the tubercle bacillus. Baron Lister, the brilliant surgeon, expressly thanked Pasteur for having given him the only principle which could have conducted the antiseptic system of surgery to a successful issue, and through which he is justly accredited with having saved more lives than were lost in the Franco-German war. Owing to the prominence given to bacteriology in medicine and surgery, a belief has been engendered that germs are only associated with these sciences; but the army of earnest workers now engaged in the elucidation of their life history proves that the ubiquitous microbe is omnipresent. We know now without it the world becomes uninhabitable. In air, water, and soil we find it busily engaged in varied forms on nature's phenomena.

To classify them into four great groups. First, the useful organisms.—The application of these to the arts and manufactures are daily becoming better defined, and are exerting a wonderful influence. In commercial life, we find the correct fermentation of wines and beers, and all the "diseases" to which these beverages are liable are due to microbes. The successful development of flavor in butter and the ripening of cheese, the flavoring of tobacco, the curing of opium, the manufacture of Indigo, the tanning of leather, the production of yeast for bread-making, "retting" in the jute and linen trades, and other processes depend upon the use of the most desirable forms of these useful minute organisms; the agriculturalist in the nitrification of his soil, the reduction of nitrogenous manures to a condition in which they can be utilised by crops, the sprouting of his seeds, and the success of his hay-stack and silo, is dependent upon the behavior of friendly bacteria. Second, the putrefaction of hostile bacterias.—In this section we find the putrefactive organisms associated with filth and decomposition. They habitually flourish in darkness, organic matter whether it be a dead body or vegetable material is reduced by them to original constituents or elements. By this invasion, they interfere with the progress of useful processes, check suitable fermentations and changes, impart false flavors and aromas, and interfere with the functions of the desirable organisms. Third, the pathogenic or disease-producing micro-organisms.—With this large and influential section we find eminent scientists and medical men have prosecuted the most profound researches through the instrumentality of which we find pathogenic germs are responsible for such diseases as tuberculosis (consumption), small-pox, diphtheria, typhoid fever, measles, cholera, hydrophobia (lock-jaw), anthrax, and bubonic plague. Fourth, the unknown families of bacteria.—We are cognisant that there are numberless species of organisms distributed throughout the world of life whose identity and functions are not yet discovered. So far, only about 700 species have been isolated, named, and their life histories and characteristics recorded. To attempt to give an adequate conception of the vast and ramifying influences exerted by bacteria would occupy too much space, I must therefore confine myself to the subject, as it effects the dairying industry.—*The Station, Farm and Dairy.*

(*To be concluded.*)

INTRODUCTION TO ENTOMOLOGY.

(Miss Eleanor A. Ormerod.)

Pupa (*Chrysalis*).—It is much to be regretted that we have no generally-adopted word, excepting "chrysalis" (which is commonly used in the case of Butterflies or Moths), to describe the second stage of insect life in which it is changing from the state of larva to that of the complete insect.

Whilst in this condition it is for the most part without power of feeding and perfectly inactive, lying (as in the case of Beetles,—the common Cockchafer for instance,—Bees and Wasps, and some others) with limbs in sheaths folded beneath the breast and body, or (as with Butterflies and Moths) protected by a hardened coating secreted by the pores of the creature within, when it casts its last larval skin. The method of this change may be easily observed in the case of the caterpillar of the Peacock Butterfly, which fastens itself by the tail, and then (after its black and silver-spotted skin has cracked) by infinite wriggling and struggling passes this cast-off skin backward, till it is pressed together at the tip of the tail, and the creature from within appears in its new form as a bright green chrysalis or pupa. It is covered with a moist gummy exudation, which quickly hardens and forms a protecting coat, and in due time (if left unharmed) the butterfly inside would crack through this and appear from within the case; but if it is wished to observe that the beginning of the change to the Butterfly form has taken place already, one of these chrysalids may be dropped into a little warm turpentine, or turpentine and Canada balsam, directly the caterpillar skin has been cast; this will soften the gummy coating just mentioned, and the limbs of the future Butterfly will be seen. In some cases the change takes place (as with

various but not all kinds of Flies) in the hardened skin of the maggot, which may be called a "Fly-case"; and in some (as with Plant Bugs, Aphides or Green Fly, Grasshoppers, and some others) this state of pupa is an active one, in which they move and feed and resemble the perfect insect, excepting in having more or less rudimentary wings or wing-cases. When the time for development has come, the pupa (if it is one of the active forms, as of a Grasshopper, for instance) may be seen looking heavy and stupid; presently the skin of the back splits lengthwise, and through the opening the perfect insect slowly makes its way out of the pupal skin, carefully drawing one limb after another from its precisely-fitting case, the longhind legs the last, till (in the instance observed, in twenty minutes) the perfect Grasshopper stands by the side of the film of its former self. Flies press out one end of the fly-case, or crack it open, or leave the sheaths of the limbs and body behind, and Beetles and Wasps cast the film from their limbs; Butterflies and Moths crack open the chrysalis-case, and after a short time (during which the wings that had lain undeveloped are expanding) they appear of their full size. The insect is now fully formed; it will grow no more; its internal, as well as external, structure is complete; and it is what is known scientifically as the imago.

Imago (Beetle, Butterfly, Wasp, Fly, &c.) This is defined as an animal formed of a series of thirteen rings or segments, breathing by means of tubes (tracheae) which convey the air from pores in the sides throughout the system, and divided into three chief portions. Of these the first is the head, furnished with horns (antennæ), a mouth (differing very much in form in different kinds of insects), large compound eyes (which consist of many small ones formed into a convex mass on each side of the head), and frequently two or three simple eyes on the top.

The second portion (called the thorax, or sometimes the "trunk") is formed of three rings bearing a pair of legs attached to each, and having usually a pair of wings on the second and third of the rings; but sometimes the wings are wanting, sometimes there is only one pair.

The third portion (called the abdomen) is formed of the remaining nine rings, and contains the organs of reproduction and most of those of digestion. Insects in this perfect state are of two sexes, male and female; in some instances (as with Wasps and some others) there are imperfectly-developed females known as "penters."

After the insect—whether Beetle, Butterfly, Fly, or other kind—has come from its chrysalis or fly-case (that is, from the pupa), and its limbs have expanded, it is complete, and its remaining work is to support life until it has propagated its species. Usually pairing soon takes place, and the male dies; but the female has great tenacity of life until she has laid her eggs.

The length of life, however, is various; in some instances a few days, or even hours, is the extent; in others the insects "hybernate," that is, find some shelter in which they pass the winter, and from which they reappear with the return of warmth and sunshine.

INOCULATION AGAINST RINDERPEST.

From Dr. Alfred Lingard, M.B., M.S., D.P.H., Imperial Bacteriologist—To the Secretary to the Director-General. India Medical Service—(No. 8, dated Mukhtesar, Naini Tal District, the 5th January 1901.)

As desired by his Honour the Lieutenant-Governor of these Provinces during his visit to Mukhtesar in October-November last to put forward a concise statement of success obtained with serum inoculations and modes of its operation, with a view to give it publicity and persuade the leading zemindars and talukdars to give prompt information concerning outbreaks of rinderpest, so that they may have their cattle inoculated before its ravages be felt, I have the honour to summarize in the following paragraphs the results obtained up to date, and request you to be good enough to submit this letter to the Chief Secretary to the Government of the North-West Provinces and Oudh:—

Serum Simultaneous Method.—This method, which has been very widely adopted in South Africa with most encouraging results, consists in injecting a small dose of protective serum on one side of the animal's body, and at the same time a small dose of virulent rinderpest blood on the opposite side. A mild form of the disease is produced in 90 per cent of the animals, with a loss only of one-half per cent and with the production of a permanent immunity, while the other 10 per cent are also protected for some months, even though they fail to re-act to the inoculation. In this connection I would point out that when a totally unprotected animal is subcutaneously inoculated with the most virulent blood, it shows no symptoms of disease previous to the 3rd, 4th or 5th day following inoculation, and then only does the temperature begin to rise. It is not until at least three days later, *viz.*, the 6th, 7th to 8th day that any symptoms of rinderpest become manifest. Therefore, in practical field inoculations it has to be first ascertained whether the disease is already incubating in the animals about to be inoculated, as in such cases the simultaneous method of inoculation should not be employed, but serum alone injected in large quantities should diarrhœa not yet have supervened. If this latter symptom should have already made its appearance nothing can save the affected animal.

Experiments in the Laboratory.—The experiments carried out with the above mentioned method in this Laboratory prove that the animals which show temperature reactions with fairly marked symptoms are immuned for upwards of one year, and there is no reason to doubt that it will last for a much longer time, if not for the life of the animals. On the other hand, the animals showing no temperature reaction or symptoms of the disease, partly due to the large doses of serum used, may wear off their immunity earlier than those which reached to the simultaneous method, and this difficulty can be got over by reinoculating those animals, which have not reached within a week or ten days of the simultaneous injection with a second dose of from 1 to 10 c.c. of virulent blood,

Results in Field Inoculations.—The inoculation carried out by the serum manufactured at this Laboratory in Bareilly, Alighar, Bulandshahr, and Dehra districts gave eminently successful results, and Mr. Holmes, in his report from Madras, states: "Out of 339 bullocks inoculated, nine died, but these deaths were attributed to old age and debilitated conditions and to the fact that the animals were suffering from rinderpest previous to inoculation. I do not consider that any of the deaths occurred as a direct result of inoculation. I think it is safe to say that, as a result of these inoculations, rinderpest was at once checked and a heavy loss averted among the cattle."

By referring to Table C. of the Assistant to the Inspector-General, Civil Veterinary Department's annual report for the year 1899-1900, we find that out of 1,730 animals inoculated by the above method, only three died after inoculacion.

Hill Cattle.—There is a great difference in the dose of serum required for the inoculation of hill cattle as compared with that which is safe in plains animals. Notwithstanding that the serum simultaneous method by itself has not been found to be reliable in this particular breed, yet on reinoculating these animals with from 1 to 10 c. c. of virulent blood during the seven or eight days following the injection by the simultaneous method, protection has been brought about and an active immunity conferred.

Serum Alone.—The use of serum alone causes no reactionary fever, and it affords immediate full immunity and is very useful in the case of dairy animals and pregnant cows, where it is desirable that the milk supply should not be interfered with, and no cases of abortion take place. The temporary immunity given by injecting with serum alone is sufficient to protect the animals throughout an outbreak. The experiments carried out at Mukhtesar proved that the animals injected with 10, 20, 50, 100, and 150 c.c. per 600 lbs. body weight, were found immune on the 43rd, 76th, 103rd, and 164th days respectively, after serum injections, and in each case when tested by the introduction of virulent blood subcutaneously only a slight temperature reaction followed, clearly showing that the animals submitted to the above test were perfectly protected and would remain so for a much longer period than those stated above.

Manufacture of Serum.—During the year 1900, 464,765 c.c. of protective rinderpest serum were produced at Mukhtesar and 119,880 c.c. have been issued to the Veterinary Superintendents of differents Provinces in India. At the present time we have 33,673 ones tested and ready for despatch on receipt of a telegram, but in addition some 50,003 are already in stock and only need testing, a matter of two weeks' duration. The manufacture of rinderpest protective serum will be continued at the Imperial Bacteriological Laboratory, and a depôt might be opened in the North-Western Provinces, as has been arranged for by Government for the supply of Bombay, Bengal, and other provinces, so that the serum may be readily obtained when required.

THE HONEY-BEE—ITS LIFE HISTORY.

Some little attention has begun to be given to the domestication of the honey-bee in Ceylon and an account of its life-history—so full of romance—should prove of interest to our readers. We take the liberty of making use of a short but full account from the pen of Mr. Helms in the Journal of the Agricultural Department of Western Australia for February, as more suitable to the pages of a little monthly than a longer account would be. Indeed, as the writer of the article remarks by way of preface, to become expert in the art of bee culture, it is necessary to become thoroughly acquainted with the life-history of the insect, as also with the special functions assigned to the organs of the structurally varying members of a bee-family. Without a clear conception of the phases of life and the interaction of the differently-constructed individuals upon the whole community, a bee-keeper will for ever remain a mere dabbler, and will always be liable to bungling.

1. *The different members constituting a Colony.*—A community of bees is variously termed a colony, swarm, and frequently also stock or hive. The two latter terms apply more correctly to the artificial dwellings of the bee, but by conventional habit of speech it is understood to mean a large assemblage of the insects as well. A colony is in reality a large family including many thousand members, most of which are sisters, and the offspring of the same mother. But periodically there are also male bees met with among them. This, however, generally only occurs in the early part of the summer, when through increased vitality and impulse arises in the family for a portion of it to migrate, which is commonly known as swarming fever. Such migratory instinct is much stimulated by a rapid increase, when, in order to avoid over-population, it becomes necessary for a number to leave the hive and seek a new home. At such time males are produced for the fertilisation of the future mothers, which are still unhatched when the old one leaves with the swarm.

With the honey-bee three distinct physiologically differentiated creatures are necessary to propagate the race. Still, as with other animals, only two sexes occur. The vast number of bees seen constantly emerging from and entering the hive are neuters—an application objected to by many writers as not being strictly correct. Those so-called neuters are the working masses of the community, and are in reality females with aborted sexual organs. Through some extraordinary influence acting upon the immature young, their sexual organs remain only partially developed, and in their place they become possessed of certain physical features not found in the true sexes. Although this abortion of the sexual organs has made it impossible for these bees to be themselves reproductive, their maternal instinct is no wise diminished, and is, in fact, developed to an extraordinary degree. Were it not for their devoted attention to the young, the community could not prosper. The three different bees are known as the queen, drone, and worker. The

queen is a perfect female as regards her sexual organs. The drone is in the same manner a male. The worker or so-called neuter is sexually imperfectly developed female.

The Queen, owing to her great laying power, is generally regarded as the most important member. It is true a fertile queen may soon increase the number of workers, and transform a weak into a prosperous colony, but she could not have done this without having been first fertilised by the drone. Nor could the brood be reared without the help of the foster mothers, the workers. When it is considered how the different elements which constitute a colony depend upon each other, and how their functions interest with one another, it becomes obvious that none deserve to be called the "most important." Without the one the other could not exist for long, only the male members may be dispensed with periodically, because their influence, when once manifested, is of extraordinary duration.

The Queen.

The interesting member of a bee colony, now generally known as queen, was formerly also called king or leader (Weisel or Weiser, German). This was before her sex had been recognised, and no doubt arose from the fact that she appears singly among a great number of other bees and receives considerable attention from them. She is, in reality, during the early part of her life, the sister of the workers and drones, and later the mother of all who surround her. Her true position is that of mother-bee, and her importance begins after she has been fertilised. The term king originated in antique times, when she was thought to be a male, and the supposition that she possessed monarchial powers and influence gave rise to this name. In no sense, however, does she exert monarchial power, nor can she be called a leader, for she does not lead, but, on the contrary, is led by her children. They well knowing that upon her depends the reproduction of their numbers, and consequently the future welfare of their family, tend to all her wants and display the greatest filial attachment towards her. A number of workers constantly surround her, and according to the desire of greater or lesser increase, which is regulated by the flows of nectar and the season, she is suppulied more or less abundantly with food. Consternation seizes the offspring should the mother be lost through death or accident. Soon after emerging from the cell the young queen leaves the hive a few times on fine days and circles about over it for the purpose of getting acquainted with the surroundings, and then, under the sexual instinct, flies off one warm afternoon to meet a drone. The mating flight generally takes place on the fourth day after the queen has emerged from the cell, but sometimes earlier, and frequently later, if prevented by inclemency of the weather. If delayed for more than 20 days fertilisation rarely takes place, and in that case the queen becoms a "drone-mother." She is generally successful in accomplishing her desire, and when she returns, after her nuptial excursions, she does not voluntarily leave the hive again. After coition her ovaries develop rapidly, and in a few days she begins to lay. The power of oviposition grows considerably for some time, and when it is at its height she may lay as many as 3,000 eggs daily. Considering that the average life of a queen is about three years, and sometimes extends to over five, it is not impossible that she may lay over a million of eggs during her lifetime. She is one of the most prolific insects known. The laying of eggs is the important function of the queen.

(*To be continued.*)

The TROPICAL AGRICULTURIST MONTHLY.

XX. COLOMBO, MAY 1st, 1901. No. 11.

COFFEE IN B. C. A.

PAST; PRESENT, AND FUTURE OF COFFEE GROWING IN B. C. A.; CONDITION OF COFFEE GROWING IN OTHER COUNTRIES COMPARED WITH B. C. A.; PROSPECTS OF COFFEE GROWING IN B. C. A.

THE first Coffee Arabica plant introduced into B. C. A. came from the Edinbnrgh Botanical Gardens in the charge of Mr. J. Duncan, the Church of Scotland Mission Gardener, and was planted in the Mission garden about 20 years ago.

This plant succeeded well, bore heavily, and became the parent, I believe, of all the present existing coffee of that species or variety in this country.

Blue mountain, Orange, Liberian, Sierra Leone, "Standsphyilca," and Maragogipe Coffee have all been subsequently introduced and are to be seen growing on some Estates throughout the country—but although those varieties have been tried on some Estates, they do not seem to suit the climate so well as Coffee Arabica.

The first Coffee garden planted in B. C. A., and it was from the seed of that parent tree (I was informed) consisted of 15,000 plants, which were planted 6 × 6 feet apart giving about 1,200 trees to the acre; so that there would be about 13 acres. I was told that 10 tons of parchment Coffee was secured from this garden, which would be equivalent to about 15 cwt per acre in its third or fourth year.

I have myself seen blossoms on B. C. A. Coffee which should have resulted in crops equal to the above amount.

In those early days the mechanical part of the work was as well done as it is at present, but pruning, handling, manuring, and even weeding were much neglected with the result that, as coffee got older, crops decreased because the health and vigor of the tree were not maintained.

There is no plant or tree suffers so mnch from bad treatment, or responds so readily to good cultivation, as coffee; and once neglected, especially when yonng, it seldom recovers.

Until within the past few years enemies of the coffee tree were little thought abont, and I venture to say no steps were taken by pioneer planters to fight those pests. But it was considered necessary to cut down the coffee tree after it had borne a few crops. Shade was not thought of either, I believe, until 5 or 6 years ago.

Up to abont 10 years ago there was little coffee planting done in the country, and that was done only by the late Bnchanan Bros and the African Lakes Co. on a small scale; about 40 acres at Zomba and 100 at Blantyre.

At present the coffee enterprise of B. C. A, is suffering from a good deal of depression owing to four causes:—1st, short crops, owing to bad seasons; 2nd, scarcity of labour; 3rd, low prices.

The first of these we cannot prevent and adverse seasons are to be met with in every country where coffee is grown, resulting in short crops, and sometimes hardly any at all. It is seldom however that two seasons follow each other which are absolutely abnormal, although wet and dry cycles are not uncommon in B. C. A. as in other tropical countries.

An insufficient labour supply is also partly to blame for short crops, because neglected or half-abandoned coffee is more or less choked and cannot nourish and bring to naturity its fruit, as would be the case with well-cared for trees on a clean estate.

The low price of coffee is the result of overproduction which never lasts more than a few years, because large coffee-producing countries cannot cultivate more than will repay

The price of labour soon rises, short deliveries and advance in prices being the result, owing to want of confidence; but a re-action soon sets in as a rule; with a good crop, an efficient labour supply, and good prices, the turn of the tide may be looked for. Such experiences as set forth in the foregoing pages are not uncommon in other coffee-growing countries, but things are usually much more serious, owing to the greater amount of capital invested; so it is to be hoped that our wave of depression will soon pass over and have no disastrous result. From the latest statistics, issued by the London, American, and Continental markets, it is evident that stocks are low and that prices will now improve and be maintained for some years to come.

The future of coffee planting in B. C. A. should not by judged be the results of the past. It may be considered for various reasons (which I shall endeavour as briefly as possible to point out) that we have arrived at a more enlightened stage of this country's coffee culture, and that there is a bright future in prospect for the coffee enterprise here.

The fact has been recognised that a permanent and efficient labour supply must be maintained to warrant success with coffee planting and to ensure remunerative results; and it is believed that the Labour Bureau just formed will in time solve this difficulty; that agents residing on the spot will be able to gain the confidence of the people and supply all the needs of the planting industry, provided they are allowed a free hand by Government.

Amongst enemies of the coffee tree, spotted bug and borer are the two worst; and fortunately they can both be kept in check, if proper measures are adopted by planters and labour is available for the purpose.

It was only *supposed* that spotted bug did harm to coffee, till Mr. K. I. Cameron discovered that they are a serious enemy of no minor importance. I am convinced after careful experiments carried out by myself that those bugs are the cause of much unsound coffee. I also believe that those bugs sucking at the terminal shoots, which form the secondary, lateral and tertiary branches of the coffee tree, disease the sap of those branches, causing black patches in the wood and bark; and that in the course of time the disease spreads with the flow of sap to the fruit, so that all subsequently produced wood yields a light and empty berry as well as barren or bastard wood.

I have proved by experiment that the spotted bugs when imprisoned upon healthy young shoots do disease the bark and suck the wood, and if the experiments I am at present making go to prove that bugs do the same harm when at liberty,—it will certainly revolutionize the coffee industry in the future.

It is not to be wondered therefore that planters, when they discovered that no sound coffee could be got from old trees, cut them down as the only remedy for barren bushes.

I am quite certain that no sound coffee can be got from a coffee tree that has had one or two bugs on it during the blossoming months, and for one or two months after the berries have formed. Then, although the fruit does come forward, it is unsound and worthless

The spotted bug is to be found throughout the year, although not so numerous during the winter months, May to August. During the bush fire months, September to December they fly before the bush fires and find a home and breeding ground in a Coffee Garden.

The Borer longicorn beetle also flies before the bush fires, October to December, and also finds a home on a Coffee Estate where they feed upon the bark of the Coffee trees and lay their eggs.

To ensure success with Coffee in B. C. A. my experience proves that the searching for both bug and borer must be considered by planters one of the most important works on a plantation and if not fought against constantly it is useless expecting mature Coffee trees to yield crops.

If those enemies are carefully and successfully overcome, I am of opinion that there is no need for cutting down or uprooting coffee trees in B. C. A., any more than in other countries, and that a good yield of crop can be maintained without the aid of fertilizers for several years at least.

After the coffee trees on an eastate have formed a network of roots in 6 to 8 years, over the available feeding area, manuring and pruning must be done to keep up a good yield.

In this country the cheapest manure available is bush grass, either made into compost with ammonia or applied *green* by digging it in or burying in trenches.

Leguminous crops might also be grown during the rainy season and dug in when matured, saving much wash as well as being useful as a fertiliser.

This country has better facilities for manuring, than any I know of, owing to the extensive area of bush grass surrounding most coffee estates. It has been proved by analysis that green manure is richer than cattle manure.

Both manuring and pruning have been proved to give better results by practical experience; so that any system laid down on paper would not be of much service, for opinions differ, and hardly two men can be got to apply manure or the knife alike.

The climate of B. C. A. is not unlike that of Mysore, Coorg, and Travancore, in India—and the drier parts of Uva, Ceylon. The seasons may be divided as follows:—

15th Decr. to 15th April 5 months' rain, 15th April to 15th July a few showery days each month, 15th July to 1st October occasional showers, 15th October to 15th Dec rainless except for one or two thunderstorms.

May to August are cool and temperate months and sometimes there is frost in June and July.

Blossoms come on coffee August to Nov, and crop April to July.

With regard to the Indian districts mentioned above, most of the Estates were opened by Ceylon men originally, and every stick of timber felled, with the result that after a number of years' cultivation it was found that estates did not pay and total abandonment was the result in most cases. Shade was then thought of and tried and proved a success; many estates that had been abandoned were re-opened, and during the past 15 or 20 years shade has been considered as absolutely necessary for the successful cultivation of coffee, and I believe no coffee is grown now in those districts without a canopy of shade. The climate of B. C. A. during the blossoming months cannot be relied on for rain and they have often 3 or 4 months without any at all. When they do get the rain however they get crops, which was not the case with coffee in the open, as then blossoms and berries too were destroyed by hot winds and sun.

In Travancore I saw myself estates of 200 and 300 acres with hardly a leaf on the trees and laden with blossom to the tune of 7 or 8 cwts per acre, but it was all destroyed for want of rain. Had there been shade on those properties, I was told the blossoms would have been saved.

The climate of B. C. A. in some years is all that could be desired. On the other hand, my experience proves that 6 out of 10 years were bad and unfavourable for the health, vigor, and successful fruiting of coffee without shade, or protection from hot winds.

If shade is too dense, coffee will not yield well at from 2,000 to 3,000 ft. above sea level, although it might do better at a lower elevation. I do not think dense shade is required for the Shire Highlands, and I am of opinion that the silver oak, Grevillea Robusta and the Eucalyptus Robusta, and other red gums would suffice to temper the hot winds and cool the atmosphere on a coffee plantation; provided those trees are planted north and south in lines, and pretty close together.

Grevilleas and red gums do no harm to tea or coffee and have been planted for many years as wind breaks and for timber on most estates in Ceylon and India. Blue gum again cannot be grown with tea or coffee, without starving those products.

Grevilleas and Red Gums do exceedingly well in B. C. A. I have trees of the latter 8 years old, 70 to 80 ft. high and 3 feet in circumference near the ground. The wood is durable and makes excellent furniture &c.

Shade has many advantages over open ground. Weeding is cheaper. There is a litter of leaves always on the ground which can be dug in and buried in holes as manure. There is no wash. Rainfall and the moisture are preserved as well as the fertility of the soil.

It has been shown by analysis that soil on a coffee estate under proper shade is as rich as that of the adjoining forest land. A coffee estate under shade has been known to be abandoned in bad times, and the owner has returned and cultivated his coffee agin and found it as good as when he left it, and perhaps the better for the rest.

All the districts that have been opened for ccffee in India and Ceylon have not proved a success; some were too wet, some too dry, some too hot, and, some too cold; and were ultimately abandoned, after much capital had been spent in the hopeless endeavour to get paying crops.

On the other hand large fortunes were made where the soil and climate were suitable for coffee, for there is no agricultural product which pays better under favourable circumstances.

Space will not permit of my entering minutely into details regarding the success or failure of coffee rn those districts, which is more the subject for a iteatise on coffee cultivation than an essay, I mention the fact, however, as B. C. A. may have a similar experience.

I may mention a few of the districts in Ceylon where coffee was not a success: Kurunegala, Kegalle, Lower Matale, Dumbura, were all too dry and the blossoms invariably failed. Blossoms would hang in spike for weeks, the same as they do here, and ultimately fail for want of rain at the proper time. Irrigation was tried, and thousands of pounds spent on large schemes but to no purpose.

I have seen blossom come out here repeatedly for 7 to 8 cwts. per acre, and apparently set well, and even come forward to be the size of peas, and the clusters fall off, owing to drought, till reduced to one or two berries and only 1 cwt. per acre got.

The coffee referred to was 3 and 4 years old and planted on Virgin *Forest* land so that the sap could not be said to be weak or lacking in fruitifying power. I never saw finer young coffee anywhere and there was no bug, to speak of; so the climate was at fault, I think.

The opinion is now held by experienced planters in Ceylon that, had the above-mentioned Districts been all opened in shade, coffee would still be in existence.

Too much care cannot be exercised in the selection of land for coffee, and it should not be that which has recently borne a crop of cereals or is otherwise poor in fertilizing ingredients. There are jungle lands to be found in B. C. A. with soil almost inexhaustible. This fact is borne out by the natives growing crops of grain on them for 50 years or more.

As to the age or lasting powers of the coffee tree, I remember coffee in Matale, Ceylon, in 1889, looking well, with stems as thick as my thigh, whose age could not be less than 80 to 100 years, for they were 15 to 20ft. high and growing native fashion under shade. The yield was not much, owing to leaf disease.

There is coffee, I believe, still in existence in Ceylon, which was planted during the last century; but it must be borne in mind that the coffee referred to is growing under specially favourable circumstances, getting the benefit of leaf mould from village fruit trees enjoying good soil, and not being forced to over-bearing by the hand of the cultivator.

By fighting the enemies of the coffee tree in B. C. A., by liberal manuring and tillage of the soil, by helping one another with information *re* our staple industry, given free and unselfishly, by the adoption of shade to mitigate the evils of our climate, I can see no reason why the coffee industry of B. C. A. should not be as lasting as it is in other countries and as remunerative too.

With better means of transport, and the labour which is used for that work at present set free, and all the pests that the coffee tree is subject to avercome, let us hope there is a bright and prosp rous future in store for the coffee enterprise of British Central Africa.

Before closing this brief essay I would urge upon planters the need for importing new seed, and the most careful selection of sound B. C A. seed for nurseries, as I have no compunction in saying that all barren coffee trees are not caused by bug. So far back as 94, I showed disease in a new clearing and in my nurseries to Mr. J. H. Carson (of the Nyassaland Coffee Co., who has had great experience in Coffee, and he said it was new seed that was wanted and imported Brazilean seed for Leechimya Estate.

HENRY BROWN.

COFFEE IN QUEENSLAND.

From the report of the Instructor in Coffee Culture to the Government of Queensland:—

I have made tours into the surrounding coffee districts, giving advice and demonstration to those who applied for it....In detail, the places visited, and where coffee is grown, include Cooktown, Daintree, Port Douglas, Cairns, Atherton, Myola, Oaklands, Mantaka, Kuranda, Mulgrave, Lower Russel, Clump Point, Mackay, Mount Jukes, Hampden, Rockhampton, Byfield, Yeppoon, Maryborough, Pialba, Bundaberg, Blackall, Coolum, and Buderim. Space would not admit of even short notes regarding each individual district and place where coffee is being more or less cultivated. In general, however, I found from Cooktown southward to near Townsville a zone of country having a somewhat heavy rainfall—eminently suitable for the cultivation of coffee, but possessing a climate that will necessitate artificial methods of drying by means of kilns or drying machinery. At Cooktown and Townsville, and as far south as Rockhampton, the climate is such that there is every probability of growers being able to dispense with kilns and to dry in the open air, which, when possible, is always the more satisfactory method. South of this, again, the absorptive power of the sun is less strong. but, the atmospheric moisture not being great, it is probable that open-air curing may be possible. There is at present scarcely sufficient fully-grown coffee in these parts to thoroughly test this. The majority of gardens are small, though I found several of fair size, the largest being Messrs. Cutten Bros.' estate at Clump Point, of 80 acres; Messrs. De Moleyns Bros., of the Lower Russell, running them very closely with 75 acres. There is very little coffee in cultivation of more than five or six years of age, the majority being either new, in its second year or bearing its maiden crop this season. Some few acres in each of the three districts of Cairns, Mackay, and Buderim may be called old coffee, but their exact age is in nearly every case doubtful. The first coffee-tree ever imported has been pointed out to me, and it is healthy and flourishing; but, as this has occurred in several different localities, its exact age is somewhat vague.

The varieties of coffee to be found are *Coffea Arabica* and *Coffea Liberica*. The former is the principal species, and is the usual coffee of commerce, and the most valuable, growing and cropping readily. It is comparatively easily cured, and, though delicate as a seedling, is hardy enough once it has reached maturity. The latter is the larger and hardier shrub, but is more difficult to pulp and cure, and is only worth about one-third the price of *Coffea Arabica.*

Of *Coffea Arabica* several varieties are noticed:—*C. Arab.* var. *Mocha*, a small stunted-looking and small-leaved tree, slow-growing bearing freely, but having a very small bean; *C. Arab.* var. *Maragogipe*

almost the opposite of the former, being a loosely-knit tree, with large leaves and berries, but somewhat delicate, and a sparse bearer; *C. Arab.* var. *Nalknad*, which would seem to be identical with the varieties known as "Ceylon" and "Java"—a strong, heavily-bearing tree; *C. Arab.* var. *Coorg*, a variety having a very few points of differeuce from the previous variety, and being also a hardy tree and good bearer; *C. Arab.* var. *Chick*, I have come across in one place only, and this is essentially the worst variety of *Coffea Arabica*, recognisable readily by its primary branches pointing invariably upwards.

Of these, several hybrids are to be seen, especially between the *Nalknad* and *Coorg* or *Ceylon*. These prove somewhat delicate but good-bearing trees. *Chick-Nalknad* or *Chick Ceylon* hybrids are extant, and in every case seem to have been raised from seed obtained from the estate on which some healthy specimens of "Chick" are still to be found. Several young plants are to be seen that look uncommonly like *Maragogipe-Ceylon* hybrids, but which are not yet old enough to identify as such. Such hybrids would probably prove valuable trees, if the bearing capabilities of the *Ceylon* can be combined with the size and quality of the *Maragogipe*. *Arabica-Liberica* hybrids I have not seen in this colony as yet, though experiments are being conducted at the State Nursery, Kamerunga, with a view to obtaining this valuable hybrid.

On the whole, the condition of the estates as I found them was not encouraging—in some cases the weeds were over the coffee. Where the coffee had been kept clean, the growth and bearing were remarkable. For amount of crop the Buderim mountain is noticeable, the quality being also specially good here. On the Daintree River one or two estates that had been kept assiduously free from extraneous growth showed remarkable development, trees of thirteen and fifteen months being topped at 4 feet, having a good spread of secondary growth, and spiking heavily, showing promise of a 5 to 6 cwt. crop that would ripen when the trees were not more than two-and-a-half years old. For all-round good qualities some of the properties in the vicinity of Cairns, specially on the range about Kuranda, are pre-eminent.

To summarise, the area specially adapted to coffee culture may be said to extend from Rockhampton northward to Cooktown, and the priucipal centres to be at, or in the vicinity of, Mackay, Geraldton, Cairns, and Port Douglas. The places that I have yet been unable to visit are Bowen, Cardwell, Geraldton, Johnstone River, the Bloomfield, St. Lawrence, and Percy Island....Figures regarding the extent of the industry, ... are still necessarily approximate rather than exact; statistics later on.

There would appear to be some 200 growers; aggregating 700 acres or more. I have not included in this the areas that have been allowed to lapse during the past year, and which amount to over 100 acres alone. The industry is now on a much firmer and better footing than last year. I found in some instances that areas had been opened by growers (perhaps in an excess of enthusiasm) without experience, knowledge of coffee culture, or consideration of the natural conditions governing the growth of the coffee-tree, which they were in consequence subsequently utterly unable to cultivate or properly attend to. In such cases I have advised the concentration of attention upon some lesser part of the estate, and the selected portion. The result of such work on the part of the grower has been to reduce the extent of the industry, but to put their estates on an infinitely better footing, financially and otherwise. The increase of area under cultivation is steady, though not rapid, for the same reason. Under my advice, those intending to open up are clearing perhaps 4 or 5 acres to begin with, in the place of 20 or 30, but with the obvious result that what is opened is well cultivated, satisfactory, and in a condition to pay the cost of subsequent openings in due course, instead of large and unsatisfactory estates, which, being difficult to keep clean from the commencement, are ever after a source of extra expense in weeding alone.

The number of applications for seed and advice re opening up is increasing, and the areas reduced will, it is to be expected, be more than made up during the coming year by these new clearings. The value of the industry cannot be gauged by the mere acreage, coffee being considerably more valuable than most farm staples. The area under coffee in the colony at present is capable of giving easily—with ordinary cultivation and no manuring—an average of 10 cwt. to the acre, a crop worth some £20,000, and possibly giving a crop worth at the same cultivation £25,000, to £30,000 annually.

The improved methods of work started last year are showing good results, the samples of coffee at the various shows improving vastly, both in size, shape, and colour, and showing better and more satisfactory returns both to the grower and buyer. At present, practically all the Queensland-grown coffee is bought up and manufactured in the colony, the prices remaining fairly steady at from £56 in the parchment to £112 per ton clean according to sample. Last season some buyers complained of the quality of coffees received, owing to the loss they sustained in both weight and bulk on manufacture. This I found to be due, to a great extent, to the insufficient drying of the crop before hulling. In hulling insufficiently-dried coffee the quality of the manufactured article is seriously impaired, and loss in weight of from 30 to 35 per cent. sustained. It is not always easy for growers to dry thoroughly in bulk, but it was possible to very greatly improve, in this matter alone, on last year's work, and this has been very generally done. Growers see the advantage of drying thoroughly, and having buyers ask again for consignments, and buyers appreciate the absence of heavy losses in weight and possible loss by mould, etc., in storing, an advantage that is satisfactory to both parties, and one that has resulted in an apparently newly-discovered improvement in the quality of colonial coffee generally. The improvement is very noticeable in the manufactured articles now being put on the local retail market.

Coffee is being put on the local market in tins well got up, and of very good quality, at from 1s 6d to 1s 9d per lb. and the local sales of such would tend to show an increase and increasing consumption of the commodity. Local manufacturers are finding, as was to be expected, that they have to purchase from smaller growers to supply the demand—a healthy state of affairs that will, it is to be hoped, continue, enabling small estate owners to dispose at once and for cash of the raw article. Seeing the apparently large price obtained for coffee per lb. manufactured, compared with the price in the raw, there seems to be an inclination among some of the growers to attempt the manufacture individually, which is to be deprecated. The putting on the market of an unlimited number of brands would result, in course of time, in a lowering of prices, adulteration, and reduction of quality. The grower will find it pay better to sell in the parchment than to spend the time in manufacturing small quantities; and *vice versâ* the manufacturer will find that the work entailed and time occupied in manufacturing will not admit of the proper working of an estate for cultivation of the coffee also.

The prospects of the industry are decidedly good. That the sample, when properly treated, is of high-grade quality has been amply demonstrated this season, and, in spite of labour competition in other countries, it has also been demonstrated that the colony's natural advantages can compete with them, by the fact of a high-grade coffee being put on the retail market at the same or a lower figure, with a fair margin of profit to both grower and manufacturer. The removal of intercolonial tariffs will also open up the Australasian markets to this staple of Queensland, and in the home markets the prices are slowly but surely rising.

From the grower's point of view it is one of the most paying of products, giving a return of 10 cwt. and, possibly, a 15 to 20 cwt. crop, which, at even 6d. per lb. in the parchment, or £56 per ton, would

mean £28 gross, or a net return of from £15 to £20, at least, per acre. In the present state of the industry it seems to be inadvisable to open up large areas for various reasons, and smaller gardens are more readily managed. Most of the growers have, at present, also small areas, and, in consequence, coffee is looked upon, to some extent, as a by-product. It will, undoubtedly, prove a very valuable by-product for any farmer, though with due attention to cultivation it will be found, as it is already in several instances, a profitable crop to grow as a sole staple, the returns giving a good living. And as the colony becomes more populated, large areas will be possible where, at present, labour difficulties practically prohibit the opening up of, say, a 100-acre estate.

Want of experience and carelessness in opening up coffee gardens can account for considerable loss and disappointment in the colony, ignorance and inexperience of coffee culture, in many instances, only showing in the second and third year. The necessity for ordinary attention at the area planted up in order to ensure satisfactory results cannot be too strongly dwelt on.

The initial three years or so of waiting before any return can be obtained has, unfortunately, been the cause of the neglect of even the fundamental laws of agriculture, occasionally, with the result that the field has either taken four or five years to come into bearing, or that the trees have been so retarded and hampered in their growth that when the strain of the maiden crop was felt they were found to have no stamina to carry it.

Coffee is perhaps one of the most responsive of any fruit-trees to cultivate and it is certainly one of the most profitable, but at the same time, not being indigenous, is very susceptible to neglect, and easily damaged and stunted by weed growth, etc.—*Planting Opinion.*

COFFEE IN THE SURMA VALLEY.

(*From our own correspondent.*)

Given suitable soil and shade there does not appear to be any reason why coffee should not grow and pay as well in the Valley of the Surma as elsewhere. But suitable soil and shade must be the very first consideration. As we mentioned in our issue of the 16th, the yield per acre in South Sylhet has not as yet been made public. Now we learn that this cannot be done, for the simple reason that the most of the land planted has been put down with the Liberian species 10′ by 10′ apart and the spaces between filled up with Arabian as a catch crop. Under the circumstances it would be difficult, if not impossible, to give a definite estimate of what may be reckoned on per acre. We have advocated, when putting down fresh plants to introduce the best Jamaica procurable, as the finest of this is now quoted on the London market at $125 per cwt. Of course it is possible, we may say very probable, that the species which brings a top price when grown in Jamaica might turn out an entirely different berry if grown in South Sylhet. Given the soil and climate, elevation is now looked upon as only a secondary consideration. Formerly it was found that coffee was better flavoured when grown at considerable elevations above sea-level. But the fact was generally lost sight of that at the highest elevations the most suitable flavouring soils, as a rule, were to be found. Coffee of any species when grown upon strong alluvium naturally will not, as a matter of fact does not, produce such a well-flavoured berry as when it is grown upon soil which, to a certain extent, is composed of humus. The Liberian berry has been recently described as a heavy enough bean, but wanting in flavour; but we have been assured that when this species is grown upon a light laterite, which has been under forest, it has even a superior flavour to a great many of our Arabian growths, which are famed for their flavour. The flavour of the Liberian bean, even when grown upon alluvial land, is said to be improved so much when kept in the parchment and thoroughly seasoned, that it compares very favourably with good Arabian. Be this as it may, there is no doubt about all the species improving much in flavour by keeping the beans in the unroasted state. Botanists, it would appear, have enumerated about sixty species of the genus coffee, and these are spread over various countries in both the Eastern and Western hemispheres. According to a well-known authority, most of these must be mere varieties resulting from accidents of soil, climate or cultivation, produced subsequently to the naturalising of the plant, for we know that all the coffee trees now grown in America and the West Indies are the progeny of one plant introduced in the year 1714, and yet botanists have individualised no less than sixteen species in Brazil alone and nine in Peru, whilst in the East Indies we have seven, and Africa is credited with five. Among the Indian species at least one, *C. Bengalensis*, Roxb., is a native of Sylhet, and in former time used to be cultivated in Bengal. But all the species most valuable for economic or commercial purposes are confined to Africa, or are of African origin. So intending growers of the flavoury berry in South Sylhet have a large enough number of species to choose from to suit their soil and climate. The choice of a suitable species is by no means the least important thing to be taken into very careful consideration. Although the present season's long drought is by no means normal, and cannot be taken as the average of the South Sylhet climate, still it must be always borne in mind that such a spell will be experienced from time to time. There are species, if not varieties, of our finest coffees which stand drought and certain conditions of soil and sunshine better than others. A writer recently accounted for the Arabian species standing the drought better in South Sylhet than the Liberian, because the latter was essentially an evergreen tree, and that the Arabian was either deciduous or otherwise according to climate, soil and general environment. Although this may be to a certian extent quite correct, we would point out that there are certain kinds of coffee which stand sunshine much better than others, and are more productive when exposed than they are when shaded. On the other hand, again, there are kinds which will not thrive at all unless they are grown under shade. We are inclined to think that a moderate shade, that can be thinned when necessary, will be found to be a *sine qua non* to successful coffee culture in South Sylhet. We wish the pioneers of this and other industries in that district every success. Coffee is by no means the only product which is being tried. Some of them already give promise of becoming very important staple products, which will not be limited to the Surma Valley, and we hope to be enabled to congratulate the district of South Sylhet upon being in the very forefront of success, as it certainly deserves to be for its tropical agricultural enterprise.—*Indian Planters' Gazette.*

INTENSIVE CULTIVATION.

In most progressive countries, more attention is being paid to improved methods of cultivation, by greater care in the preparation of the soil, selection of the choicest seed, and more intelligent care of the growing plants. The history of the sugar beet perhaps affords the best illustration of this. But it pervades every branch of agriculture, including fruits, flowers, etc,—in all which new and unlooked-for developments are every year recorded, increasing the value of such products, whether for food or in the arts and sciences. In no other branch of agricultural industry has there been greater progress than in the culture of beets and the manufacture of sugar from them. The result is that every year shows gain, the latest being seen in the reports of the French exposition on beet culture and manufacture. But while these evidences are more conspicuous on account of the magnitude of the beet sugar industry, yet the remark applies equally to cane, and almost

every branch of agricultural industry. The man who is most successful is he who supplies the necessary food and stimulants demanded by each product, and by returning to the soil what each plant has absorbed from it.

In remarks made at one of the planters' gatherings in Louisiana, Prof. Stubbs expressed surprise that Hawaiian planters did not cultivate pea vines and other plants for soil manuring. Had he visited Hawaii he would have seen lupins growing and used successfully for this purpose, which has been done for several years, and with as good results as in other countries. The practice is extending each year to all the islands. Prepared manures, made expressly to suit the needs of each estate, have generally been preferred on account of the good results attending their use. The needs of the soil of different localties here are so varied that it is only by actual test that the best can be determined. In Louisiana the soil of large sections may be of one class—alluvial perhaps, while here the soil of no two islands, or even districts, is the same. The chemist is employed on each plantation, and his investigation generally determines what manures are best adapted to it. The result is that each estate which is so equipped and conducted secures large returns in its annual crops.

THE FLORIDA ORANGE.—A piece of news in a small way that will be deeply appreciated is the announcement that Florida will have an orange crop of 1,000,000 boxes this year, the largest yield since the great freeze. One million boxes is not much in comparison with the 1894 crop of 5,000,000, or the last big yield, but it is about four times as large as the production of 1899. The 1901 yield, it is estimated, will reach 1,500,000 boxes. From this it may be seen that the Florida groves are being rapidly restored. In a few years the output will be larger than it ever was before, and the delicious fruit will once more abound in the market. The Florida orange is the queen of fruits. All the grapes and figs and dewberries that were ever grown are not equal to one perfect orange with its golden rind packed full of the sweetness and exquisite flavor of the tropics. What makes the orange so welcome is that it comes to the North in the holiday season, reaching here about Thanksgiving Day and being most perfect just at Christmas time. The oranges of California, though very good, are inferior to the Florida product.—*Louisville Journal*

RAFIA FIBRE IN MADAGASCAR.

Rofia, or as it is generally spelt "rafia," is the Malagasy name of a palm which furnishes a staple article of commerce, called rafia fibre. It is indigenous to Madagascar, and is to be met with everywhere on the coasts, needing neither cultivation nor attention of any kind. It is not a stately palm, but sends its enormous branches from near the ground; in a fine specimen one branch is almost a tree in itself. The rib in each branch is as much as 20 feet long, of a pearly grey colour, smooth and shiny, flat on the inner surface, but otherwise round, without any knobs, and so exceedingly hard. At the base it is as large as an ordinary champagne bottle, and tapers to a point at the top. The inside consists of a light pith, which can be spilt into layers of any thickness. Possibly, says the the United States Consul at Tamatave, it is this, or an analogous production, which is used in making pith helmets in the East. Naturally these ribs combine great strength with wonderful lightness, and are used for shafts for "filanjanas" or palanquins, ladders, or other purposes, but otherwise have no particular commercial value. It is the pinnifoliate leaf of these branches which produce the rafia fibre of commerce. One palm branch, or frond, will produce eighty or hundred long green leaves from two to five feet in length, like the leaves of the sugar cane, but of a dark, lustrous green, and both thicker and stiffer. These, again, contain a round and pliant rib which the natives utilise for making baskets and dredges for catching small fish and shrimps in the rivers after they have stripped off the green part which furnishes the fibre. The under part of this green leaf (which is not exposed to the light, as it remains folded) is of a pale greenish-yellow colour and from that side the inner skin can be peeled off in the same manner as the skin on the outside of a pea pod, except that it peels off straight to the tip without breaking. It is then of the palest green, and after being dried in the sun assumes a light straw colour. This is the rafia fibre of commerce. It was originally sought for by the natives for use in articles of clothing. The men bring in the fronds, and women and girls weave it on handlooms, of any coarseness or fineness. Woven just as it is peeled off from the fronds, it forms a kind of sacking used for wrapping goods, while the perfection of the art, as known by the Hovas only, is to weave a tissue of which the warp is rafia fibre split very fine, and the weft of white silk. This gives an article called silk lamba, which fetches fancy prices in Europe and America. The coast tribes use it for clothing, but of moderate fineness, with dyed stripes of indigo, saffron, black, and a dirty green. It is a cold, comfortless looking material, and refuses to adapt itself to any folds that a sculptur would care to copy. Rafia fibre is used in Madagascar by nurserymen, gardeners, &c., for tying up vines and flowers, and possibly for grafting. It possesses the advantage of being as soft as silk, and is not affected by moisture or change of temperature so as to risk cutting or wounding the most delicate tendrils, and it does not break or ravel when folded or knotted. These qualities bring it into use all over Europe and consequently maintain its price. It is virtually inexhaustible in Madagascar, the supply being limited only by the scarcity of labour. For export, the fibre is merely collected in large skeins twisted up or plaited, and then baled like raw cotton. Madagascar exports about 20,000 bales annually.—*Journal of the Society of Arts.*

BANANAS AND FIGS.

Attention has been called to the drying of tropical fruits, including those named above. Both cooking and eating varieties of bananas grow readily here, and could be made a profitable business for export, by drying them as is done in other countries. No healthier fruits can be found than the two mentioned, nor any better adapted for exportation, as both, when properly cured and packed, will keep in good condition for one or two years. Some forty or more years ago there was a family living in Kona, Hawaii, which dried bananas in the sun and packed them for export or local consumption. The fruit there put up was much relished, and found ready sale in Honolulu. Owing to the duty then imposed on dried fruits in the U. S., the business was finally given up. The Smyrna fig ought to be cultivated here now, as it can be had from California, where it grows and bears as well as it does in Smyrna, where it originated. A very interesting article on the introduction of this variety into California will be found in this issue of the "Planter," and we advise all who are interested in fig culture to read it, and learn the peculiarities of this —the finest kind of fig grown. Mr. Koebele brought from California specimens of the fruit now grown there. Nature, in this instance, provides in a most wonderful and intricate method for the perpetuation of the choicest fruit of this description known. Prof. Koebele was wise in not importing woodpecker birds, which Dame Rumour stated he intended doing but of which he had no thought, as he knew them too well. They are handsome birds and, like most others of their kind, live on insects, some of which they dig out from under the bark of trees—hence their name. In this connection it may be asked what

has become of the mynah birds, which formerly were so numerous here? Can it be true that the rats and mongooses attack them while asleep on the trees, where they are accustomed to roost? The mynahs are harmless, living mostly on ground worms and other insects which infest flower bushes and vegetation. Birds have their uses, but throughout the islands they are becoming more and more rare, excepting doves and pigeons and migratory birds, which seem to hold their own.—*The Hawaiian Planters' Monthly.*

THE TREATMENT OF GRASS LAND.

Experiments have been carried out in Berar by the Forest Department to determine the relative yield of dry fodder per acre from (1) areas annually burnt over, (2) areas burnt over and subsequently grazed over, and (3) areas neither grazed nor burnt. The results obtained are reported on as follows, by the Conservator of Forests, Hyderabad Assigned Districts:—

"The experiments regarding the treatment of fodder grass areas in Amraoti were continued with the following results;—

Plot (B State-forest).	Out-turn of dry fodder, in pounds, per acre. 1893.	1894.	1895.	1896.	1897.	1898.	Average last five years.
I—In the area burnt ..	2,736	2,501	1,091	739	2,558	2,850	1,948
II—In the area grazed ..	2,668	2,338	1,223	988	1,919	2,702	1,834
III—In the area cut over and neither grazed nor burnt.	2,386	2,417	1,228	755	1,825	2,268	1,703
Average ..	2,597	2,419	1,181	834	2,101	2,607	1,828

"The experiments have been carried on over five years of varying rainfall and growth, and will now be discontinued. They tend to prove that burning gives the highest yield, but that grazing down the stubbles (without, of course, injuring the roots by excessive trampling) gives a fair average yield. In Berar sufficient grazing is accordingly being tried in "ramnas" that lend themselves to this treatment."

These experiments merely relate to quantities of fodder produced. No account is taken of the quality of the grass, and it is a pity this question was not dealt with in carrying out the above experiments. There is a widespread notion in India that burning of grass lands is necessary, in order to improve the grazing. This, however, it does not do, as has been conclusively proved in Madras. In reality, by firing the grass, most of the delicate annuals, such as *Panicum Oplismenus*, *Isachne*, *Poa*, *Eragrostis*, etc., which are especially good for cattle, are destroyed, while the coarser kinds, such as *Andropogon*, *nardus* and *Schœnanthus*, *Apluda aristata*, *Chrysopogon sp.*, *sp.*, *Imperata arundinacea* and *Anthistiria ciliata*, which are not so good for fodder, and of which only the young shoots are eaten, are encouraged. We should be glad to see some experiments carried out on these lines in Berar.—*Indian Forester.*

THE DETERIORATION OF PASSION VINES AND FRUIT.

W. J. ALLEN

Last season growers of passion-fruit in the Dural, Galston, Arcadia, Glenorie, Kenthurst, and other districts suffered much loss from a trouble which affected their vines and brought about the production of malformed, unsaleable fruit.

The disease is characterised by a thickening and hardening of the rind to such an extent that it more resembles a smooth bark than anything else, and in fact has been named by some of the growers as "ironbark" fruit. Only a small proportion of the fruit develops properly, most of it being undersized, ill-shapen, contorted, and with little or no pulp. The disease makes its appearance soon after the fruit has set, and can be easily distinguished then, the vines also showing its effects by an improperly developed appearance, the leaves being small. In many of the vineyards, an occassional vine is found dying from the effects of a disease resembling very much the disease known as Mal di Goma (collar rot), which attacks the citrus trees just above the surface of the ground.

I regret to say that harvesting of the spring crop had just been completed when I visited the districts named, so that I did not see to what extent the crop had been damaged; nor have I been able to trace this "ironbark" disease to any one cause, but am of opinion that a multiplicity of causes are accountable for the falling-off of some of the vineyards, chief among which are the following:—

I.—Planting in exposed positions, where the vines are subject to high winds.
II.—Frosts and cold weather during winter and at time of blooming.
III.—Heavy, cold, and poor soils and subsoils.
IV.—Improper fertilizers or neglect to supply sufficient, if any.
V.—Insufficient moisture owing to hot, dry summers.
VI.—Not selecting soils and positions most suitable for the passion-vine.
VII.—Age of vines.
VIII.—A fungus disease.

Treating of these causes separately, I find as regards—

NO. I *Exposed positions.*—In a few instances I saw vineyards situated in very exposed positions, and where they were subjected to very heavy winds, which are detrimental to vineyards, and particularly to those planted on indifferent soils, where the growth is less vigorous and less able to withstand the strong winds. The consequence is that vines planted in such positions, and in such soils have, after the first year or two, borne more or less valueless fruit.

NO. II. *Frosts.*—In some districts during the fall and winter frosts are of frequent occurrence and these are very severe on the vines, often causing the vine to lose nearly if not the entire crop, and also causing the vine itself to split open and crack in different places, and the death of all undergrowth and small lateral branches.

When cold winds and cool nights prevail at the time of setting—particularly at the time of setting of the crops which have just been harvested—it is noticed that the fruit produced has a

large percentage of worthless fruit, especially so on old vines which have become impoverished through age or lack of proper fertilizers. The succeeding crop, viz., that which is just now setting, is comparatively free from these worthless fruits.

No. III.—*Heavy, cold, and poor Soil and Subsoil.*—On such soils the vines have, after the first couple of years, steadily gone back, producing small crops of fruit which in many instances are almost wholly worthless, especially as regards the Easter and Spring crops.

No. IV. *Improper Fertilizers, or neglect to supply any.*—Vineyards planted in any soil show signs of distress sooner or later unless they receive a liberal dressing of manure periodically, and it is claimed by some that rows which have been well dressed with kainit and other manures rich in potash have produced heavy crops of good fruit, while adjoining rows which were unmanured had a large percentage of poor fruit. In fact, the growers are at one in their opinion on manuring, and assert that to grow good crops they must manure, and that where this important work is neglected the vineyards soon weaken and cease to produce either good crops or good fruit, such as are generally taken from all vineyards the first year or two.

No. V. *Insufficient Moisture, &c.*—Many of the growers attribute the failure to the excessively dry summers which have prevailed lately in many districts, and say that the vines did much better with them in those years when occassional soaking showers fell during the summer.

No. VI. *Soil and position best adapted for the Passion Vine.*—The soil which has been found best adapted for the growth of the passion vine is a rich, loamy soil, or sandy loam with a good natural drainage. In these soils they will live and continue to bear good crops from six to ten years, and on such soils there is the least diseased fruit found. They may also be found doing very well on poor light soil, but when they have exhausted the soil, which they do in a year or two, they must be constantly manured to keep them in a healthy and profitable condition, and as this vine produces three main crops of fruit each year, unless the land is very rich it soon exhausts itself if not well fed.

No. VII. *The life of the Passion Vine.*—The age to which this vine produces the best fruit, and when least woody fruit is noticed is during the first four years of its lifetime. In some vineyards, on rather poor soil, a shorter period (from two to three years) exhausts its productiveness, and on good soils, or those which are well manured, there are vineyards which have produced good crops up to twelve years old, but, generally speaking, the older the vineyard the more susceptible it has shown itself to woody or diseased fruit. It is therefore best to renew the vines before they become too old.

No. VIII. *Fungus Disease.*—An examination of the stalks and leaves of the passion vine revealed a fungus disease, which may or may not be the cause of the ill-shaped fruit. This is for the Pathologist to determine.

I do not consider this partial failure of the passion vine in a few of the vineyards to be a very serious matter. Many of the vineyards have been planted among trees, and as these attain to any size, there has not been sufficient moisture to keep both going properly, and the vines have become weakened, and suffered accordingly. In such instances a large proportion of the fruit has become diseased, and of no commercial value. The growers, however, are alive to the fact that they cannot continue to grow trees and vines together for more than three or four years without seriously damaging them, and consequently many of them are now taking out vines from between bearing trees.

As this vine does particularly well under ordinary conditions, bearing three large crops of fruit each year, that is to say in an almost perpetual state of fruit-bearing, it is not to be expected that it can keep up this strain without the application of proper fertilizers; therefore, at least every year, suitable manures should be applied, and as potash manures have given good results, I would recommend their use.

Pruning should not be neglected, as an unpruned vineyard with a lot of dead and useless laterals furnishes a harbour for disease, and the unpruned vines do not continue bearing or growing so well as do those which are well pruned back once a year.

For the fungus disease I would recommend a spraying with Bordeaux mixture (summer strength) just before each of the main crops blossom, and another as soon as the crop is fairly well set. This would not be found very expensive, and should be the means of keeping the vines fairly clean of fungus diseases.—*Agricultural Gazette of N. S. Wales.*

THE POSITION IN CASSAVA.

A recent analysis made by Professor Carmody, Government Analyst, confirms the previous work of Francis as to the presence of Prussic acid in sweet cassava, the proportion found varying from 0·005 to 0·019 per cent. The skin was found to yield from 0·014 to 0·042 per cent., while the inner part gave only 0·003 to 0·015 per cent. The interior part of bitter cassava yielded 0·013 to 0·037 per cent., while the skin and outer layer yielded from 0·012 to 0·035 per cent. Peeling sweet cassava before cooking is therefore a wise precaution. Professor Carmody also suggests that the acid may in part be formed by fermentative change.—*Trinidad Bulletin.*.

THE METRIC SYSTEM, whatever may be said against it, is so infinitely more convenient than our present idiotic weights and measures, that it is very wonderful that even British conservativeness should have been able so long to obstruct so practical a reform. Other countries have adopted the metric system with little difficulty, and not one has evinced the slightest wish to return to chaos.—*Gardiners' Chronicle.*

GUTTA CULTIVATION IN JAVA.—The subject of gutta-percha cultivation in Java has been brought before the States General. The Minister for the Colonies explained that the Government intend to start gutta-percha plantations in Java only. There the soil and climate favour the undertaking, and labour is cheaper than in Sumatra and Borneo. A beginning will be made with planting on a large scale the *palaquium* variety, which has been found to thrive very well. Within the next five or ten years, it is intended to plant large areas with three kinds of this variety. The Director of the Government Botanical Gardens at Buitenzorg will be charged with the supervision work at the outset.—*Planting Opinion.*

Wilson, Smithett & Co.'s Ceylon Tea Memoranda for 1900.

Summary of CEYLON TEA sold at public auction in London between January 1st and December 31st, 1900, estimated quantity in lbs. and average prices realised :—

Average Price for the Year was 7·25d per lb., against 8d in 1899 and 7·78d in 1898.

The initial letters following the estate names refer to the mean elevation, as follows :—

L (low) sea level up to 1,000 feet HM (high medium) 2,500 to 3,500 feet HH (highest) above 5,000 feet
M (medium) 1,000 to 2,500 feet H (high) 3,500 to 5,000 feet

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb
Over 1,000,000 lbs.				
Diyagama ... H	1,066,000	$9\frac{7}{8}$d	973,000	$9\frac{1}{4}$d
Over 500,000 lbs.				
Badulla............... H	540,000	$6\frac{3}{8}$d	354,000	$7\frac{3}{4}$d
Campden Hill ......M	501,000	$6\frac{1}{2}$d	463,000	$7\frac{1}{2}$d
Culloden...............L	589,000	$6\frac{1}{4}$d	425,000	7d
Demodera ....H	605,000	$7\frac{3}{8}$d	346,000	$8\frac{3}{8}$d
Elston...................L	575,000	$6\frac{3}{4}$d	385,500	$7\frac{3}{4}$d
Hauteville ....H	590,000	$9\frac{1}{2}$d	556,000	$9\frac{3}{4}$d
Kurugama........... L	675,000	$6\frac{1}{4}$d	642,000	$7\frac{1}{4}$d
Mattakelly............H	712,000	$8\frac{1}{4}$d	606,500	$8\frac{3}{8}$d
Meddecombra ......H	756,000	$7\frac{1}{4}$d	782,000	$7\frac{3}{4}$d
New Peradeniya ...M	618,000	$6\frac{1}{4}$d	524,000	$7\frac{1}{8}$d
Pitakande .... HM	594,000	$5\frac{3}{4}$d	511,500	$6\frac{7}{8}$d
Shamrock ....M	529,000	$5\frac{5}{8}$d	479,500	7d
Sunnycroft............L	585,000	$6\frac{3}{8}$d	433,500	$7\frac{3}{8}$d
Walpola... L	537,500	6d	408,000	7d
Yataderia..............L	672,000	$5\frac{3}{4}$d	363,000	7d
350,000 lbs to 500,000 lbs.				
Bandarapolla......HM	494,000	$5\frac{3}{4}$d	459,000	$6\frac{3}{4}$d
Belgravia...............H	432,000	$8\frac{3}{4}$d	338,000	$8\frac{3}{4}$d
Castlemilk............M	428,000	$6\frac{3}{8}$d	358,000	$7\frac{3}{8}$d
Craighead.............M	400,500	$7\frac{1}{4}$d	323,500	8d
Degalessa...............L	455,000	$6\frac{3}{8}$d	406,500	$7\frac{1}{8}$d
Drayton.............. H	379,500	$8\frac{1}{2}$d	386,000	9d
Dunsinane............H	365,500	$9\frac{1}{2}$d	403,000	$8\frac{5}{8}$d
Elkadua........... HM	379,500	6d	297,000	$7\frac{1}{4}$d
Fordyce ....H	387,500	$7\frac{7}{8}$d	317,500	$8\frac{1}{2}$d
Galaha ....M	463,000	$6\frac{3}{4}$d	587,500	$7\frac{1}{2}$d
Gallamudina.........M	367,000	7d	323,500	$7\frac{1}{2}$d
Great Western...... H	370,000	$9\frac{1}{2}$d	288,000	$9\frac{3}{4}$d
Gonakelle ....HM	469,000	$7\frac{1}{2}$d	318,500	$8\frac{1}{8}$d
Hemingford L	483,000	$5\frac{7}{8}$d	424,500	$6\frac{7}{8}$d
Imboolpittia ....M	381,500	$6\frac{1}{2}$d	340,500	$7\frac{3}{8}$d
K. A. W............HM	421,000	$6\frac{1}{2}$d	509,000	$7\frac{1}{2}$d
Kellie...................M	368,500	$6\frac{1}{4}$d	343,500	$7\frac{1}{4}$d
Kirkoswald ....H	479,000	$7\frac{3}{4}$d	378,000	$8\frac{1}{4}$d
Laxapana ....H	352,000	$6\frac{7}{8}$d	269,500	$7\frac{3}{4}$d
Le Vallon ....HM	422,500	$7\frac{3}{4}$d	357,000	$8\frac{3}{8}$d
Loolecondera.........H	379,500	$7\frac{1}{4}$d	261,000	8d
Mariawatte ....H	377,500	$6\frac{3}{8}$d	311,000	$7\frac{3}{8}$d
Mooloya ....H	387,500	$7\frac{3}{4}$d	299,000	$8\frac{1}{8}$d
Mount Vernon.......H	368,000	$8\frac{3}{4}$d	357,500	$9\frac{1}{8}$d
Nilambe............ HM	365,500	$6\frac{3}{8}$d	328,500	$7\frac{3}{8}$d
Poonagalla.........HM	397,000	$6\frac{3}{4}$d	126,000	$7\frac{3}{4}$d
Ragalla ....H	384,500	$9\frac{3}{8}$d	334,500	$9\frac{1}{2}$d
Rangbodde ....H	375,500	$6\frac{3}{4}$d	321,500	$7\frac{1}{2}$d
Rothschild........... H	364,000	$6\frac{5}{8}$d	387,000	$7\frac{1}{2}$d
St. Leonards ......HH	483,000	$10\frac{1}{4}$d	511,500	$10\frac{1}{2}$d
Spring Valley.......H	429,000	$7\frac{1}{4}$d	442,000	$7\frac{3}{4}$d
Talawakelle ....H	402,500	$11\frac{1}{8}$d	374,000	$10\frac{5}{8}$d
Tangakelly.............H	404,500	$9\frac{1}{4}$d	290,000	$9\frac{5}{8}$d
Tillicoultry ....H	430,500	$9\frac{5}{8}$d	303,000	$10\frac{5}{8}$d
Ukuwella...............M	355,500	$5\frac{3}{4}$d	68,000	$6\frac{5}{8}$d
Vellai-oya ....H	441,000	$6\frac{3}{4}$d	404,000	$7\frac{1}{2}$d
Wanarajah............H	383,000	$9\frac{7}{8}$d	319,500	$9\frac{3}{4}$d
Waverley ....H	401,500	10d	358,000	10d
Wattegodde ....H	405,500	$8\frac{1}{4}$d	310,000	$9\frac{1}{8}$d
Westhall............HM	355,000	$6\frac{5}{8}$d	347,500	$7\frac{1}{2}$d
200,000 to 350,000 lbs.				
Abbotsleigh...........H	251,000	$8\frac{1}{2}$d	187,000	$9\frac{1}{8}$d
Adam's Peak ....H	219,500	$7\frac{3}{8}$d	184,000	8d
Alacolla.............HM	203,500	$5\frac{7}{8}$d	196.500	$6\frac{7}{8}$d
Ambatenne............L	240,000	$5\frac{7}{8}$d	220,500	$6\frac{7}{8}$d
Atgalle ....M	248,500	$6\frac{1}{2}$d	127,500	$7\frac{5}{8}$d
Ayr L	243,500	6d	221,500	7d
Antony Malle........M	239,500	$6\frac{5}{8}$d	37,000	7d
Abamalla...............L	205,500	6d	148,500	7d
Battagalla.............M	221,500	$6\frac{1}{4}$d	239,500	$7\frac{1}{4}$d
Battalgalla............H	210,500	$8\frac{1}{8}$d	183,500	$8\frac{3}{4}$d
Barnagalla ....M	205,500	$7\frac{1}{8}$d	199,000	8d
Benveula ....M	211,000	$5\frac{3}{4}$d	218,500	$6\frac{1}{2}$d
Beaumont.............M	241,500	$6\frac{1}{4}$d	330,000	$7\frac{1}{4}$d
Blackstone............H	218,500	$6\frac{1}{8}$d	191,000	$7\frac{1}{8}$d
Blair Athol............H	200,000	$6\frac{1}{2}$d	126,000	$7\frac{3}{4}$d
Bogawantalawa ......H	313,000	$7\frac{1}{2}$d	246,000	$8\frac{1}{4}$d
Bogawana.............H	251,000	$7\frac{3}{4}$d	202,000	$8\frac{1}{2}$d
Burnside Group ....M	307,000	$6\frac{1}{4}$d	236,500	$7\frac{1}{8}$d
Bridwell................H	269,500	$7\frac{5}{8}$d	190,500	$8\frac{5}{8}$d
Campion................H	324,500	$8\frac{1}{2}$d	272,000	$9\frac{1}{2}$d
Cannavarella.........H	307,000	9d	237,000	$9\frac{1}{8}$d
Chapelton.............H	304,000	$7\frac{7}{8}$d	291,000	$8\frac{1}{2}$d
Concordia............M	230,000	11d	181,000	$11\frac{1}{4}$d
Clydesdale ....H	259,500	$8\frac{7}{8}$d	217,500	$9\frac{3}{4}$d
Cocagalla ....HM	305,000	$7\frac{7}{8}$d	215,500	$8\frac{1}{8}$d
Cranley.................H	252,000	$9\frac{1}{2}$d	281,500	$10\frac{1}{8}$d
Darawella .... H	215,000	$7\frac{1}{4}$d	211,500	8d
Dartry ....M	270,000	$6\frac{1}{4}$d	350,500	$7\frac{1}{2}$d
Debatgama............M	209,000	6d	170,500	$7\frac{1}{8}$d
Delmar..................H	289,000	10d	201,000	$9\frac{1}{4}$d
Delta ....H	248,000	$6\frac{1}{2}$d	217,500	$7\frac{3}{4}$d
Deviturai ....HM	200,500	$6\frac{5}{8}$d	171,000	$7\frac{5}{8}$d
Dewalakanda.........L	276,500	$5\frac{3}{4}$d	268,500	7d
Digalla L	202,000	6d	195,000	7d
Doteloya .... M	269,000	$5\frac{3}{4}$d	174,000	$6\frac{7}{8}$d
Duckwari...........HM	346,500	$6\frac{3}{8}$d	262,500	$7\frac{3}{8}$d
Dunedin................L	233,000	$6\frac{1}{8}$d	208,000	7d
Ederapolla L	257,000	6d	199,000	$7\frac{1}{4}$d
Ellekande..............L	246,000	6d	205,500	7d
Elangapitiya.........M	213,500	$5\frac{3}{4}$d	195,000	$6\frac{3}{8}$d
Elbedde ....H	284,500	$8\frac{1}{4}$d	232,500	$8\frac{1}{2}$d
El Teb...................M	329,000	$6\frac{3}{4}$d	221,000	$7\frac{1}{2}$d
Ernan L	310,500	$6\frac{1}{8}$d	299,500	7d
Gallebodde ....M	251,000	8d	226,000	$8\frac{1}{2}$d
Gammadua............H	316,000	$5\frac{3}{4}$d	250,000	$6\frac{3}{4}$d
Gikiyanakande.......L	316,000	$6\frac{5}{8}$d	278,000	$7\frac{1}{2}$d
Glanrhos...............L	208,000	6d	113,000	$7\frac{3}{8}$d
Glenugie ....H	224,500	$8\frac{5}{8}$d	212,000	$8\frac{5}{8}$d
Glenlyon ....H	202,000	$9\frac{3}{8}$d	272,000	$9\frac{1}{4}$d
Goorookoya ....M	342,500	$6\frac{1}{4}$d	318,000	$7\frac{1}{2}$d
Gouravilla ....H	335,000	$7\frac{1}{2}$d	275,000	$8\frac{1}{4}$d
Gordon ....HH	259,000	$8\frac{3}{8}$d	90,000	$9\frac{5}{8}$d
Glen Alpin..... ......H	315,000	$6\frac{3}{4}$d	208,500	8d
Halwatura.............L	235,500	$5\frac{5}{8}$d	114,000	$6\frac{7}{8}$d
Hantane.................M	209,000	$5\frac{3}{4}$d	169,500	7d

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb
Hatale........ H	251,000	6d	224,500	7⅛d
Heatherley........ HM	268,000	6d	228,000	7d
Henfold........ H	260,500	11d	234,500	11d
Hoonoocotua........ H	289,000	6⅜d	277,000	7¼d
Holyrood East........ H	284,000	9¼d	278,500	9¼d
Hope........ H	317,500	7⅜d	300,500	7½d
Havilland........ M	212,500	6d	100,000	7d
Invery........ H	276,000	7½d	222,000	8¾d
IMP........ H	345,500	6⅞d	323,000	7½d
Ingoya........ M	256,000	5⅝d	168,000	7⅛d
Kadien Lena........ M	344,000	6¼d	307,000	7½d
Kandanewera........ HM	271,000	6½d	286,000	7¼d
Kataboola........ H	203,500	7d	169,000	7¾d
Kehelwatte........ M	229,000	7¼d	142,000	8⅛d
Keenakelle........ L	217,500	6⅜d	170,500	7½d
Kelburne........ H	238,000	7⅝d	139,500	8d
Kelliebedde........ H	211,500	10⅜d	163,000	10⅜d
Knuckles Group........ HM	303,500	6¼d	238,000	7¼d
Kotiyagalla........ H	343,500	8⅞d	325,500	9⅜d
Katooloya........ H	229,000	6⅞d	266,000	8d
Kottagodde........ H	204,000	6⅞d	—	—
Ledgerwatte........ M	300,000	7d	27,000	8⅛d
Labukelle........ H	263,500	7¼d	173,000	8⅜d
Lavant........ L	258,000	5¾d	174,000	6¾d
Lawrence........ H	222,000	7⅜d	164,500	8¼d
Lippakelle........ H	250,000	10⅜d	—	—
Lindoola........ H	205,000	8¾d	180,500	8⅞d
Luccombe........ HM	238,000	6⅝d	251,000	7¼d
Mahadowa........ H	348,000	8⅛d	301,000	8⅜d
Mahaousa........ M	221,000	5⅜d	154,500	7¼d
Mahaoya........	290,000	5⅞d	154,500	6⅞d
Mayfield........ H	223,500	7½d	251,000	8⅛d
Melfort........ M	200,000	7⅝d	148,000	8⅜d
Meeriabedde........ H	256,000	6¾d	169,000	7⅝d
Mossville........ M	304,000	6⅝d	243,500	7⅝d
Nikakotua........ L	257,500	6d	180,000	6⅞d
Nayabedde........ H	200,000	9⅛d	161,500	9½d
Nayapane........ HM	259,500	6⅛d	251,500	7d
Needwood........ H	339,000	6⅞d	216,000	8d
New Peacock........ H	280,500	7⅛d	241,000	7¾d
Nicholaoya........ HM	217,500	7d	219,000	7d
Norwood........ H	346,500	7⅞d	281,500	8⅞d
Ouvahkellie........ H	209,000	9⅝d	215,500	9d
Orion........ M	202,000	6⅜d	170,500	7d
Pambagama........ L	264,500	5⅝d	190,000	7d
Pantiya........ L	268,000	6d	222,500	7⅛d
Parragalla........ HM	265,500	6⅝d	255,000	7⅜d
Penrith........ L	238,500	6⅛d	228,000	7d
Pen-y-lan........ M	288,000	6⅛d	238,500	7⅜d
Peradenia........ H	222,500	7d	224,500	7¾d
Portmore........ H	263,500	10⅜d	234,500	10⅛d
Pussetenne........ M	249,000	5⅞d	163,000	7¼d
Queensberry........ H	338,500	7⅜d	329,000	8½d
Rangalla........ HM	242,500	7½d	163,500	8d
Rosita........ H	288,000	7⅝d	251,500	8⅛d
Rutland........ H	282,500	6¾d	194,000	8d
Sandringham........ H	340,000	9d	245,000	9⅝d
Sanquhar........ H M	249,000	6⅝d	242,000	7⅛d
St. Andrew's(Mask) H	204,500	7⅛d	112,500	7⅞d
St. Clair........ H	289,500	8⅝d	377,500	9⅜d
St. Clive........ M	254,000	5¾d	187,000	6¾d
St. John del Rey........ H	311,500	8⅜d	238,500	8¾d
Sheen........ H	211,000	9¾d	179,000	10d
Sogama........ HM	314,000	6⅝d	251,000	7⅛d
Stonycliff........ H	242,500	8d	199,500	8⅜d
Sorana........ L	221,000	6d	204,500	7d
Talagalla........ L	216,000	6⅝d	190,000	7½d
Thornfield........ H	279,000	8½d	229,000	9⅝d
Tillyrie........ H	250,500	7½d	197,500	8¼d
Udaradella........ HH	211,500	9¼d	191,000	8¼d
Ury........ M	303,500	7d	198,000	7⅞d
Verelapatna........ H	220,000	8¼d	199,000	8¼d
Waharaka........ L	287,500	5¾d	186,500	7d
Warriagalla........ M	250,500	6¼d	184,500	7½d
Wereagalla........ L	237,000	5⅞d	193,500	6⅞d
Windsor Forest........ H	219,500	7d	224,500	7⅝d
Wavelkelly........ M	269,000	6½d	276,000	7½d
Yahalakelle........ L	287,000	6d	193,000	7⅛d
Ythanside........ H	216,000	7⅜d	231,500	8¼d
100,000 to 200,000 lbs.				
Abbotsford........ HH	196,000	8⅞d	159,000	9¼d
Agrakande........ H	148,000	7½d	132,000	8½d
Aigburth........ HM	107,000	6¼d	97,000	7⅜d
Albion........ H	128,000	9d	106,000	9d
Alliawatte........ M	128,500	6d	39,000	7⅜d
Allagalla........ M	131,500	7¼d	85,000	8d
Allerton........ M	103,500	5⅜d	56,000	6d
Aldie........ H	197,500	9⅜d	175,500	9½d
Alton........ H	139,000	8½d	115,000	9d
Alnwick........ H	113,000	8⅝d	119,000	8¾d
Amherst........ H	182,000	9⅝d	125,500	9½d
Ampittiakande........ H	124,500	7¼d	123,500	7¾d
Ardross........ L	137,000	6⅛d	107,000	7⅛d
Arslena........ HM	113,500	6d	113,000	6¾d
Asgeria........ M	101,000	6¾d	76,500	7⅝d
Atherfield........ L	121,500	5⅞d	117,000	7d
Augusta Tea Est. Co. HM	146,000	6⅛d	100,000	7⅛d
Appachy Totam........ H	146,500	8⅜d	157,500	8¾d
Athlone........ M	112,000	6d	25,500	6¾d
Berat........ H	118,000	8¼d	101,000	8⅝d
Bellwood........ HM	130,000	7d	100,500	7⅝d
Berragalla........ H	135,000	8⅜d	111,000	8¼d
Binoya........ HM	184,000	6½d	175,000	7⅜d
Blackburn........ M	118,500	6d	54,000	7d
Bogahawatte........ H	175,000	7½d	169,500	7⅞d
Brae........ HM	195,000	6¼d	175,000	7¼d
Bramley........ H	106,000	8⅜d	80,000	9d
Brookside........ H & HH	117,000	10½d	104,500	10⅛d
Braemore........ H	166,000	8½d	129,000	9½d
Bowlana........ M	107,000	6⅛d	101,500	7d
Beddegama........ HM	149,000	6¼d	150,500	7⅜d
Calsay........ H	175,000	8½d	154,500	8¼d
Caledonia........ H	142,000	8⅜d	123,000	8¼d
Carlabeck........ H	123,500	8½d	105,000	8¾d
Cattaratenne........ HM	120,500	5⅞d	72,000	7¼d
Chrystlers Farm........ H	183,000	8¼d	164,000	8¾d
Clontarf........ L	121,000	6d	98,000	7¼d
Condegalle........ H	144,000	8⅝d	122,500	8¼d
Coolbawn........ M	123,500	6⅜d	94,000	7¼d
Cottaganga........ H	172,000	6d	94,000	7½d
Cullen........ L	149,500	6¼d	121,500	7½d
Dalleagles........ M	185,500	6¼d	163,500	7⅜d
Dedugalla........ M	138,000	5⅞d	129,000	7¼d
Deeside........ H	176,000	7⅝d	139,500	8⅝d
Dehiowita........ M	152,500	6d	129,000	7d
Deltotte........ HM	176,000	6⅜d	140,000	7⅛d
Denegama........ H	133,500	5⅞d	109,000	7⅜d
Densworth........ L	182,500	5½d	150,000	6¾d
Derryclare........ H	125,500	8⅜d	107,000	8¾d
Dessford........ H	173,000	8⅜d	177,500	9¼d
Detenagalla........ H	126,500	7¾d	102,500	8⅛d
Deyanella........ HM	116,000	7d	106,500	7¾d
Dickoya........ H	111,500	6½d	134,500	7⅜d
Dimbulla........ H	158,500	8¾d	189,000	9⅜d
Diyanillakelle........ H	119,000	10⅜d	128,000	10¼d
Ellawatte........ H	135,500	7⅛d	83,000	8¼d
Edinburgh........ H	106,000	8¼d	74,000	8¼d
Eildon Hall........ H	159,500	8¾d	157,000	9¼d
Elfindale........ H	137,000	6d	143,500	7⅛d

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb
Eltofts..................H	166,500	8⅛d	158,500	8¾d
Emelina............... H	120,500	7¼d	114,000	8⅛d
Excelsior............HH	141,000	10¾d	155,000	9¾d
Etulgama...............M	142,000	6¼d	155,500	7½d
Ellamalle............HH	163,000	6⅛d	105,000	7¾d
Faithlie.............. H	185,500	7¾d	162,000	8¾d
Farm................... M	166,000	6¾d	132,000	7⅞d
Fernlands............ H	141,000	9¼d	135,000	9½d
Fetteresso...........HH	168,500	7½d	129,000	8¾d
Forres.................H	123,000	7¼d	118,000	8¼d
Galgawatte............M	102,500	6¼d	92,000	7¼d
Galkandewatte...... H	166,000	8⅜d	161,500	7¾d
Gangwarily...........M	139,500	6⅛d	103,000	6⅞d
Ganapolla..............L	100,000	5⅝d	77,500	7d
Gartmore............. H	128,000	8¾d	158,000	8⅞d
Glenalla................ L	113,000	5¾d	20,000	6¾d
Glencairn.............. H	197,500	7⅛d	146,500	8d
Glenloch............... M	140,500	6¾d	135,500	7¾d
Goatfell.................H	115,000	1/1⅛	108,500	11⅝d
Gonamotava.......... H	121,000	9¼d	102,500	9⅞d
Goomera.............. H	164,000	5¾d	133,500	7¼d
Gorthie..................H	166,500	7½d	121,500	8½d
Gonambil........... HM	179,500	6⅛d	159,500	7d
Gowerakelle.......... M	121,500	8d	54,000	9⅛d
Gona Adika Coy.....M	153,500	6d	93,000	6⅝d
Happugahalande... M	180,500	5¾d	152,500	6⅞d
Hatherleigh............M	107,000	5½d	—	—
Hethersett............ H	186,500	8¾d	172,000	9d
Hindugalla............ M	147,000	7d	83,000	8⅜d
Holmwood............ H	147,500	10½d	128,000	10⅛d
Holyrood West.... H	177,000	9⅜d	191,500	9⅝d
Hopton............. HM	108,000	6½d	100,500	7⅜d
Hyndford...............M	145,000	6⅞d	172,000	7¼d
Hunasgeria.........HM	185,500	5¾d	197,000	7¼d
Hopewell.............. M	116,000	6¾d	73,000	7⅜d
Halgolla............... L	141,500	6d	24,000	7¼d
Indurana................L	166,500	6⅜d	126,500	7⅜d
Ingestre............... H	188,500	10d	193,000	9¾d
Kabragalla............H	167,000	6½d	191,500	7¾d
Kaloogala............. M	119,500	7⅜d	75,500	8d
Kalupahana...........H	154,000	7½d	72,500	8¾d
Kelliewatte............H	133,500	7⅞d	120,500	8¾d
Kelvin.................. M	112,500	6¾d	117,000	7⅜d
Kintyre............... H	115,000	7d	85,000	7¾d
Kirrimettia............M	183,500	7d	181,500	7¾d
Kowlahena.............H	129,000	8⅜d	105,000	8⅝d
Kuda Oya.............H	193,000	6⅞d	187,000	7⅞d
Kenilworth..... ...HM	198,000	6¼d	163,500	7⅜d
Kew...................HH	173,500	7½d	133,000	8¼d
Logan.................. L	152,500	5⅞d	139,000	6⅞d
Lagalla................HM	136,000	5¾d	88,000	7¼d
Lauderdale.........HM	128,500	5¾d	157,500	6¾d
Leangapella...........H	108,000	6¼d	105,000	7¼d
Lynford ....H	145,000	8¼d	110,000	8¾d
Leangawella.......HM	133,500	8d	136,500	8¼d
MG........................	140,000	5⅛d	28,000	7d
Macduff ....H	128,500	8d	114,000	8⅞d
Mahacoodugalla.....H	150,500	9½d	127,000	9¼d
Mahagalla ....H	142,900	7⅜d	100,500	8¼d
Maha Eliya ....H	124,500	7¾d	121,500	8⅛d
Mahagastotte ....H	121,500	9⅜d	102,500	9¾d
Maratenne ....H	128,500	7¼d	33,500	8d
Meria Cotta...........H	170,000	9½d	115,000	9d
Midlands............HM	123,000	6⅜d	101,000	7⅜d
Minna....................H	199,000	7⅜d	55,000	8½d
Mipitiakande.........L	184,500	6d	140,500	7½d
Morar....................H	163,000	7d	123,000	7⅝d
Moray....................H	136,500	7½d	238,500	8d
Moolgama.............M	115,500	6⅜d	85,500	7½d
Mount Pleasant...HM	133,000	6¾d	121,500	7¾d

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb
Mudamana............L	193,500	5⅞d	172,500	7d
Memorakande..........	133,000	6⅜d	113,000	7⅜d
Nahalma................L	178,500	5⅞d	145,500	6¾d
Narangala ....H	125,000	6⅛d	122,500	6¾d
New Forest ....H	122,000	7⅜d	104,500	8⅜d
Newton ....H	155,500	7½d	135,500	7⅞d
North Matale.........M	133,000	6½d	128,000	7d
North Pundaloya...H	110,500	6¾d	65,500	7⅝d
Nawalakande	142,000	6⅞d	92,000	7¾d
Oononagalla ....H	155,500	7¼d	31,500	7½d
Opalgalla............HM	138,500	6½d	145,000	7¼d
Osborne..................H	141,500	8¾d	146,500	9d
Pedro ....HH	123,500	9d	121,500	9⅛d
Pansalatenne.........M	135,500	6½d	153,500	7¼d
Park ....HH	123,000	10⅝d	175,500	10⅝d
Pingarawe ....HM	140,500	7¼d	117,000	8¼d
Pita Ratmalie ....H	166,500	9d	162,500	8¼d
Portree...................H	175,500	7⅛d	132,000	7⅞d
Poyston...................H	130,500	7⅛d	108,000	7⅞d
Pundaloya ....H	173,000	9⅛d	183,000	9½d
Poengalla...............M	145,500	6¼d	123,000	7¼d
Rasagalla ....M	136,000	6⅜d	66,000	7d
Rugby....................M	156,500	7¼d	20,000	7¾d
Radella.. ....H	110,500	6⅞d	135,000	8⅛d
Rappahannock........H	111,000	8⅝d	108,500	8⅜d
Ravenswood ....H	123,500	6⅞d	70,500	7¾d
Relugas ....HM	156,500	6½d	148,500	7¼d
Riverside...............M	147,500	6d	156,000	6¾d
Rickarton...........HM	150,500	7⅜d	130,500	8⅜d
Rillamulle ....H	110,500	7⅞d	81,500	7⅞d
Sirisanda................L	111,500	5¾d	73,500	6¾d
Stinsford................L	104,000	6¼d	95,000	6⅞d
St. Helens............M	134,000	6⅛d	129,500	7⅛d
Sarnia...................M	164,000	6⅞d	96,500	7¾d
Sembawatte ....HM	127,000	5⅜d	88,000	6¾d
Scarborough..........H	117,000	7¾d	100,500	8¼d
Shawlands ....H	102,000	6⅛d	97,500	7¼d
Silver Kandy......HH	127,000	9⅛d	103,000	10d
Sinnapittia ....M	186,000	6⅜d	111,000	7⅝d
Somerset.................H	154,500	7⅝d	149,000	8⅛d
South Wanna Rajah H	110,500	7½d	119,000	8⅜d
Springwood...........M	174,000	6d	205,000	6¾d
Stellenberg.............H	102,000	7¼d	100,500	7¾d
Strathdon...........HM	157,000	6⅞d	146,500	7¾d
Stockholm..............H	193,500	6¾d	128,000	8⅜d
Savernake.................	165,500	6⅛d	144,000	7¼d
Sumtravalle ....H	133,500	9½d	117,000	9½d
Tebuana..................	102,500	5¾d	42,500	6¾d
Taurus...................H	114,000	9½d	128,000	9⅜d
Theresia................H	144,000	8⅞d	95,500	8¾d
Troy.......................L	154,500	5⅞d	138,000	7d
Troup ....H	136,500	9⅜d	160,500	8⅞d
Tunisgalla.............H	116,000	5⅞d	24,000	7¼d
Tyspany ....H	190,500	7d	172,000	7½d
Tientsin ....H	144,000	8d	125,000	8⅝d
Ugieside.................M	158,500	5¾d	148,000	6¾d
Uva.......................H	184,000	6¼d	177,500	7⅛d
Uvakellie...............H	155,500	8⅜d	149,000	8¼d
Upper Haloya........M	186,500	6d	108,500	7d
Vathalana ....HM	106,500	6¼d	25,500	7d
Valamaly................H	119,500	8¾d	129,500	8⅞d
Venture..................H	195,000	7⅝d	166,500	8¼d
Verelupitiya............L	145,000	6⅛d	112,500	7d
Waldemar...............H	172,000	8¾d	163,000	8½d
Wallaha ....H	192,500	7¾d	214,000	8¼d
Waltrim ....H	158,500	8⅛d	137,500	8⅜d
Wangie Oya...........H	171,000	6⅞d	—	—
Wattakelly..............H	165,000	6⅝d	149,000	7½d
Wewelmadde,.........M	141,500	6⅜d	105,500	7½d
Wewesse............HM	103,000	6⅞d	71,500	7¼d

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb
Weyweltalawa.......M	155,000	6½d	41,500	7⅜d
Wigton.................H	132,000	6¾d	104,500	7⅝d
Wiharagalla..........H	163,500	8⅜d	78,500	9¼d
Wootton...............H	133,000	9⅛d	118,000	9⅝d
WFG....:.................	126,000	5⅜d	82,000	6¼d
Yoxford................H	129,000	9d	119,000	9½d

50,000 to 100,000 lbs.

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb
Abergeldie.........HM	83,500	7d	80,500	7¾d
Ambawella...........H	62,500	7d	68,000	8⅜d
Annfield...............H	91,000	9d	92,500	9¼d
Anchainkatte.........M	63,500	6⅜d	—	—
Avisawella L	95,000	6⅜d	261,000	6⅞d
Bathford..............H	85,000	7¾d	87,000	7⅞d
Batgodde..............H	82,000	8⅛d	56,000	9¼d
Berrawella ....M	92,000	6⅝d	113,500	7⅝d
Beaconsfield ....H	85,000	8¾d	53,000	8⅞d
Beverley...............L	85,500	7⅛d	77,000	8¼d
Blackwood............H	92,500	7¼d	82,000	7¾d
Blair Avon............H	83,000	7d	72,000	7⅞d
Bon Accord ....H	78,500	7⅜d	69,500	7⅝d
Broad Oak.............H	86,000	6⅝d	98,500	7⅜d
Broughton............H	88,500	8d	67,500	8⅛d
Burnswick............H	81,000	7⅝d	70,000	8¼d
CH in diamond........	69,500	4¾d	—	—
Cairn-mon-earn...HM	94,500	6½d	86,500	7¼d
C'Galla..................M	83,500	7¼d	65,000	8d
Choisy ....H	78,000	7d	166,500	7½d
Clarendon ....H	59,000	7⅛d	82,500	7⅞d
Claverton ....M	72,000	7⅛d	66,500	8d
Craig ....M	74,000	9⅝d	75,000	9¾d
Damblagolla.......HM	73,500	6¼d	88,000	7¼d
Dangkande.........HM	95,500	6¾d	91,000	7½d
Deanstone.............H	77,000	8d	73,500	8⅞d
Delpotonoya..........H	73,500	6¾d	66,500	7¼d
Donside.............HM	95,500	6⅛d	90,000	7⅛d
DoombagastalawaHM	65,500	6⅛d	83,000	7⅝d
Dromoland........... M	58,000	5¾d	39,000	6⅞d
Dunnottar.............H	61,500	6⅞d	81,500	8d
Doonevale L	66,500	5⅝d	—	—
Eila.......................L	67,000	5½d	—	—
Elemane............ ..H	66,000	6⅝d	45,000	8¼d
Ellagalla...............M	95,000	6¾d	111,000	7¼d
Ettie......................L	58,500	5⅝d	51,000	6¼d
Fairfield...............H	96,500	8¼d	109,500	8⅝d
Fassifern ....H	61,500	8¼d	72,500	8⅝d
Fruit Hill.............H	76,000	7⅜d	86,500	7¾d
Ferham ....H	89,500	9⅝d	87,000	9⅝d
Gallaheria ....H	86,500	7d	96,000	7½d
Gavatenne ....HM	66,000	8¼d	57,000	8⅞d
Glenorchy.............H	82,500	8¼d	54,000	8½d
Glentaaffe.............H	74,500	7¾d	88,500	9¼d
Gallata ....HM	96,000	6¼d	81,500	7¼d
Getena.....................	51,500	5⅞d	—	—
Hakurugalla L	62,500	5⅞d	48,000	6¾d
Hallowellah ....H	70,000	6¾d	67,500	7¾d
Heatherton.........HM	81,500	6¾d	72,000	7½d
Holbrook...............H	65,500	9d	—	—
Hunugalla ....H	71,500	6d	169,500	7½d
Harmony...............M	64,500	6d	63,500	7d
Ivies......................L	87,500	5¾d	89,000	6¾d
Ingurugalla ....M	65,500	6d	75,500	7d
Kaipoogalla...........H	98,500	7½d	91,500	8⅜d
Kallebokka ....M	99,500	6½d	118,000	7½d
Keenagaha Ella...HM	55,000	6⅜d	59,000	7d
Koladenia..............M	57,000	6d	37,500	6¼d
Kottagalla.............H	68,500	7⅞d	81,000	8⅓d
Lamiliere..............H	96,500	7⅜d	62,000	7¾d
Lauriston ....HH	55,000	8⅜d	45,000	9⅛d
Loinorn.................H	88,000	9½d	100,000	9¾d
Lover's Leap......HH	62,000	9⅛d	89,000	9½d
Lawerencewatte.....M	96,500	6d	84,000	6⅝d
Logie....................H	76,000	7⅞d	107,500	7¾d
Maddegadera.........L	82,000	5⅝d	104,000	6⅞d
Marakona..............M	79,000	5⅝d	50,000	6½d
Mandara Newera....H	51,000	7⅜d	47,500	8¼d
Maymolly ....H	80,500	7¼d	93,500	8⅛d
Melton ....H	69,000	7⅜d	49,000	8d
Midlothian ....H	73,500	7½d	60,500	7⅞d
Mincing Lane........H	80,000	7¼d	70,500	7⅝d
Mayfield...............H	51,000	7¾d	251,000	8⅛d
Mottingham ....H	95,000	7d	92,000	7⅝d
Moralioya..............L	98,500	5¾d	73,500	6¾d
Myraganga	71,500	6½	102,000	6½d
Meddetenne ....M	86,000	6⅛d	40,000	6⅝d
Mousa Eliya..........H	87,500	6¼d	31,000	7d
Meddakande ....M	97,500	6⅜d	36,000	7¼d
Napier..................M	87,500	7½d	39,000	8½d
North Cove...........H	89,500	9½d	99,500	9⅜d
Norton ....HM	89,000	6⅝d	73,500	7d
Nutbourne............H	69,000	8½d	50,000	9d
Nahaveena.........HM	61,000	6d	63,000	7⅛d
Oolapane..............M	55,000	6⅜d	88,500	7¼d
Orwell ....M	58,500	6d	88,000	7¼d
Ormidale...............H	95,500	9⅞d	75,500	10¼d
Pati Rajah............M	68,500	6⅛d	32,000	7⅛d
Peacock Hill.......HM	77,000	6¾d	89,000	7¼d
Poolbank..............H	68,500	7¾d	53,500	8⅜d
Portswood..........HH	94,500	9⅝d	148,000	9¾d
Rajawattie...............	76,500	6⅜d	—	—
Rahanwatte...........H	79,500	7¾d	96,500	8¼d
Raxawa.................M	78,500	6½d	181,000	7¼d
Ridgmount	51,500	5⅝d	62,000	7⅛d
Ritnageria............H	83,000	9d	75,000	9¾d
Rookwood ....H	79,000	6¾d	193,500	7½d
Robgill ....H	76,500	8¼d	54,500	8½d
Rookatenne...........M	92,500	7⅞d	42,000	8¼d
Stonyhurst.........HM	64,500	6⅞d	50,500	7¾d
St.Andrew's(Dimb)H	64,000	8½d	92,500	8¼d
St. Leys...............H	66,000	7d	44,000	8d
St. Margarets.........H	68,000	8⅝d	69,500	8⅜d
St. Vigean's...........H	83,500	7½d	49,500	8⅜d
Stubton................M	55,500	5⅞d	37,500	6¾d
Shannon............HM	84,500	6¾d	54,500	7⅛d
Sutton..................H	78,500	11¾d	142,000	9½d
Summerville ....H	87,500	7d	61,500	7¾d
Thotulagalla ....H	99,000	9¼d	78,500	8½d
Udaveria...............H	50,000	7½d	51,500	9d
Udabage L	89,500	6d	81,000	7d
Uma Oya...............M	64,000	7⅜d	51,500	8⅛d
Vicarton............HM	65,500	6¼d	60,500	7d
Wavena.................	53,500	6¼d	—	—
Warleigh............HM	65,000	7⅝d	62,000	8½d
Warriapola............M	71,000	6¼d	29,000	7½d
Wattawella............M	82,000	7½d	56,500	8d
West Haputale......M	89,000	8d	77,000	8⅜d
Wewebedde...........H	56,500	7½d	60,000	7⅞d
Wevekellie............M	62,000	7¼d	64,000	8½d
Wellington............H	62,000	8⅜d	49,000	8¾d
Weddemulle ....H	85,500	7d	49,000	8¼d
Weygalle...........HM	67,500	5⅛d	54,500	7⅛d
Walhandua	77,000	6⅛d	33,500	6¾d
Weymouth............L	87,500	6¼d	23,500	6¾d
Yapame.................H	75,000	6⅝d	—	—
Yuillefield ....H	91,000	7⅜d	81,000	8½d

20,000 to 50,000 lbs.

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb
Agarsland.............M	32,500	6½d	52,000	7½d
Ankanda...............M	40,500	6¼d	51,500	7⅛d
Ardlaw & Wishford H	28,000	8d	67,500	7¾d
Avoca ....H	24,000	8¼d	38,000	8⅞d

	1900 About lbs.	Av. price per lb.	1899 About lbs.	Av. price per lb		1900 About lbs.	Av. price per lb,	1899 About lbs.	Av. price per lb
Atherton ....M	20,500	6⅜d	33,500	7d	Kahawatte ....HH	83,000	7⅛d	175,500	7⅝d
Beauvais ....H	27,000	7⅜d	20,500	8¼d	Kalugama.............H	44,000	8⅝d	57,000	8⅝d
Bargany................H	21,500	6¾d	—	—	Lynsted.................H	48,000	8d	85,000	8⅜d
Bunyan ....H	45,000	7¼d	84,000	8d	Lonach ....HM	32,000	6d	140,000	7¼d
Blairgowne ....H	49,500	5⅞d	—	—	Ladbroke... ....HM	32,500	6¾d	—	—
Callander..............H	23,000	7¼d	30,500	7¾d	Manickwatte.........H	24,500	6⅜d	20,500	7⅜d
Chetnole................L	37,000	6⅝d	40,000	7d	Nella Oola ....M	35,000	5⅞d	47,000	6¾d
Coodagalla............M	36,500	5¾d	27,000	6⅞d	Obiya.....................H	45,000	7¼d	25,500	8⅝d
Craigie Lea.............H	25,000	7⅝d	272,500	8⅛d	Old Haloya...........M	40,500	5¾d	29,500	7d
Eadella	22,500	5¾d	28,500	6¾d	Ovoca....................H	42,500	7⅝d	91,500	8¼d
Eastlands ....H	40,500	7¼d	36,500	7¾d	Puspone..................	32.500	5½d	26,000	7½d
Gantanne...............M	24,000	6d	21,000	7d	Panmure ....H	46,500	7⅜d	71,500	8d
Geddes ....H	23,500	6⅞d	23,000	8⅝d	Polgahakanda L	39,500	6¼d	108,000	6⅞d
Gingran Oya.......HM	43,500	6¾d	38,500	8½d	Pondappa...........HM	39,500	6d	33,000	6¾d
Glentilt.. ....H	39,000	8d	—	—	Rajawella..............L	29.000	6d	28,500	6¾d
Hiralouvah............H	25,500	6⅛d	—	—	Rahatungoda.........H	20,500	7½d	96,500	7¾d
Hornsey Est. Co.....H	27,500	10d	—	—	Richlands...........HM	23,500	6¼d	30,500	8¼d
Hapugastenne........H	47,000	6d	—	—	Stisted...................L	45,500	6⅝d	—	—
Inicawatte.............M	25,500	4⅜d	27,000	6⅛d	Taprobana............H	77,500	6⅜d	89,000	7⅛d
Indian Walk...........L	46,000	5½d	57,500	7d	V.O.A ....H	39,500	5½d	51,500	7⅜d
JMK ....HM	26,500	4¾d	31,000	6¼d	Warwick ....H	40,500	7½d	56,000	8¼d
Kalugalla ....HM	44,000	5¾d	51,000	6¾d	Westward Ho......HH	48,000	7½d	46,500	8d

7,000,000 lbs. averaging 5.80d per lb. sold on purchase account are not included in the above returns.

Estimated relative Yield and Average Price realised for the different Ceylon Tea Districts, compiled from the Public Auctions held in London between January 1st and December 31st, 1900 :—

	1900. lbs. about	Av. Price per lb. about 1900.	1899. lbs. about	Av. Price per lb. about 1899.
Nuwara Eliya, Maturata & Uda Pussellawa..........	4,500,000	9.10	4,000,000	9.25
Dimbula..	18,250,000	8.75	17,000,000	9
Dikoya..	6,000,000	8	6,000,000	8.50
Bogawantalawa...	4,500,000	7.90	3,000,000	8.60
Haputale..	3,250,000	7.90	2,500,000	8.50
Maskeliya	4,000,000	7.45	3,500,000	8.40
Pussellawa, Kotmale, Pundaloya and Ramboda......	8,500,000	7	8,000,000	7.60
Uva..	6,750,000	6.90	5,000,000	7.10
Hewaheta	2,500,000	6.90	2,000,000	7.60
Kelani Valley and Kegalle.................................	10,000,000	6.10	8,000,000	7
Ambegamuwa and Lower Dikoya........................	3,500,000	6.60	3,000,000	7.50
Sabaragamuwa..	1,750,000	6.55	2,000,000	7.50
Nilambe and Hantane..	4.000,000	6.50	3.500,000	7.50
Kadugannawa and Alagala.................................	2,500,000	6.40	2,000,000	7.40
Matale and Hunasgeriya....................................	5,750,000	6.35	5,000,000	7.40
Knuckles, Kellebokka, Rangala..........................	4,750,000	6.35	4,000,000	7.25
Kalutara	3,000,000	6.25	3,000,000	7.40
Dolosbage and Yakdessa....................................	6,000,000	6.20	5,500,000	7.25

Prussic Acid in Sweet Cassava.

BY PROFESSOR CARMODY, F.I.C., F.C.S.

(Revised Reprint from *The Lancet* of Sept. 1900.)

Francis, one of my predecessors in the Trinidad Government Laboratory, was the first* to point out that prussic acid was present in sweet cassava to a considerable extent. Francis's results have not received the attention which they deserved, probably because they were a direct but unconfirmed denial of statements repeatedly made by recognised authorities. There are very few recent editions of toxicological handbooks that make any reference to the results published by Francis. Even in standard reference works like that of Dr. Thorpe's "Dictionary of Applied Chemistry" it is stated that "the milky juice in the sweet variety is innocuous, whilst that in the bitter is highly poisonous."

The question is of importance from a toxicological point of view in those places in the tropics where cassava is used extensively as a food. For poisonous symptoms are not infrequently reported after a meal of sweet cassava; and as the two kinds of cassava—the sweet and the bitter—are so much alike as to be almost indistinguishable, the conclusion usually arrived at is that the bitter variety has been cooked in error.

My results fully confirm those of Francis as to the presence of hydrocyanic acid, although his average figures are somewhat higher than mine. This year has been an unusually dry one for Trinidad and a diminished supply of rain does affect the character of plant juices.

The method of analysis adopted by me differs somewhat from that of Francis. He grated 500

* Analyst, April 1877.

grammes of cassava into 500 cubic centimetres of water which was left for two hours in a well-closed vessel. It was next strained through a linen cloth into a flask which was then corked and allowed to stand until the starch subsided. 200 cubic centimetres of the clear liquid were decanted and distilled and the results obtained were multiplied by four for the total in 500 grammes. This calculation was based on the assumption that the original 500 grammes contributed 300 cubic centimetres of water —an assumption which is not far from the truth if the cassava is quite fresh. Francis also remarks that a slight loss occurred during the process of grating, and in a tropical laboratory this loss might be appreciable. I endeavoured to avoid this loss on the one hand, and the possibility of error through assuming that all cassavas contained 60 per cent. of water on the other, by taking the whole root, slicing it quickly, and allowing it to stand in water all night in a well-corked flask. The liquid was decanted in the morning and the whole distilled. The extraction with water was repeated a second and a third time. The slices effectually prevented the great disadvantage arising from the starch finding its way into the distilling flask, which Francis prevented by subsidence but which necessitated his distilling an aliquot part, this aliquot part being a *definite* volume of 200 cubic centimetres taken from an *approximate* total volume of 800 cubic centimetres.

Francis does not appear to have made more than one extraction with water. I have made three in all cases and in some as many as five. I have found that with slices the second extraction yields as much, and sometimes more, than the first. I have repeated Francis's method of grating and find that a second extraction yields about half as much prussic acid as the first. It would appear from this, therefore, that Francis's results are not as high as they would have been had he made a second extraction. The figures obtained by Francis and myself are:—

	HCN per cent.	
	Francis.	Carmody.
Mean	0·0168 ...	0·010
Highest	0·0238 ...	0·019
Lowest	0·0113 ...	0·005

It will be seen from this that while my "lowest" percentage is much below that of Francis my "highest" is nearly the same as his. This establishes the truth of the statement made by Francis, "that the so-called *sweet* or harmless cassava not only yielded prussic acid, but the quantity obtained from it so nearly equalled that from the *bitter* that no line of distinction could be drawn between them," so far as it relates to the amount of prussic acid in the cassava; but I have discovered an analytical difference between the two kinds by means of which they can be satisfactorily distinguished.

This discovery arose in trying to avoid the difficulties caused by the presence of starch in the distilling flask At first I placed the slices in the distilling flask, added water in one set of experiments, and passed steam through in another and collected the distillates. This failed in each case through the gelatinising action of the boiling water or steam on the starch. This starch being chiefly confined to the inner protions, in my next experiments I soaked the inner slices in water at ordinary temperature, decanted and distilled. The quantity of starch thus admitted into the flask was so small as not to interfere with the distillation. The skin and outer cortical layer, which together constitute about one-fifth of the total weight of the sweet cassava, could be placed direct in the distilling flask, and the distillation carried on satisfactorily. It was this separation of the parts for convenience in distillation that led to the discovery that in sweet cassava the prussic acid is located chiefly in the skin and outer cortical layer.

The following are some of the results obtained from fairly representative samples of sweet cassava.

Inner part. HCN per cent	Skin and outer cortical layer. HCN per cent.	Inner part. HCN per cent.	Skin and outer cortical layer. HCN per cent.
0·006	0·033	0·004	0·024
0·003	0·014	0·010	0·030
0·015	0·033	0·004	0·042
0·008	0·031	0·005	0·038
0·011	0·020	0·003	0·034
0 008	0·032		

With bitter cassava the following results were obtained from representative samples:—

Inner part. HCN per cent.	Skin and outer cortical layer. HCN per cent.	Inner part. HCN per cent.	Skin and outer cortical layer. HCN per cent
0·031	0·024	0 017	0·019
0 034	0·012*	0·019	0·020
0·021	0·025	0·016	0·024
0·037	0·014*	0·017	0 020
0·030	0·025	0·013	0·016
0·014	0 013	0·032	0·035

*Exceptional.

The general conclusions to be drawn from these results are: (1) that in sweet cassava the prussic acid is not uniformly distributed throughout the tuber and that in bitter cassava it is uniformly distributed, or nearly so; and (2) that this affords an analytical means of distinguishing between *sweet* and *bitter* cassava.

Cassava is cooked either by roasting the entire tuber (this removes all the HCN) or by boiling. An important observation in connection with local methods of eating cassava is that the skin of the sweet kind is removed before boiling, the inner portion alone being cooked and eaten. This custom is no doubt the result of experience and accords with what science would now teach as a wise precaution. But, notwithstanding this removal of the skin, ill-effects are said to follow from the use of the inner portion if water is drunk some time after a meal. This may now be accounted for in this way. It is shown in my experimeuts that whilst a first boiling removes a certain amount of hydrocyanic acid—all, in fact, that exists ready formed in the tuber—that a second addition of water and subsequent boiling removes a further portion. It would appear from this that cassava in a person's stomach would also develop an amount of prussic acid equivalent to that obtained in a second distillation, and that the drinking of water would dissolve this and cause it to act more readily on the system. The total quantity would, however, be far below the minimum fatal dose and would only be expected to produce those unpleasant results occasionally reported. The question next arises—Is this second portion of hydrocyanic acid produced by fermentative changes, as is known to happen in the case of bitter almonds; or is it part of that originally existing in the tuber and in some way protected from the solvent action of the first treatment with water? It is possible that, with slices, the water would penetrate slowly to their interior, and thus produce a second yield of prussic

acid; and that if the cassava had been grated, as was done by Francis, the water would, within Francis's limit, dissolve the whole of the acid. I have not found this to be the case, as the following experiment shows:—

Sweet Cassava.

Duration.	Half (408 grammes) sliced n/10 $AgNO_3$.	Half (427 grammes) grated n/10 $AgNO_3$.
First extract 2 hours	3·0 c.c.	2·2 c.c.
Second " 2 "	1.3 "	1·4 "
Third " 20 "	3·5 "	1·4 "
Fourth " 2 "	1·0 "	0·7 "
Fifth " 2 "	1·0 "	0·9 "
Sixth " 17 "	1·1 "	0·5 "
Seventh " 2 "	0·4 "	0·7 "
Eighth " 2 "	0·5 "	0·9 "
Ninth " 2 "	0·2 "	1·3 "
Total ...	12·0 c.c.	10 0 c.c.

It would appear from this and similar experiments that the whole of the hydrocyanic acid cannot be removed from grated cassava by a two hours' extraction with water, and that there is apparently a loss of acid even when the grating is done under water. And, notwithstanding that my yield from slices is the higher of the two, Francis's results from a two hours' extraction are appreciably above mine. As already stated, this may be due to the exceptionally dry season. Next year I shall continue the experiments in order to clear up this difficulty. At present I am inclined to believe that part of the acid may be formed by fermentative change. If this be so, cassava starch on keeping would be likely to be more poisonous than when freshly prepared. Fermentation beyond a certain limit entirely decomposes the hydrocyanic acid.

There appear to be no grounds for the common belief that sweet cassava contains more HCN the older it is. In all the samples examined during a period of nine months from the time cassava was first brought to market the proportion of HCN showed no increase that could be traced to age. Nor is there any ground for the belief that the locally grown sweet cassava is but a degenerate growth resulting from many years' association with the bitter variety. A selected sample imported from Jamaica and grown at the local Government gardens contained the same amount, and the same relative proportions in skin and inner part, of HCN as the ordinary product of Trinidad.

The subject is not yet exhausted, and I hope to be in a position to publish further results next year.

SISAL HEMP IN CUBA.

(*Specially translated for "Indian Gardening and Planting."*)

We are indebted to M. J. Vilbouchevitch of Paris for a copy of a most interesting report by M Léon Hautefeuille upon his mission to Cuba on behalf the Cayo-Cruz and Cayo-Romano Company to inspect their lands under Sisal Hemp in those parts. From the report we gather that the Company has leased its lands to the Paris firm of Bridat-Mont'Ros et Cie. for a period of two years, renewable by mutual consent for the same period. The necessary capital has been supplied by the Maison Bridat-Mont 'Ros, the net profit to be shared between the firm and the Company. The local management is confided to M. Mahiquez. The enterprise has only just (1900) reached the productive stage. It is now in full bearing, but was at the commencement of last year handicapped by insufficient supply of bullocks for traction and to work the decorticator. Twenty-eight pairs of bullocks have now been sent from Havana, and this want is therefore well supplied. The following is a translation of M. Hautefeuille's report of the actual state of the plantation :—

"An inspection of the *henequen* plants produced upon me a most happy impression. They were superb in size, vigour and health. Nothing is more satisfactory to one who has an agricultural taste, than the sight of a cultivation well suited to the soil and in conditions in which it finds itself well placed. The lands occupied by the *henequen* are incontestibly of a poor nature. No one would seriously think of planting there any rich cultures, and yet here is the fact that a plant, formerly wild, brought here, flourishes, develops marvellously and furnishes in abundance an industrial product in good demand, of which the sale is indefinitely assured at a good price.

"*Henequen* fibre is in fact very much in demand for the manufacture of strong fabrics, and above all for ropes employed on shipboard, by reason of its lightness, strength and resistance to rot.

"*Henequen* is an Agave (*Agave Mexicana Agave sisalana*), which was long considered a plant without value, very common in the Bahamas in Yucatan and other parts of Mexico, where one variety is utilised for the manufacture of a fermented drink called *pulque*. The fibre having been found utilisable, experiments were made in Mexico, after which importance plantations were made as soon as a machine allowing of the fibre being economically obtained was devised. Yucatan in particular undertook the production of *henequen* ; subsequently the lands, till then uncultivated, in the Bahamas furnished a superior variety. Cultivation modifies the characters of the plant a little, of which it develops the size ; but it is the nature of the soil which has the greatest influence on the value of the fibre obtained.

"The old administrators of Cayo-Romano (the Spaniards) attempted to turn to account this novel cultivation. They made experiments in all the soils of the Cayos. The plant grew irregularly ; very badly in the gravels of Cayo Cruz, which were besides too humid ; better at Cayo-Romano, in the low dry soils; less well on the heights not on account of the soil, but because of the altitude ; in an inadequate manner in the lands, although of better quality, of the northern slope.

"*Henequen* requires a poor dry, rocky soil ; it loves the pockets of soil formed between rocks to which it seems to cling. It needs plenty of heat and the rocks store up and emit heat. Hence there arise very appreciable differences of quality. The finest specimens producing the best fibre are

found in dry and stony soil. As in France the best vineyards are sometimes found in soils of poor appearance."

There is a complete demonstration of the preferences of *henequen* at Cayo-Romano. A walk of a few hours suffices to take account of these preferences. One can henceforward plant almost to a certainty.

"The actual plantation (Cayo-Romano) occupies about 600 hectares (1,482 acres, 1 hectare=2·47 acres) I could not say how far it may be extended. It would have taken me five or six days to indicate and limit the size of possible extensions. I do not doubt, however, that 3,000 hectares (7,400 acres) of land suitable for *henequen* could be found by clearing certain wooded parts, and I do not say that it would not be possible to push the cultivation up to five or six thousand hectares or more, by utilising, in course of time, the distant lands of Versalles.

"It would be premature to attempt an account of the receipts and expenses of *henequen*. The price is not definitely fixed, and we believe it is destined to rise on account of the quality of our fibre, recognised in commerce as superior to that of Yucatan. The fibre of Cayo-Romano is whiter, finer, of greater resistance and longer. These qualities have a very appreciable influence on the price.

"The machine installed at Port-Versalles decorticates on an average 50,000 leaves per day, furnishing about 2,000 kilogrammes (4,400lb) of fibre, or 13 balls of 150 to 160 kilos each. The fibre is sold at the rate of nearly 1 franc the kilo. But the machine does not work at present at its full power. If it were regularly fed so as to work without intermission 10 hours per day it could turn out 4,000 kilos of fibre which represent 100,000 leaves, or the yield of 1 hectare 78 ares 5 centiares (4 2-5th acres).

"A hectare contains 2,000 plants placed at two metres distance in all directions with a path line between at least every five rows. Each plant should give on an average 28 leaves, or at the rate of 40 grammes per leaf, 1,120 grammes of fibre per plant, or 2,240 kilos (4 928lb) of fibre per hectare and by the year 56,000 leaves.

"Mr. Galan, the Sub-Director of the Plantation, estimates that 1,000 leaves of *henequen* may give 40 to 45 kilos of fibre; but he generally calculates on 40 kilos. M. Mahiquez indicates figures nearly the same. He goes as far as 45 kilos per 1,000 leaves."

M Léon Hautefeuille further on in his report remarks that as he was not representing the proprietary society, but only the house which had rented the plantation, he was not in a position to ask for accounts. Therefore his remarks on working expenses must necessarily be imperfect. Still, certain of the expenses are known and he proceeds to give them as follows :—

"100 men are employed daily in the actual cultivation for the service of the machine and these cost altogether 150 piastres (750 francs) for 2,000 kilos of fibre,

"It would need 200 men costing 250 piastres (1,250 frans) to furnish 4,000 kilos, of fibre. Cutting 1,000 leaves of *henequen*, putting up in bundles and placing in carts come to 6 francs 25 c. and then transport to the factory to 2 francs 50 c.

"So that 2,000 kilos of fibre require a daily expenditure of 1,187 francs 50 c and 4,000 kilos an expenditure of 2125 francs, but the produce goes backwards and forwards. The grain falls through, not of course absolutely clean, there must still be small particles of *bhusa* and chaff, but it is clean enough to store conveniently and the small particles are quickly got rid of when we have a wind. If a winnower in the place of a thermantidote can be built, it of course expedites matters greatly. I find it a good plan to erect a long grass hut at one end of the threshing floor to store the partially cleaned grain in as a protection against rain and also thieving.

ARTHUR L. HARMAN.

PLANTING NOTES.

POMEGRANATES.—The pomegranate fruits freely in Queensland, but no use is made of the fruit. The *Florida Agriculturist* points out that a good market for this fruit exists in New York. It is a highly popular fruit among certain classes, and is worth from 5 to 6 dollars (£1 to £1 5s.) per crate. The demand is yearly increasing—the more it is known, the more popular it becomes, Enough cannot be procured to supply the market. The *Agriculturist* does not state how many fruits are contained in a crate. Still, here may be another opportunity for Queensland orchardists.—*Queensland Agricultural Journal.*

BANANAS.—Humus, Drainage, Tillage, these three are the banana plants requirements, and without the first it is hopeless to expect bananas to grow and produce fruit; with the first, but without the second, they might grow, but would not do very well except in seasons of light rains ; with the two first and not the third, bananas have been grown for many years in succession on rich alluvia and loams, and fine bunches produced, and are being grown still, but with Tillage better results would have been obtained in the end, for many of such lands have now been thrown up as worn out, which with cultivation all along, would have been bearing well as ever; and they can be restored with Tillage only, to almost their pristine strength. But the greatest of these is Humus.—*Journal of the Jamaica Agricultural Society.*

PURE KEROSENE FOR SAN JOSE SCALE.—Further reports are to hand as to the effectiveness of pure kerosene, applied carefully with a brush, in destroying San Jose scale on deciduous fruit trees. In a letter to the fruit expert, Mr. F. Mason, of Beecroft, says: "I wish to tell you that I painted, on August 23 last eighteen Carrington Apple trees with pure Kerosene, and also four Nelson apple trees, on September 17, that were all badly affected with this terrible San Jose scale. The trees are now looking well, and there is not a scale to be seen on any of them. I have a number of Carrington apple trees that have not been so treated for the pest, and they are very badly affected. Some of the trees are suffering badly, and the fruit is literally dotted all over with the young scales. I shall be pleased if you can kindly tell me what to do with these." When the scales attack fruit it is difficult to devise any economical method of destroying them. With a pest like San Jose scale the only really effectual means of destruction is to attack the scales in winter while the trees are bare of leaves, and after pruning. All prunings should be carefully collected and burnt, and the tree either treated with pure kerosene or fumigated with hydrocyanic acid gas. The kerosene method is, however, so simple and efficacious that unless one has extended use for a fumigating outfit for the destruction of scale in citrus trees, it is scarcely worth while going to further expense in procuring one.—*Agricultural Gazette of New South Wales.*

TEA IN PEERMAD, TRAVANCORE: GREEN TEA MANUFACTURE AND RESULTS.

Mr. Drummond Deane has always some practical suggestion to make, as well as useful information to give, when he puts his pen to paper. Under date of 24th March, he writes of his Peermaad district (elevation 3,600 feet):—

Places here in bearing average well over 450 lb per acre and some up to 600 lb per acre and I take it the average cost *f.o.b.* does not exceed 20 cents in this district and they are good highgrown teas. If you turn up Peermaad teas sold in Colombo some ten years ago you will find very fair averages, comparing with Ceylon, for Kuduwa Karuam, Bon Ami, Pen hurst, Mount Glenmary.

"I wonder when we shall begin to hear result of sales of green teas in America; why do not we see the prices quoted for teas like Brunswick, Moray, Darrawella, etc? If they are fairly good it would stimulate the manufacture and they cannot be very bad or those estates would not continue making. I think the '30 Committee' should when paying the bounty on green tea insist on having *copies of all sales* sent them."

We commend the closing hint to the consideration of the "Thirty Committee."

JAVA CINCHONA BARK.

Cinchona planters in Java have thrown off the yoke of a German ring of dealers, who had combined to keep the price of bark down for the enrichment of quinine manufacturers. They have started a quinine factory of their own at Bandong in Java, and arranged to sell their quinine at Batavia by auction. The German monopolists have threatened to start a rival quinine factory in Java. A German quinine manufacturing firm intends to carry the war into the enemy's country in a different way. It proposes to sell quinine pills in Java,—that is, quinine prepared for direct consumption,—at a price corresponding with that of Bandong quinine at the Batavia auctions. The firm will certainly suffer loss by this, but the Bandong factory will have also to stop the making of quinine pills, and will thus lose a main source of profit.—*Straits Times*, March 19.

WESTRALIAN ROYALTY ON GUANO.

The Minister for Lands recently received an application from Messrs. Broadhurst, M'Neil, and Co., who are associated with the guano trade, asking that the Government should remove the royalty on guano exported to the eastern States to the extent of 10s per ton on live and 8s. 6d. per ton on dead. They maintain that, now that the States are federated, the embargo should be abolished The Government was asked to consider the application, and the decision that was arrived at was that, as the amounts levied were not regarded in the light of an export tax, but simply a royalty for the removal of certain matter from Crown lands, it was not possible to accede to their request. —*P. M. Herald*, March 15.

THE CHAIRMAN OF THE INDIAN TEA ASSOCIATION ON THE PROPOSED TEA CESS.

(*To the Editor of "Planting Opinion."*)

Dear Sir,—I notice that in your issue of 9th March you perpetuated an error made in reporting by a Calcutta Daily paper; and in doing so you not only put into Mr. Topping's mouth what I said, but you make me out an opponent in conjunction with Sir Patrick Playfair of the proposed tea cess. Instead of "Mr. H S Ashton and Sir Patrick Playfair have spoken," you should read "Mr. H S Ashton said Sir Patrick Playfair has spoken" and so on.

Inasmuch as I have, just been elected Chairman of the I T A, it is perhaps advisable that it should be clearly understood that I strongly approve of the proposed cess. The proposal has been made as an alternative to the present method of obtaining voluntary subscriptions for advertising purposes, which for seven years has resulted in an annual collection of about a lakh. In 1893 this sum might be considered respectable, but I think I am justified in saying that the failure to increase subscriptions as the output of tea has increased damns the voluntary system as inefficient, and justifies a resort to other methods if new markets are to be thoroughly exploited by Indian tea. Of course there are proprietors who deny the value of advertisement by other than private enterprise, and their influence may be sufficient to block the way, but it is also quite certain that there are a number who are willing to share the cost of exploiting new markets, and who do not now subscribe, if provision is made to protect them against subscribing more than their shares. The cess will meet their views, whilst I think it must be pretty obvious that those who have for years been doing more than their share will get tired of the present system, because, if for no other reason, "it is so difficult to tax and please" and there is just as little pleasure in the process whether you impose the tax yourself or not.

There appears to be another body of people interested who approve of all the exploiting that can be done, and who suggest far more expensive schemes than any yet attempted. At the same time they deprecate the intervention of Government, who, they seem to fear, would keep the tax on when the object for which it was imposed ceased to exist or, in other words, would divert, at some time or other, to their own uses, funds specially here marked. In view of the proved efficacy of the Ceylon system and in view of the practical failure of the Indian voluntary system, I would ask such people whether it is worth while opposing the tax because they hold the theory that the Government of India is shameless, for that is what their argument amounts to. Sir Patrick Playfair's suggestion is to distribute over 5 million lb. of tea (3 per cent of the crop) this year in India, and he thinks the cost of administration may be covered by sales, but not any part of the value of the tea. I thoroughly approve of something of the kind being done, but after seven years' experience on the I.T.A. Committee, during which the difficulty of obtaining money has been in constant evidence, and the crippling effects upon all operations of the uncertainty as to funds voluntarily

subscribed, I would rather see the Committee, which will shortly be formed to exploit India, commence operations with a solid fund behind it such as the proposed cess would bring in. The industry has never risen beyond a lakh a year by voluntary effort. If you value the 5 million lb of tea above referred to (the cost of which it is thought will not be recovered) at -/1/- a lb, it will cost the industry over 3 lakhs, at -/2/- over 6 lakhs and it is at least fair to infer that it will be difficult to get such a subscription responded to after past experience. The Committee having to find ways and means will undoubtedly be greatly handicapped and any scheme they may decide to adopt will consequently be delayed to the detriment of practical work.

To those who believe in advertisement and yet hesitate to support the cess, I suggest the above points. H. S. ASHTON.

PLANTING AND LIFE IN DOMINICA.

[We feel indebted to the gentleman who sends us the following correspondence for publication. Transferred to our *Tropical Agriculturist*, it will aways be available and useful for reference. —ED. *T.A.*]

Government House, Dominica, 31st Dec., 1900.

DEAR SIR,—I must apologise for my delay in answering your letter of 16th October last.

I have much pleasure in forwarding you herewith a series of answers to a number of questions that have been addressed to me by various correspondents on the subject of planting in Dominica. I hope these notes will give you some of the information that you require.

I may add that, as the distances are not long in Dominica, Crown land can be purchased for 10s an acre, payable by instalment. There are one or two partly developed estates for sale, but a large price is being asked. Several Englishmen have come out during the last few weeks, and are taking up Crown land. The first comers will naturally get the pick of the land that is being opened up by the new roads.

Dominica has never suffered very severely from a hurricane, and the effects of a West Indian storm are frequently exaggerated for various reasons.

Mr. Gordon Fowler, an ex-Ceylon planter, who started a coffee estate here about three years ago, is so satisfied with his results that he has increased his holding, during the last year, from 300 to 1,100 acres. His coffee is magnificent, and there is a complete absence of blight,—I remain, dear sir, yours faithfully,

H HESKETH BELL, Administrator.

W. Hardy, Esq., Gillardstown, Wattegama, Ceylon.

NOTES ON DOMINICA FOR INTENDING PLANTERS.

1. BEST ROUTE FROM ENGLAND.—By Royal Mail from Southampton. Leaves every fortnight. Fare £25 single, £40 return. Voyage lasts 13 days. Can also go by Scrutton's line cheaper, but a good deal longer, also via New York.

2. HOTELS AND THEIR CHARGES.—There is one Hotel in the town of Roseau, suitable for bachelors. Terms 8s a day.

3. PENSIONS OR BOARDING HOUSES AND THEIR CHARGES.—Several kept by ladies, very comfortable and moderate terms, Miss Pemberton's and Miss Shew's specially recommended.

4. HOUSE RENT.—Vacant houses are at present scarce. Rents vary from £30 to £60 a year.

5. COST OF LIVING.—A bachelor living on his own plantation, of careful habits, need not spend more than 30s to 40s a week on housekeeping. A great many spend much less, as they raise their own poultry, sheep pigs, vegetables and fruit. Fish is very cheap and plentiful.

6. SERVANTS' WAGES.—Female Servants get from 3s 6d to 5s a week. Men from 4s to 6s a week, and are usually not boarded.

7. PRICES OF HORSES AND MULES.—Ponies cost from £10 to £20. Mules average £20. Donkeys 30s.

8. HORSE HIRE.—Six to eight shillings a day.

9. HORSE KEEP PER MONTH.—From 30s to 40s.

10. CAN HARNESS AND SADDLERY BE OBTAINED IN THE COUNTRY?—They can be obtained locally, but it is better to get them from England.

11. IS THERE ANY SHOOTING? IF SO, WHERE AND OF WHAT DOES IT CONSIST?—Pigeons (Ramier) Doves, Parrots, Opossum, Agouti and Wild Pig, are fairly plentiful, but shooting in Dominica is not sufficiently good to make it a special object of a visit. A week can however be very pleasantly spent in the forests with a gun.

12. WHAT IS THE BEST RIFLE OR GUN FOR THE COUNTRY?—An ordinary fowling piece.

13. CAN AMMUNITION AND SPORTING REQUISITES BE OBTAINED IN THE COUNTRY, AND WHERE?—They cannot be obtained locally of good quality, but everything can be got from Barbadoes in a few days.

14. WHAT IS THE IMPORT DUTY ON GUNS AND CARTRIDGES, AND WHAT OTHER RESTRICTIONS ARE THERE IN THE IMPORT OF GUNS AND DOGS?—10s a piece. No restrictions on dogs. Long-haired ones are not very suitable. Fox terriers thrive best.

15. IS THERE ANY ANGLING? IF SO; WHAT KIND AND WHERE, AND WHAT BAITS ARE USED?—The rivers are well stocked with fish, principally mullet. Local Grasshoppers make the best bait.

16. AMUSEMENTS, CLUBS ETC.—The Golf Links 9 Holes, are very sporting, and are managed by a Club. There is also a Tennis & Croquet Club. A Social Club House is about to be built. Cricket is also played.

17. ARE THERE GOOD ROADS, AND ARE ANY FIT FOR CYCLING?—Very large works are being undertaken on the Roads, and bridle paths are being turned into Cart Roads. There is a good road round the Island with branch tracks leading up the Valleys. The sum of £15,000 is now being expended in making a central trunk Road, which is intended to open up the very fertile lands that lie behind the seaboard. The island is rather too mountainous for easy cycling but, owing to the improvement in the roads now being carried on, several bicycles have recently been imported.

18. IS THE CLIMATE HEALTHY, AND WHAT IS THE BEST TIME TO VISIT THE COUNTRY?—The climate is very healthy, especially in the mountains. Temperature rarely excessive. Rainfall varies from 60 inches to 200 inches per annum, according to locality and altitude. No special outfit is needed, ordinary English summer clothing does very well. A Terai hat is useful, also strong leather boots. All ordinary articles can be purchased locally at moderate prices. The best season to visit the Island is from November to May; but anyone intending to take up and plant Crown lands, that are covered with forest growth, should commence operations early in the year, so as to get a good "burn" during dry weather.

19. AMOUNT OF CAPITAL NECESSARY.—An intending planter should not be supplied with *less* than £1000. With this Capital he might purchase a block of 300 or 400 acres of Crown lands. He might clear and plant 20 or 25 acres the first year, and ten additional each succeeding year. A cottage suitable

for a bachelor could be built locally, by using native timber and shingles, for something under £75. Sufficient furniture could be purchased for £25. After the first year, the planter ought to begin to make some money out of "catch-crops," such as early vegetables, bananas, tobacco etc. Pineapples yield a crop after 20 months, and their cultivation gives large profits. Vanilla and coffee bear in three years. Limes and oranges give good crops at four years. An acre in cocoa, five years old, ought to yield from six to nine cwt. of beans per annum, and the price, during the last 20 years, has averaged over 60s a cwt. Trinidad cocoa fetches over 90s a cwt., and there is no reason why the Dominica product, if properly cured, should not be equally valuable. Nutmegs are of slow growth, but the value of their yield is very high. The cultivation of ramie-grass has lately been commenced in Dominica, and promises much success. There are vast areas particularly suited to rubber, and the "Castiloa" is found to thrive admirably. In fact, the most eminent authorities on tropical agriculture have given the opinion that owing to its diversity of soil, rainfall and altitude Dominica offers remarkable advantages for the profitable culture of almost every sub-tropical product. There are good shipping facilities to the markets of America and the United Kingdom, and an increasing demand for all its products.

20. SUPPLY OF LBOUR.—The local supply is provided by the coloured inhabitants of the Island, and is fairly abundant. The field hands require to be dealt with tactfully. There is a considerable influx of labourers from the Sugar Islands further north, and in 1899 these immigrants numbered over 1,700. In the event of very large demands arising for an increase of labourers, it is probable that coolies would be imported from India.

21. DANGER FROM HURRICANES ?—Dominica has been remarkably free from hurricanes for very many years. The last severe storm occurred in 1883, but did comparatively little damage. The very accidented configuration of the island would probably prevent any wholesale destruction of growing crops, and there is really very little danger to be apprehended from hurricanes in Dominica.

22. INSECT PESTS ?—The island is very free from noxious insects. Lime trees in some localities are troubled by a borer, but the damage done is, so far, not serious. Great care is taken, to guard against the importation of plant diseases from abroad. There are no venomous snakes and mosquito curtains are rarely used in the country districts.

23. CROWN LANDS *v.* OLD SUGAR ESTATES ?—The whole of the coast lands, right round he island, are occupied by old estates which, for the most part, once produced sugar but are now planted with cacao, limes and fruit. Very few of them are for sale, and it is a significant fact that it is almost impossible to buy, for a reasonable figure, a plantation that is already yielding a large crop of either cacao, limes or fruit. The returns from these products are too valuable to be parted with save under force of circumstances. The Crown lands comprise about 120,000 acres, and occupy the whole of the centre of the island. They are undulating, well-watered, and covered with a magnificent forest growth. The soil, in most places, is remarkably fertile, and no fertilisers would be necessary for many years. In these virgin lands there are practically no weeds, and the continual tillage required on old plantations would be largely avoided.

The felling, clearing and burning of the forests is usually done by native contractors, and it has been estimated that the clearing, draining and planting of an acre of virgin land costs in the first year, between £4 and £5.

The "Imperial Road" which is now being constructed through a large section of Crown lands, opens up two large "spheres" of soil, and will soon render available some 30,000 acres. In one locality, the land varies in altitude from 3,500 feet to 1,000, and this tract is principally suited to the cultivation of high-grade coffee, nutmegs, oranges, rubber and early English vegetables; cacao, limes, vanilla and pine-apples are believed to be better adapted to lands varying from 500 to 1,000 feet, and the best conditions are to be found in the Layou Valley.

24. INSTRUCTION IN AGRICULTURE ?—The Curator of the Botanic Station and the Agricultural Instructor are always ready to afford all assistance in their power, but it should be clearly understood that the Government will assume no responsibility for the success or otherwise of any settler. An intending planter should carefully follow the work that is being carried on in the sample cultivations at the Botanic Garden, and he would gain much valuable information. The planters in Dominica are very friendly and hospitable, and any new-comer with proper recommendations would be welcomed and assisted by them. It would be advisable for any inexperienced person not to decide upon the purchase of land until he shall have stayed some weeks in the Island. He will then be in a position to judge for himself of the merits and prospects of various cultivations, and be able to decide upon the nature and locality of the soil which would best suit his purpose. The return fare to Dominica is only £40, and a month's expenses in the Island could easily be restricted to £20. For an outlay of £60, a single man could most pleasantly spend a couple of months in making a voyage to Dominica and back, and there is every reason to believe that, having once seen that very beautiful and promising Island, he will develop a strong desire to identify himself with its progressive fortunes.

For further information concerning Dominica, see "Report on the Agricultural capabilities of Dominica," by C O Naftel late Inspector of Estates in Ceylon. This pamphlet is published by Messrs. Eyre and Spottiswoode, East Harding Street, Fleet Street, and costs 9½d. It contains a good map of the Island and a large amount of valuable information concerning the cultivation of various products that are suited to Dominica.

NEW AND OLD PRODUCTS.

So far as the Directory estate results have been worked out, the most striking fact to our mind, is the great extension of the planting of coconut palms in the old coffee and young tea districts below a certain elevation. The Dumbara, Matale and Gampola Valleys have long been known to grow excellent coconuts; and still greater success should be anticipated lower down, where soil and climate are suitable. So, it is no wonder that the Kelani Valley planters and their brethren in adjacent districts, North and South, have selected the coco-palm as a second string to their bow, after tea. But we are disappointed to find that so little has been done with the pepper vine, in the districts *par excellence*, best adapted for its growth. We cannot at all see why we should not develope an annual export of first-class pepper, equal to the quantity the Dutch shipped from Ceylon some 150 years ago and which was then nearly all produced by the Sinhalese of the Kegalla, Avisawela, Hanwela and Matara districts. A bounty, a medal and "order of merit" should go to the first Sinhalese landowner bringing five cwt. of good pepper for export from Colombo.

CLOSING OF THE AGRICULTUEAL SCHOOL: MR. C. DRIEBERG.

The fate of the Agricultural School, like that of the "Alfred Model Farm," shews the folly of trying to achieve agricultural improvements among the natives of Ceylon save through the medium of the revenue officers and their headmen, the latter being specially influenced to spend themselves and be spent by the prospect of "honours." That is the talisman that always works wonders among the most apathetic of Orientals and we cannot see why it should not be more fully utilised. Why should the Governor not introduce a native "Order of Merit" to be bestowed, without reference to caste, creed or position, on all natives who lead the way with "new products," or other improvements,—who make two blades of grass to grow where only one grew before? Let the recommendation still come through the revenue (and judicial) officers of the Service, but let the badge and medal be given with due ceremony at an annual Durbar; and we feel sure there will soon be stirred up a spirit of emulation such as we have not seen among the rural Sinhalese for a long time past.

But if the Agricultural School is to be pronounced a failure, and to be relegated into forgetfulness, we feel quite sure this is in no way due to any want of adequacy on the part of the highly-trained, accomplished and zealous Principal. Mr. C. Drieberg has always proved himself a most useful Public Officer. He is "a handy man" only second to Mr. Ellis. What would the Society of Arts, or this or that Exhibition do without Mr. Drieberg? while, as Agricultural Principal, he was never properly backed nor got fair play. We earnestly trust he will have more liberty in his new vocation as Agricultural-Inspector, and that his very useful "Agricultural Magazine" may continue to the benefit of Agricultural teachers, intelligent natives, and even Europeans all over the island.

THE PROPOSED ZOO FOR COLOMBO.

SOME USEFUL INFORMATION FROM THE MYSORE GARDENS.

(Communicated.)

We have noted with pleasure the proposed scheme for a Zoological Gardens for Colombo. It is a wonder that a city and port of such importance, the very playground of all sightseers to the East, and one so easily accessible by steamer to all parts from the globe, should so long have been without one.

A few days ago a letter reached us from the enthusiastic practical collector of wild animals, who has been for some time in charge of the Zoological Gardens

IN THE NATIVE STATE OF MYSORE

Some of his remarks are exceedingly interesting, those especially referring to the hatching of ostriches, in which he has succeeded very well, being the first person in South India who has so succeeded. The young birds we have ourselves seen, and they are very fine, healthy specimens, although born in captivity. Mr. Hughes, the Manager, at first attempted to rear them by means of an incubator, and the young ones were so hatched, but proved weakly and died when a few weeks old. The incubator used was one by Messrs. Hearson & Co., Regent-st., London. It was a No. 35 machine and would hatch from one hundred to one hundred and fifty poultry or pheasants' eggs, and was large enough to hatch ten ostrich eggs.

THE INCUBATOR

was however not made for a tropical climate, and, although for one season, when quite new, it acted well, it afterwards warped and cracked owing to the heat. Had it been made of teakwood, instead of pine or dealwood, it would probably have better stood the test, and satisfactory results would have been obtained.

The working of the machine is very simple. With each machine illustrations are supplied and also two thermometers, one of which is a long one for use in the tank, while the other is a small clinical thermometer to test the temperature of the drawer in which the eggs are placed.

To save time, warm water may be poured into the tank, and the temperature brought up to 76 degrees. The best oil should be used for the lamp, as the cheap and heavy oils smoke too much and clog the tube through which the hot air passes.

When the temperature reaches 96 the capsule inside the drawer expands and allows the hot air to pass directly upwards instead of passing through the tube: as soon as the temperature in the drawer falls below 96 degrees, the damper lowers and the air passes through the tube thereby keeping the machine working automatically. There is a screw on the top which can be screwed up or down according to the temperature required, so regulating it exactly.

The same temperature will do for all kinds of eggs except the ostrich, and the number of days varies according to the subjoined table.

	Days.	At a temperature of degrees.
Ostrich eggs	42	102 to 104
Fowl eggs	21	100
Duck eggs	28	100
Turkey eggs	28	100
Pheasant eggs	23	100

Messrs. Hearson & Company supply books at 1/0, which give full information. Nevertheless,

BIRDS NATURALLY HATCHED ARE MUCH MORE HEALTHY.

About February, ostriches may begin to lay, and the birds should then be carefully watched. If the mother-bird be seen to dig a hole, she will probably lay an egg there in a day or two. If so, the space should be enclosed with mats, so that she may be quiet and screened from the view of visitors or passers by. No bird likes to be watched or disturbed at the laying season. If the mother-bird has selected an unsuitable spot, and if a better

one is at hand, the egg should be carefully removed from the spot where it was laid, and put into the enclosed space which has been provided. In this case the old nest should be destroyed by placing thorny bushes or any other obstacle in any unsuitable spot, as often as she choses such. If the bird appear shy of taking to the enclosed place to which the eggs have been removed, it is a good plan to place her food inside the enclosure for a few days, and she will wonderfully quickly take to the eggs and settle down. If not now disturbed she will hatch successfully, as has been the case in Mysore. The ostrich lays eggs at intervals of four days; and the three young ones naturally hatched in Mysore were born on the 11th, 13th and 16th of August 1899.

One of the three died by being trodden on by the parent-bird when it was only the size of a young turkey. This was owing to a stampede of the larger birds which had been frightened. The other two young ones are now 19 months old, and are, although hatched in captivity, far finer and healthier birds than the parents. The original pair were got from Magersfontein, Cape Colony, South Africa, when full grown, and their price, including shipping, was R1,400 the pair.

THIS SUCCESS IN BREEDING

appears to be unique and has not been accomplished in the Zoo at Calcutta nor in any other Indian gardens. The enterprising Superintendent at Mysore hopes to form a company and thinks there is not the least doubt that Mysore will be the future farm, as it is the best climate for these birds. Why not also Ceylon? The breeding of these birds would probably become a source of revenue to any state. What about the climate of Haputale? And, Mr. Editor, why not utilise the Boers as ostrich farmers? Mr. Hughes writes: "In starting a farm as a paying concern there should be one male bird to four females which should then produce sixty birds a year." His information is valuable because it is not theoretical but practical, and has all been put to the proof. [Photographs of the young ostriches taken at the age of eight months can be seen at *Observer* office till the end of April; also photographs of other animals reared in the gardens at Mysore.]

Referring to the Calcutta Zoo, Mr. Hughes writes: "The buildings at the Calcutta Zoo were created at great cost but some of them are not built in a proper situation; therefore the animals do not thrive or live long. In gardens where records are kept of the longevity of the animals in captivity, great care must be exercised in the choice of building sites, which should be selected by *practical collectors who know the habits* of the animals. I have collected thousands of animals for Mr. Carl Hagenbeck, and know the Islands all over the globe where the rarest animals can be obtained."

THE MYSORE ZOO GARDEN

though small is of considerable interest, and it has just been taken over by the state. Up till recently it was a private concern.

In one part of the grounds one comes to a double railed enclosure forty feet in length by twenty feet in height. Inside the inner compartment is a large stone cage, two stones high; not dark and solid, but with an archway on each of the four sides and covered with creepers bush. At first sight all is silent and empty apparently, but as one approaches there is a strange blowing and breathing like that of angry cats; and looking up one sees a magnificent huddled mass of barred fur, and out of this glare eight fierce eyes. These are a family of four splendid tigers which were caught in the jungles within a few miles of Mysore, in October 1899, by Commissioner H Mathia of Mysore. They were caught by order of the Maharani Regent in Nepal and were then driven into trap cages. The family consisted of father, mother and two nearly full grown cubs. It was at first intended to separate them at once, but the tender heart of Her Highness was so touched by the affection they showed for one another that for a full year she kept the four at Mysore; and only a short time before the death of Her late Majesty Queen Victoria, a pair of them, male and female, and exquisitely marked, were presented to her by the Maharani Regent. The male of this pair (now in the London Zoo) measures 9 ft. 3 inches to the top of crown: but from the nose to the tail it measures 10 ft. 2 inches.

Her Highness took great interest in this

FAMILY OF TIGERS

and allowed them daily as much raw meat as they could eat. The amount allowed to each tiger daily was 16 seers which equals 32 lb. English weight. The cubs generally lay piled upon their fathers and mothers, embracing them with their paws, just as human children twine round and fondle their parents.

Referring to the size of the tiger-cage, as herein specified, Mr. Hughes remarks that that size does not give adequate accommodation, and quaintly adds, "All the Mysore cages are built according to the purse, not according to the comfort of the animals, and I feel for them very much."

The various kinds of leopards are always interesting to watch. There is the restless black panther, almost the fiercest of all the wild animals, which will tackle an animal four times its size. It is never still a moment, but always sidling round its cage, lashing with its long tail, regarding all who approach with fierce furtive eyes, and ready to spring with a snarl and a furious bite at any unwary hand stretched too near. The Maharajah's hunting leopards, with broad leathern collars round their necks, come next. They are useful in hunting large game, and have this peculiarity that they will only strike once at their quarry. However, that "once" seldom fails to be effectual.

We trust that the Colombo Zoo will before long be an accomplished fact and that the scheme will receive generous support from the Government.

S. H. E. AMYAS.

CLARK'S BOOK ON "SPORT IN CEYLON."

(*By "Old Colonist."*)

What a very excellent little book Clark's "Sport in Ceylon" is! Nothing I have ever before read on sport has so fascinated me —and I have often read all that Baker, Forbes and Tennent have said on the subject. Clark has got hold of an admirable literary style, which would adorn any subject, and which he wields with much discretion. No sporting slang there: no bombastic boasting, and *no butchery*. His work, indeed, shows him to be more of a naturalist than a so-called sportsman. I wish, however, I had got hold of such a work 40 years ago; it would have added much to the enjoyment of my life in Ceylon and I rather envy the lot of the young novice who now takes up such a safe and pleasant guide.

My only doubt is as to whether "Sport" gives a sufficient indication of the value of the book. The title has so degenerated that one is apt to fight shy of the drivel under such a heading in the Daily Press.

In my youthful days, my own notions of Sport were such as might have been inspired by Goldy's "tuneless pipe" and even now

"The gay grandsire, skilled in gestic lore,
Can frisk beneath the burden of three-score."

I too have had my elephant hunt in my day, though I never cared to tell the tale! Standing one day in the end of my verandah at Everton, I saw, right opposite, a huge elephant on the top of the Cabaragala cliff, which rises perpendicularly to a height of 500 to 600 feet.

The monster stood coolly wagging his trunk to and fro as he surveyed with evident interest the busy valley below. 'Twas a grand sight, enough to arouse the most dormant of sporting spirits.

I had an English rifle which I shouldered with an air of "who says I'm afraid?"

It took me some hours to climb up through the forest, and when I did reach the rock—no elephant was there, but the fresh droppings showed where he had stood. On the whole rather relieved that my pluck was not put to the test, I took a leisurely look at old Rakwana, and then prepared to descend. Scarcely, however, had I moved from the spot, when I heard a muffled tread and crashing of branches, and sure as I'm a living sinner a herd of elephants passed within easy touch of me! I stood quietly at the back of a tree within a few yards of the edge of the precipice, my heart dunting audibly till I saw the last of the herd move off towards Kukulu Korle!

I escaped unscathed, but had I read such a book as "Sport in the Lowcountry of Ceylon" I would have known better how to go about the business. I should certainly recommend every young man going out to Ceylon, whether as visitor or planter, sportsman or naturalist, to read this handy and eminently useful little book.

Mr. C., I think, rather underestimates the extent of forest in the Central Province and, as to being lost in the jungle, I wonder he does not recommend following the first trickle of water—which has been my invariable rule when everything else failed and by doing so one cannot go very far amiss, in an Island like Ceylon.

THE SCIENTIFIC EXPEDITION FROM PERADENIYA TO OUR RUBBER-GROWING DISTRICTS.

Mr. Herbert Wright, Scientific Assistant at Peradeniya, whom we stated in our issue of 16th ult. to have started on an important tour in the Western and Sabaragamuwa Provinces, has now returned. Though reluctant to give details of his mission until he deals with it officially, we have elicited from Mr. Wright that he has obtained important results in connection with the yield of milk in the indigenous Palaquium trees known by the Sinhalese names of "Kiri-hembeliya" and "Mol-pedda." The Malayan species of Palaqnium have hitherto been the source of the different sorts of guttapercha; but these are now becoming extinct, owing to the wasteful method of cutting down the trees for the purpose of collecting the latex. The affinity of the Ceylon flora to that of the Malayan has suggested that our species of Palaquium might also yield gutta of a marketable value, a supposition which now seems justified. From the copious material for detailed and microscopic investigation, which we gather that Mr. Wright has brought back with him, it appears, that there are at least two species of this tree in Ceylon which are deserving of attention from an economic point of view. These have been found to yield, in point of quantity, even a greater amount of milk than most Para rubber trees in Ceylon. Most important of all, however, is the fact that Mr. Wright has found, by a certain method of tapping, that these yield the latex freely without being felled, which not only saves labour, but also the trees, an obvious advantage over the Malayan method.

Asked as to the nature of the soil in which the trees are found in their natural state, "practically nothing but wet sand," is the reply. Their slow rate of growth, we are informed, however, is against their becoming an adjunct to planting products. Many other species of the family Sapotacæ are characterised by the presence of milk, though but few are as yet of commercial importance. A species of Mimusops in the West Indies furnishes what is known as "Gum balata."

TEA PLANTING IN CAROLINA, U. STATES.

The American *Review of Reviews* for March has an illustrated article by "Leonora Beck Ellis" on American Tea-Gardens, Actual and Possible. Most of the illustrations are familiar having done service in some of Dr. Shephard's pamphlets before now. Of course, the paper has to do with Pinehurst; but we learn that, so far back as 1804, a French botanist, Michaux, planted the first tea bushes

in Carolina, of course as ornamental oriental garden plants. The Agricultural Department first tried tea culture in 1881; but the experiment was abandoned in 1883. We ourselves saw a very fine tea bush in the Garden of the Agricultural Department, at Washington, in 1884.—Then we learn from the *Review* how Dr. Shephard took up the cultivation; but no mention is made of the part played by an old Ceylon planter—Mr. Henry Cottam—who, in the course of his multitudinous wanderings, found his way to Pinehurst, and we believe helped Dr. Shephard in some of his early operations and led him to order the *Tropical Agriculturist*. To show that there is an idea of Dr. Shephard's 60 to 70 acres proving the beginning of a great industry, we quote as follows:—

"If America were now raising her own tea, from 13 to 15 million dollars per annum would be kept in this country that under present conditions goes from us into foreign coffers. The sum is modest when compared with those represented by the great staples of America—wheat, meat, and cotton. But it is quite large enough for us eagerly to desire to keep it at home, especially when we reflect that if kept here it would go to support the tillers of the soil in the agricultural South. Over half of these snug millions of good American money we now send to John Chinaman, who raises 49,678,577 pounds of tea out of our average yearly consumption of 92,782,175 pounds. Would not this money make better count for civilisation in building up the homes of our poor white and black toilers? In regard to our supplying other markets than the American, we shall at present venture nothing further than the statement that it is by no means out of the range of possibilities for us ultimately to reach and claim our share also in them. At this a laugh may go around; for it cannot be denied that one successful tea-garden in all this great country seems a fragile base to build great expectations upon. But hark back to the handful of Smyrna cotton seed sown in a Virginia garden in the first quarter of the seventeenth century and carried thence, after many unsuccessful generations of the weed, to the Carolina and Georgia plantations, which seemed to have no need of the insignificant new plant, as their tillers were finding ready wealth in tobacco, rice, indigo and the silk mulberry. At the end of one hundred and fifty years from that first planting of cotton, its harvests were still only slight gleanings from odd corner patches, a purely domestic crop, and by no means a general one. Yet today, a century and a quarter later, undertake to eliminate this weed from the agricultural resources of the South-Atlantic and sister States, and what a transformation must be wrought in the farming life of the section which produces three-fourths of the world's annual cotton crop—what an upheaval, indeed, in the commerce of the world?"

But practical men must be satisfied there is not much in the Pinehurst experiment so far as wide extension goes, when they read the conclusion of the article before us:—

"The question of labor has been dealt with quite as skilfully as the natural problems of heat and moisture; and while it still costs something like eight times as much to have a pound of tea picked in South Carolina as the same service would demand in Asia, yet much of this comparative loss has already been balanced—and much more it is hoped will soon be balanced—by greater productiveness in the field, by the substitution of machinery for hand labor in the factory, and by the manufacture of varieties of teas which, from inherent chemical causes, cannot be brought from the Orient.

"We may not dwell now upon other points, interesting as they are. The practical results of these ten trial years are before us, and tea culture on a business basis is an actuality in the United States. Already rivals of the Pinehurst gardens are being inaugurated in a quiet way—one in Louisiana—another in South Carolina, a third at the Georgia experiment station. Dr. Shephard writes, under recent date, that he has this year increased his tea acreage, outside of the hedges in his park, from 60 acres to 75 and that the crop of 1900 is decidedly larger than in any previous year. Nor did he raise the price of his teas when the Eastern varieties recently went up, a fluctuation due rather more to the short crop in Japan than to the Chinese entanglement.

"Desiring to popularize the American product, Dr. Shephard is holding his prices just where a careful calculation of expenses shows he can afford to fix them. His actual cost of production and preparation for market is now 27½ cents per pound. He hopes to reduce this shortly to 14 cents. At present, the retail price of the 'Standard Pinehurst Black Tea' is $1 per pound. The margin between these figures of cost and selling price must, of course, be shared with the various middlemen who form the chain from producer to consumer, but even after the division a fair portion is left to the tea gardener. The wholesale selling-price, at a conservative estimate, will average up to 50 cents a pound, allowing the producers a profit of 22½ cents per pound, even at the present high cost of production.

"Dr. Shephard's 'Rose Garden' of Assam-Hybrids may be taken as a fair illustration of the possibilities in this new industry of our section. The Rose Garden is a little less than an acre in extent, and was set out in 1890 with nearly 1,000 plants. In 1892 it yielded 56 pounds of green leaves. Nearly doubling its yield every year since 1893, except in 1897, a year of prolonged autumnal drouth, it closely approximated 1,200 pounds in 1898, an amount of green leaf which affords about 300 pounds of the Standard Black. Here, then, was a profit in 1898 of nearly $70 to less than an acre. The present year the productivity is much increased, while the price remains the same. It should be noted in this connection that the most profitable crops in Japan are gathered from plants two hundred years old.

"Again, if the plants in the 'Rose Garden' were placed at shorter distances apart, as is the rule in the Orient and now at Pinehurst, the yield would be proportionately greater each year. But make the most conservative estimate and say 400 pounds cured to the acre, at a profit of only ten cents per pound. Yet, is $40 an acre clear profit regarded as bad farming in this section? We merely hint at the possibilities of expansion when we add that on many estates in Ceylon and India more than 1,000 pounds to the acre is the annual harvest, and that the highest product per bush in those countries has already been reached at Pinehurst. The tea has been a ready seller at $1 per pound, and the demand for it, stimulated by a growing acquaintance with its purity and its delicate and pleasing flavor, is increasing, so dealers testify, more rapidly than the Pinehurst gardens can expand. The lesson

is left with the progressive horticulturists and farmers of the South."

So long as South Carolinians are ready to pay a dollar (4s 6d) a pound for a novelty, good and well; but they must soon know that quite as good Ceylon or Indian tea can be supplied on the spot, duty paid, for 2s a lb. or at most 2s 6d, leaving a fair profit to dealers. And that being the case it is impossible to treat Dr. Shephard's as other than an interesting amateur experiment, worthy of support for the employment it gives to coloured children, but by no means able to compete, in a commercial point of view, with tea-growing in the Orient.

THE DECAY OF COPSE CULTURE.

Not the least hard-hit branch of the farmer's industry is the cultivation of the copse-wood that forms a conspicuous feature in the landscape of many of the Southern counties. Consisting of hazel, ash, alder, and other saplings clustering thickly from a close-cropped stump, the wood of these copses furnished till late years a considerable revenue. The trimming was done on the spot during the cutting of the copses, which were then left to themselves for a term of years till they had grown again; and the trimmed sticks were largely used to supply the wooden bands which formed the binding of the small rough casks in which sugar and other foreign produce was distributed about the country. Now, however, merchants have largely ceased to import their sugar in quantities too bulky for retail distribution; and with this improvement the need for repacking into smaller receptacles has disappeared, and with it one of the chief markets for the copse-wood. Add to this the increasing rarity of labourers skilled in trimming it, and the fact that, though this operation only comes once in several years, it is a lengthy and expensive business, and we have the reasons why at the present day the copses are being left more and more to run wild, and their produce used when eventually cut down chiefly as pea-sticks and firewood, which is all it is often fit for. if not cut at the right period.—*Globe*, March 16.

LARGEST TROUT IN CAPE WATERS.

Some few years ago Messrs Halse Bros. obtained, through the late Mr J D Ellis, a number of trout fry taken from the Hatcheries, Pirie Forest. These were carefully placed in a magnificent dam—one of several on the estate—and for some time nothing was heard of the result of the experiment. Suddenly the hearts of Messrs Halse Bros. and three enthusiastic gentlemen in King were gladdened by the capture of three-year-old trout, weighing respectively 7½lb, 8½lb, and 8lb. 2oz. Now, again, "Carnarvon" has topped the record. On the 20th instant a magnificent trout (four-year-old) was caught in the dam, weighing 14lb. before cleaning, and a trifle over 12lb. after, the length being 31in. Of this Messrs Jakins Bros. have turned out a splendid photograph.—*Natal Mercury*, March 16.

TEA BROKERS' CIRCULARS AND OTHERS.

I notice your contemporary is exercised over the diversity of opinion shown in the various tea circulars. This is surely rather a *naive* way of looking at things. Those who write the circulars are men of flesh and blood like the rest of us and their views are tinged not only by their dispositions, which may be either optimistic or pessimistic, but also by their interests. It may not be generally known in Ceylon that many of the selling brokers have "buying-over" departments. Far be it from me to suggest that this operates against the interests of the owner of the tea. In some instances the reverse may be the case, for the manager of the buying-over department may be able to give an order above the market price. Still if the writer of the circular knows that his firm has a large stock of, say, low-priced Ceylons, he is not very likely to crab common Ceylon tea. As regards China tea, many of the people in Mincing Lane worked in this for years and some of them made fortunes out of it. It is not surprising, therefore, if some of them have a hankering for the good old times when a cargo of tea could sometimes be sold at an all-round profit of a shilling a pound. I think, however, I am expressing the opinion of the vast majority when I say that unless Ceylon and Indian teas become considerably worse even than they have been for the last six months—and there have been some pretty bad ones about—there is no chance of China teas again getting a hold in England. Then there are the dealers' circulars, and very well written some of them are. But it is well to bear in mind that they are written for the benefit of the dealers' customers. If you read in one of them an eulogium of (for instance) Java teas, you need not run away with the idea that the writer has any particular admiration of our brother planters in Java, or even that he is a man of pro-Boer proclivities. Not at all. You simply make a mental note that Messrs. So-and-So have a stock of Java teas and would not be averse to selling them at a reasonable profit.

As the time of the Budget draws near, it is the custom with many dealers to write to all their customers, pointing out that there is a chance of the duty being raised and that it would be a wise precaution to lay in a stock of tea, of which at the moment they have an exceptionally fine selection, etc., etc., etc. Last year the grocers, and others who took the advice so suavely offered them, did well for themselves; this year we hope things will be different; but. in any case. the dealer makes his profit.

No, as things are done in London, I am afraid we shall have to wait for the millennium before the views and ideas expressed about tea are in entire agreement. There is an old saying: "Tell me the company a man keeps, and I will tell you the character of the man." One might paraphrase it and say: "Tell me the business a man does, and I will tell you the character of his tea-circular."—Local "Times" London Cor.

[One of our principal points is overlooked in the above, namely, how is it that with good Ceylon tea so cheap, the export of "China" tea from London keeps up and even showed an increase at the time we wrote? Were we not all assured that when 'Ceylons' fell below a certain price, which they did long ago, they would sweep China black tea out of America and the European continent.—ED. *T.A.*]

BANANA FLOUR.—Attempts are being made to introduce banana flour into Northern markets, which is manufactured on a large scale in Colombia and Venezuela, as well as in Central America. The process of making it consists in stripping the fruits of their skins, cutting the bananas into slices, and drying the slices either in the sun or by artificial heat, after which they are ground and sifted. Thus treated, a bunch weighing fifteen pounds will yield three pounds of flour.—*Grocers' Journal*, March 23.

THE CONDITION AND PROSPECTS OF TEA:

NEED OF GOOD MANAGEMENT AND OF ABANDONING UNPROFITABLE FIELDS.

(*By a Specialist.*)

During the first quarter of the year, the tendency throughout the country has been towards more *careful plucking*. On many estates *fine* plucking has been resorted to; but it cannot be said that this is in *general* favour, the feeling being that, if care is exercised in the selection of the leaf gathered, and no hard or coarse leaf is allowed to enter the Factory, things would soon right themselves. My own conviction is that *careful* plucking, as distinguished from *fine* plucking, is all that is necessary, and if it is continued, it will very soon have an appreciable effect on the output. It may add to the cost of plucking a little, but a better class of tea will be produced; and if India does not look out, we shall be running her very close as regards quality. I do not, of course, mean to say that we shall be able to compete with the better run of places in Darjiling and Assam; but the bulk of Indian teas consists of invoices such as we should have little difficulty in equalling, while cost of production would be in our favour. It is more than ever important, however, that the very best possible attention should be directed towards making the most of all the advantages that Ceylon possesses for the successful working of estates, and we may be sure that

"MANAGEMENT"

will be a very important factor in the near future, more so than it has been in the past. It is quite possible to concede this without saying anything disparaging about planters as a body. It is simply this, that circumstances have arisen which call for *special* efforts on the part of our managers, and unless I am much mistaken, it will be found before long that individuals will be achieving reputations for themselves, and passing over the heads of those who are inactive and do not move with the times. There has probably never been a better opportunity for men with the capacity for dealing with difficulties to come to the front and show us what they can do.

Carefully conducted experiments both in plucking and manufacture may bring to light much that is now hidden and obscure, and there is ample prospective reward for those who are able to distinguish themselves on these and other lines.

Referring to the general question of

"OUTPUT,"

I have all along (as you know) regarded it as a mistake to "rest" tea in the manner indicated by Messrs. Rosling and Rutherford, nor am I in favour of curtailing the yield from estates on the lines laid down by the London Association. Neither of these schemes, even if generally adopted, would be likely to ensure anything more than temporary relief. A better plan would be for estates to *abandon outright* their unremunerative fields and not allow them to be a burden on areas which can be profitably cultivated, as they frequently are. No doubt there are many estates where all the land that is kept up gives good paying returns; but there are, on the other hand, a number of places where the plucking area might well be restricted without lowering profits or adding in any way to the cost of production.

The relief to the market, if some such plan as this were adopted, would be very appreciable and it would rest on a thoroughly sound basis. "Abandoning" is obviously better than "resting." The latter would constitute a permanent menace to the enterprise, making it difficult to sell estates, or shares in Companies; for who would invest in tea property if it were known that a large acreage of land was resting, waiting in fact in readiness for an improved range of prices to place its produce on the market?

The London people were evidently misled to some extent by the telegram sent home by the Planters' Association after the meeting of the 17th of February. No doubt they regarded the message as indicating that the "resting" scheme had been generally approved, whereas, as a matter of fact, it had merely received the benediction of a very unimportant majority of planters representing not much more than a fraction of the capital of the country. Telegrams such as these should not be lightly sent, but fortunately in this instance no great harm has been done and absent proprietors will have learned long before now from other sources that the "resting" scheme has never received any wide support in this country. Nevertheless, the agitation will have done good and a distinct check has been given to extensions as well as to the liberal use of manure. With the lesson of last November before them, men will think twice before they again flood the market with poor liquoring teas. Prospects for April and May do not, so far as I can judge, point to anything very exceptional in the way of yield; but there will be a good lot of stuff going forward all the same.

(*By another Specialist.*)

The exports in the first quarter give little clue; for in January, at any rate, the bulk of tea exported was made from leaf plucked in November and December, 1900, before the edict had gone forth to make better tea. Where very close plucking was the order of the day up to January 1901, I believe the altered style reduced the tea made 20 per cent; where men had not gone to such violent extremes as 700lb per acre, I fancy the reduction brought about came to 10 per cent, falling down even by very careful managers to 5 per cent, had weather, style of overtaking pruning, etc. been the same.

In many districts weather has, in the first quarter of 1901, been decidedly showery, which has made the tea flush better than it would have done had the weather been very dry in February and March; but the knowing ones are of opinion that there will be no large rushes of leaf in April and May, as would have been the case if we had a drought in February and March. I believe, therefore, even allowing for a natural in-

crease in young and manured tea, the exports for Ceylon at the end of June will be less than in *1900* by, say, 5 per cent. If we are not tempted to go in for coarse plucking in the last *six* months of the year, there will certainly be 7 per cent less tea exported in 1901 than in *1900*.

Green teas.—Mr. Mackenzie, I see, wires 'a better feeling in the market.' About time! I only hope the wish is not father to the thought. The feeling is now pretty general that our Commissioner ought to reside in America and must be able to advise his constituents, the Thirty Committee, to better purpose than he has done during the last *twelve* months."

NATAL BOTANIC GARDENS.

The Report for the year 1900, by J Medley Wood, A.L.S., has reached us. There is a good deal of interesting reading, especially to Natal Colonists. Here is a reference to the way a very dry year affected fruit crops :—

We have been in the habit of sending out from year to year from 4 to 7 tons of Mangoes, plucked green for making chutney, &c , but last year none were gathered and but very few are left on the trees. The crop of Lichis also was a complete failure, and all other fruit trees suffered in a similar way.

We take two further paragraphs showing how certain tropical products will not grow in the "Garden Colony" of South Africa :—

Cola acuminata.—This is the tree which produces the Cola nut of commerce, and I regret to have to report that all the plants are dead ; the soil and climate do not appear to be suitable to the growth of the tree

Theobroma cacao.—I regret to have to report that all the plants placed in the open ground have since died ; two were reserved for the conservatory and these are alive and healthy. I have never thought that this plant would succeed in the colony as our climate is not sufficiently tropical for it; in the summer it is warm enough but the cold winter months are not suited for plants of this kind. I have several times had sent to me fruits which were said to be Cocoa grown in the colony, but they have always turned out to be those of Carolinea, or Pachira alba, a plant in no way related to the Theobroma.

TEA PROSPECTS.

(Extract from Geo. White & Co.'s Annual Tea Report, for 1901.)

PROSPECTS.—Although the present Season closes without any near prospect of relief, so far at least as the value of common and inferior grades of all kinds are concerned, the position can hardly be considered as devoid of brightness in the future, as in the nature of things it will work out a cure for itself, though in doing so individual interests may suffer. Production has overtaken immediate requirements, but the Trade is a sound one and if given a respite from the burden it has lately had to bear in the way of excessive supplies it should right itself ere long, partly through the expansion of business fostered by low prices. It is to be hoped also that the action to restrict output taken by the Committee appointed by the Indian and Ceylon Tea Associations may bring home to Directors of Companies, Owners, and Managers of Estates generally, the absolute need of serious attention to this matter, and, although it may be difficult to formulate any scheme which can be universally adopted, that all will strive towards the desired end. In many cases it may be feasible to gather the leaf more quickly, i.e., without letting it run so long. In others finer plucking may be resorted to, or portions of properties which do not give an adequate or satisfactory yield may be allowed to lie fallow. Planters in India specially may elect to finish their Season rather earlier and thus curtail the crop, while on some gardens in Ceylon more rest may be given to bushes where stimulating manure has been used. In different ways therefore the same object may be kept in view, the result being that the Industry will assume a healthier condition and that the cloud which now hangs over it will gradually disperse, leaving behind a lesson which should not however be forgtten for many years to come.

While there is much to be done by Producers, Distributors are not backward in taking their part and progress is being made in this respect, though slowly in some quarters. The Continent of Europe, and especially Russia, is consuming more British-grown tea every year, consequent on the persistent efforts of exporters both in this country and at the ports of origin. In Canada and the United States of America many are engaged in pushing the trade, and so in spite of a number of drawbacks the produce of India and Ceylon is gradually being more used in other countries than our own. If the manufacture of green teas suitable for the requirements of our Trans-Atlantic cousins should prove a success, as is confidently hoped by those who have taken it up so earnestly, a further important step will have been gained and one which will afford great relief to all concerned.

Another matter which should engage notice is that of encouraging retail sales locally, and it does not seem beyond the bounds of possibility that herein may be found an outlet for coarse leaf which might be sold at such a figure as to induce the natives to be large consumers and yet be remunerative to growers. In this connection it may be noticed that a considerable business is at present transacted by South Indian Estates, chiefly from the Nilgiris, whence the people all along the West coast up to Bombay are principally supplied. A certain amount from Ceylon too also finds its way there. This is done entirely through native shopkeepers and there is no doubt that the existing demand in the bazaars might be much increased by the offer of cheap tea in small packets. It is estimated that already 4¼ million lb are disposed of in India alone.

MANUFACTURE.—With reference to the treatment of the leaf, what we wrote last year seems still applicable, viz. :—"Taking into consideration the larger area coming into bearing in some districts, it would seem policy to avoid very coarse plucking and the manufacture of undesirable sorts which foster a low quotation here and tend to glut the market. Where briskness, pungency, or full-bodied liquor are attainable, every effort should be put forth to secure these characteristics. Plain featureless teas are more or less neglected, especially in the very busy months, and good appearance without sterling cup no longer satisfies even the Continental buyers who used to take that style of China Congou."

There have been occasional instances this season of breaks tainted apparently by eucalyptus leaves (where these trees are cultivated) having been

allowed to find their way into the picker's basket, and becoming mixed up with the tea during manufacture, which frequently leads to less competition among buyers, and should be guarded against.

The number of "cheesy" lots has again considerably decreased, due possibly to more thorough final firing, and also to the extended use of patent packages (especially of those lined with thick lead) of which such a large portion now arrive. Partly due to weak wood, but more often to carelessness in loading on board the steamers, damaged packages have given much trouble recently, involving loss in weight and necessitating an allowance to buyers. Some economy has been effected by slight reductions in warehouse charges, and also by the adoption of an improved system of weighing by the Customs.

THE OLDEST RUBBER PLANTATION.*

In the *Indian Forester* (vol. xxiv., p. 160), I presented some facts in relation to the oldest India-rubber plantation in the world, which is located on the Pamanukan-Tjiassem estate, in the Residence Krawang, in Java. At that time I wrote that the plantation came into existence in the year 1872, basing my information on personal conversation with the owner of the estate, but the opinion of the present chief overseer, Herr van Henkelom, seems to be that the plantation dates from the year 1864.

The young plants of *Ficus elastiea* were obtained from the adjacent forests, by cuttings of branches, or by marcotting the uncultivated trees, an operation to which the inhabitants of Java frequently resort. The before-mentioned rubber trees are especially adapted to the process of marcotting. All that is necessary is the removal of a strip of bark ¾ centimetre wide, and to bandage the wound with earth. After about fifty days roots will appear through all sides of this ball, which can then be cut off. It is advisable before planting these young plants, which are about ½ metre in height, to place them, or rather nurse them, in rich, well-shaded soil for a period of about fifty days, in order to heal the cut thoroughly.

It is my opinion that the original cost of this plantation on the Tjiassem estate was not very much, because the *Ficus elastica* was planted about 8½ yards apart each way, or 72 to the acre, within coffee plantations which were no longer productive, and required not much cultivation. I estimate the cost of the plantation at about $7 per acre. Altogether 72½ acres, embracing 5,200 trees, were planted.

The first tapping was done in 1886, and the following figures will give the details:—

Years.		Pounds.	Average ounces per tree.	Value.
1886	..	5,512	17	$2,880
1887	..	4,954	15	2,592
1888	...	1,514	4	792
1890	..	3,307	10	1,728
1891	..	6,113	18	1,858
1892	..	5,992	18	1,229
1895	..	3,197	10	1,973
1896	..	3,113	10	1,561
1897	..	6,731	21	3,648
1898	..	6,731	21	4,213
Total..		47,164		$22,474

* This letter is reproduced from *The India Rubber World.*

Tappings could not be made in every year. In thirteen years (in three of which the trees were not tapped) a total of 47,164 pounds was harvested, an average of 3,628 pounds per year, or 10 ounces per tree per year. During the four years 1895-98, the average was 4,943 pounds, or 15 ounces per tree. The yield per acre, therefore, from 1886 to 1898, averages 50 pounds, and from 1895 to 1898, 68 pounds.

The figures given above, by the way, in the column headed "Value," must be understood as referring to the income to the planter after deducting all expenses, not only of harvesting the crop, but also the initial expenses and the yearly expense for care of the plantation. From the information supplied to me in regard to the prices obtained for the rubber, I should infer that the yearly expense for the last four years covered by the table had amounted to an average of $12 per acre per year.

An analysis of the figures above given will show an average yearly nett profit of $39·30 per acre, the figures for 1898 showing a profit per acre of $58.

With respect to the possible yield from *Ficus elastiea*, it may be mentioned that Herr Mulder, in Sudimara (West Java), obtained in 1897 from three trees 48 kilograms, and 20 months later from the same trees 45 kilograms. This is respectively per tree 35½ pounds and 33 pounds.

A. H. BERKHOUT,
Late Conservator of Java Forests.

Wageringen, Holland.

—*Indian Forester* for April.

TEA REFORM.

(To the Editor of the *Home and Colonial Mail.*)

Sir,—What I would suggest is that the Tea Associations of India and Ceylon be organised on more comprehensive lines—that all tea proprietors, whether public companies or private concerns, and their agents, become members of one or other of those associations; that suitable persons from among them be elected and appointed to act as a general committee, to whom questions relating to the tea industry should be referred, and upon their report on any important question being submitted, a joint meeting of members of both associations be convened for the purpose of approving or of modifying, if necessary, such recommendation, and when finally approved and accepted that decision to be loyally observed by all members.

At present these associations appear to represent only a portion of the tea proprietors of India and Ceylon. To make them really effective every producer should be a member. At present their views and recommendations, however sound and excellent, are merely an expression of opinion, which has not the weight and force of authority as of an association representing the whole body of tea producers. This is not as it should be.

Reform is also much needed in other directions. A great deal of complaint is heard of the general low class of teas manufactured during the past few years. It is a strange coincidence that with the introduction of machinery quality generally has fallen in the same ratio. In this connection I do not lay the blame on the adoption of machinery, but on the practice of working up a coarser class of leaf by machinery than could be done by hand, in order to increase output.

The Use of Fertilisers.—In Indian plantations very little is done in the way of applying fertilisers to tea plants. The consequence is that in

the older portions of a garden the quality of leaf deteriorates, and a low class of tea is produced. Can this be surprising when for decades gardens are plucked season after season without an ounce of manure of any description being applied to the soil to compensate for what has been so persistently taken from it?

What is surprising, however, is that in Ceylon, where manuring is a great feature in cultivation, the average value of the tea produced is lower than that manufactured in India, where practically no manuring is done. This fact would argue that the effect of fertilizers is turned to account in Ceylon by increasing quantity rather than by improving quality by a system of plucking coarse overgrown leaf. This would go a long way towards accounting for the large proportion of coarse teas which have done so much to overstock the market.

There is yet another practice which accounts for a large quantity of coarse tea—i.e., the undue prolongation of the plucking season. I know, as a planter, how anxious every manager is to avail himself of every obtainable leaf towards the close of a season to enable him to get nearer the quantity estimated to be produced, but it is at the best only a low class of tea with an autumnal flavour, the product of a plant whose life energy is sapped by the plucking of leaf at a time long after the tea bush should have been at rest—recuperating itself—it left unplucked.—Yours truly,

JAMES HODGES.

4, Birmingham, March 19, 1901.

THE IMPERIAL TEA DUTY.

TO THE RIGHT HONORABLE THE SECRETARY OF STATE FOR INDIA IN COUNCIL.

MY LORD,—I am directed by the Indian Tea Association, London, to address you on the subject of the late enhancement of the Import Duty upon tea, with a view to your urging the Chancellor of the Exchequer to reduce the duty to its former level of 4d per lb.

The Industry which this Association represents, though supported by many millions of British Capital, is carried on in India, and is thus, perhaps, outside the sympathetic consideration of the Chancellor of the Exchequer. Indian interests are, however, especially within your Lordship's cognizance and protection, and the Association ventures to hope for your sympathy and assistance in the present highly critical state of the Industry.

That Industry has brought wide and unhealthy wastes under cultivation, it supports several hundreds of thousands of native labourers, and it makes a material contribution to the Land Revenue of the Empire of India. It holds an important position in Northern Bengal and Southern India, and is the very backbone of the well-being of the Province of Assam. Moreover, after some vicissitudes it has proved financially a success. The Industry for a considerable period prior to 1897 showed a steady prosperity. It was found to return to English investors regular, and in some cases liberal, dividends. This prosperity naturally attracted further capital, which was employed in making additions to the area under Tea.

These extensions were perhaps in some cases unduly large, but they would have had no serious effect upon the well-being of the Indian Tea Industry, but for the occurrence of two grave events.

The first of these events was the action taken by the Government of India by which the exchange value of the rupee was fixed at about 1s 4d. Without entering into the question of the effect of this action on the country generally, I am desired to point out that the policy adopted has undoubtedly resulted in heavy loss to the Indian Tea Industry. The artificial enhancement of the rupee has, in regard to Tea, greatly increased the cost of production, and has thereby reduced the margin of profit to an extent which can hardly be conceived. But for the very serious increase in the cost of production caused in this way, producers would now be able to accept with small risk of loss, the low prices of Tea at present ruling.

The second event was the addition last year of 2d per lb to the duty, which is proving most injurious to the producers of Indian tea. The increase in the duty cannot fail in one of two things: it must either, by an increased price exacted from the consumer, check consumption, or, if not paid by the consumer, it must come out of the pocket of the producers. The result so far appears to be that the increase has materially checked the regular expansion of consumption, and at the same time thrown upon producers the payment of a large share of the additional duty.

These two events have so seriously affected the Indian Tea Industry—the first by raising the cost of production, and the second by reducing to the producer his net profit—that, coming as they do on the top of the increased production, they have brought the Industry into such straits that at the present moment but few tea properties can be carried on without loss.

It is hardly necessary to point out to a statesman how much the failure of a large proportion of the Indian Tea Industry is to be deprecated. The public revenues both of Assam and Bengal are much interested in the prosperity of Tea, and if, as seems probable, many estates must be closed up, the distress to the labourers employed on them will be very great. Moreover, I am to urge upon your Lordship's consideration that, both for the United Kingdom, where capital is ever seeking for new channels of employment, and for India, where capital is greatly needed, it would be a mistaken policy to allow the one Indian Industry, into which private capital has flowed freely from this country, to be crushed in its hour of weakness and difficulty by the addition of heavy State burdens.

The Association desires to draw attention to the very heavy percentage which the Duty on Tea now bears to the wholesale price of the article. In 1881 the average price of Indian Tea in London was 1s 5d per lb., the Duty being then 6d per lb. (about 35 per cent). In 1891 the average price was 10½d, the Duty being 4d, or about 38 per cent. During the current season the average price has been 7¾d, and at the present moment it is about 6d, while the Duty is also 6d, or 100 per cent. on the average price. Large quantities of Tea are now being sold at less than 4d per lb., the Duty here being 150 per cent. Accompanying is a statement showing the average price of Tea from the Tea Districts of India, giving the above figures in the form of a comparative statement.

There is one further point to which the Association respectfully venture to draw your attention. While agreeing with the Chancellor of the Exchequer in thinking that "a very large class of the population who do not pay income tax, who do not consume alchol, and do not smoke," should contribute towards the expenses of the South African war, they do not consider it to be equitable that Tea alone, of the commodities used by that class of the people of England, should be singled out for an increase of Duty. It seems to the Association that there are other commodities more capable than Tea of bearing increased taxation—Cocoa, Coffee, and Sugar for instance. The Duty on Cocoa, the consumption of which has largely increased of late years, varies between 1d and 2½d per lb. for different qualities, that on raw cocoa being 1d. The quantity of raw cocoa entered for home consumption in 1879 was

10,111,526 lb. as against 37,750,000 lb. in 1900, showing an increase of 270 per cent, while during the same period the consumption of tea rose from 160,500,000 to 249,750,000 lb., being an increase of 55 per cent only.

The duty on coffee, which has an average value of 8d per lb., is 1½d per lb., or only 25 per cent of the duty on tea, with which article it competes as a beverage.

Sugar at present contributes nothing to the Exchequer, but a duty of even ½d per lb., which could hardly be felt by consumers, would realise, it is calculated, about £6,750,000.

My Association have endeavoured to show in this letter that the increased duty has struck their Industry heavily at the very moment when, from other causes, it was least able to bear up against such a blow. They now venture to pray your Lordship to press upon the Government the serious nature of the crisis in which the Indian Tea Industry is involved, and the disastrous effect upon it of the continuance of the present high rate of duty.—I have the honour to be, My Lord, your obedient servant, ERNEST TYE, Secretary.

PUBLIC SALES

District.	On Garden Account for week ending February 16th, 1901.			
	1901.		1900.	
	Pkgs.	Average Prices.	Pkgs.	Average Prices.
Assam ..	23,574	7·04	14,778	9.08
Cachar and Sylhet	12,543	4·82	10,767	6·83
Chittagong ..	146	5·66	—	—
Chota Nagpore ..	—	—	46	6·25
Darjeeling ..	1,751	8·70	2,202	10·87
Dooars ..	9,278	5·05	4,573	7 04
Kangra, &c. ...	—	—	—	—
Nilgherry ..	303	4·70	11	7·25
Terai ..	154	4·75	149	7·75
Travancore ...	1,691	4·39	44	6·75
Total ..	49,440	6.04	32,570	8·12

TOTAL SALES

District.	On Garden Account from June 1st 1900, to			
	1901.		1900.	
	Pkgs.	Average Prices.	Pkgs.	Average Prices.
Assam ..	471,732	8·51	453,117	9·34
Cachar and Sylhet	292,340	5·80	305,479	7·09
Chittagong ..	5,895	6·35	2,977	7·46
Chota Nagpore ..	1,304	5·30	1,649	6·25
Darjeeling ...	76,140	9·78	61,402	10·74
Dooars ..	145,089	5·64	125,529	7·38
Kangra, &c. ..	5,260	6·10	10,879	7·06
Nilgherry ..	3,749	5·90	4,629	7·30
Terai ..	12,110	5·96	12,055	7·26
Travancore ..	34,066	5·53	29,418	6·83
Total ..	1,047,684	7·30	1,007,134	8 36

THE BAHREN PEARL FISHERIES.

In the centre of the broad V-shaped bay, that separates El Katr from Turkish El Katif, lies the object of much solicitude, viz. the Island of Bahrein, famous throughout the world for its pearl fisheries which rank with those of Ceylon. The island is thirty miles long and from six to nine miles broad. The pearl fishing at Bahrein lasts according to an Indian report from June to October, and it is pursued not only at Bahrein but along the entire Arabian coast. The Bahrein banks, stretching for a length of four to five leagues are, however, the richest and most certain. At the season of the fisheries some 4,500 boats of every size and rig may be seen, all busily employed. They carry from five to fourteen men each, and the total number of hands engaged is said to be 30,000. The scene is one of the greatest picturesqueness and animation. Like most of the gulf ports and trading settlements, it was taken early in the 16th century by the Portuguese who established a station there and at El Katif, to ensure a monopoly of the pearl trade. When the pearls have been picked out of the shells they are handed to the master of the boat who proceeds to sort them by the manipulation of a triple set of brass sieves pierced with holes of different diameter. The pearls that are unable to pass through the largest sieve are called "Ras," the residue of the second sieve are "Batin," while the resulting contents of the third sieve are known as "Dzel." Made up into separate batches, according to their classification, the assorted pearls are then sold to the pearl merchant upon an intricate scale of values, depending upon the shape, colour, specific gravity, and size. The merchant re-arranges them in small packets and despatches them to the Indian market whence a great many go back again to Arabia and Persia. Generally speaking, the Bahrein pearls are not so white as Ceylon pearls but are larger and more regular in shape; while they are said to retain their lustre for a longer period. The Ceylon banks require to be carefully watched and fishing is only permitted by Government at various periods. On the other hand, the Gulf banks give no indication of a failing supply.—*Journal of the Society of Arts*, March 15.

THE AXE AND THE TREES:

A REVIEW OF THE WORLD'S TIMBER SUPPLY.

Timber for ordinary building is dear at present, a fact which renders the public rather more attentive to the voice of the professional forester than it generally is. The figures and areas dealt with by experts in this art are generally so large that they are looked on as rather outside the range of practical business. But the shrinkage of the world is bringing all its "timber properties" into reach. Their sites, boundaries, and contents are all well known, with one notable exception, that of the great tropical forest which belts the globe; and all nations and languages—the civilised ones, that is to say, for the savage, like the peasant, is always the enemy of trees—are beginning to take stock both of the waste and extravagance of the past and of

THE PRINCIPAL LEFT INTACT FOR THE FUTURE.

Among the latest lights on this subject are a paper read by Dr. Schlich before the Society of Arts on the outlook for the world's timber supply, the Reports of the Forest Commissioners of the United States, the handbooks of the New South Wales Government, and a paper by Mr. Alder Anderson in *Pearson's Magazine* for February on "Russian Imperial Forestry." Most of the demand for European timber has been met hitherto from Sweden and Norway. But this supply is not sufficient, and the Russians are getting their forests into order to meet the coming demand. Their autocratic Government has passed Forest laws almost as strict as those of the Norman and Angevin Kings, with this difference, that, while the latter laid an embargo on private lands, and forbade the owners to cut down their trees that the cover for game might remain, the Russians forbid private owners to cut down their timber except under Government inspection, and recognise no absolute ownership in trees except by the State, in

order to protect the forests themselves. They affect to regard the woods as part of the balance of Nature, which must not be disturbed to the possible detriment of the community. Parts of the steppes are being planted, and all woods cut down are at once replenished with a suitable stock. The general aim of the Government is to bring the line of the woods further South, where they will be useful to protect the corn-growing plains, as well as nearer to the navigable parts of the great rivers pouring into the Euxine and Caspian.

DR. SCHLICH'S OUTLOOK

over the world's forests is not only comprehensive but detailed. He knows, so to speak, where the shoe pinches, and shows the present uselessness of great areas of wild timber for the wants of the hour. All Northern Siberia is covered with wood,—but it is too far off for transport. The United States' lumbermen have been so wasteful that the Government have had to take over the woods and limit the output. It is impossible, he thinks, for the United States to go on for any time spending the capital of their trees. For some years thay have been using 33 per cent more timber annually than their woods can replace by natural growth. He is probably rather too pessimistic on the subject of Canada. That is, except the prairie region and the barren lands, one immense forest or wood. It is the perfection of a timber ground, for all through these forests there are lakes, rivers, and streams without end, almost naturally connected, to transport the trees by the only means which pays in the timber business, viz., by water. The Dominion now draws £700,000 a year from these forests, which cover with spruce, pine, maple, poplar, and oak a region nearly as large as the whole of the Indian Peninsula. The corn-growing region seems already marked out by the natural absence of forests. The prairies of Manitoba are already clear, so that the ground on which a natural crop stands ready need not be ravaged to make room for the first necessity,—bread. Mining and manufacture are increasing in the Dominion, and with a concurrent demand for timber, which will be a source of revenue, there is every reason to think that the

CANADIAN FORESTS WILL BE AN IMMENSE ASSET

of the best kind. Among the paradoxes of the timber trade, pointed out by Dr Schlich, two are very striking. The first is a detail, but a suggestive one. In the great mahogany-exporting regions on the Caribbean Sea, the export is almost balanced by the import of building wood, though the mass of the Central American forest lies behind them and at their doors. Into the whole British Empire, including our Colonies, with their vast area of trees, we import £18,000,000 worth of wood every year, and the amounts rise by about £700,000 per annum. It is from Canada, from our own great Colony only separated by a week's sea voyage, and not from Russia, that we should hope and desire to draw the pine and fir for our ordinary domestic use. The hard woods of the Dominion will probably be needed for home use and for the States south of the great lakes. But it is a pleasant and probable forecast to picture the millions of acres of the great Canadian woodlands preserved and prosperous, the forest populous with deer and moose, the lakes and innumerable rivers full of trout and salmon, at once the source of riches to Canada and the great reserve for sport and recreation for Englishmen at home and over the seas.

If there is a real rise in the price of timber before the supply overtakes the demand, it may

ENCOURAGE THE PLANTING OF WOODS

in this country. We wish it were possible now to advocate this as a commercial enterprise. But common knowledge holds the contrary opinion, and Sir W Thiselton-Dyer himself, under whose control Kew has become more than ever a practical oracle on the natural products of earth, holds that, as things are, it can never pay 4 per cent. It has been said by good authorities that land letting for less than 7s per acre will, as a rule, pay when planted. There is also a great sentimental inducement to do so. The present rating of plantations is almost Turkish in its strangling effect. The ground is rated as soon as it is planted. Not a penny comes in for at least ten years, yet the rates may be anything from 2s per acre upwards. The rate might be dropped and *deferred*, and then re-imposed in the form of a duty when the trees are felled. This would make the heir to the trees pay the taxes, and not the planter of them, and would be no more a hardship than the payment of succession-duty. Partly from its moist climate, partly from the abundance of hedgerows and hedgerow timber, we in this country have not felt the real damage caused by the absence of woods which accrues in mountainous Italy, or sandy Germany or Russia. Otherwise we should probably give bounties for tree-planting, instead of imposing taxes. Outside,

IN GREATER BRITAIN, OUR NATURAL FORESTS ARE ENORMOUS,

and, on the whole, singularly little damaged. India, as Sir Dietrich Brandis has more than once shown, needs much of her woods for other purposes than timber. They are the great reserve of cattle food in famine, the collectors of moisture, the feeders of rivers, the maintenance of mountain waters. Still, that national wood reserve, with teak at one end and deodar at the other, yields a splendid and increasing revenue. But, by what seems almost a stroke of luck, our other great Colonial forests have largely escaped the waste suffered by the other nations of the world. We have no part of our territory where the wood has been utterly or mainly ruined, as in Italy, in Spain, in Greece, in parts of Turkey in Europe, and vast areas in the United States. The slow peopling of Canada saved her woods during the "stupid" period of colonisation, and now they will be preserved. Our greatest hard-wood province or continent is perhaps Australia. Only one of the native trees seems to have been destroyed, the red cedar, and that is a furniture wood. There are five million acres of State forests of sorts in New South Wales alone. The number of species of hard-wood trees is unusual, and they are exceptionally lofty. This is one of the great desiderata of the builder, and one which English timber never fulfils. In replacing two of the cross-beams in the roof of Winchester Cathedral, English oak of the proper length could not be got at a reasonable price. The first ten forest trees on the New South Wales list average from one hundred feet to one hundred and fifty feet at full growth. Behind these Colonial supplies lies the enormous and

UNTAPPED RESERVE OF THE TROPICAL FORESTS

of Guiana, of West Africa, and, if we buy from our neighbours, of the Amazon, the Orinoco, and of the Philippines, where the trees average two hundred feet in height, and water-

ways are abundant, and penetrate the forests. These woods will stand till they are wanted, for the sound of the axe is not heard in them. In many the natives do not know even how to handle the implement. When making the Uganda Railway for instance, the natives were so awkward at its use that they begged to be supplied with *swords* instead to cut down the bush.—*Spectator*, March 9.

THE LINNÆAN SOCIETY.

At the last ordinary meeting, held at Burlington House, Piccadilly, Professfor Sidney Vines, F. R. S., the President, occupied the chair. Mr H E Smedley exhibited and described a series of botanical models. Among the most striking were a flower of *Rafflesia Arnoldii*, about a yard across, a native of Sumatra, parasitic on the stem and roots of a species of vine, the cups of pitcher plants, sections of garden flowers, and, on a greatly enlarged scale, the reproductive organs of the pine, showing the process of pollination, the development of the pollen, the structure of the ovule, and the process of fertilisation. With these were shown some models, also greatly enlarged, of amœba ingesting food, the slipper animalcule, the bell-animalcule and the green hydra in section, with bud and ovary, to emphasise its two modes of reproduction. A paper by Miss Gulielma Lister on the occurence of *Tristicha hypnoides* in Egypt was communicated by Mr Arthur Lister, F.R.S. This species belongs to a group of aquatic moss-like flowering plants growing on rocks more or less covered by flowing water. It was met with among the islands below the First Cataract and the interest of the find lies in the fact that till now it was believed that the species did not flourish north of Abyssinia.—*B. and C. Druggist* March 15.

MINES AND MACHINERY ORDINANCE.

The following regulation made by His Excellency the Governor, with the advice of the Executive Council, under the provisions of section 4 of "The Mines and Machinery Protection Ordinance, 1896," is published for general information: —Every entrance to or exit from any mine, and all machinery at or about such entrance or exit, shall, if situated within 20 yards of a public road, be screened by a screen at least 8 feet high of boards or other sufficient material so as to be effectually excluded from the view of persons and beasts of burden using such road.—*Gazette*.

A CRYPTOGAMIC BOTANIST FOR INDIA.

The second appointment in the British Empire of a scientific man to devote his time to the organisms causing disease and death to plants was recently made in London and the recipient, Dr. Butler, with Mrs. Butler, has been staying a few days at Peradeniya; but will leave by the ss. "Borneo" for Calcutta. His official designation is not Mycologist, but the perhaps more correct title of "Cryptogamic Botanist." Dr. Butler, who has already done excellent original work, has studied in Ireland under Prof. Marcus Hartog of Cork University (whom we remember well when under Dr. Thwaites in Ceylon), and later when in receipt of a research scholarship, in Paris. Dr. Butler is an enthusiastic "plant doctor" and no doubt will be of great service to Indian agriculture, although his field of work between Cape Comorin and the Himalayas is wide enough, we would think, for half-a-dozen or more of Cryptogamic Botanists.

CEYLON TEA IN RUSSIA.

ANOTHER RUSSIAN TEA FIRM TO BE REPRESENTED IN COLOMBO.

One of the best evidences of the progress of Ceylon tea in Russia is to be found in the increase in the number of Russian tea buyers in Colombo. The latest arrival is Mr. W P Ampenoffe, who represents one of the largest firms in Russia, known as "The Trading Company, successors to Alexis Goobkin, A Koosnetzoff & Co." Mr. Ampenoffe will be heartily welcomed by the whole of the mercantile community. The firm which Mr. Ampenoffe represents has been dealing largely in Ceylon teas, and he has been sent out to Ceylon owing to the increasing business of the firm. Hitherto, there were three Russian and one English house buying tea for them locally. Speaking of the progress of Ceylon tea in Russia, Mr. Ampenoffe testified to the growing taste for it. A good deal of it was sold pure, he said, but the people still preferred a mixture with China tea. The medium class of Ceylon tea was liked best. Mr. Ampenoffe, from some figures in his possession, pointed out that the Ceylon exports to Russia could hardly be compared to the 55 000,000 lb. of congou tea alone that was now imported, but he believed that the amount of Ceylon tea going annually to Russia was bound to increase. What chances Ceylon green tea would have in Russia he was unable to say. A good deal of China green tea was now sent. —Local "Times."

RICE IN COCHIN CHINA.

RICE-MILLS INCREASING.

Saigon, March 3.—A new rice mill has been started this year—the "Yee Cheong" mill. This brings the number of our mills to nine, of which seven are Chinese and two European, all of which are big ones, This seems also to be an indication of the prosperity of the country, if we consider that in Tonkin not a single steam rice-mill exists yet. Cochin China exports yearly almost 12 millions of piculs of rice or paddy of different sorts and everything is on the increase.—*Hongkong Weekly Press*, March 16.

Adiantum Farleyense.—This magnificent East Indian species may well be termed the Queen of Maidenhairs. The large lobes of the fronds are finely crimped, so that the effect is splendid. As an exhibition plant there is no mistaking its value, either as a single specimen or in a collection of Ferns, judges too rarely seeing it in perfection. I have found the most common error is to put too much peat in the compost. In commencing the cultivation use clean pots and ample drainage. The compost I have used with conspicuous success consisted of two parts of loam, one of fibrous peat, leaf mould and coarse silver sand. Cover the drainage with the rougher portions and pot somewhat firmly, lightly watering the following day. Place in a temperature of 55° or 60°, being particular not to overwater or expose to bright sunshine, or the plants do not assume the rich, deep colour found in shaded plants. When the roots fill the pots it will take a good share of water, but too much or not enough will completely ruin its prospects. As Adiantum Farleyense produces heavy fronds a little staking is quite necessary; this, if carefully done, will show no unsightliness. —R. P. R.

PLANTING NOTES.

EUCALYPTUS DISTILLING.—According to the report of the Chief Inspector of Distilleries in South Australia, there are fourteen eucalyptus-oil distilling licences in force in that colony. Thirteen licences are on Kangaroo Island, the other at Punyelroo The value of oil exported increased from £1,131 in 1892 to £2,224 in 1899.—*Planting Opinion*, April 6.

RAW RUBBER NOTES.—It is stated that the rubber trade in the Lagos district has almost reached a position of complete standstill. This anxiety is well founded and there are some substantial reasons for believing that causes other than the failure of the rubber trees are operating to obstruct and kill the trade.—*India Rubber Journal*, March 18.

THE ANALYSIS OF GUTTA-PERCHA—BY H BORNTRAGER.—Crude commercial gutta-percha has the following composition according to the investigations of different chemists:—Water, 1 to 1·5; dirt (wood and soil), 3 to 5; pure gutta, 30·5 to 83·5; albane, 7·0 to 44·5; and fluavile 3·0 to 21·0 per cent. An analysis of a sample of crude gutta-percha by another method gave the follwing results:—Water, 1·5; dirt, 2·5; pure gutta, 77·5; fluavile. 6; albane al. 3·8; albane a2, 3·7; and albane a3, five per cent.—*India Rubber Journal*, March 18.

INFERIOR TEA.—It is all very fine (says the *Indian Planters' Gazette*) for our local papers to gird at the Ceylon and South Indian planters for sending out refuse tea for local sale, and even export; but what about our own damaged and repacked? Hardly a sale passes during the monsoon without several chests being put up under the above denomination. What becomes of them? and have brokers a right to publicly auction damaged food goods? Is the Calcutta Health Officer a dummy? Any muck brought forward ought to be forthwith confiscated, and the Tea Association are bound to see to this for the sake of the good name of our teas.

DOSING AN ELEPHANT.—A difficult operation was performed the other day at the Zoological Gardens at Hanover. An elephant was suffering great pain from a growth on the lower part of one of its hind feet, and it was deemed necessary to cut this malformation away. In order to render the animal insensible a dose of 600 grains of of morphia in six bottles of rum was administered. This dose took about an hour before any visible effect was produced. The elephant then fell over in a kind of sleep, and the operation was successfully carried out without any further ado. The operation lasted in all three days.—*Globe*, March 22.

THE SEASON AT DAREJEELING.—March 4.—Darjeeling has burst into spring early this year, and nothing could surpass in India the beauty of the last three weeks, soft cloudless skies, bright cheerful sun, the long line of snows clear but not hard, taking delicious colouring in the early morning and late afternoon. Rhododendrons are already bursting into their glorious blooms of white, pink and scarlet, and trees are putting on their young light green, and very soon the hill-sides will be white with magnolia. True indeed it is that only the cold weather residents of the place ever see Darjeeling at its best, for, barring six weeks of rather dreary cold and mist, the climate this winter has been perfect.—*Pioneer*.

SUGAR AND JAGGERY FROM NEW SOURCES.—An attempt has been recently made by the Madras Government to ascertain the amount of sugar and jaggery manufactured in the Presidency from material other than sugar-cane. Jaggery (raw sugar) is produced from palmyra, sago, date, and coconut palms; but there is a consensus of opinion that it is not feasible to prepare any estimates of out-turn, whilst to arrive at any approximate idea of the area occupied by these sources of jaggery from year to year is not possible, owing to the fact that the trees are scattered and promiscuously planted.—*Madras Mail*, March 14.

GRAPHITE FROM CEYLON.—More concessions for digging for graphite on Crown lands were granted last year than in any previous year, notwithstanding the drop in prices. The district of Kurunegala, to the north-west of Kandy, has 154 graphite mines. In the southern part of the island 117 acres of land on which graphite had been discovered were leased for ten years for 333,450 rupees. In the central districts of Ceylon 112 mining concessions have been accorded. Since European firms have taken up the development of graphite deposits more scientific methods are employed in the working of the mines, and the ratio of production has been increased accordingly.—*Newsagent*, Feb. 23.

MANURING BANANAS.—Mr. R H Elworthy, of Priestman's River, took five acres of his coast lands in Portland, red soil which, he states does not grow bananas; he manured one acre with sheep manure, and on this acre the bananas made luxuriant growth and came in earliest, but bore small bunches of seven and eight hands. On one acre, rotten coconut husks were dug in and here the fruit came slow, with less stem and head growth than the acre with sheep manure, but the bunches were larger and fairly good on the whole On the remaining three acres no manure was applied and the bananas grew very poorly, producing when they produced fruit at all, small bunches and poor fruit.—*Journal of the Jamaica Agricultural Society*, Feb. 1901.

INDIAN TEA COMPANIES.—During the week a number of tea companies have published their reports—says the Calcutta Correspondent of *The Pioneer*, writing on March 29th. Reading the reports as a whole one carries away the impression that the results are not so bad as might have been expected, considering all the outcry that there has been and that the cry of "stinking fish" that has been raised over the industry is perhaps a trifle premature. Even although no profit may have been earned, and although most of the companies are unable to declare a dividend, yet the losses are small; and bad as prices have been, there is a ray of light in the fact that those companies, I take Dehing as an example, that have devoted their energies to making the better class of teas, have obtained a better average price than during last year, and even where low grade teas are manufactured, as in the case of the South Cachar Co., it is possible by capable management and a sufficiently large outturn to obtain remunerative results. Taking this last company, which declares a dividend at the rate of 10 per cent per annum, its successful results are doubtless due to good management, combined with the fact that it is able to turn out about 14 maunds of tea per acre as compared with an average outturn of about 5½ to 6 maunds in other Cachar gardens.

THE LINDOOLA TEA COMPANY, LIMITED.

REPORT.—To be presented at the Fourth Annual General meeting of the Lindoola Tea Company, Limited, to be held at the Offices of the Company, 12, Fenchurch Street, London, E.C., on Monday, 1st April, 1901, at 2 o'clock p.m.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December, 1900, duly audited.

It is with the deepest regret that the Directors record the great loss that the Company has sustained through the death of Mr. Walter Sandys Thomas, the Ceylon Manager, which occurred soon after his arrival in England on well-earned furlough.

The result of the year's working may be considered satisfactory, and is very similar to that obtained in 1899. The crop amounted to 185,634 lb. Tea, being at the rate of 580 lb. per acre, against 189,020 lb. last year. The cost free on board at Colombo was 25·11 cents per lb against 24·78 cents, and the gross average price of the 174,820 lb sold in London was 8½d, the same as in the previous season.

Drafts were negotiated at 1/4 9-32d against 1/4 19-64d last year. The current season's crop is estimated at 185,000 lb Tea.

The Net Profit for the year amounts to ..	£2,190 19 7	
And the Balance from last year to ...	153 19 11	
Making a total of		£2,344 19 6
The Directors have already paid out of this dividends on the 6 per cent Prefereuce Shares for the year ending 31st December, 1900 ...	£780 0 0	
Interim Dividend on the Ordinary Shares of 2 per cent free of Income Tax ...	520 0 0	
Income Tax	47 18 8	
And it is proposed:—To pay a Dividend of 3 per cent free of Income Tax on the Ordinary Shares, making 5 per cent for the year	780 0 0	
And to carry forward the Balance of	217 0 10	
		£2,344 19 6

The sum of about £150 expended on new machinery having been charged against Revenue, the Directors do not consider it necessary to write off a specific sum for depreciation.

The Director retiring on this occasion is Mr. Walter Cross-Buchanan, and, being eligible, he offers himself for re-election.

The Auditor, Mr. J Hamilton Alston, also offers himself for re-election. By Order of the Board,

ROBERTSON, BOIS & Co., Agents and Secretaries.

London, 19th March, 1901.

THE BATTALGALLA ESTATE CO., LTD.

Eleventh annual report to the shareholders.

The Directors, in presenting their annual report on the working of the Company's business for the past year, are pleased to be able to give again a generally satisfactory account.

The increased production has necessitated a considerable outlay for new machinery, but the factory is now thoroughly equipped to cope with the larger output, and no further expenditure is likely to be incurred under this head for some years to come.

The quantity manufactured shows a considerable increase on the past year, totalling 274,556lb, against 224,803lb in 1899. The average selling price in London has been 8·38d per lb, against 8·43d in 1899, and in Colombo 36 cents, against 37·04 cents in 1899. The total crop averaged a selling price of 7·85d, against 8·22d last year.

London sales were 169,285lb, netting £5,128 12s 1d, and Colombo sales 104,925lb, realising R37,737·95. This compares with 191,350lb, netting £5,835 7s, and 32,600lb, realising R12,075·20 in 1899 in London and Colombo respectively.

Exchange for drafts has averaged 1s 4 7-16d, against 1s 4 13-32d in the preceding year.

An interim dividend of 5 per cent on the shares, free of income tax, was paid in September last, and there is now a balance at credit of profit and loss account of £766 14s 1d, from which the Directors propose to pay a further dividend of 5 per cent, free of income tax, absorbing £750, and to carry forward £16 4s 1d.

In accordance with the Articles of Association, Mr. C A Reiss retires by rotation, and, being eligible, offers himself for re-election.

The Directors are very sensible of the services rendered to the Company by their estate Superintendent, Mr. G C R Norman, who has handled a very large crop with unceasing attention and efficiency. In tendering him and his assistants their very best thanks, the Directors desire also to express their appreciation of the valuable services rendered to the Company by their Colombo Agents, Messrs. E Benham & Co.

50 and 51, Lime Street, London, E.C., 18th Mar. 1901.

THE PANAWAL TEA COMPANY, LIMITED.

The report of the directors for the year ending December 31, 1900, states that the net amount at credit of profit and loss account, including balance brought forward at December 31, 1899, after providing for general expenses, directors and auditors' fees was £1,577 12s, dividends on the 7 per cent cumulative preference shares were paid for 1900 in full amounting to £371, an interim dividend of 2 per cent on the ordinary shares was paid on November 10, 1900, amounting to £340. It is proposed to pay a final dividend of 2 per cent on the ordinary shares for the year ending December 31, 1900, making a distribution for the year 4 per cent, free of income-tax, which will absorb £340, to increase the reserve funds to a total of £1,720, by the addition of a sum of £505 19s 6d, leaving a balance to be carried forward to next season of £20 12s 6d. The directors recommend the distribution of a final dividend at the rate of 2 per cent on the ordinary shares of the company for the year ending December 31, 1900, making with the interim dividend paid to June 30, a distribution at the rate of 4 per cent for the year. The directors having in view the very unsatisfactory state of the tea-growing industry, consider it advisable to recommend the shareholders to strengthen the reserve funds. No alteration has taken place during the last twelve months in the acreage of the company's properties, which stand at: On December 31 last, tea in full bearing 590 acres; jungle, 341½ acres; total, 931½ acres. The directors consider that the shareholders have every reason to be satisfied with the result of the year's working. The crop realised for 1900 was 339,550 lb as against an estimate of 316,000lb. The yield in 1899 was 334,922lb. The visiting agent (Mr Melville White) before his departure from Ceylon, reported the properties as being in every way in excellent order at the date of his last inspection.—*Home and Colonial Mail*, March 29.

THE TALAWAKELLE ESTATES CO.; LTD.

REPORT.—To be presented at the third ordinary annual general meeting of the Company, to be held at the Office of the Company, on Wednesday, the 3rd April 1901, at three o'clock p.m.

The Directors have the pleasure to submit the balance sheet and accounts of the Company for the year ending 31st December, 1900, duly audited.

The mortgage has been reduced to £17,000, by the payment of the third instalment of £1,500 on the 31st December last, which has been charged against the profit of the year.

From the statement at foot giving particulars of the past year's working, as compared with the previous two seasons, it will be seen that, while the yield and cost of production remain practically the same, the gross average price of the Tea sold in London on account of last season was the highest recorded, viz., 11·21d., there having been a good market for Teas combining strength and quality.

The Expenditure on new clearings, about £330, is charged against Revenue.

Statement shewing results of working for the three years ending 31st March, 1900:—

Season.	Acreage Plucked. Acres.	Total Tea Crop. lb.	Yield per Acre. lb.	Sold in London lb.	Gross Average per lb. Tea sold in London. d.	Cost of Crop per lb. f.o.b. Colombo. cents.	Average Rate of Exchange per Rupee. s. d.
1898	802	421,284	525	418,565	10·57	27½	1/4 3-16th
1899	802	419,544	523	419,110	10·23	27	1/4 5-16th
1900	802	419,632	523	417,978	11·21	27½	1/4 9-32th

The net profit for the year amounted to	£8,310 3 4	
To which has to be added interest	76 16 8	
And the balance from last year of	563 16 1	
		£8,950 16 1
Interest on the mortgage for the year has been paid, amounting to	£905 14 7	
The third instalment of the mortgage of £21,500 has been paid, viz.	1,500 0 0	
Dividend on the 6 per cent. Preference shares for the year *less* income tax, has been paid	314 17 6	
An interim dividend of 5 per cent., free of income tax, on the ordinary shares was paid on the 30th September	1,853 10 0	
Income tax .	256 7 4	
It is proposed—To pay a final dividend of 10 per cent. on the ordinary shares, free of income tax, making 15 per cent. for the year, which will require	3,707 0 0	
And to carry forward the balance of	413 6 8	
		£8,950 16 1

The Directors desire to place on record their appreciation of the efficient management of the estates by their Superintendent and his staff.

The Director retiring on this occasion is Mr. Charles Murray Robertson, and he being eligible offers himself for re-election.—By order of the Board,

ROBERTSON, BOIS & Co.,
Agents and Secretaries.

Schedule of the Company's Estates.

Estates.	Tea in bearing.	Tea not in bearing.	Forest and Timber.	Grass Land, Buildings, &c.	Approximate Total Acres.
Talawakelle (*a*)	302	12	(*b*) 69	(*c*) 22	405
Nanuoya ..	250	..	3	9	262
Katookella .	250	30	..	8	288
Total ..	802	42	72	39	955

(*a*) 3 acres leased from the Proprietors of the Boutiques.
(*b*) 25 acres felled.
(*c*) 2 acres leased to Messrs. Davidson & Browne.

HIGHLAND TEA COMPANY OF CEYLON, LIMITED.

Report of the Board of Directors, to be presented to the Shareholders at their fifth annual ordinary meeting to be held at the office of the Company, 16, Philpot Lane, London, E.C., on Tuesday, 16th April, 1901 at 3 o'lock p.m. The report of the directors for the year ended December 31st last states that the net profits have amounted to £2,438 19s 10d to which has to be added a balance of £86 10s 5d brought forward from previous accounts, giving a total to be dealt with of £2,525 10s 3d. An interim dividend of 3 per cent, (free of Income Tax) paid in September, 1900, absorbed £960, and it is now proposed to pay a final dividend of 3 per cent., free of income-tax, making 6 per cent. for the year, amounting to £960, and to write off estates account £500, leaving a balance to carry forward of £105 10s 3d. The profits shown by above figures fall somewhat short of those earned for the previous year, but, in view of the period of severe depression through which the tea industry has been passing, the directors think the shareholders are to be congratulated on the results attained. The total crop of tea produced by the Company's estates was 262,510 lb, against 259,233 lb in 1899, showing an increase of 3,277 lb; the average yield per acre all over was 448 lb, against 443 lb. and the average price realised in London was 8d per pound, against 8⅝d per pound. With regard to exchange, the directors issued instructions early in the year that the drafts against estate expenditure were to be drawn at a shorter usance than formerly, and the result of this course is a reduction in the rate of exchange from 1s 4 25-64d to to 1s 4 19-64d per rupee, by which some saving has been effected. The reports from the company's properties continue to be of a satisfactory character.

A POSSIBLE PARADISE: CYPRUS.

Reporting upon the condition of Cyprus for the past year, Sir W F Haynes Smith, High Commissioner, says :—

"The climate is exceedingly good, and the southern or Troodos range of mountains affords an excellent summer sanatorium. During five months of the year the top of the Troodos range is covered with snow, and a sanatorium might be established in its bright and clear air, which, even in winter, would afford a better climate than can be found anywhere else on the shores of the Mediterranean. A cool temperature would be obtained in summer, and a bright and warm sun enjoyed in winter on the crisp snow as in Switzerland.

"The irrigation works which are being constructed from the loan of £60,000 granted by the Imperial Parliament have been continued and have made good progress. Every one who has seen the magic effect of water on the cultivation in Cyprus must watch this experiment in irrigation with keen interest and with hope for its complete success.

"The Cypriot peasant lives for a very small sum on bread, olives, oil, raisins, vegetables, and wine, the products of the country, using little meat and buying tobacco at a low price. His clothing is, to a large extent, home made from the cotton grown in the country and from the produce of his flocks. The cost of living to Europeans is moderate, but the tendency is to increase.

"There are favourable openings for the investment of capital in the establishment of central wine factories and in further developing the silk industry. Silk of a high quality can be produced. There, is, I believe, also a profitable opening for capital in developing the sponge fisheries, and the Government is now in a position to afford advantageous terms to any undertaking having adequate capital to work the sponge beds of Cyprus under proper regulations.

'A land bank or an agricultural bank working under a carefully-considered system could employ capital to yield a remunerative return, and such an institution is much wanted, as the usurious rates of interest now exacted for advances to the producers are a heavy weight on the industry of the island."—*Daily Telegraph*, March 21.

GEOLOGY AND MINERALOGY OF CEYLON.

We take the following extract from an interesting review in *Nature* of work done under "The Tamnau Mineralogical Endowment," by Dr. F. Grünling, the well-known Assistant of Professor Groth of Strasburg:—

The thirty-third volume of Groth's *Zeitschrift fur Krystallographie und Mineralogie* is almost entirely occupied by the scientific work done upon the material which was brought back from Ceylon, and those who wish to see the excellent results of a wise scientific endowment wisely administered cannot do better than glance over this publication. Dr. Grünling brought back rich collections, especially of the dolomite and the minerals which it contains, of the graphite and of the gemstones; among the latter the most remarkable are the tourmalines, which constitute a unique series of beautiful crystals.

All these minerals have now been examined by various workers in Prof. Groth's laboratory. The graphite has been the subject of exhaustive study by Dr. Weinschenk, the lecturer on petrology in the University of Munich, who has already published papers on the subject in the *Zeitsehrift fur Praktische Geologie* and in the *Abhandlungen* of the Bavarian Academy of Sciences. The dolomite has been analysed by Dr. Schiffer, whose results have been given as an inaugural dissertation. And now has appeared this triple Heft of Groth's *Zeitschrift*, containing a general description of Ceylon and its minerals by Dr. Grünling, a research upon the chrysoberyl, the sillimanite and the blue spinel by Dr. Melczer, and a voluminous report upon the tourmaline crystals by Dr. Worobieff, whose memoir occupies nearly 200 pages, and is in reality a crystallographic monograph of the mineral.

The fact that so much has been achieved will suggest to the reader that the collection and scientific study of Ceylon minerals has been sadly neglected by our own countrymen. A perusal of Dr. Grünling's paper serves but to strengthen this conviction. With the exception of an interesting paper on the graphite and rocks of Ceylon, contributed last June to the Geological Society of London by Mr Cooma-ra-Swamy, but published too late to be alluded to by Dr Grunling, little has been done. Mr Cooma-ra-Swamy himself remarks, "No geological survey is in progress in Ceylon; it is much to be hoped that the Government will soon realise the importance of instituting one."

To give a very brief survey of the scientific results:—

Dr Grünling makes it clear that the graphite always occurs in typical symmetrical veins, though these have been much crushed and altered by earth movements which have spent their energy upon the soft graphite, and have consequently spared the country rock (granulite). Dr Weinsschenk comes to the conclusion that the graphite is of volcanic, and certainly not of organic, origin, and is probably due to the action of vapours containing carbon; he suggests that carbon dioxide and cyanogen compounds have played the chief part in its production. Among the associated minerals it is remarkable that, as at Passau, nontronite is one of the invariable decomposition products accompanying the graphite.

Dr Grünling is of opinion that the gemstones of the sands and gravels were derived from the dolomitic limestone which abounds in some parts of the island, for the spinel, which is certainly found in the limestone, contains sapphire, phlogopite, &c., while the corundum contains phlogopite, rutile and spinel. A granular marble from Wattegama, on the Kandy railroad, proves to be a theoretically pure *dolomite*; it contains, among other minerals, a remarkable blue apatite, which has been analysed by Dr Schiffer and is found to be a fluor-apatite containing 15 per cent of chlora-apatite. It is curious that Dr Grünling was unable to obtain any information concerning the original locality of the tourmalines; they are probably all derived from the cabook or laterite, and from some one place.

Worobieff's crystallographic measurements relate to 110 crystals remarkably rich in faces, and have resulted in the establishment of no less than 131 new forms? one crystal alone presented faces of fifty-nine forms; the table of calculated angles fills forty-three pages. He finds that the symmetry of tourmaline is undoubtedly ditrigonal, and not tetartohedral as has been supposed by some authors. The paper also contains numerous observations upon the pyro-electric properties of tourmaline, and distinguishes between the faces of the analogous and of the antologous poles.

Dr. Melczer's paper establishes beyond doubt that the chrysoberyls of Ceylon, of Brazil and of the Urals (Alexandrite) possess the same axes, and that the twinning takes place parallel to (031), not to (011). His optical study of the spinel leads him to the conclusion that the refractive index of this mineral varies with the colour; it is least in the most highly coloured parts.

The whole series of investigations reflects much credit upon the administration of the Tamnau fund, upon those who have collected and studied the minerals, and upon Prof. Groth, in whose laboratory the investigations have been successfully carried out.

The next award of this useful fund will be expected with interest. H. A. MIERS.

RUBBER FROM CEARA TREES.—Mr. F. E. Tringham brings us a very clean, superior sample of rubber, the result of tapping a single Ceara tree—four to five years old—on Pen-y-lan, Dolosbage. Trees giving so much for four hours' tapping are worth looking after and planting should be extended.

Correspondence.

To the Editor.

"REH" AND IRRIGATED LAND.

Paris, March 1.

SIR,—A letter of "A. D." (p. 542) in your *Tropical Agriculturist* for February, 1901, informs me that you have ("du saland") *reh* in Ceylon. In that case you would do well to ask M. C W Hilgard, Director of the Agricultural Experimental Station, at Berkeley, California, to send you his last memoir on this question, and you might give a translation of it in the *Tropical Agriculturist.* The ideas of "A D" seem to me right. Will you also have some specimens sent to M. Hilgard? He will be happy to analyse them. Cordially yours,

J VELBOUCHEVITCH.

[We suppose M. Hilgard's memoir, if for use in California, must be in English? Perhaps our correspondent "A D" (in the Tangalla district) will send us a few specimens of what he called "reh" to have transmitted to M. Hilgard.—ED. *T.A.*]

RUBBER EXTRACTION FROM BARK.

Paris, 2nd March, 1901.

DEAR SIR,—The process of extraction of the rubber from the bark is making very quick progress. Ten years ago nobody was thinking about it, Today we have a few reports on the opportuneness of such a process. You know that many plants are exploited by the cutting of the stem, what you call I believe peeling the tree; such are many roots, and slow growers such as *Mascarenhasia* and others from Madagascar, *Landolphia Hendelotii* from Soudan, and a lot of roots primitively neglected because it was quite out of practice to tap them by the common process.

Some were cut in pieces and put to bleed into recipients, as is done with *Urceolo*; but all the sap remaining in the bark after the operation was lost for ever. Now you can obtain from that neglected bark more rubber than the quantity obtained from the latex; and I know people asking for our process, intending to use it for the neglected barks left by the natives on the spot.

If it is true in the countries where the natives are accustomed to tap the vines, how much more in the regions where the collector must make the education of the collector of rubber, what can be the colour of his skin? If *par-dessus le marché*,* I cannot translate this French locution, the Governor of the colony has promulgated laws for the regulation of collecting the rubber, avoiding the cutting of the vines, stating that they must be tapped in official mode; when these vines are so long, so old, so large, the collector thinks that the weather is too bad for working and he sleeps till better times. But if you can say to the collector: go and cut the vines, but bring me the rubber you have obtained and if it is too meticulous [timid !] for you, bring me the bark, the white, yellow, black or undetermined,—the coloured man will think that to cut the vines is a very pleasant work for him and the crop of the bark a very pleasant one for his wife and he will go to work at once.

* *i.e.* If the labour is too expensive.—ED. *T.A.*

If it is true for the collecting of the bark, how much more it is for the *enrichissement* *—another word I cannot manage—of this bark.

The *Landolphia Hendelotii* per oz. contains from 7 per cent to 1 per cent of pure rubber. When the bark is dried quickly,—and I say quickly because when the operation is done slowly the fermentation is a cause of loss of the gum, —this bark is easily broken in a mortar, a common one for the decortication of paddy; so after a few minutes the operator can separate a few per cent of the impurities, and as generally native women are expert in the manipulation of the pestle, their lords and masters have no hesitation in entrusting them to perfect this work.

I have received bark of better rubber prepared by the female beauties of Senegal, containing no more than 20 per cent of impurities. Such rubber is a very commercial one and will be accepted on any market.

It is naturally much more difficult to bring this rubber to purity, but we must not be too exacting and such rubber will lead the way in the manufacture of pure rubber. With patience it is possible to obtain nearly pure rubber by these primitive processes; but the buyer is judge of the question; he can pay the rubber on the percentage and the analysis is quite mechanical. If the buyer take one ounce of the product and use an iron mortar and pestle and take the formation of nature; after a few minutes, if he has had the precaution of wetting the bark, he will extract a certain proportion of impurities and obtain a parcel of rubber nearly pure and a sufficient sample for judging the quality and the quantity of good rubber in the sample. After a very short time he will be able to avoid any mistake.

The extraction of rubber from the bark gives better product than the bleeding:—I send you a little sample of Borneo rubber obtained two years ago, and you will see that it is much better than the rubber generally offered on the market from this country. It has been prepared by a collector using this process for the first time. It is enough for today.—Believe me, yours truly,

A. GODEFROY-LEBEUF.

* Improvement of the bark.—ED. *T.A.*

COFFEE AND ITS ENEMIES IN B.C. AFRICA.

[BY AN OLD CEYLON PLANTER.]

DEAR SIR,—I send you a paper which I penned about 18 months ago, relating to the difficulties we have to contend with in B C A. in regard to the many enemies of our staple industry, coffee planting.

To these enemies we have now to add the spotted bug. This little pest is very like a lady-bird and, unlike all the Ceylon coffee bugs, flies about from tree to tree sucking at the juice of the flower, fruit and tender shoots or buds as they appear on the coffee trees. The damage done to the flower is terrible, completely destroying the fructifying power even in the most favourable weather. In regard to the fruit the insect sucks the juice, and seems to inject poison into the berry when young which turns it black or spotted or streaky, so that the fruit withers up and drops off the trees, even when it reaches the size of peas, just the same as the leaf disease

affected the Ceylon crops leaving only small clusters or single berries to come forward to maturity and those berries that do reach that stage are mostly damaged.

The buds or terminal branches when sucked at, turn a dark green colour and are stunted or bastard, having a shrivelled-up appearance with a black pith and black spots shewing between the bark and the wood.

The damage alluded to is worst during the dry season when there is very little sap in our coffee trees, and does not shew much during the growing or rainy season. I lost a fine crop about 6 cwts per acre this year with this bug. They came before the bush fires in swarms and found a safe harbour amongst my coffee. In addition to the new arrivals, those that had come in, and bred amongst the coffee for some two years unheeded (I was not aware they did any damage) added to the damage done. To show you what a number of bugs I have gathered, I have had an average of 20 children at work collecting daily for the past 6 months and they have each brought in from 30 to 60 per diem. Thank goodness, they can only get a few, 3 to 5 each, now. So that I may get a bumper crop next year. It was always next year in Ceylon, I remember, during the leaf disease days. It is now quite certain in B C A that we cannot rear bug, and get coffee to yield crop. It is very fortunate however that we have a remedy, although a tedious one, in catching the spotted bug I was always looth to believe that our spotted bug did damage to coffee before I proved it by experiments.

I have further proof this year by the fact that my crop is saved on the pieces of coffee where there is a colony of soldier-ants established; this tiger-ant eternally racing about on the coffee keeps the bug lively, not allowing them to rest and do damage, even if they don't succeed in catching them, which they sometimes do, and of course the ants pull the little wretch to pieces and devour it at once. I am going to set a boy on with a piece of meat on the end of a stick to trap a party of ants and distribute them about the plantation to help to fight the bug and other insect pests. I remember, I think, doing the same with red ants in Ceylon, to try and get rid of helopeltis or some other pests on my cacao in Matale.

Our red ant seems to be identical with the Ceylon one, that used to torment the coolies so when handling, where they established themselves and made nests amongst the coffee leaves. Only they don't seem to bite so hard, or it may be the African negro has a thicker hide.

I am growing tobacco for which I can get 1s 3d per lb. for clean in South Africa. Tea I may turn to good account by-and-bye also in South Africa. Chillies pay very well here, I have been getting up to 55s 6d lately for them. You in Ceylon seem to be having a hard struggle for it with tea; low prices and exchange must alter, otherwise it will prove serious for proprietary planters, although companies may not feel it so much. You can never stop rubbishy tea getting into your markets. People who want cheap tea or rubbish will and must have it, the same as rubbishy coffee, tobacco, &c. H. B.

[Our correspondent's longer essay will be given in the *Tropical Agriculturist*. Let him send specimens of his new "poochie" for Mr. E. E. Green's report.—ED. *T.A.*]

HOW TO DEAL WITH INFERIOR TEAS.

AN IMPORTANT SUGGESTION.

March 20.

SIR,—It would perhaps save a good deal of very inferior tea coming on to the market if the Tea Brokers in Colombo put an upset price on all tea of say eighteen cents, for the sake of a figure, and refused to sell any privately or publicly under that price. This would ensure at any rate in Colombo the destruction of most red leaf, mixed, and general rubbish, and it would not pay any one to send such stuff to England or Australia probably. If the Brokers did not care on their own initiative to take the step, they would do so if a resolution of the Planters' Association and the Chamber of Commerce were passed, asking them to institute this rule. Any Broker, after such a resolution, contravening the agreement would be boycotted, so there would be no fear of any lapses from the path of virtue.

The Broker would perhaps lose some commissions, but after all they are very small on the prices realized by such common rubbish. And the improved prices we trust to get would much more than recoup them afterwards. If, what is sincerely to be trusted, with all the finer plucking etc., we do get the prices of tea up, the danger will be the severe warning we have had will be forgotten, and a return made to the old system of coarse plucking, with consequent collapse again. The "Thirty Committee" might add to their duties that of advising the Planters if more or less leaf should be produced. If tea were being forced too high, it would be good policy to pluck coarser to prevent competition from outside, and large extensions. The Thirty Committee should have their fingers on the pulse of the market and advise accordingly.

It is an exceeding pity the question of the reduction or total abolition of the tea duty was not brought forward by a stronger debater, and properly threshed out once for all. If Mr. Christie, for instance, believed in the advisability of the step and brought forward a motion, no fear of the weight of his adversary's mettle would deter him from doing the utmost justice to his side of the question.

Very possibly there are insuperable objections, but they have not been brought forward publicly so far, *pace* Mr. Harcourt Skrine.

In its favour we have for certain the increase of buyers, of business generally, and Ceylon teas compete with the advantage of being *in situ* and, therefore, *per se* worth to a buyer their value plus certainly ⅘ of cost of transit of foreign teas. That is say it costs, say, 5 cents to deliver a 6d China tea into the blending house; it would be worth a buyer's while to pay 6d plus 4 cents for an identical Ceylon tea. The grower of the latter would gain 4 cents extra and the buyer save one. Under such circumstances can there be any doubt Ceylon tea both high and low grown would be used for preference wherever possible to our profit.

To a lowcountry proprietor especially, the total abolition of the duty seems most desirable. If some small duty is considered necessary, Ceylon tea would also, being free of it, get the extra value of that also.

Surely anyhow the question is worthy of a proper debate. LOWCOUNTRY.

CACAO:

Cultivation v. Longevity.

Dear Sir,—There is no question, I take it, that the cultivation of cacao, if carried on at all, should be done more or less in co-operation with the tree itself.

I may be pardoned this platitude on account of the number of planters who appear to forget in their treatment of it that cacao is one of the most delicate of fruit trees; and this is manifest in numerous ways, but in two ways very specially, namely (a) the condition of Suckering, and (b) the condition of Manuring. I think I see in these two conditions of treatment, as applied to cacao in Ceylon, something of the conditions under which coffee was grown to the comparative disadvantage of the former. In this connection also, I may venture to indicate a parallel between the leaf fungus of coffee, and the bark-fungus of cacao: that, as some have thought the coffee-fungus may be traced, however indirectly, to drastic manuring, so the cacao fungus may perhaps be traced to the accumulation of damp litter; the point of the analogy being that both improper manuring and excess of litter induce *dirt*, and hence ill-health in the tree. Analysis of the soil, and sometimes of the tree itself are resorted to for purposes of discovering if possible what natural constituents of life are respectively lacking and present: chemical analysis therefore tells us what to manure with; but practical analysis, *i.e.* knowledge of the tree and its nature, is also required before any manure should be applied. The just combination and intelligent application of these two methods constitute the scientific lines on which a product should be cultivated.

But, although the object of manuring coffee and cacao is identical, namely, the production of fruit, it by no means follows that the system of manuring as applied to coffee is applied with equal benefit to cacao, irrespective of whether cacao will stand the treatment. On the other hand cacao is a delicate plant, more delicate certainly than coffee, and should consequently be treated more leniently—within certain prescribed limits; and these limits have direct reference not so much to the method of treatment as to the actual life of the tree.

If the natural quantity of fruit borne by a tree is insufficient to render its cultivation remunerative, the tree must be forced. This is undoubtedly the case with cacao; for a cacao tree allowed to grow at its own sweet will does not bear soon enough for impatient mortals. Quick returns first—then large profits: it can be done, but it is done at a cost; and that cost, I hazard the opinion, is *canker*—not the only cost, but the greatest, I believe.

This question of manure, too, is all the more important owing to the extremely unnatural conditions under which the cacao tree is alone speedily remunerative. I shall never believe that the tree's original nature is to throw up '*suckers*.' What the tree does throw up in the first instance is not a 'sucker'—not a 'gormandiser'; *it is the tree itself.* To cut this off is *to top the tree*; and the proof of this is that, if the so-called 'sucker' is allowed to grow, it in turn spreads out in another platform, and a little later another so-called 'sucker' grows up and forms a third platform, and so until five, six, seven platforms may successively be reached. It is true that, whatever that first 'shoot' is called, it has to come off if crop is the objective; but I have done something more than say the same thing in other words. I have made it clear (if indeed it was necessary) that the conditions under which a cacao tree is cultivated in Ceylon are at least as unnatural as those under which coffee was grown; and, if it is admitted that cacao is more delicate than coffee, it will be seen that this only increases the disability under which cacao necessarily labours.

Weakness in a cacao tree is dependent upon many things; but three especially, namely,—soil, climate, treatment. The tree may fail, early or late, but it is bound to go in the long-run. It has neither the longevity nor the vitality of tea; but trees in a natural uncultivated state have been known to live—I write under correction—fifty and sixty years, and perhaps longer; and such trees are in the Island. Now, the oldest trees in the Island are Caraccas, but what Superintendent can point to a thirty-year-old Caraccas field and believe it good for another twenty-years at 3 cwt. per acre? It is said that "Cacao Walks" of the West Indies have been handed down from father to son for generations; but it has never been urged, I believe, that the original trees are still living. The soil of the West Indies is infinitely finer on the whole than our average Ceylon soil, but soil is no guarantee of longevity any more than is the air we breathe. Bad air poisons us, but good air is not, conversely, *elixir vitæ*, but a natural food; and similarly good soil to the cacao tree is a sustainer of life in proportion to the quantity of it consumed and the method of consumption. The first indication of this weakness therefore may appear early or late, according to the absence or presence of certain necessary conditions. A time comes when the tree, worried by suckering and fatigued by bearing, fails; then is the time to manure. Coffee was manured by cutting half-moon trenches about the tree. Shall the same be done for cacao and in the same way? If we scrape away an inch or two of soil around the base of the tree we come upon a very network of fine silky roots. Not everyone knows that these are the *fruit-roots.* Shall we cut them through with our half-moon trenches, first on one side the first year and then on the other side the following year? It was so done to coffee. But cacao is more delicate than coffee; surely, therefore, such drastic treatment should not be entered upon without sufficient reason. Where is the reason then? Is it to be found in root-pruning? The ruthless cutting through of the roots, upon which we depend for one crop, can scarcely be called that. This root-amputating, fibre-smashing, crop-obliterating treatment is not root-pruning. What other reason, then, for this extraordinary manner of application? Is it hallowed by habit, or cursed by custom? At any rate, the fruit-roots being all on the surface, it is folly to dig for them! Uncover, sprinkle the manure over, cover them up again, and the thing is done cheaper, because quicker; better, because all indiscriminating amputation is avoided. And we need to manure because the trees would otherwise grow weak—nay, they grow weak in any case—slowly, gradually weaker; the object of manuring being to delay this natural process, the common miracle of decease, and to let the tree—and the proprietor—down lightly.

Ever since the tree was topped, it has done all it knew to follow its own bent. For every 'shoot' pulled off, it has put up two, four, six, until new

'shoots' have been forced out of the hard trunk-bark anywhere and everywhere. But of these it has been deprived, and every shoot or 'sucker' so pulled off has had its certain effect on the nature of the tree; and the energy of the tree, expended in frustrated efforts to grow to its normal height, has been transformed, according to certain natural laws, with development of its laterals. But these laterals have developed slower than the energy was stored, and this stored energy therefore has been transformed into the extra crop we needed. In other words the tree has gradually been degenerated into a perennial condition of reproduction—considered a condition of high culture in many plants, and some animals. But prevention is better than cure, and, long before the tree reaches this prematurely senile period, such steps should, to my mind, be taken to prevent it ever arriving at it.

A tree once afflicted is, if nothing else, a source of infection: and it is a question whether more harm is not done trying to pick out all the 'borers' (the small 'borers' are ineradicable) and cutting out the canker than by felling the tree 'root and branch,' then and there. Perhaps it may be preferable to lose the tree, especially if we have already a plant close by, just beginning to bear. Then the loss is nil—a gain in fact, for we have a new tree for an old tree, youth for age. What, I ask, is to prevent us deliberately re-planting the whole estate, say, every fifteen to twenty years and cutting out the old cacao, either *en masse* or tree by tree if we prefer it? The expense is not great, and if canker can be avoided by the simple contrivance of not permitting the cacao to reach that age when, in the opinion of many practical planters, it becomes more liable to it, the better procedure is obvious. For nothing can be worse than canker.

We should then have a clean bill of health, a brand new estate (bearing proportionately to our own foresight) and essentially a new lease of life.

POD.

PLANTING NOTES.

AGRICULTURE.—The whole of the splendid Dunga estate, with the exception of land selected for Vanilla, and experimental products, is now being planted with coconut and clove seedlings. The careful cultivation of cloves, with the aid of the plough for the last year or two, is now beginning to prove how much superior the plough is to the native hoe. The trees are much larger than they used to be, and are bearing heavily. Nurseries for clove and coconut seedlings are being rapidly prepared at different stations on the Island for a supply of seedlings to planters. —*Zanzibar Gazette*, March 20.

SOMALI AND TEA PRODUCTION.—While Indian and Ceylon planters are thinking out the best means to restrict the output of tea, Mr. Joseph Foulkes, an African explorer, tells us that the region traversed by the Juba river is an ideal tea-growing country, as the wild-growing tea plant is found there. There is reason to suppose that Jubaland may become in the not distant future a considerable rubber-producing territory also. Mr. Foulkes, who is now on his way *via* Mombasa to the Juba district in command of an expedition, will make an especial study of these two plants with the object of furthering, if possible, their cultivation in Jubaland. It is understood that he has considerable financial support, and should his surmises with regard to the possibilities of the country turn out to be correct, he will be in a position to at once commence arrangements for the transforming of the cultivable areas into rubber and tea plantations.

THE ORANGE TRADE OF COORG.—A Coorg correspondent writes to the *Madras Mail*:—"A good thing is being made out of oranges by traders from Mysore, who purchase a cartload of fruit at R10 or R15 and realise R30 to R35 for the same. Allowing the liberal sum of R8 for cart hire to Mysore, it will readily be perceived that a handsome margin of profit remains over. In view of the Railway being made through Coorg, oranges might be largely planted. The trees would probably come into bearing just when the iron horse reaches the country, ready to take away their burdens of golden fruit. Other fruit trees might also be planted, but it would have to be done on a sufficient scale to allow of measures being adopted for safeguarding the crops. In one case, I believe the cultivation of fruit as an auxiliary to coffee will be undertaken here next season."

RUBBER AND ITS EXTRACTION.—We are indebted to Mr. Godefroy-Lebeuf for another letter on this subject, and we trust he will continue to report to us the progress and improvements made in the extraction of rubber from the bark, branches and twigs of rubber-yielding trees. It is marvellous to us how well our correspondent expresses himself in English, and we hope he will continue to write in that language; but it might help us where difficult points come up, if he gave his sentence also in French, which might lead all the more quickly to the clearing up of any difficulty in the understanding of a particular phrase or scientific process. We sent some time ago a small bag of bark samples from a Ceylon rubber plantation to be tested; but the result was disappointing —indeed *nil*—showing that the trees were too young to yield rubber from their bark or branches. Our correspondent sends us now a sample of Borneo rubber prepared by the new process. It seems very satisfactory.

FRUIT FROM THE WEST INDIES.—The steamer "Port Morant" arrived at Avonmouth recently, fully laden with fruit, besides carrying thirty-five passengers and mails, being the first of the Imperial direct West India Mail line to make the return voyage from Jamaica to Bristol. The vessel had a stormy homeward trip. Interest centred in the condition of the Bananas which formed the main part of the cargo, 18,000 bunches being stored in bins, the temperature of which was regulated by air-currents. Mr. Robert Thomson, formerly head of the Jamaican Botanical Department, has been appointed adviser to Messrs. Elder, Dempster, & Co., owners of the line, with regard to the growing and packing of fruit, the appointment giving great satisfaction in Jamaica, where his scientific attainments are greatly appreciated. Bananas in various degrees of fulness were packed, so as to thoroughly test the appliances of the vessel, and all the fruit arrived in splendid condition. The London and Liverpool buyers, who had an opportunity of inspecting the bins, expressed gratification at the excellence and soundness of the fruit. The whole cargo was sold, mainly for London, Liverpool, Manchester, and Bristol markets. The vessel also brought a large consignment of Mangoes, Pineapples, and Oranges, all of which stood the voyage remarkably well, fully answering the expectations formed as to the capabilities of the line in developing new trade with the West Indies.—*Gardeners' Chronicle*, March 30.

POTATOES.—It takes from 12 cwt. to one ton of seed potatoes to plant out an acre, the quantity depending on whether small sets, large sets, or whole potatoes are used—*Journal of the Jamaica Agricultural Society.*

MANY OF THE COFFEE PLANTERS in Southern India are going in for rice cultivation, and consider it a useful, if not highly remunerative, supplementary crop. This is especially the case in the Malnad district of the Mysore province.—*Indian Agriculturist*, March 1.

A CORRECTION.—In case anyone may take the trouble to notice the mistake, I may note by the way that, in the report, quoted in *T.A.*, of my "Curiosities," &c., I am made to say *Gutta Percha* is found in the Amazon Valley. I never said so. It is merely one of the vagaries of the reporter. *Borneo*, &c., in the *East*, I said, was the home of the *Gutta Percha* and I think, I noted this on the margin of the paper sent.—*Old Colonist.*

AN INCH OF RAIN.—What does an inch of rain mean? Few persons have a definite idea. An acre if calculated out, will prove to be 6,272,640 square inches. An inch deep of water on this acre will be as many cubic inches of water, which, at 231 to the gallon, is equal to 27,154 gallons. This immense quantity of water will weigh 228,190 lb. or 114 tons. One hundredth of an inch (·01) alone is equal to over one ton of water to the acre. In forty-eight hours, during the month of January, 15½ inches of rain fell at Geraldton. This was equal to 420,837 gallons per acre or 1,767 tons, or about one-seventh of the total quantity required to irrigate a crop of sugar cane during the growing season.—*Queensland Agricultural Journal.*

BOTANIC GARDENS, NATAL.—The rainfall for the past year has been 13·20 inches below the average of the last twenty-eight years, the total for the year being 27·24 in. as against 88·03 in. the average rainfall at Colombo for 31 years. Many plants have died in the Gardens owing to the droughts. The climate has been found unsuitable (as shewn above) to the growth of cacao (*Theobroma cacao*) though it appears that the fruit of another tree called *Pachira alba* is sometimes mistaken in Natal for that of cacao. The climate seems well suited to the cultivation of pineapples, and a long extract is given on the question of manures for these. The gardens are supported by subscriptions and a Government grant.—*Cor.*

RUBBER AT MANAOS.—The Government of Amazonas has decreed a law that is now being carried into effect, and must, like all artificial restraints on trade, prove highly prejudicial to the real interests of the State itself. Designed to injure Para by depriving that city of the great transit trade in rubber, it is likely to react on the rubber industry itself, and give rise to a still further fall in prices. The advantage of concentrating the export trade at one centre, at Para, is evident, as competition was always certain to secure the best possible prices for producers. With two markets, the second at an enormous distance from the coast, and with uncertain telegraphic communication with foreign markets, competition by buyers is certain to suffer. The decree we refer to obliges all rubber from the State of Amazonas to be landed at Manaos, packed in cases, and reshipped at a special wharf under Government inspection.—*India-rubber Trades' Journal*, March 4th.

GREEN TEA MANUFACTURE.—Mr. Deane reports the following as using his machine in Ceylon :—

LIST OF CEYLON ESTATES USING DEANE'S PROCESS.

Brunswick Estate. (2)
C P Hayley, Esq.
E Rosling, Esq., (Chairman, Planters' Association).
Ceylon Tea Plantations Co.
Eastern Produce and Estates Co. (2)
Messrs. Geo. Steuart & Co. (2)
Lipton's Limited
Carolina Estates.
Darrawella Estate.
Messrs. Finlay, Muir & Co. (2)
Hardenhuish Estte.
Elkadua Estate.
The Hon. J N Campbell, M.L.C.
St. Leonard's Estate
Ratnatenne Estate.
Messrs. Whittall & Co.

CONIFERS AS RAIN GAUGES.—According to a recent number of the *Revue Horticole*, M. Felix Sabut has lately communicated to the Congrès des Sociétés Savantes observations respecting certain plants that act as registering rain gauges :—"Mention has already been made of the influence of certain more or less severe droughts in the French Mediterranean upon *Pinus Laricio* of Corsica, and Cephalonian Fir. The lengthening of the branches of these two species is always proportionate to the quantity of rain falling during those months of the year when it is most profitable to them. Co-efficients have been established indicating what the degree is for each month of the year. These co-efficients enable the relationship that exists between the amount of rain fallen and the greater or less intensity of the vegetation which it has encouraged to be determined. It is shown that, under these conditions, it is possible to judge approximately the quantity of rain which has fallen by measuring exactly the length of the leader, or of the branch produced yearly on these species of pine, and, if the estimate is not absolutely proportionate to the quantity of rain registered by the rain-gauge, it closely approaches to it; and a still closer estimation may be made by taking into account the relative value of the results produced by rain in the several months of the year. It is, therefore, possible, to a certain extent, to use plants specially selected for this purpose as actual registering rain-gauges."

THE CHEMISTRY OF SOIL.—"Undoubtedly one of the most wonderful discoveries of modern chemistry has to do with the soil," says the *Saturday Evening Post*. "It has been ascertained that the most barren land can be made rich simply by adding to it certain mineral elements which cost but little. On this basis it is estimated that the United States will be able eventually to maintain 500,000,000 people—more than one-third of the present population of the world. It is merely a question of supplying the requisite quantities of nitrogen, phosphoric acid and potash. The last two are readily obtainable at small expense, whereas the first may be supplied either by furnishing to the soil condensed nitrogen in the shape of slaughter waste, of nitrate of soda ; or by planting clover, beans or peas, which have an affinity for nitrogen and absorb it from the atmosphere. It is now known that nitrogen is the most important plant food, and, inasmuch as this element composes four-fifths of the atmosphere, the question is merely to absorb it into the soil. It has also come to be understood that only 2 per cent. of the material of plants is derived from the soil, the remaining 98 per cent. being drawn from the air and from water.—*Bradstreet's*, Feb. 9.

FOREST ENGINEERING.

We have to acknowledge receipt from the author of a copy of "A Manualof Forest Engineering for India" by Charles Gilbert Rogers, Fellow of Cooper's Hill, Deputy Conservator of Forests, Imperial Forest Service of India—Volume I—Price Four Rupees, English Price Six Shillings. It is a very useful compilation of some 300 pages with over 140 illustrations, after the style of the well known Roorkee Treatises. From the preface we learn :—

This Manual has been written by order of the Government of India for the use of Forest Officers in India in the first instance, but will, it is hoped, prove of some practical value to the general public, and especially to that section of the community who are engaged directly in the management of tea and coffee gardens, indigo concerns, and in agricultural pursuits generally.

The Manual has been divided into the following parts :

Part I.—Building Materials.
Part II.—Building Construction.
Part III.—Road Making.
Part IV.—Bridges.
Part V.—Transport of Timber.
Part VI.—Wells.
Part VII.—Construction of Embankments and Water Channels. River Training Works.
Part VIII.—Demarcation of Forests.

Parts I and II will form the first, Parts III and IV the second, and Parts V to VIII the third and last, volume. The first two volumes contain information which will be useful to anyone who is interested in simple engineering problems, while the third volume contains those parts of the subject which are of more special interest to a Forest Officer.

Mr. Rogers has had the help of experts, in different departments, and the Manual as a whole cannot fail to be a very valuable one.

A SUCCESSFUL MATABELE HUNTER.

Mr. Phillip Stellwagen, the hunter, returned to Beira from Cheringoma and the Zambesia districts by the *Matabele*. During his absence from town he has shot big game which have yielded him about 7 tons of heads and horns, including many fine specimens and probably some records. One pair of buffalo horns, the pick of 42 shot, measures 52 inches from tip to tip, which must be almost a record for a cow. Mr Stellwagen has been very successful in his trips lately, and evidently works very hard on the veldt, and has a knowledge of a very pretty bit of hunting country which always yields good sport. He is also well spoken of by shooting parties to which he has been attached, as the guarantee of a good bag.—*Central African Times*, March 9.

SCIENTIFIC EXPERTS FOR INDIA.

TWO IMPORTANT APPOINTMENTS.

Planters, agriculturists, and gardeners in this country have reason to congratulate themselves on the attention now being given by the Government of India to the appointment of scientific experts. We have quite recently had a competent entomologist added to the staff of the Indian Museum. We have now to record the arrival at Calcutta of two other experts, viz., Mr. Isaac Henry Burkill, M.A., F.L.S., from the Royal Gardens, Kew, as Assistant Reporter on Economic Products to the Government of India, who has taken up his duties, and Dr. Butler as Cryptogamic Botanist for India. This gentleman arrived here last Friday from Ceylon, where he spent a short time on his way to Calcutta. He has now taken up his duties at the Royal Botanic Gardens, Calcutta, under Dr. Prain, the Superintendent. Dr Butler has worked under Professor Van Teighem at Paris on fungi, and under Mons Poivault at Antibes. Before he studied in France he was a pupil of Professor Hartog, at the University of Cork. The officers of our "Indian Agriculturist Bureau" scheme, sketched out in our issue of 8th December, 1898, are gradually being appointed, and we hope to see before long the formation of the Bureau *un fait accompli.*—*Indian Gardening and Planting*, April 11th.

CEYLON IN 1889 AND 1901.

(Return to Ceylon after an absence of twelve years of an old planting correspondent.)

ARRIVAL AT GALLE.

After a passage of 18 days in the "Clan Ross" from Natal, we sighted land on Good Friday and as the mist rolled away Adam's Peak was the leading feature. Being too late for entrance into Galle harbour we anchored within a cable's length of the Bell-Buoy and waited till daylight to come in.

There were a number of waterspouts around the ship, some of them very near us the day before we came in sight of lands.

The weather was good from the day we left South Africa and there were numerous flying-fish to be seen every day skimming the waves.

The late rains had brightened up all vegetation and Galle looked very beautiful as we entered the harbour. Clearing our baggage at the Customs, we (four passengers) made straight for the Railway Station, crossing the esplanade where a Cricket Match was in progress and a number of lookers-on in the grandstand. The Easter holidays seems to have commenced, to judge by the number of people travelling by train. We had never before journeyed by the sea-side railway and this was an agreeable change from the old Coach, keeping the sea in view through openings in the deep fringe of Coconut-palms. The railway trip to Kalutara South Station was very enjoyable. Kalutara is a lovely place with a very large and comfortable Resthouse. The servants there are very attentive, and a good breakfast prepared at short notice. We were not in want of much rest after a fortnight on board the steamer and took advantage of a break in the weather to drive out and see the tea estates of Kalutara. Driving is cheap here, especially the neat little bullock hackeries with hoods complete, the roads fairly good, and the tropical mass of vegetation lining the roadways most picturesque and romantic ; almost every conceivable fruit tree and palm making lovely avenues and rendering grateful shade from the setting sun.

The climate of Kalutara islsomewhat trying to men o f advanced age ; and the bungalows being perched on the elevated ridges, there are some stiff climbs to make before shelter is found.

We have already visited half-a-dozen thriving tea plantations in

KALUTARA DISTRICT;

and on Monday last had the good fortune to meet nearly all the planters of the district at a cricket match played between the K.C.C. and the M.C.C. There was some hitch about the first day and the match commenced and was finished on Tuesday the 9th instant and was a very interesting match, displaying good fielding and bowling.

In fact the contest between the gentlemen of Kalutara and Moratuwa was so keen and fierce that it was continued to the finish in a storm of heavy rain and only won by two wickets by the M.C.C.

The drive home was cool and pleasant and then another good climb in the dark to Glanrhos Bungalow, a warm bath and Pyjama Suit—good dinner and early to bed.

PRODUCTS.

The district of Kalutara is a huge tropical garden; everything flourishes: the jâk or artocarpus integrifolia, the breadfruit or artocarpus incista, with a broad-leafed artocarpus of the forest left as a shade tree intermingled with kittool and arecanut palms, coconut palms, cotton trees, acacias, lunumidella, and other useful and ornamental trees.

Rubber is largely cultivated and giving some returns; cloves, nutmegs and Liberian coffee are all doing well in Kalutara.

There is a new Papau introduced from the West Indies, a fruit which when stewed resembles the Californian pear.

Flowers are in great profusion: beautiful crotons equal to those seen in Colombo gardens; the Dracæna or Chinese palm, many handsome marantus and Bougainvilleas; the numerous shade trees, including the Grevillea, give the Kalutara estates the appearance of Botanical Gardens.

TEA.

The first tea estate visited was Clyde, a most compact and valuable property with large factory. Glanrhos managed by Mr. J P Dove is another valuable tea estate with a large miscellaneous cultivation suited to the climate. The jât of Assam hybrid in Kalutara is much better than I expected to find and some of the places we visited though rocky give very fair returns of tea leaf per acre.

Putupaula (including Crurie) managed by Mr. H A Tipple is a beautifully situated estate commanding a grand view of the Kaluganga River and Mountain Scenery including some of the highest mountains of the Central Province.

The carriage drive through the Neboda Group (including Digalla and Narthupane) was very narrow; we left the trap and horse at the factory and walked to Putupaula in a very hot sun and felt rather pumped by climbing the short cut to Mr. Tipple's bungalow, who kindly invited the writer to accompany Mr. Dove to visit him; we were rewarded by having several games of chess when the rain was falling heavily outside.

The picturesque scenery from this bungalow was well worth the hardship of the trudge to and from the carriage drive to the cart road and we felt all the better for the walk and drive back.

We passed a very comfortable bungalow or rather two-storeyed house with a windmill to pump water up the hill; this nicely situated residence belonged to Mr and Mrs Morrison away from Ceylon. We met Mr Heath at the factory returning to Glanrhos.

The Sinhalese holiday has commenced and a man got killed last night for stealing toddy. Plenty of Chinese crackers are going off in the villages below us this evening.

The weather still continues stormy, great heat during the day and heavy rains in the afternoon preventing me from exploring the district, especially as I have no horse and know so few people. I had thought of travelling across the low country to Avisawella and then through the Kelani Valley, but, after making enquiries about the tea estates and the planters of that district, I find that a new generation has sprung up, that knows not Joseph.

I had the pleasure of seeing the Duke and Duchess of York at the grand reception given to Lord Roberts in London and hope their visit to Ceylon has been a success H. COTTAM.

A CEYLON PLANTER ON TEA-GROWING IN RUSSIA:

MR. E P WILLISFORD TAKES CHARGE OF MR. POPOFF'S ESTATES NEAR BATOUM.

GREAT EXTENSIONS PLANNED—NOT PLEASANT READING.

We extract from a letter sent to our evening contemporary, dated 18th March last:—

Mr. Popoff owns three estates in the Caucasus, near Batoum: the principal one, Prevolnoyer, is where I live. It is about two miles' drive from Batoum—the hills, which are very similar to those in Ceylon, run down close to the sea—the house is situated on the top of the highest, overlooking a fort, and with the whole of Batoum and a long line of sea-coast to the north of it below. My interpreter lives with me, and there are two rooms in the house reserved for Mr. Popoff's use when he visits. The factory is on this estate. About two miles further inland is another estate called Zawatnoyer, and the third estate, Otradnoyer, is reached by rail (station on the estate) eight miles from Batoum. Out of 15,950 tea bushes brought by Mr. Popoff from China, Japan, Ceylon, Himalayas, Assam and Java, only some 2,760 are now alive; but there are on the three estates a total of plants, put out to the end of 1896, equal to 17 acres, and in 1897, 24 acres—taken at 2,700 to the acre—there are now in all about the equivalent of 185½ acres planted. After I had thoroughly gone over these three estates I proceeded to Moscow—a day and night by steamer and 52 hours by train—to interview Mr. Popoff. I found the cold *too terrible*, in spite of the fur coat Mr. P was good enough to lend me! My stay in Moscow was protracted longer than would have been the case, as the Dowager Duchess of Sutherland was on a visit to Mr. and Mrs. Popoff, and his time was not always at my disposal. All estate matters, as conducted in Ceylon, were most thoroughly gone into with a view to the introduction of such changes in working as might be suitable here. It was decided that no new clearings should be opened this year, but that the existing area should be worked up to a better state than at present. We were delayed by a gale on our return journey to Batoum. The hillsides are terraced, and the banks of the terraces turfed—from a distance this has a very untidy

a ppearance—the levels of the terraces are dug two feet deep and planted; the flat land is also dug in a similar way and every root and stone removed. There are two large glass houses for germinating seed. At the present moment we are expecting from China *665* maunds of tea seed! which, planted 4" by 4" would, if all germinated, require nurseries to the extent of 81½ acres including drains, &c.!! and there are now *three* million seedlings in nurseries. They tell me they have found pruning a mistake, and before last winter only cut off the *ends* of each branch with scissors: The flush is now coming on, but has been delayed this year by the cold weather; in about a fortnight I hope we shall begin plucking and it will be my duty to give the order for this work to be carried out. My especial duty is the manufacture of tea. There is a good factory—*all* iron, withering loft above with jute hessian tats—it was built by Messrs. "Sirocco" Davidson, who also supplied all the machinery, viz:—12 H.P. steam engine, roller, dry tea sifter and equaliser, ditto cutter and equaliser, oxidiser, down-draft sirocco, packer, machine for compressing pillules and hydraulic press for tablets, and electric machine. Also, Chinese hand sieves, pans, chulas and winnowers. It is lighted by electricity; there is a telephone from the factory to the office and thence to my house.

Each of the estates is worked by a head-gardener with an assistant, the labour being Turks and Grozines—all *men*. The office and financial part is managed by a gentleman with an assistant, the latter being also a dispenser. A weekly meeting of the three gardeners, the book-keeper and myself takes place, when the work being, and to be, carried out is discussed, it being necessary for each of us to visit the three estates weekly. At these meetings we air our opinions and pass them on to M. Popoff, who decides what is to be done. Should the others differ from me on what I consider a vital point I am to write or wire to Mr. P. direct.

The crop will be only some *12,000 lb.* of tea this season, as I have advised husbanding a great part of the estate.

The pillules and tablets made here would be of inestimable value for soldiers' use during warfare as the space and bulk is so much reduced, and I commend this *seriously* to the attention of the military authorities.

I called on the British Consul here, Mr Patrick Stevens (Badminton Club), who was very civil. He showed me samples of Indian *green* teas which he says are largely consumed in the Asiatic provinces. (By the way, I am still in Asia!) On the 1st instant I entered in my diary that I thought it would be long, if ever, before Indian or Ceylon teas (black) ousted Chinas in Russia, for the reason that they do not lend themselves to the customs of the people, as does the China tea; and Mr Stevens used to me almost identically the same words. The Russians like *very* weak tea, *very* hot, and *plenty* of it at a sitting, many times a day. The China article is put into a teapot with only a little boiling water and kept on the top of the Samovar (or urn) where it is continually "drawing." A little only of this is poured into a *tumbler*, which is filled up with boiling water from the samovar, two or more lumps of sugar are added and generally a slice of lemon—it is *rare* to see milk used—the teapot is replenished with a little boiling water on the old leaves continually. This method cannot be carried out with Indian and Ceylon teas as, after the five minutes' "drawing," it begins to cool and it would be difficult to make it in sufficient quantities for their constant use. Indians and Ceylons are nicer with milk than with lemon. The poor classes drink an immense quantity daily, *very* weak, and they could not get milk.

MR. J. C. ROBERTS' NEW TEA BOX.

Mr. Roberts writes:—"It is encouraging at least to hear that merchants, and others amongst the unofficial residents, have accorded my sample some favorable notice and attention. Numerous specimens of compressed wood (made of Ceylon timber with my cement) forwarded to the Colonial Secretary, have attracted no interest in Government circles as I have not received any acknowledgment of them. I really hoped that they would be of public interest, (also possibly the Tea chest going forward shortly) as they are made of common kinds of wood at present practically of no value, and which in fact never can be as plain timber. It means in fact that, if the processes are a practical success, as I think these samples sent forward shew, the Island possesses in its forest reserves an unsuspected value, if encouragement is given to develop it."

COFFEE PLANTING IN BRAZIL.

THE DUMONT ESTATE.

35 MILES OF RAILWAY: THE LARGEST COFFEE PLANTATION IN THE WORLD.

12th April, 1901.

Four and a half years ago the group of Coffee Estates known as the Dumont Company changed hands and the French proprietor sold out to the London Company who paid the enormous sum of *one million eight hundred thousand pounds* for the property. It was the general

OPINION IN BRAZIL

that Dumont sold out for a good price and that it would take the new Company all their time to work the estates to pay, as they were taken over in bad order and during the past four years required a liberal expenditure to keep down the heavy weeds and grasses *(for Brazil grows weeds)* and labour is very expensive. Chiefly Italian and Spanish families engage themselves as "Colonials," working by contract if married and possessing a family. The single men work as daily labourers called in Brazil "Comarádos"; their pay is from 2·50 to 3 milreis, (a mil means one thousand, therefore the milreis would be 1,000 nickel coins.) Paper money is used in Brazil and

EXCHANGE

is always rising and falling; three years ago the milreis were down to 5d. English money and last August went up to a shilling. One of our contractors who planted and cultivated eighty thousand trees was recently paid off and doubled his money by the rise in Exchange. On the other hand the officers of the company, who are paid in gold, stand to lose money in Brazil as the purchasing power in stores of the milreis never changes; and one Officer or Superintendent of a section had his pay raised fifty pounds, yet he had to draw on private money to meet expenses. This was brought to the notice

of the company in England and they refused to increase the salaries of the Administrators or Superintendents. The consequence is they are all very much dissatisfied. The necessaries of life are much

DEARER IN BRAZIL THAN IN CEYLON,

and not of such good quality; beans, rice, and corn are the chief articles of food used by the labour.

It is an old-time custom in Brazil to allow the Italian and Spanish Colonials to grow their own crops of rice, beans, corn, manioc, tobacco, arrowroot, and sweet potatoes between the rows of coffee; the result of this is impoverished soil, short crops of coffee, and a large percentage of dead trees.

However, there is no remedy against this evil; for the European labourers and their wives and children must live; and, in addition to growing food stuffs in the coffee, they keep an immense number of goats, pigs, cows, and horses.

Hard-working families make money and save sufficient to return to Italy and Spain. Others, who fall sick and get into debt, have an exceedingly rough time of it on the coffee estates of Brazil.

ON THE GREAT DUMONT ESTATE

there were about 5,000 (five thousand) people, including women and children; of the above 5,000 perhaps 1,000 men would be obtained as contractors and daily labourers. There are 13,000 (thirteen thousand) acres of coffee under "cultivation," that would be about 13 acres to one man to keep in order and harvest the coffee crop. This

BARBAROUS SYSTEM OF STRIPPING THE TREES

with the crop in all stages of ripeness, wasting the green coffee, because scarcity of labour prohibits more than one round of picking, is the ruin of Brazil; and much of the crop is trodden into the ground by men and horses. Another "eyesore" in Brazil is the old crop hanging on when the new crop sets its blossoms.

The trees suffer fearfully from overbearing. The crop ripens in April, May, June and July. The gathering is hardly begun and the estates must be cleared of grass and weeds. The weeds are ploughed into the ground with a considerable quantity of coffee dropping off the trees with every shower of rain.

Thousands of pounds worth of coffee are lost every year in Brazil through estates not being ready to secure their coffee crops before the heavy rains set in. The planting of food crops throws everything into arrears and the fields must be cleaned up before the stripping commences; no wonder the prices of Brazilian Coffee are always so low in the London market when the green coffee is mixed with the matured.

THE PRUNING, TOO, IS BARBAROUS,

five or six trees in a hole, some of them ruthlessly chopped down with an Axe, trusting to the judgment of an Italian farm labourer as to which should be taken and the others left. I have seen fine trees killed and four or five long fishing rods left for next year's crop. One of the most ghastly sights to be seen is a "*pruned*" field of coffee in Brazil.

There is little or no chance of any improvement being made in the "*cultivation*" of coffee in Brazil for practical experience is at a considerable discount. "*Nigger driving*" from daylight till dark, the old slave-bells only ringing for meals in the field, and work from sunrise to sun-set and such a long trudge back to the Colonial barracks. *Slavery is supposed to be abolished!* But in Brazil there are *white slaves.* I have known them work 18 hours out of 24 and in some cases hoe the coffee by moonlight to keep clear of debt and get out of Brazil and return to Italy. And what is it all for? To enrich a few individuals, non-resident.

BRAZIL WILL ALWAYS BE A HARD COUNTRY TO LIVE IN.

There is no enjoyment of life there for an Englishman and only men who have led a hard life could endure life in Brazil.

The Dumont Company has not got a practical coffee planter in their employ; some of them had never seen a coffee bush until they went to Dumont.

A slight knowledge of Portuguese seemed all that was necessary to drive and get as much work out of the Italians as possible (the Italian Estate labourers speak and understand Portuguese.) Most Fazendas (estates) keep an "Amazame" or general store and supply rum—pork—rice—flour cloth and ready-made clothing. New arrivals generally get into debt the first year in Brazil.

The Dumont Company get their goods from the Army and Navy co-operative stores and their "Amazame" does a good business with the employees. Another great advantage on Dumont is the

THIRTY-FIVE MILES OF RAILWAY

promptly despatching stores to the different sections of the estate and to the Colonials.

The making of the railway has much improved the value of the property since it was purchased from Dumont. Accidents have occurred through the sparks from the engines falling on rubbish-heaps and coffee has been burnt as well as buildings. A great fire took place shortly after the completion of the new factory. All the newly-put-up machinery for pulping and curing coffee, with a considerable quantity of coffee undergoing the process of curing, was burnt with the buildings in one night—a very bad thing for the shareholders of the company in the second or third year from the starting of the company. The coffee crops have steadily increased during the past three years. Thirty-two thousand cwt from 13,000 acres only works out *3 cwt per acre*—a mere maiden crop in the palmy days of coffee-planting in Ceylon. The twenty or thirty per cent of vacancies were supplied, and now the young trees, three and four years old, are cropping heavily, particularly on "Aqua Vermilia" (red water) and "Moreira" the section on which the writer was employed.

If the weather and other circumstances are favourable

THE CROP THIS YEAR

will be a very large one, but the young trees, unless relieved of their heavy crop of berries, will die out or take a rest from bearing for two or three years. Prices are likely to go down, owing the Brazilian crop expected being unusually large this year, fifteen thousand hundredweights being spoken of as under the estimate. Labour will be very short indeed, through the rise in the value of the milreis. The Italians drew their money (Brazilian) and turned it into gold and, as they are obliged to give notice to leave the estates before being paid off, many will remain in Italy. The Government of Brazil had lately discontinued giving passages to intending immigrants; consequently the Dumont Company were obliged to send an officer from Dumont to recruit Italian labour.

There are

TWENTY THOUSAND ACRES OF FOREST LAND AVAILABLE FOR COFFEE

planting belonging to the Dumont company, but the *five millions* of coffee trees now under "cultivation" will take them all their time to manage with labour daily getting scarcer and dearer There are some "*smart*" Directors in the company, particularly the one who visited Brazil and reports occasionally on Dumont. He ought to go there again and try and give the anxious shareholders a dividend; they have waited very patiently for the past five years and ought to get a fat one this year. I should take a small gang of practical coffee planters from Ceylon with good digestions and not afraid of ghiggars, ticks and Berne flies—to say nothing af the dear little mosquito (the writer had extracted during four years in Brazil *no less than 200* ghiggars from underneath every toe-nail of both feet.) The Portuguese. Brazilians, Italians and Spaniards called it a recreation on Sunday to dig them out of each other's feet. Of all the vile insects on earth, the Berne-fly is the worst. She

LAYS HER EGGS INSIDE YOUR FLESH

and hatches three very ugly insects an inch long with three rings of bristles round the body and sharp nippers. They take about six weeks to develop under your skin, then commence to turn somersaults just when you want to go to sleep after a hard day's work in the sun.

The natives of Brazil adopt a novel way of extracting the brute when full grown; they tie on a piece of raw pork and the Bèrne comes out of your skin and takes a header into the piece of pig skin.

Eighteen took up their lodgings in the plumpest parts and it was very interesting to stick a little nicotine from an old pipe into their nest, then out they would jump; but some were so fat they had to be screwed out and great was the relief.

Ticks were very plentiful in the grazing grounds and we often got covered with them when out at night, fighting with the bush fires on our boundaries and trying to save our fences and gates from destruction.

I had a

VARIED EXPERIENCE WITH SPECIMENS OF BRAZILIAN ENTOMOLOGY

and I have brought back as a trophy the nine rattles of a large rattlesnake I killed in my coffee. His chum came to look for him next day and was duly killed—snakes are very numerous and the ones most frequently found in the coffee were the rattlesnake and the black and red-coral snake.

"There are snakes in the grass" in human form of every nationality and an Englishman little knows what is in store of him in that nigger country. The more polite the people are, the greater the injury they are likely to inflict. There is much to write about Brazil after four years in the coffee districts of Sao Paulo. My first Estate was called "Vista Alegre" (cheerful view.) Mr W the proprietor took me round to see some of the large Coffee Fazendas. This district between San Carlos de Pinhal and Colonia was much cooler than the district of Reberu en Prato (Black River) where the Dumont Estate is located.

After this I will send you a few more notes on Brazilian life and customs and tell your readers something about the cities and the Government Railways.—Yours faithfully, HENRY COTTAM.

THE PROPOSED NYASSALAND RAILWAY.

(*From a correspondent.*)

A petition has been recently presented to His Majesty's Consul-General by residents and Civil Servants at Blantyre for transmission to the Home Government, asking for a guarantee for the proposed railway between Chiromo and Blantyre. It appears that the present system of land transport by porterage of natives has become inadequate to the needs of the country, and is tending to the rapid depletion of the labour market —an evil which, apart from its injurious effects on coffee-growing, the staple industry of the country, has so seriously impaired the import trade that at times many thousand loads may be seen lying for months on the wharves between Katungas and Chinde blocked *in transitu* through lack of labour.

To the more far-sighted traders these delays present a graver aspect than that of individual loss or inconvenience, for they leave the little Protectorate exposed as a trade route to the rivalry of Portuguese and German enterprise. On the borderland the Portuguese administration is in full activity, and the natives from the Protectorate are crossing over, despite the hut tax, to support in alien territory those industries which are the mainstay of the Protectorate. The stream of labour is thus diverted, and the production of coffee, tea, tobacco, and fibre in British Central Africa is threatened with extinction.

It is calculated that the construction of the railway would place at the disposal of this industrial community more than 40,000 labourers annually, and would set the planting industries on an assured economic basis.

The estimated cost of the proposed line which is to connect the Upper and Lower Shirwa—thus opening a thoroughfare for 1,200 miles into the heart of the Lake districts—is £300,000, and the petitioners seek a guarantee from the British Government of 2½ per cent on this amount.

Founding their calculations on the imports and exports for 1899-1900, they count upon a return of 7 per cent. on the capital invested, and maintain that, unless exceptionally bad seasons are met with, no call is likely to be made upon their guarantors.

The civil servants in the Protectorate have left nothing undone to make straight the way for the construction of the line. To prevent the transport and industrial systems of the Protectorate from being disorganised by the removal of a large quantity of labour from the already insufficient market, the Chief Judicial Officer has made a provisional contract with the Companhia da Zambesia which will provide from outside the Protectorate a supply of labour at a moderate price for building the railway, and negotiations have been entered into for the purchase of the material of the old Beira Railway.

The project possesses no inconsiderable political importance, as it would, if successfully carried out, effectively secure the British hold upon the Lake country of Africa.—London *Times*, Feb. 28.

CITRUS TREES.

We like to gather the experiences of fruit-growers of other lands, especially those that are now competitors with us. A successful orange-grower in Florida writes of his experience there as follows:— "In planting a tree I would cut the taproot off,

and three or four others will come out in its stead. The grape-fruit is a raining tree. It draws water from the ground by means of its dense foliage, and exhales it into the air; the rough lemon is the same. Both will often cause rain to fall from their leaves on a dry day. The rough (Florida) lemon has the largest plexus of feeder roots of any of the citrus family, and will thrive on poorer soil. The sour orange, the healthiest of the family, hardly grows fast enough for the grape-fruit but if you will often split the bark from the bud to the ground, you will hasten its growth in size and strength. In a plot of ground 210 feet square I would plant 81 grape-fruit trees about twenty-three and half feet apart, leaving a strip ten feet wide between them and the fence, and in square between four grape-fruit trees I would plant six by four tangarines and king oranges, making 145 trees to the acre." Our own experience points to the Seville sweet orange stock as being even healthier than the Seville orange, but as being a slower grower. The rough lemon stock makes a marvellously quick-growing growth but doubts are thrown upon it here as to whether it lasts long.

Another writer says:—The Dancy tangarine does best on rough lemon, grows faster, yields more fruit larger fruit and it matures earlier. Grape-fruit does well on lemon or on sweet stocks; on rough lemon you get large fruit on sweet or sour stocks, medium. He has planted from October to January, and even in June; but the best time is from November 20th to January 1st, according to his experience. Cut off half the top before planting or defoliate it; defoliate it entirely is still better. It takes nerve to do this, but it is true wisdom. You hate to spoil the pretty top, cutting it all to pieces, but you get some with all their tops left on and some without, and in a year or two you will surely wish you had cut them. See that no nut-grass roots are in the tree roots before you plant; it is a great nuisance. Plant about twenty by twenty-two feet. You may plant 125 trees on one acre, and 75 on another, and for the first ten years you will gather more fruit from the 125 trees; but how about your son and your grandson? One orange tree is for a century, and one should not plant for his selfish gain alone, to the robbery of after generations. You can, for a few years, plant four or five rows of pineapples between the orange rows and do them no harm; but beware of letting them stay too long. Examine the trees carefully as to when they are ready to occupy the middles themselves. Apply two or three pounds of good fertilizing at planting.—*Journal of the Jamaica Agricultural Society* for February

AERATION IN TEA.

Aeration is a word writ large in every planter's note-book being an operation employed in almost every process connected with tea cultivation and manufacture. The object of hoeing is to open up and expose the soil to the free action of the air, aeration of the soil being essential to the growth of the plant. In pruning also the bushes are thinned out to allow full play of air. In plucking, however, instead of allowing the air free access to the leaf nipped off the bushes, it is jammed tight into baskets, the result being that, owing to the absence of aeration, at certain seasons of the year heat is engendered, fermentation is set up, and the leaf turns red and emits an offensive odour. The fermenation is solely due to heat produced by the want of aeration. Needless to say that such leaf can never possibly make good tea. This matter deserves every attention, and if only teas of good quality are to be manufactured this season it behoves planters to make some arrangement whereby aeration shall be insured. One leaf gets heated in the baskets it is deteriorated and no after manipulation will ever recover it. Withering or wilting is aeration pure and simple, the air circulated over and through the leaf being cool or warm according to the season. The next process, in which aeration should always have place, although it does not do so, is rolling. Rolling always generates heat, and the latest machines are so constructed as to admit of as much air as possible getting to the leaf, so as to counteract the heat set up and caused by the friction of the leaves one against the other in the process of rolling. The leaf should in no way become discoloured in rolling, it should be discharged from the machine a healthy green colour. Rolling and oxidation are two distinct processes, and must on no account be united into one operation. In former days some planters used to roll out their colour, but no one dreams of doing such a thing now. Oxidation or colouring is nothing more or less than aeration, cool damp or moist air being played over and through the rolled leaf. For oxidation, pure and simple, heat is not required; if anything it is inimical rather than favourable to the process,—it should in fact be wholly eliminated. Finally, aeration is everything in the firing of the green leaf, and in the final firing of the dried and sifted tea. Here, however, heated air is the substance employed, being driven over and through the leaf or dried tea in the driers. Air then, either cool, warm or hot, dry or moist, plays an important part in every operation or process connected with the cultivation or manufacture of tea, save the very last stage, when the finally fired tea is packed in a lead casing which is soldered down to exclude the air. Aeration is thus a subject which requires close study, and more attention than has hitherto been paid to it, if good quality tea in the future is to be the rule rather than the exception.
—*Indian Planters' Gazette*, Mar. 30.

FAILURE OF COFFEE IN BURMA.

We (the Rangoon *Gazette*) hear that Mr. de Souza's coffee plantation at Thandaung has completely failed this season, all the trees having been attacked by blight. Our crop in the Toungoo district have also been seriously affected, but none to the extent of Mr de Souza's. Mr de Souza's former plantation is to be leased for building purposes by the Government.—*Times of Burma*, April 10th.

PLANTING IN MEXICO.—We omitted yesterday to draw attention to the interesting letter respecting "rubber" sent us by Mr. E. O. Darley, formerly a well-known Knuckles Planter. Mr. Darley should tell us a little more about his everyday planting life and the crops he is gathering in.

TEAK PRESERVATION IN SIAM.—Teak merchants in Siam are manifesting considerable interest in the new precautions for forest preservation, which are being taken by the Siamese Government with the advice and assistance of Forest Officers from Burma. The Government is now bringing the teak forests of Siam under systematic control. It proposes in effect to considerably limit the area of forests now being worked, and to charge rentals in addition to the present royalties. It now issues the forest leases itself instead of allowing the local "Chaos" or chiefs to grant them as formerly. It is increasing, too, the limit of girth of trees which may be felled, so as to bring the practice more in line with that obtaining in Burma. The effect of all these measures will, no doubt, be to somewhat limit the teak output while preserving the lives of the forests. No diminution from this cause is likely to be felt for some years yet, however.—*Pioneer*, April 13.

THE SO-CALLED "LOST ART" IN TEA MANUFACTURE.

I.

Ere proceeding to deal with the chief theme of this paper, we must premise that the enormous accumulations of low grade tea in importers' and traders' hands at home will need a very large proportion of Pekoes to salt them for consumers' use, so that the argument for instance on fine plucking may be considered closed, and we do not see any necesssity for departing from the usual method of manufacture, in so far as the three or four leaves and bud are concerned, as such leaf will be needed for the necessary blending, but as in the usual course of plucking a good quantity of larger leaf is unavoidably brought in, and autumn requirements denoting depletion of home stocks may demand more being taken off the bushes, the planter has to decide whether he will still treat this leaf in the fashion hitherto in vogue or, by departing somewhat from that, fit it for accommodation to the pronounced taste of the working classes in Europe and that which the American and Colonial consumer looks for. What we have to say upon the subject, it must be understood, is not written to provoke controversy, but to put before the manufacturer a summary of the methods pursued both in the plains and hills that resulted in furnishing the consumer, who had been used to the slightly sweetish teas of China Congous, an imitation that was approved of, leaving our readers to flout or adopt the suggestions according to their own inclinations or prejudices. On most, if not all, factories, everyone employs the common cane or wire sieve to separate as much as possible the coarse leaf from the fine after the first roll; the more effectually this is done the less manipulation is required subsequently. Now we leave the finer teas alone for the present and recommend that the coarse leaf be placed in the roller, going slow as possible, in order to retain the juice in the same way as in the old hand-rolling days, 1869-72, when the leaf was passed from hand to hand along the line of men, the balls being broken up and disintegrated by each, with the result that, on reaching the end of the line, the leaf had acquired that light mahogany colour and sticky consistency indicating oxidisation has sufficiently been attained for firing. In very wet weather the desired condition will not be reached as quickly as when the reverse obtains, in which case resort must be had to forcing under blankets as is now done in some factories, and here again constant testing of the mass to detect fermentation will be necessary; the leaf must be turned over and over and the hand thrust in: a bath thermometer will prove of service in denoting any tendency to heating. Then if spread thinly out on mats, chelnies, or tables, provided a temperature of at least under 50° can be secured, an evaporation of tannin takes place and at this stage the greatest care is necessary, for, if actual fermentation is allowed to set in, it is almost needless to say sourness results; if the leaf is constantly examined by being held against the light, diminutive hairs show upon it, and as soon as these appear the leaf must go to the sirocco at once, but thinly spread in the trays to be *set*, in the first instance; if the heat in the machine can be properly controlled, five minutes will be quite enough for the contents of a dozen bottom trays to be collected together and transferred to the upper ones, but overpacking (as we showed on the 31st March last year) must be avoided; the main object to be kept in view is to avoid haste and dumping too much damp leaf together; for however careful the battyer may be, dumping and too rapid firing dries the exposed layers, only half drying the centre, destroying all chance of uniform roasting and, despite the most thorough bulking, an ununiform tea results. We do not pretend to a knowledge of what chemical action is set up in oxidising by exposure at low temperature to evolve the saccharine principle that distinguishes tea so treated; that it acquires such is undoubted, as anyone can satisfy himself of by tasting samples of genuine China or Japan Congous; and it was by treating leaf in the manner roughly sketched out that the teas made in the Nilgiris in 1871 acquired their well-deserved popularity, but that the method was not unknown in Sylhet can be proved, if papers are extant so far back as 1861, when samples sent home through Messrs. Grindlay and Co., on account of the Sylhet Tea Company, received high encomiums from Messrs. W J and H Thompson, as also from a well-known tea dealers' firm of that day, Antrobus and Co. With the inadequate space and *kutcha* buildings then available, coupled with want of appliances to cool down the leaf in those days it was found quite impossible in the plains to carry out this forcing later than the middle of March, so the method gradually fell into disuse and was forgotten, being replaced by the present hurried system by which, as has been repeatedly pointed out, undue evaporation is stimulated from the outset; the rolling machines squeezing out the constituents by turning the leaf into a sodden stodge. Panning slightly rolled leaf does away with the tedious process of slow rolling out the colour to a great extent, and if care is taken in regulating the heat the grayish tinge will be developed, while, if all leaf is put through the process indicated, the slower the rolling, the more gradual the firing, coupled with close attention to the appearance of the hairy fluff, the finer will be the tips, the more delicate the flavour, and more pronounced the sweetish taste the bulk of consumers demand.—*Indian Planters' Gazette*, March 30.

II.

It would be impossible to lay down one general rule for all factories, as sites, temperature, and requisite accommodation differ so widely, but we have endeavoured to give an outline of the conditions leaf should assume at the several stages of manufacture. Actual green tea such as is imported from China can be approached, in so far as flavour goes, by elaborating the tedious panning and exposure, very slow firing, and the admixture of small quantities of powdered gypsum, as also the sprinkling of the leaf, in the final panning, with the same preparation—weak tincture of copper—that is sometimes used in giving the brilliancy to pickles; but the use of either of these minerals is to be discouraged, and in fact, if Mr Mansell's contemplated Bill passes the House of Commons, would render teas so doctored liable to confiscation at the Home, as they are now at the American Custom houses. Less objectionable colouring matter could be obtained from the solution of the plant used by Manipuris in dying their *keishes*, but it would need to be administered when the leaf was almost finished. We, however, may leave the

facing of tea alone, as one or two of the ingredients, used by such Chinese farmers as combine tea and sericulture cannot be more particularly alluded to for fear of creating a prejudice against all and any green teas our planters may send forward. No pans were used at any stage in the manufacture of the Belmont teas or other estates in the Nilgiris on which the same system of manufacture, introduced in 1871, was adopted; nor were any fabulous prices realised; the London auction figure was 2s. 9d., the retail price at Ooty and Madras Rs 1-8 per pound. The use of bags was taken up under a misconception, the leaf being placed in these and rolled, in an old-fashioned mangle, to wither, after the invention of Mr James Nelson on the Labac garden in Cachar in the same year; the fallacy of the operation as to mechanical rolling soon became apparent, and it was at once abandoned by the owner of Tudor Hall, who alone tried it. No secret was ever made as to the method of manufacture pursued; but as curious visitors intruded at unseasonable hours, requesting rather liberal samples, a notice had to be placed on the gateway that the premises were private and not public.

The experiments carried out by Mr McGuire in Ceylon tend to show that with suitable buildings the temperature needed to secure that necessary for developing the syrupy flavour can be had in hill and plain alike, irrespective of climatic influences. Should this be correct, all difficulties of fitting our teas to suit any taste may be considered at an end; and although the spreading out or keeping leaf in a state of suspended animation, as it were, may involve the erection of a cooling house, such need not be more expensive than the sheet-iron rooms on board our large fruit and meat carrying vessels; while in Assam and Bengal, at any rate, we have no dearth of a non-heat-conducting material in the common sola of the paddy fields; refrigerating appliances also are becoming cheaper and more simple in construction almost daily. Adverting to the "steamers," of Messrs Dean and Rae, that Messrs P R Buchanan and Co. suggest should be sent up to some gardens for green tea manufacture, from all we can learn these are a revival or adaptation of the jacketed steam pans invented by Mr. Thomas Barry of the firm of Barry Smith in 1861-62. Though only used for panning half-rolled tea, and consequently abandoned when all panning was discontinued, they would have been useful in withering; but, as Mr Davidson with his above-mentioned cool wither has anticipated them, unless they will serve some other purpose, no further allusion need be accorded them. We are not in a position to say whether the process of manufacture now pursued at Belmont is the same as introduced in 1871, but a glance at the Directory shows that, besides Messrs MacDowell of Madras, there are seventeen residents round about Ooty and Conoor who can vouch for the superiority in flavour and suitability of taste those teas were distinguished for at the time we refer to. We do not see that any difficulties present themselves in making tea in the manner suggested. Slow rolling, constant separation of the leaf, retention of the juice, with ordinary care in carrying colouring to the verge of, but not up to, actual fermentation, are not much to demand from the manufacturer; and, if meteorological vagaries can be rendered of no account, night working would be unnecessary. The present machinery is all that is required, while, if pans should be deemed necessary, those of suitable size are procurable in almost any bazaar throughout the country. In conclusion, we may mention that the late Dr. Barry contended, and his opinion was confirmed by other chemists, that flavour in tea was better attained by direct heat from charcoal than by any hot air or other means of curing. Unfortunately the wholesale destruction of wood that has gone on in the tea districts renders a universal return to charcoal out of the question; and we ourselves do not think the above contention can be sustained, as the slump in tea has arisen from over-production and throwing coarse mediums on the market; while we believe the American, Colonial, and home demand for sweetish Congous can be as well met by sirocco dried tea as by the old methods or modifications thereof. It would be advisable, however, that this matter should be set at rest; and we invite one or two of our readers to prepare samples in the above described manner for submission to the London trade; for, high as the price of charcoal has risen, some means of cheapening it or substituting an inodorous fuel in its place may be devised. However, this is a matter for subsequent consideration.—*Ibid*, April 6.

PLANTING NOTES.

CARDAMOMS.—In the Ash of Cardamom Messrs Cowley and Catford have discovered cobalt, nickel, manganese, and iron, and they attribute the black ash to the formation of phosphite.—*Chemist and Druggist*, March 23.

COMPETITION IN QUININE PILLS.—The *Sourabaya Courant* states that the united German quinine-factories propose shortly to commence the sale of quinine pills in all the principal towns in Java, at prices based upon those paid for Bandong quinine at the Batavia auctions. This would doubtless result in a loss to the German works; but it is thought that it will have the effect of forcing the Bandong factory to discontinue the manufacture and sale of quinine pills, from which they derive a considerable income. The Java paper mentions this as a danger threatening not only the Bandong factory but also indirectly the cinchona-planters, and it exhorts the latter to persevere in the co-operation which has led to the present favourable state of the local quinine industry.—*Chemist and Druggist*, March 30.

JAVA GOVERNMENT CINCHONA.—The report on the Government cinchona plantations in Java for the quarter ending December 31, 1900, states that the young plants are in excellent condition, and are developing strongly. This is due not only to the favourable weather during the period under review, but also to the fact that only healthy and large plants have been used for planting out. The plantations are free from disease and insect-pests, with the exception of those in the western part of Tirtasari, which are somewhat seriously affected. Contrary to recent experience, there has been a great lack of labourers, a fact which is also felt in private tea and cinchona plantations. By the end of December practically the whole output had been shipped, partly to Tandjong Priok (for export and partly to Bandong quinine factory. The whole yield of bark in 1900 came to about 560 tons; of this quantity 378 tons were exported to Holland, and 182 tons worked up at Bandong. At the auction of cinchona-seed some specimens fetched as much as 46*l*. per packet of 25 grammes: shoots for grafting were sold at 16*s*. 8*d*. each.—*Chemist and Druggist*, March 30.

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop, August-September delivery, 1901 ; booking necessary before the end of April ; quantities of 100,000 and over at special low rates. Plants available all the year round. 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year."

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery, 1901, booking necessary before the end of March ; large quantities on special terms ; Plants in Wardian cases.

***Manihot* Glaziovii**—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter, in sending an order for this seed, wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Kickxia Elastica.—(*Funtumia Elastica*).—Seeds and Plants, orders booked. (Lagos rubber.)

Ficus Elastica.—Seeds available in May-June ; booking necessary before the end of March ; also plants.

Urceola Esculenta and **U. Elastica.**—Same as above. (Burma rubber.)

Parameria Glandulifera.—Orders booked for seeds for January-February delivery ; also plants; immediate booking necessary. (A good rubber creeper of Malacca.)

Landolphia Kirkii.—Seeds in July-August, early booking necessary. Plants can be supplied all the year round. (A highly-recommended species.)

Chonemorpha *Macrophylla.*—Seeds and Plants ; orders booked. (A very valuable rubber-yielding creeper.)

***Memusops* Globosa** and **Payena Leerii.**—Seeds and plants in July-August, booking necessary before April.

Achras Sapota, Willughbeia Firma, W. Edulis and other **Rubber and Gutta Percha** yielding Trees and Creepers; Seeds and Plants.

Cinnamomum Zeylanicum (Cinnamon superior variety). New crop of seed in April to June, booking necessary before the end of February ; also plants.

Coffea Arabica, Liberian Hybrid and ***Maragogipe* Hybrid.**—New crop March-April ; immediate booking necessary.

Cinchona Ledgeriana.—Seeds now ready, also other varieties.

Seeds and Plants of Nutmeg, Clove, Sandalwood (white and red), Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products of Foreign countries for 1901-1902, now being prepared, and will be ready in a few months.

"SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Price List of Seeds and Plants for CEYLON use, post free, on application.

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants ; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Orchids, Bulbs, Dracænas, now being prepared, and will be ready shortly.

***Special* Arrangements** made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London:—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Telegraphic Address: J. P. WILLIAM & BROTHERS,

WILLIAM, VEYANGODA, CEYLON. *Tropical Seed Merchants,*

Lieber's, A.I. and A.B.C. Codes used, HENARATGODA, CEYLON.

Correspondence.

To the Editor.

COFFEE IN B. C. AFRICA.

I.

DEAR SIR,—The cause of diseased beans is in my opinion not far to seek and may be attributed to three particular enemies of the coffee tree viz.—Drought, Borer and Grub.

DROUGHT.

The first of these three is very much to be dreaded at low elevations from 1,500 to 2,700 feet altitude; above the latter elevation coffee does not suffer *visibly* so much, but it does in the course of years become very visible indeed, and experience has shown careful observers that the trees become so damaged by the scorchings of a few dry seasons, drying up the very life sap of the trees and murdering the whole of the bark, pith, and even the wood of the coffee bushes, leaving alone the (*lungs leaves*) brittle dry, cankered and almost sapless —which is quite unnatural to a healthy coffee bush in its proper element. When the coffee tree gets into the condition alluded to above, there is no cure for the resulting light chipped, and black beans, caused I think by the weakened state of the tree, but to cut it down, and let a sucker grow up from the bottom. By selecting the healthy sucker, which is usually the biggest and strongest, a sound crop is secured again after 18 months or so. Now to prove that the scorching has a lot to do with damaged beans, I am quite sure no one will deny the fact that young coffee that has not been scorched always gives a sound crop, but the older the estate is, the more damaged the coffee becomes if the seasons have been exceptionally dry till almost worthless, unless cut down as I have stated above.

Cutting down does not always prove a remedy for light and damaged beans, especially at the lower elevation, for I have observed in a very dry year that the trees have been burnt right into the ground in fine or very light friable soil that has undergone much tillage so that cankered, sickly suckers came up, and the only cure for this condition of the tree is pull it out, and replant; and as this usually happens in the richest of soils composed almost entirely of vegetable humus—the plants take root and grow as vigorously as in virgin land.

At this lower level, about 2,000 feet, in dry seasons, our coffee suffers much more than it does at and around Blantyre, where the elevation of most of the estates runs from 3,000 feet upwards; not only does the sap get drained out of the bushes by excessive heat but they lose their leaves and the wood dies back. In such a year as 1897, coffee 1 year old was so damaged that it had to be cut down as it was nearly all black-hearted and cankered, and the trees that were left (supposed to be healthy) were so much damaged that the maiden crop on those trees had any amount of diseased leaves so that it would have been better to have cut all down. This is my own experience, and I am quite convinced that no amount of moisture put into the soil by means of irrigation would save our coffee in such a year. What is wanted is moisture in the air, which this country, being so far from the sea, is singularly void of during October and November, even in favourable years.

To prove this fact I only need to mention that a number of coffee trees under my bath-room where the soil was daily moistured, and by the sides of streams in damp and satuated soils, lost their crops, (when blossoming to the tune of 10 cwts per acre) and wood also. Whereas coffee under a canopy of shade held its crop without losing leaves or wood, and further the coffee under proper shade has never in my experience produced black or spotted beans; this I am prepared to prove any day, that is provided the coffee has always been healthy and grown under proper shade, and not damaged before putting it under shade. What I mean is, healthy plants, *not black-hearted*, planted under a canopy of shade, lofty, does not produce diseased beans in B. C. A.—Unfortunately however the older our coffee grows (when it ought to be in its very prime, yielding fine crops) it gets so rotten that it is hardly worth cultivating in some localities; this fact we need no longer deny.

Low topping in green wood just before the dry months, usually resorted to to force blossom, is a dangerous proceeding in B. C. A. It causes much canker on the upper part of the coffee bushes, and forces out too much flowers, more than a 3-year-old tree can stand, resulting in much injury to the whole bush, impairing its health and vigor for the rest of its existence I may say; whereas if left to nature, say, till a height of 8 feet or more is attained before topping, the tree would not be taxed with over-blossoming and over-bearing before it is able to stand it. Further the bushes are not so easily scorched by the sun and hot winds when well grown high off the ground, and any canker or damage done to the top of the tree, when young, is likely to grow out of it or be topped off when the tree is ultimately topped in matured wood; at whatever height wind and fertility of soil direct. I don't think in any part that I am acquainted with in B. C. A., that coffee should be topped low on account of wind, but I have seen estates where the soil would not support a big tree, in fact coffee should not have been planted at all.

I am not so sanguine now as I was some years ago that coffee is the permanent and remunerative investment that it should be in B. C. A.: doubtless good crops of 6 to 8 cwt. per acre have been secured by some lucky individual planters, mostly maiden crops; and until shade be universally adopted in this country, I am sure those good crops will be the exception instead of the rule.

As for my own part I regret ever having cleared the land to plant an acre of coffee here, and would not do so again after the experience I now possess for I am convinced that

SHADE IS ABSOLUTELY NECESSARY

for the successful cultivation of our staple product, coffee, which let us hope in spite of black beans will always remain king.

If good land could be get at an elevation of from 3,500 to 4,500 ft. coffee would not get scorched, and it would not suffer from borer and grub to the same extent as it does below that elevation, and although we are some 16 degrees south of the line frost need not, I think, be feared unless the situation be such as to prevent a current of air passing over the coffee during the months of June and July (such as in a very low sheltered hollow), by the way, our windy months in B. C. A.

When a coffee tree is weakened by over-bearing, leaf-disease, borer, or grub attacking the skin or roots, or any other cause, the yield will consist of a greater or less amount of defective beans, as a natural consequence, which the application of manure helps to remedy, but no amount of manuring or careful husbandry will prevent the alarming amount of defective beans found in our coffee. This is proved by coffee trees growing amongst manure at my cattle-shed door, which were severely scorched and yield a heavy crop of worthless coffee.

Nothing but lofty well-regulated and thin shade will ever, in my humble opinion, mitigate or remedy the above defects. It is no use advocating the Loquat, Pride of India, or other bushy small trees, as I have seen some writers stupidly doing. One has only got to stand under a Loquat and afterwards under a large-spreading lofty tree on a hot day in November to see the absurdity of some people's ideas of shade, for a shade-loving shrub like coffee, which is a surface-feeder if its roots can only but exist on the surface, which unfortunately they cannot do during the dry months in exposed land

The fine feeding white rootlets' vitality is I am certain destroyed; in fact, strange to say, very few feeding roots are to be found near the surface on our fields of coffee on this account, but with shade or in a wet climate a singular network of coffee fibrons feeding roots is to be found on or near the surface.

The great beat caused by the sun shining on bare land increased with hot winds during our hot and almost rainless September, October, and November, months does a great amount of damage to our soil, as well as coffee, by exhausting the fertilizing ingredients, which would or should go to benefit the growing crops on the land. This fact is well borne out by the difficulty we have in getting supplies to grow the second or third year; also in this simple fact, viz—when a native boes a garden in September for a crop of cereals, he does not burn it off till just before he sees the rain is coming, but on the other hand should a bush fire by accident run into his garden, he assuredly abandons that garden and hoes another, for he well knows the nitrogen soon vanishes from exposure to one or two months' sunshine before the rains with which only he is able to plant. Very friable soils retain the heat of a day's sunshine all night and in fact is seldom cool in October and November and no Analysing Chemist is required to prove the damage done, under such conditions, to our best soils through exposure.

It can be easily seen how rich our soils are in fertilising ingredients from the flora they support and the rich harvests of Indian corn and millet they produce, crops which a poor soil will not even grow; but those almost inexhaustible soils, (which nature never intended to be exposed to the full force of our tropical sun) in the course of a few years must be allowed to run to bush and be covered, to once more renew its fertility—not lost so much by the feeding of a few crops of cereals as by exposure and wash which does not happen from covered land.

It may be said that a good field of coffee covers the land, and it should do so; but unfortunately coffee, as far as I have seen, never covers the soil in this country.

It needs no scientist to tell us that the soils on our coffee estates are wanting in nitrogen and other organic ingredients after some years' exposure; on the other hand we also need no scientist to show or prove to us that most of our soils are the very richest to be found in Africa or elsewhere. But what we do want to know is, how we can best take care of our rich soils, preserve their fertilizing properties, and renew them for the benefit of the growing product on the land and of man.

It need hardly be doubted that shade trees do all this for us to a great extent.—Then why bare our lands entirely for coffee cultivation? H. B.

II.

BORER AND GRUB.

DEAR SIR,—BORER is one of the worst enemies of our coffee and it escaped my observation till 1893; and well do I remember the first beetles I saw and seized on a Momba, bark cloth tree, in the month of November of that year. This longicorn or stag beetle was no stranger to me in Ceylon, although the specimen in that island is darker in colour, glossy, and altogether a handsomer insect than ours is here. The damage done in Ceylon was only very limited and confined principally to the drier districts, and in those districts, only round the edges of the forest and grass lands.

IN TRAVANCORE

at low dry elevations I saw much damage done to coffee, in fact every other tree suffering from the ravages of what was said to be the same borer as ours. A coffee expert introduced to me by the manager of one of our local companies assured me the Indian borer is the larva of a *fly*! Query, is this so!?

Well, to proceed with our borer, the beetle is a dirty slate colour, not numerous by any means in its natural element, for it is rarely met with. This is no doubt accounted for by the bush fires destroying the beetles, when they are fully formed or nearly so and ready to fly in October and November but still confined in the cavity of woody fibre, in which they remain for about three months, being changed from the grub to the beetle; besides, natural enemies in the forests and grass lands evidently keep the number limited.

As there are no bush fires on a coffee estate and few if any natural enemies the stag beetle finds a luxurious and very

COMFORTABLE HOME FOR PROPAGATING,

feeding on the bark; the grub, boring in the wood and making its nest in the stem of the coffee and emerges thence a full-fledged beetle in the course of 12 months, and in the course of a few years they become so numerous (for each female lays from six to seven eggs) that a regular nursery is made of a coffee plantation till you can gather a hatful of the beetles in the course of an hour, and the ravages of the borer become so great, that an estate may be abandoned in the course of 8 or 10 years, unless steps are taken to save it. The earlier this work is attended to on a plantation the better for the owner. I therefore consider it worthy of my time to tell my fellow planters, who may know nothing of the ravages of the borer in B. C. A., how to prevent the great amount of damage done, which only becomes visible after years of labour in bringing a coffee tree to its prime, and supplying a breeding garden for longicorn beetles and their larvæ.

DURING THE FIRST YEAR'S WORK

on a coffee estate the planter need not trouble about borer, beginning work say in June and planting up in February, the beetles only being in existence from say 20th November to 20th February (for they only live three months) they are never seen on a new clearing.

The second year when the plants are about 20 inches to three feet high the trouble begins, and not later than 15th November a few boys, according to acreage should be told off to search for beetles, and go over the garden, marching up and down line after line of coffee daily, to the end of the beetle season in February-March; the boys usually bring in one or two each daily, all through the season, and a young planter will crow and say "Now I have saved so many coffee trees and not a borer exists on my estate"; but he is mistaken. The borer beetle

NEVER FLIES DURING THE DAY-TIME

unless tormented till it is obliged to take to its wings, but sits quietly feeding off the coffee bark, usually on the sunny side of the plant, till dusk. It then flies off to another and another tree, visiting several, perhaps, during the one night and the habit seems to be to lay an egg in the soil, by making a small cavity near the stem at the bottom of the tree. I however am open to correction as I have never found an egg either on the ground or on the tree, although I have found many a beetle on the coffee trees and searched for eggs. Boys however assert that the eggs are laid in the ground and as it is the natural habit of the beetle family to lay eggs in the ground, I believe them. Only *one* egg seems to be laid at or near each coffee tree by one beetle, although others may lay in the same place; for when the beetles become numerons on old plantations three or four grubs may be found on one stem of a coffee tree. I have not however found more than one borer in each tree during the first year, and usually two or three affected trees appear where a beetle has been caught.

On old properties where coffee is riddled with borer I have seen boys gather a hat-ful of beetles in a

day, and I myself have picked off as many as half-a-dozen from a coffee tree (so this proves how numerous they are) just after the first heavy rains in November and it is alarming to think of the amount of damage done if no steps are taken to check this pest.

AFTER THE BEETLES HAVE DISAPPEARED,

signs of their presence begin to show by a change of colour in the foliage of a few plants where each beetle (if a female) has been caught, the leaves of the plants turning from a deep green to a light yellow. The searchers must continue their good work, but now armed with a foot length of fine wire, and a knife, going regularly over the estate as before (the boys must be visited daily, watched, and carefully instructed at their work or they will do as much damage as the borer by cutting the trees &c.) It will be found on examination of the trees attacked that the grub, at least for one or two months, does not enter the wood of the plant, but works at the bark, sheltering itself from any natural enemies by a covering of refuse fibre made from the bark and ringing the tree, working first one way, and then another, feeding on the inner bark till a complete circle is made; it is then the signs of an attacked tree become visible; the flow of sap being completely cut off. At this stage many grub can be caught, and when the trees are furred up, they often recover. I make it a rule however to put in a supply beside all doubtful plants. Many grub

ESCAPE DETECTION

at this time, but by keeping the searchers at work going over the estate, and again later on, when the borer manages to enter the wood, the sawdust appears and a wire must be pushed into its hole to kill it. It can be seen that it is squashed by rubbing the point of the wire across the back of the hand, when mucilage matter will be found on the wire, if it is killed. The grub is sometimes difficult to get at as it sometimes makes a crooked tunnel, in which case the tree has to be cut to get at it It is frequently found that a borer goes down the stem, after entering the wood, into the ground; in this case it is difficult to get at, and the tree is usually destroyed by the roots blackening and dying right away, whereas when attacked above the ground there is every chance of recovery, if taken in time.

Borer enters the chrysalis stage about the end of July or early in August, but an odd one is to be found later than this. So that you are practically at work about seven months at borer beetles and grub, from December to June, both months inclusive. Any extra care and attention by planters to this most important of all works on coffee estates in B.C.A. will repay them. In addition to

REGULAR SEARCHERS FOR BORER

it is not a bad plan to give a little salt or other trifling reward to the ordinary workers, weeders for instance, during the season for any beetles they may secure in their line of work; but care must be taken that they don't leave their work to go off in search of them.

The borer beetle is well known on a coffee estate by the name "Nyanza," or horned beetle, and the larva as budzi.

I was informed, when in India, that when coffee trees get old and hard-wooded they are impervious to the attack of borer grub. This may be the case there; but I am quite certain that eight-years-old coffee if neglected is attacked with the insect here; but I think the older the coffee trees become the less likely they are to succumb to an attack of borer, and I am quite sure on a badly attacked estate that three or four years old coffee suffers most, especially in a very dry year. This may be partly due to heavy cropping at this age.

Of course, diseased leaves are partly caused by borer; as the lateral roots die off, the primary roots turn black and diseased, and as the root surface diminishes the foliage and branches lack in nourishment; and as a natural consequence, through loss of health and vigour, the tree with its fruit becomes diseased, if it does not all together perish.—Yours truly,

H. B.

RUBBER IN MEXICO:

INDIAN MODE OF PREPARING RUBBER FROM "CASTILLOA ELASTICA."

Mexico, 12th March 1901.

DEAR SIR,—The following method of preparing rubber by the Mexican Indians, which was quite new to me, may be of interest to you and your readers:—"On taking over charge of this (Hacienda) last August, I found scattered through the coffee fields some 25 or 30 rubber trees (*castilloa elastica*) of different ages and sizes and all much the worse for barbarous tapping in years past. Some Indians asked me if they might tap the trees on shares, and considering them of no value I allowed them to do so. They proceeded leisurely to work and in a few days brought me to the house three old kerosine oil cans of rubber milk and an armful of a jungle creeper called by them 'Amole bejuco' but which I have since had identified at Kew as *Ypomœa (colonyclion) Bonanox L.* They asked for an old soap-box and proceeded to pound the creeper with a stone, putting about double handfuls of the crushed creepers into five gallons water, they then poured some five gallons rubber milk into the box and two gallons or so of the water, stirred it for a moment or two and in less than 10 minutes took from the box a slab of white rubber 34 by 16 by 6 inches, poured away the water left and proceeded as before until they had four large slabs of rubber. These they split in two and hung in the sun, and in a day or two it turned black. The nett result of rubber was 53 lb, which sold in Vera Cruz for 95 cents (say two shillings) per lb, or \$50·35. Had I employed my own peons to do the work at 62½ cents per day, the cost of producing the rubber would have been about \$6·25 silver. In a regular rubber plantation of course it would have cost a little less, as these trees were scattered about.—Yours truly, E. O. DARLEY.

TEA FOR THE MILLIONS IN INDIA AND CEYLON: A PACKET COMPANY WANTED.

DEAR SIR,—I was glad to hear that the I. T. A. had, at last, begun to take action in trying to secure a local market for their teas, but are they going the right way about it? They seem to be still under the impression that the natives will only buy the cheap low-grade teas. This is a great mistake. When trying to sell tea to the natives some years ago, I found that rich natives and even fairly well-to-do traders always preferred to buy the very best tea though at the time Orange Pekoe was R2 per lb., while the Muhammadans wanted green tea. The natives are all fond of tea and the poorest of them spend more in arrack, bhang or other stimulants than they need ever spend in tea; but to win this market it is necessary to pack the teas in very small packets, a 4 oz. packet is the biggest that would sell well, one and two ounce packets would have a far better chance.

Planters could not be expected to make up these tiny packets at the factory. They have enough trouble with larger packages; what is wanted is to start a Company who would buy their teas in the open market and put it up in small packets and distribute them by means of Commission Agents in every native bazaar. The Company would need liberal support from the I. T. A. for the first year or two, after which

they would probably be able to stand alone. There should be no difficulty in raising such a Company, as I should imagine every planter in India would be glad to take a share. The packets should consist of at least 20 per cent of the finest tea and a fair proportion of commons. Then there is the green tea trade with Persia and Afghanistan established years ago and which paid well even in those days when tea was selling at more than double its present value; this needs only a little pushing to develop enormously. I see they have just made up their minds to despatch a large caravan of tea to Persia; it is to be hoped that this will be Green and not Black Tea, as I know that neither Persians nor Afghans will drink black tea; and if the Indian planters send Black Tea there, they are bound to fail.

With regard to making a small packet, it is absurd to contend that this would be too costly and troublesome to pay. See how neatly even matches are packed and labelled, a properly arranged factory could turn out hundreds of thousands of these small packets daily; and the labels, which should be in the native languages, would cost a mere trifle to print owing to the number required. In many of the large cities, China Tea in neat little paper packets can be bought for a few pice and these constitute the chief supply, not only for the natives but Eurasian and poorer class Europeans who all prefer to get their daily requirement in this way rather than buy even a lb. of tea at a time. This is the sole reason why China Teas still continue to hold their own in India.

The I. T. A. would do well to devote their whole time and attention to developing the local market rather than waste their money in trying to capture foreign markets; it would cost less money than is rerequired for America alone, and the possible results are practically unlimited. It would not be a matter for great surprise if, in a few years, India ceased to export tea; their total crop does not amount to 1 lb. per head of population, a rate of consumption already about in Ceylon.

I make no charge for the above, but if the I. P. A., after testing its value, should desire to express their gratitude by sending me a handsome bonus, I promise not to refuse it.

AN OLD EX I. P.

CACAO PODS AND SEED.

DEAR SIR,—Will you kindly allow me space to comment on Mr. Carruthers' article on "Cacao Pods and Their Seed," appearing in your issue of the *Tropical Agriculturist* for April, of this year.

Mr. Carruthers' examination of a certain number of cocoa pods leads him to the conclusion that "the character and size and weight of the fruit do not afford any criterion of the weight of contained seed."

There is, however, one way in which recognition of a variety may well be made, namely, by *its name*, which, in connection with the diagrams of pods and their contents which you publish, has unhappily been omitted. This cannot but rob the table of half its interest, and all its utility. Will Mr. Carruthers be good enough to name his diagrams? Nos. 2 and 7 are presumably Forastero; but for all we know perhaps Nos. 1 and 20 are too, and in view of the great importance of sorting out and making known the more remunerative varieties of Forastero, I am surprised such an obvious sign-post as a plant's name should have been omitted—doubtless by oversight.—Yours &c.,

POD.

P.S.—In reference to your Editorial note on my cocoa letter, I was not aware "that *hemileia vastatrix* first appeared on young coffee which had never been manured, but was growing near jungle where the fungus had its habitat." In this case the 'dirt' was generated in the jungle, and not therefore through drastic manuring. But drastic manuring—the suggestion is not original—may have had a hand in nursing the fungus elsewhere, may it not? Further, from the extract you quote from Berthelink, is it implied in the sentence "have not only not lost a jot of their original value, but have rather increased in productiveness" that the original cacao trees are still living? If this is so, local conditions must have changed everything; and that certain varieties of cocoa greatly vary in behaviour even in this island's localities seems to point to a very sensitive appreciation of surroundings in the cacao tree.—P.

[Any treatment that left coffee weak or played-out undoubtedly made it an easy prey to the fungus when once it had found its way all over our coffee country.—The rich deep cacao-growing soil of Dutch Guiana is, we suspect, without parallel in any part of Ceylon.—ED. *T.A.*]

TEA CULTIVATION AND MANUFACTURE IN SOUTH CAROLINA.

17TH APRIL, 1901.

(*By a Ceylon Planter*).

DEAR SIR,—Ten years have elapsed since I assisted Dr Shephard, the proprietor of Pinehurst, Summerville, sixteen miles from Charleston, S C.

The acreage then under tea was only twelve acres in patches, all doing remarkably well and looking very promising. There was also a small Government tea garden located near a lagoon and Dr S advised me to leave it alone as it was considered unhealthy.

However, I was very keen on restoring to cultivation the Government patch of tea and should have applied to Washington, had I not been employed by Dr Shephard who through correspondence with Mr Reed, tea merchant of 13th street, Philadelphia, engaged me as a tea expert to make an improvement in the manufacture of Pinehurst teas. Through Mr Reed I was engaged for one hundred and fifty dollars or £30 for one week's work and gave Dr Shephard material assistance. I went round from New York by steamer and met Dr Shephard at Charleston.

The first question I put to him was—Have you got any sieves for grading your teas; his reply was "*not one sieve*"; so we went immediately to the Ironmongers in Charleston and purchased wire work of Nos. 16, 14, 12, 10 and 4 mesh. We then took train to Summerville, carrying the rolls of wire with us, and the estate carpenter made the sieves according to my instructions. Dr. Shephard made me very comfortable in his beautiful house surrounded by one of the most valuable botanical gardens in the world. For I must tell you Dr. S. is a botanist of no mean order. Roses from all parts of the world, flowers, shrubs, ornamental trees, both indigenous and exotic, tastefully arranged, a list of which I possess and will send you some day when settled down. The largest rose bush in the world was growing over Dr. S.'s house in Meeting Street, Charleston, the stem as thick as a man's body and climbing over the roof of the house, festoons of

beautiful large white roses hanging round the walls and over the arches and gate-way. I have a photograph of this gigantic rose, which you shall also see at some future time. But to return to tea, there was a good golden fush ready for plucking.

Our pluckers were little boys and girls from Dr. S's mixed school on Pinehurst and, when called upon to pluck tea leaf, the young lady goveruess promptly attended with red silk umbrella to supervise the field work; the writer had oceasion to call them to order sometimes and to pluck finer. The result was, the plucking was a success, and the leaf brought in withered the same evening. Every available room and the staircase was used for withering. I told Dr. S. to have it well withered; next day we got some sturdy negroes to hand roll and ferment, and we fired it with an American evaporator.

Our temperature was 180° and, after sifting the roll, I reduced the temperature to save the golden tips; and Dr. S. lent me 16 silk handkerchiefs to save them from burning and disappearing. This was a great point gained, and our first chest of tea was a fine sample. The No. 1 Flowery Pekoe and Orange Pekoe were sent to Washington. Dr. Shepherd's sister being a Senator's wife and interested in the Pinehurst Tea enterprise, helped to bring the tea into notice and Mr Reed's reports at Philadelphia made it a name in the American markets.

I am glad to mention it was very favourably reported upon in both New York and in London.

Dr. Shephard was very pleased with my work and we remained in the tea house until 1 o'clock in the morning to finish our work. It was a pleasure to me to work for a man like Dr. Shephard, a perfect gentleman in all respects and a very clever man, not only on botanical subjects and tropical agriculture, but upon mining subjects and the analysis of soils and minerals.

When writing up my instructions for cultivation and manufacture I found it necessary to gain some information regarding climate, temperature, and *average rainfall.*

Accordingly I took a letter of introduction to the Government officials and made extracts from their Government statistics for twenty years in South Carolina. The result of my extracts proved that the rainfall average for twenty years was only sixty-two inches, little more than half the quantity of rain required to make the tea enterprise a success commercially in South Carolina, and in this respect Dr. Shephard quite agreed with me that tea would not pay well on a large scale, whereas irrigation could be applied to a small area; then again, there are the cold months with cold winds checking the growth.

Several other people were growing tea on their farms in Carolina; some of them placed themselves in correspondence with me.

It was very encouraging to Dr. Shephard to obtain tea seed from all parts of the world through the Washington Government and make his selections from the best Assam-Hybrid jats. We spent a considerable number of hours in selecting seed bearers and tied pieces of silk ribbon round the stems of those to be reserved, so that the pluckers should pass them over. Some of the leaves on three-year-old bushes were as large as a man's hand and very strongly embossed.

I gave Dr. Shephard the addresses of both Colombo and Calcutta firms who supplied reliable tea-seed and told him it would be well packed. Some of the shipments from China and Japan arrived in bad order. Dr. Shephard had a nursery of thriving tea plants raised from imported seed, but I told him to select only Hybrid-Assam to get uniform fields of tea and large crops of leaf of good quality.

The Government tea plantation was a low China jat, though the bushes were large and required a good pruning. I believe I pruned a few of those bushes in June, 1891.

The people of the United States are fond of green teas and buy nearly the whole of the Japanese crop of 50,000,000 lb. (fifty millions). They like young Hyson mixed with black.

The best black teas are called *English Breakfast* and, when working with Mr McCombie Murray (late of Ceylon) in Philadelphia, I did a packet trade with customers at German Town, about 15 miles from Philadelphia city. When the very hot weather set in, my "English Breakfast" customers went to the sea-side, my tea business suddenly collapsed, and I had to write up about "Elephants" in the Philadelphia Press to keep from starving; then Dr. Shephard sent for me, and all was well that ended well.

Great interests are often involved in trifles and this was a remarkable instance. When tasting some teas for Mr Reed in 13th Street, Philadelphia, my eye rested on a small picture on the wall. I said to Mr Reed, "that looks like a plantation." "Yes," he said. "That is Pinehurst Tea plantation at Summerville, South Carolina, the property of Dr. Shephard." "What!" I said, "tea growing in the Southern States: *you don't say.*" "Yes," said Mr Reed, "*That's so* and I value his teas." "What would it cost to go down South?" said I, "it interests me." Mr Reed said he would write to Dr. Shephard and arrange for my visit, which he did, to our mutual satisfaction and benefit. I am glad cultivation has been extended and one dollar per pound paid for Pinehurst Tea.—Yours faithfully,

HENRY COTTAM.

EUCALYPTUS RESINIFERA.—Some two years ago, in the course of some most interesting and luminous letters from Rome, the Rev. H Ewbank told us that the Italian authorities recommended this species as the hardiest and most reliable of the species. Mr Ewbank obtained seed, distributed some and grew others. Five young seedlings were planted out last year near Ryde, Isle of Wight, and all five have so far got through the winter safely without any protection, whilst E ficifolia, on which great hopes had been based, has been severely injured by frost.—*Gardeners' Chronicle*, April 6.

IMITATION CINNAMON.—The *British Food Journal* calls attention to the "manufacture" of imitation cinnamon. The adulterant used for cinnamon is guava, or jungle bark, which costs about sixpence per pound in Colombo. This bark is carefully peeled, prepared and dried like cinnamon, and closely resembles it in appearance. The sweet odour, and the still sweeter taste, peculiar to cinnamon, are obtained by immersion for a few hours in large tubs of waste from the distillation of cinnamon oil, and afterwards, when dry, by touching the end of each bundle of the false guava pipes with a cloth saturated with cheap cinnamon oil.

THE KANDYAN HILLS COMPANY, LTD.

The report is as follows :—

ACREAGE STATEMENT :

Tea in full bearing	352 acres
Partial ,,	58 ,,
Planted in 1900	25 ,,
	435 acres
Cocoa	90 ,,
Reserve Land	785 ,,
Total	1,310 acres

The Directors beg to present their report for season ended 31st December, 1900, together with a duly audited statement of accounts for the same period.

The tea crop, including bought leaf, amounted to 227,611 lb ; and we secured 130 cwt of cocoa.

The tea gathered from the Estate itself was 182,013 lb, an advance of 22,013 lb over estimate, while the bought leaf represented 45,598, a total of 227,611 lb ; the two together costing 24·73 cts per lb to produce.

Taking Pansalatenne alone, the cost of placing the tea on the market was 22·27 cts per lb including 2·31 cts a lb for manure.

Prices were fairly good until the close of the year, when, with a large quantity of tea to sell, the market became greatly depressed, the results being a serious falling off in receipts, which has affected the profits on the season's working.

The surplus, after meeting all estate expenditure, represents a sum of R12,300·55, and after paying interest and other charges and providing a sum of R3,809·66 for depreciation, there remains a balance of R1,414·38, which the Directors recommend being carried forward to the new year.

During the season under review a sum of R15,970·87 has been spent on a Pelton Wheel Installation and other improvements to the factory, and R4,427·07 on the planting and upkeep of young tea. No further extensions are at present contemplated, and it is thought that the factory is now sufficiently equipped for the crops of the near future.

The new season's estimate of expenditure is based on a crop of 200,000 lb of tea at a cost of R43,481, including R1,800 for manure and 130 cwts. cocoa costing R3,760.

Mr. Edward S Grigson retires from the Board of Directors by rotation, but is eligible for re-election.

The appointment of an Auditor rests with the meeting.

THE TYSPANE TEA COMPANY, LIMITED.

THE REPORT.

To be presented at the fifth ordinary annual general meeting of the Tyspane Tea Company, Limited, to be held at the offices of the Company, 12, Fenchurch Street, London, E.C., on Wednesday, 10th April, 1901, at 2-30 p.m.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December 1900, duly audited.

With the deepest regret the Directors record the great loss that the Company has sustained through the death of Mr Walter Sandys Thomas, late Managing Director in Ceylon.

Compared with last year, the Profit and Loss Account shews increased expenditure and reduced receipts, but the former includes the sum of about £720 spent on Factory extension and up-keep of new clearings, which might legitimately have been charged to Capital instead of Revenue, had the Directors not deemed it inadvisable to do so in existing circumstances. The reduction in nett proceeds is due to the fall in the market value of medium teas.

The total crop amounted to 252,373 lb. Tea, which averaged 5·72d per lb. nett, against 258,370 lb. last year, netting 6·24d per lb.

Exchange averaged 1/4 5-16th per Rupee against 1/4 23-64th last year.

The Net Profit for the year, after payment of the Interest on Debentures, is	£501 11 11	
To which has to be added the balance brought forward from last year of	214 15 4	
		£716 7 3
The Directors propose to pay a Dividend of three per cent, requiring ..	540 0 0	
And to carry forward ..	176 7 3	
		£716 7 3

Mr John Philip Herringham, the retiring Director offers himself for re-election. The Auditor, Mr J Hamilton Alston, also offers himself for re-election. —By order of the Board, Robertson Bois & Co., Agents and Secretaries.

London, 1st April, 1901.

The acreage of the Estates is as follows :—

Tea in bearing	...	..687 acres
Tea in partial bearing	..	... 6 do
Tea planted in 1896	..	... 47 do
do do 1897	..	... 10 do
do do 1898	..	... 28 do
do do 1899	..	.. 4 do
Timber clearings	...	... 22 do
Jungle	...	} 164 do
Scrub, &c.	..	do
		968

KELANI VALLEY TEA ASSOCIATION, LIMITED.

Report of the Board of Directors. To be presented to the Shareholders at the Fifteenth Ordinary General Meeting, to be held at the Office of the Company, on Monday, 15th April, 1901, at 12 noon.

The Directors beg to submit to the Shareholders the Report and Accounts of the Company, duly audited, for the year ending 31st December, 1900.

The total crops from the Company's four Estates amounted to 662,248 lb. against 575 255 lb. in 1899 ; the average price realised was 5·794d per lb., against 7d., and the average rate of exchange was 1s 4 27-64d as compared with 1s 4 25-64d for the previous year.

Owing to the very depressed condition of the Tea Market during the last six months of the past season, the profit earned for the year under review compares most unfavourably with that secured in previous years, but, with an improving Market, a natural shortfall in crops, and the steps now being generally taken to further reduce output and improve quality, your Directors have good reason to expect that very different results will be shewn for the current, and, it is to be hoped, succeeding seasons.

Including £419 2s 5 brought forward from 1899, the net profit for the past year amounts to £1,019 14s., from which has to deducted the Interim Dividend of 3 per cent., £562 19s paid in September last, leaving £456 15s., available, and this sum is proposed to carry forward to next season's account.

Debentures to the amount of £2,100 which matured on the 1st January, 1901, have been renewed for a further period of five years at 5 per cent per annum.

Two vacancies have occurred on the Board, one caused by the resignation of the Hon. D A C Scott, on account of ill-health, the other by the regretted death of Mr. Donald Andrew.

It is not proposed at present to fill the first-named vacancy, but, to occupy the seat of their deceased colleague, Mr. Donald Andrew, your Directors have appointed Mr. George Gray Anderson, who, in accord.

ance with the Articles of Association, retires from the Board at this time, and being eligible, offers himself for re-election. Mr. J B Laurie, C.A., also offers himself for re-election as Auditor.

G W PAINE, Chairman.

16, Philpot Lane, London, E.C., 3rd April, 1901.

THE BALMORAL (CEYLON) ESTATES COMPANY, LTD.

REPORT.—To be presented at the Third Annual General Meeting of the Balmoral (Ceylon) Estates Company, Limited, to be held at the Offices of the Company, 12, Fenchurch Street, E.C., on Thursday, 11th April, at 2·30 p.m.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December, 1900, duly audited.

The total yield of Tea was 563.556 lb. against 528,804 lb. last year, being at the rate of 606 lb. per acre all round; the cost of production, exclusive of Capital Expenditure, was 26 cents per lb free on board at Colombo, and the gross average price obtained was 8·86d per lb. against 9·47d per lb. last year—Sandringham Teas averaging 8·90d and Clydesdale 8·81d per lb. Exchange has averaged throughout the year 1s 4¼d against 1s 4 19-64d last year.

The Net Profit for the year amounts to ...	£7,767 3 7	
And the Balance from last year to ..	1,152 14 5	
Making a total of ..	..	£8,919 18 0
The Directors have already paid out of this Dividends on the 6 per cent. Preference Shares for the year ending 31st Dec., 1900 ...	£1,800 0 0	
Interim Dividend on the Ordinary Shares of 5 per cent. free of Income Tax..	2,601 15 0	
Income Tax ...	152 16 8	
AND IT IS PROPOSED :—		
To pay a Dividend of 7 per cent. free of Income Tax on the Ordinary Shares, making 12 per cent. for the year ..	3,642 9 0	
And to carry forward the Balance of ...	722 17 4	
		£8,919 18 0

The Auditor, Mr. J. HAMILTON ALSTON, offers himself for re-election. By Order of the Board, C. G. BOIS, London, 2nd April, 1901. Joint Secretary.

SCHEDULE OF THE COMPANY'S ESTATES.

	Tea. Full Bearing	Partial Bearing	Not in Bearing	Grass, Patana, &c.	Total.
Sandringham and Yarravale ..	526	—	4	12	543
Balmoral and Clydesdale ..	402	35	1	170	626
Acres ...	929	35	23	182	1,169

RUBBER IN N. E. RHODESIA.—The rubber district round the southern end of Lake Bangweolo has been largely devastated through the vandalism of the natives, carelessness in the method of gathering, and the wholesale destruction of the plant in search of the root-rubber. On the Loangwe, near Molilo, Mr Highfield, a former resident of Salisbury, is farming and planting Brazilian rubber.—*Chemist and Druggist*, March 30.

PLANTING NOTES.

EXTRACTION OF CRUDE INDIA-RUBBER.—Patent No. 9906, 1900. Date of Application, 29th May, 1900. Accepted, 23rd February, 1901. A L Arnaud, 35 Rue de l'Arbalete; A V L Verneuil, 25 Rue Humboldt; A M G Wehry, 16 Rue Raffet; and A G Lebeuf, 4 Impasse Giradon—all in Paris.—*Home paper*.

MALAYS BUSY WITH GUTTA IN SARAWAK.—At Sadong, in Sarawak, Malays are unusually busy in collecting "Jelutong" gutta. Instead of the usual wasteful method of felling the trees, these Malays tap the bark about four feet from the ground. Two of their employers are the sole possessors, at least in that district, of a secret for refining this "jelutong" gutta and producing a gutta of high quality, for which they hope to obtain large prices in Singapore.—*Straits Times*, April 17.

CAMPHOR CULTIVATION.—Having ourselves been moving for some time past to secure a fair trial of camphor cultivation in the island, we are interested to find in an Indian paper that in view of the increasing price of camphor a German firm has suggested India and Ceylon as suitable countries for cultivating the camphor tree. The world's requirements of camphor are estimated at 10,400,000 lb. per annum; of this, under the new administration, about 5,200,000 lb, will be supplied by Formosa, while about one-third of the whole will be exported from Japan, leaving a diminution in the exports, compared with 1898, of about 3,640,000 lb.

TEA-GROWING IN CAROLINA, UNITED STATES.—We call attention to the interesting account, given on page 787, of Dr. Shephard's attempt at tea culture near Charleston, by Mr. Henry Cottam, who did much to show him the proper mode of manufacture as well as of cultivation. It is a curious fact that, while Ceylon proprietors are lavishing their money to try and win the American and Russian markets for its teas, a Ceylon planter should have started tea growing in Carolina on its right course, while another is at this moment trying to show the tea managers for Messrs. Popoff at Batoum the way "how to do it."

BOUVARDIAS: OF THE CINCHONA FAMILY.—It may interest gardeners in this country to learn that Mr A C Rolt, of Kissengunj, has succeeded in growing these beautiful plants in his garden in Eastern Bengal. The genus is a native of Mexico, but several fine hybrids have been raised at home. The plants belong to the natural order *Rubiaceæ* of the Cinchona family), and the flowers resemble those of the Ixora in character and form of inflorescence. In fact, a bunch of Bouvardia flowers may be easily mistaken for a bunch of Ixora blooms. They are extremely difficult to grow on the plains of India; and that Mr Rolt has succeeded in growing them says much for his skill as a gardener. He writes to us on 4th instant:—"My Bouvardias, which never flowered before, are just coming into bloom. They grow very strong with me, but have not hitherto flowered. This year, however, they are full of buds. Bouvardias on the plains of India are, I suppose, something quite new." On the hills, and notably on the Nilgiris, these plants should grow and flower most luxuriantly.—*Indian Gardening and Planting*, April 11.

OUR STAPLE EXPORTS:

TEA *vs.* COCONUTS.

It is curious to note the widely different positions our two principal staples of Export have occupied during the first quarter of the current year. Tea had dropped in price to a point which had never before been touched, and which we sincerely hope will never again be experienced; while the remedy for the depression, caused by overproduction, was yet in the future. True, the past few weeks have seen an appreciable advance in price; but the reduced output, by whatever means to be accomplished, has yet to be arranged for, although it is well-known that an unusual quantity of last year's tea entered into our January's shipments. Still, whether an actual reduction will be realized is a question, now that prices have risen and are keeping up, and that so many Companies have refused to give their support to any scheme for reduced exports. But that is not the question we wish to discuss now. What we desire to point out is that, while Tea Exports have risen, and while prices were disappointing during the first quarter of the year, the out-turn of Coconut products, on the other hand, show a falling-off in quantity to the accompaniment of high prices maintained for an exceptionally long period.

We had thought, on the authority of published reports and the forecasts of our own correspondents, that the effects of the drought of 1899 on the Cocount palm would cease to be apparent after the end of 1900, and that the current year would show an advance in Exports. That expectation has not yet been realised; but, not to travel out of the first quarter, the following are the figures which the Chamber of Commerce returns up to 1st April show (for the first quarter):—Of Coconut Oil, there were sent away 62,286 cwts., against over 102,000 cwt. the previous year and over 82,000 cwt. the two years preceding; of Copra 57,034 cwt. against 111,585 in 1900, and 68,900 and 69,275 cwt. in 1899 and 1898 respectively. In desiccated nuts too, there is a falling-off from over 2,800,000 lbs, 2,700,000 and 2,300,000 lbs in the three previous years to 2½ millions this year. Poonac, with 17,952 cwt, shows the largest proportional decrease, being less than half the quantity sent away in each of the two years immediately preceding, and less than one-fourth of the exports for 1898. Only in Coconuts in the shell is there an increase, with over 3½ millions in nuts against less than 2½ millions in each of the three years preceding; but this increase of a million nuts represents but a fraction of the deficit we have noted under the several important heads given above. The interpretation of these figures is that the expectation that this year's crops will compensate for the deficiency of last year has not yet been fulfilled. We do not say it will not be fulfilled, for we hear from many sides of the promise of very heavy pluckings during the next two crops; but even March and April crops have been disappointing in many places. The fact is that the Coconut palm in a congenial climate can scarcely get too much rain; while it is specially affected by drought, and the longer the latter lasts, the more prolonged the effect on the crops of nuts. Meanwhile the demand for Copra is keen, the prices keeping up to close on R 52 per Candy for "best"; and the Desiccating Mills may have to work short time until the coming big crops lower prices and render a large supply of nuts available.

"SPORT IN THE LOW-COUNTRY OF CEYLON":

BY ALFRED CLARK.*

The reading of this little book has afforded me much pleasure, and, as those portions of it that I consider myself qualified to criticise appear to me to be absolutely correct, I can only suppose that the remainder of the work is equally trustworthy. Being fond of sport, and having frequently visited the low-country of Ceylon, I had begun to fancy that I knew a good deal about the manners and customs of the fauna of its jungle; but, after reading Mr. Clark's book, I am ready to admit that my knowledge thereof, as compared with his, is woefully incomplete. I can therefore conscientiously recommend any one, really a sportsman at heart, who intends making a trip to the lowcountry of Ceylon after game, to provide himself with a copy of Mr. Clark's book, as it will be found not only to contain useful hints] on Sport, and on the characteristics of the wild animals, but also a brief account of the game laws. The chapters on elephants are specially interesting, although shrouded by what I fear is the not too pessimistic view that 2,000 is probably the sum-total of wild elephants now in the island. The greatest number I ever saw on the hills, in a herd, was eight, and these lived for many months on the top of the range above Rangalla. Near the ruins of Pollonnaruwa, however, I saw about 40 together, and these figures seem to corroborate Mr. Clark's experience. I was glad to read that the author's opinion is that "in spite of the thousands killed every year, there is no reason to think that snipe are less numerous now than they were formerly." When I recall the tremendous bags the planters of Rangalla and Medamahanuwara were wont to make, in the paddy-fields of Bintenne, I would not have been surprised to learn that they had become as scarce as that less palatable bird the dodo! If sportsmen in Ceylon are as keen as they were twenty years ago, I prophesy that Mr. Clark's book will in future as certainly be a part of the furnishing of their bungalows, as "The Directory" has always been.

COSMOPOLITE.

SIR JOHN MURRAY'S EXPEDITION TO CHRISTMAS ISLAND.

Sir John Murray, who has just returned from a six months' expedition to Christmas Island, during which he crossed the island from end to end—the first occasion on which it has been traversed—has made a statement with reference to his travels to a represent-

*Published at "*Ceylon Observer*" Office, 1901.

ative of Reuter's Agency.—Christmas Island, which is situated in the Indian Ocean, is 220 miles from the nearest land, and is some 12 miles long by seven broad. It is covered with dense forest, having an area of nearly 50 miles, and the sea depth around its shores is between three and four miles. There is no good anchorage, but only an open roadstead When Sir John Murray was on the island there were 13 whites, including a doctor, a chemist, and an engineer, living there with their families, together with 720 Indian coolies engaged in working the rich phosphate deposits. The animals and plants on the island are of extreme interest. The whole place is overrun with curious red crabs as much as 18 inches across. They are excellent tree climbers, and once a year there is a regular migration of these crustaceans, who travel in bodies like ants, taking 15 days on the journey, and returning inland after hatching their eggs. There are only five mammals on the island, including two species of rat not known elsewhere. They are of two colours, those on the plateau being brown, while those nearer the coast are black, and in order to keep them down a number of terriers have been imported. On the island are also to be found a toothless snake and a blind snake much like a worm. In exploring the island Sir John Murray had to cut a track through the dense forest until he reached the central plateau at an altitude of 1,000 feet, where travelling was not so difficult. One night he got lost in the forest, and had to subsist on the tops of sago palms, which he cut down. The island is under the Straits Settlements Government, and a resident magistrate has just been despatched thither from Singapore, together with an official of the Public Works Department, a scientific commission, and a force of police, 35 in all. They will select sites for the administrative buildings to be erected on the island. The climate is perfect, like a hot English summer, and prior to the British annexation no human being is supposed to have lived on the island.—London *Times*, April 1.

RUBBER FROM THE HULE PLANT IN MEXICO.

A process for extracting rubber from the Hule plant was discovered about a year ago by a Mexican doctor residing in Sierra Mojado. This plant, which contains about forty per cent of rubber, grows in the mountainous district of Mexico, as well as in certain localities of Texas, Wyoming and Nebraska. It is a species of sage bush, with small leaves and grows to a height of about three 3 feet. A patent on the process has been taken out in the United States of Mexico, and a manufacturing plant has been located at San Luis, Potosi. All the machinery for use in extracting the rubber has been invented and patented in both countries by the Monterey Foundry and Manufacturing Company, Monterey. The principal steps in the process of manufacture are as follows:—There are special machines which feed the plant automatically into the cutters; after it comes out of the machines, it is carried by a bucket elevator and dumped into steam-jacketed mixing tanks containing certain chemicals; the product then runs by gravity into hydraulic filter presses after which it is subjected to hydrostatic pressure of seventy-five pounds to the square inch; it is then conveyed into settling tanks where the gum being heavier settles at the bottom, while the chemicals and residue are drawn off. The cost of production is slight. The principal difficulty to be overcome is the high freight rate, a box-car being quickly filled on account of the lightness and bulkiness of the plant.—*India Rubber Trades' Journal.*

A GOOD BUNCH OF BANANAS.

A correspondent writes:—The enclosed is a Banana grown in my garden. Will you kindly give me your opinion about it? I cannot find any so large in the fruiterers' shops about here. The bunch weighs 57 lb. I cannot count the number of fruits nearer than 160. The enclosed is not one of the largest fruits.—J. J.

[The fruit sent by our subscriber tasted remarkably well, having a rich mellow flavour; and his bunch certainly shows good culture. Many larger bunches of fruit, however, are known, and we would refer "J. J." to the "Impney" bunch, which, so far as we know, is a record one, whose weight was one hundred and fourteen pounds (exactly double the weight of "J. J.'s") and contained 283 "fingers." See *Journal of Horticulture* for May 26th, 1898, where an illustration of the "Impney" bunch is given.—ED.]—*Journal of Horticulture*, March 21.

CAPE TO CAIRO.

COFFEE-PLANTING IN NYASSALAND.

(From *The Daily Telegraph* Commissioner, Mr Lionel Decle.)

This territory of the British Chartered Company owes its importance as a Colony to coffee-planting, which is yearly assuming more importance, and Nyassaland coffee is of so superior a quality that it commands the highest price on the London market, where it has fetched treble the sum paid for Brazil coffee. There are in Nyassaland about 10,000 acres of land

UNDER COFFEE,

all of which is not, however, in bearing; and the last crop is estimated at 1,100 tons, an enormous amount if one considers that the plantations date only from ten years back. The industry traces its origin to Mr Buchanan, a Scotch gardener attached to the Blantyre Mission, who brought out from Scotland a coffee plant, and it is almost exclusively from this single plant that all the millions of coffee trees planted in the country have come. Land can only be procured now either from private holders or else from the Government. Uncultivated land can be purchased from the former at prices ranging from half-a-crown to 10s per acre, and from the Government at 5s to 7s per acre. Land under coffee ranges from £7 to £20 per acre for estates of 200 acres or more. An estate was recently sold for £6,000. It consisted of 300 acres of land under coffee, with 1,700 acres of forest land, with houses, buildings and machinery. All the planters with whom I have discussed the subject seem to agree upon the point that a small plantation of 150 acres will pay better if thoroughly cultivated than a plantation of 300 acres or more, on account of the labour conditions and of the difficulty of securing sufficient skilled assistance. Under this heading are included planters, sowers and pruners, as well as carpenters and bricklayers. Most of the skilled labour is supplied by the Ya, and in a smaller proportion by the Atonga, tribes. Un-

skilled labourers consist chiefly of Angoni from districts west of Lake Nyassa, and also of a few Angoni from Portuguese territory near Lake Shirwa and of Atonga, a tribe inhabiting the western shore of Lake Nyassa. This

LABOR QUESTION.

is a difficult one to solve, as the time when workers are chiefly required by planters, from November to March, is the very time when natives are reluctant to leave their homes, where they are wanted to cultivate their own fields. Unskilled labourers are paid at the rate of 3s to 4s a month, and skilled men get from 5s to £1 : but while the former come from long distances, the latter usually live in the villages forming part of the estates. Planters calculate that they require an average of two labourers per acre of cultivated land, so that 20,000 men are wanted to do justice to the land now under cultivation. Lack of assistance is the planter's incessant cry, and all of them greatly fear that the high wages paid in Southern Rhodesia may divert there the labourers, and cause a rise in the pay, which would kill the coffee industry. Planters, I think, exaggerated the danger, and I doubt whether the proposed railway from the south will cause a serious exodus of natives towards Southern Rhodesia, provided, however, that the planters treat their people better than they have done so far. Until now, it has been customary to allow the labourers, in addition to their pay, one yard of calico, equivalent to 3d, per week, for their food, but the natives within a radius of 200 miles from Blantyre will not sell food for calico. To obtain food the plantation labourers have to work on Saturday afternoons and on Sundays in the gardens belonging to the natives of the villages surrounding the plantations on which they are engaged, and in exchange for such work they receive a few cobs of corn, on which they have to subsist for the remainder of the week. In their own country such people are accustomed to eat meat, and cobs of corn are not sufficiently nourishing for them, so that the natives who go to work on the plantations usually return to their country in a state of semi-starvation. Sufficient rations would mean to the planters only an extra monthly expenditure of 1s. per head, and so long as labour does not cost more than five shillings per month, all told, plantations must pay handsomely. Most of the

PLANTATION LABOURERS HAVE TO WALK FROM FOUR TO SIX HUNDRED MILES

to come from their homes to the coffee-growing districts, and as much to return to their country. On the way they usually suffer from scarcity of food, and most of them are more or less exhausted by the journey, so that they cannot perform the amount of work which they might otherwise do. If the planters combined together they could easily get their men brought by steamer at a cost of two shillings and sixpence per head, which for four to five months' work usually supplied by these men would increase their cost by sixpence per month. If this were done the present scarcity of labour would soon cease to exist, and the danger of its being diverted south would not arise. At present the people who come to work for five months in Blantyre are away nine months from their homes, so that none of them return to work two years in succession. The high wages paid in Rhodesia do not constitute the attraction one would think to the Nyassaland natives. Most of those who have been to Salisbury, where they earned from one pound to thirty shillings a month, have returned without a penny, and they complained that everything was so expensive that they had been unable to save anything of their wages. It must also be noted that these people do not care to go so far away from their country among other natives, whose language they do not speak and whose habits are quite different from their own. Many planters, led by an irresponsible rag published in Blantyre, make a great fuss over the Administration allowing natives to leave the Protectorate. They forget that the Administration has no power to prevent individuals from leaving the country. Everything legally possible is done to discourage them. For instance, when a man applies for a pass to go outside the Protectorate, he must first show that he has paid his hut-tax, and must satisfy the collector that he has made provision for the support of his wife and family during his absence. But more cannot be done. Stringent regulations have been issued prohibiting the engagement by labour agents of natives to work outside the Protectorate, and in order to help the planters the Administrator has gone so far as to allow the natives to go and work in Blantyre, the first month's wages being collected by Government to cover the payment of the year's hut-tax. From Central Angoniland alone 9,000 natives went down to Blantyre last year on those terms. To close the subject, I can only say that, as I have shown, the planters hold the remedy in their own hands, to avoid the present scarcity of labour and to prevent the exodus they fear, and if they do not adopt it they will only have themselves to blame for the consequences.

FOUR YEARS IS THE TIME REQUIRED

for coffee to bring returns. Trees begin to bear at the end of three years, but a full crop is only gathered in the fourth year. I have tried to obtain estimates of the cost of a plantation, but no planters seem to agree as to figures. Some calculate that, until coffee has been brought into bearing, £12 will have been spent on each acre of land under cultivation, about £3 per year, the cost of land, buildings, and machinery, not being included in this calculation. After coffee has begun to bear, the cost per acre is estimated at 20s to £2 per acre, to which must be added the cost of porterage and transport to London and the salary of European assistants, one man being sufficient to look after 300 acres ; but above that amount an extra assistant is required for every further 150 acres. The returns vary considerably, according to the quality of the soil, manuring, and other causes. Some gardens only give 1 cwt per acre, while others have produced as much as 7 cwt. The average return may be calculated at 2½ cwt per acre, which, even at the present low price of coffee, ought to pay well. At the price of £60 per ton coffee should yield a profit of £40. The cost of porterage from the plantations to the navigable portion of the Shiré River varies from 30s to £2 per ton, according to the distance ; and 50s per ton is charged by the transport companies for the carriage by steamer to Chinde, at the mouth of the Zambesi, whence the freight to London comes to £3 per ton, or a total of about £7 10s. As I have already said, Nyassa coffee fetches the highest price on the London market, where it

has been sold for as much as £114 per ton. One of the difficulties planters have to contend with in this part of the world is the impossibility of borrowing money locally. Want of capital and lack of credit would prove fatal to most of them, if they met with two successive unproductive years. Fortunately for them, no leaf disease has yet made its appearance among Nyassa coffee, but there is an insect—a kind of bug, of the ladybird species—which causes spotted berries. If, however, they are collected in time, no great damage is done to the coffee. Early rains are the best for the plants, which require altogether about fifty inches of rain. Another difficulty planters have to meet is that of finding suitable

EUROPEAN ASSISTANTS.

Many of the young men who are sent out here are unsuited to their work. To be really useful an assistant should possess a good deal of practical knowledge; he should be able to show natives how to make and burn bricks, understand something of carpentering, and have had some experience in the management of animals. Young men having had some practical training on a farm are usually the most useful. It is true that they generally lack the knowledge of bookkeeping, which is one of the duties they have to perform. Assistants on plantations receive from £150 to £200 a year, with a house. Fifty pounds are sufficient to cover all their expenses. But their life is not a pleasant one. They are most of the time alone, and even supposing that they should have a neighbour within ten to twelve miles, their only means of conveyance is by machilla, a hammock carried by natives, a slow and disagreeable mode of locomotion. Horses are most expensive and difficult to get, £40 being the average price paid for a horse. Natives do not understand them, and there is the risk of their dying of the dreaded horse sickness, besides the impossibility of taking them to any district where tsetse fly is found.

In addition to coffee some planters grow

TOBACCO,

but no serious attempt has been made in this direction. The tobacco grown here is of inferior quality and badly cured. I am sure that, if good plants were imported from Cuba, Manila, Syria and other tobacco-producing centres, excellent results would be obtained. Experts would have, it is true, to be brought out to train the natives in the various operations of this industry. When I visited Nyassaland seven years ago Messrs. Buchanan Bros. had begun experimenting on these lines and I bought from them splendid yellow tobacco which made cigarettes equal to many of those sold in Egypt. They also turned out cigars as good as any Indian cheroots, but after Mr. Buchanan's death all the machinery was sold and the culture abandoned. At present the tobacco produced is somewhat like the Boer variety of South Africa, and of so inferior a quality that it would hardly find a purchaser at the London Docks.

CHILLIES

are grown in small quantities with splendid results, but no attention is given to their cultivation, as it is feared that large production would bring the prices down. Tea grows well in some parts of the Protectorate, but the process of curing is unknown here. Cinchona has also given satisfactory results, and ramie fibre ought to prove remunerative, since suitable machinery for its treatment has been invented by Mr. Foa, of Limoges.

There is one thing planters urgently claim, and which I have long advocated as well for Rhodesia as for Nyassaland. This is the creation of a

PUBLIC LABORATORY,

to which would be attached a public analyst and an experimental farm. On such a farm experiments would be carried out in all the different cultures under an able specialist, planters being able to send manures and soils to be analysed, and coffee to be tested and valued. They should be able to send their assistants or to go themselves to be taught the cultivation and curing of coffee, tobacco, tea, and other products likely to suit the country. From this institution planters should be able to get an expert to examine their estate, to advise them as to the most suitable methods of improving them, and, from time to time, the superintendent of this institution could publish in the Government Gazette any information likely to prove of use to the planters. To open such an establishment would mean an original outlay not exceeding five to six hundred pounds, and to keep it going would cost less than £1,000 per annum. The greater portion of this expenditure would be covered by the fees paid by the planters, and I am sure that none of them would object to paying six pence per ton on the coffee exported from their estates, if the money were used to cover the cost of maintenance. In addition to the plantations, the most important trade of British Central Africa is india-rubber, a trade which has taken an extraordinary extension within the last few years. While in 1897 the exports of india-rubber amounted to £1,000 only, they had reached £10,000 in 1898. Most of it comes from the west coast of Lake Nyassa, but unfortunately, the natives gather it in so careless a fashion that unless proper supervision is exercised by the authorities all the plants will soon be destroyed. I am told that steps have already been taken to avoid such a result. I will now try to sum up in a few words

THE PROGRESS WHICH HAS BEEN ACCOMPLISHED

since I came here in 1893. Magnificent roads have been built, the most absolute security has been assured throughout the Protectorate, a regular administration has been established in the remotest districts, where justice is rendered exclusively by Europeans, slavery has been completely wiped out, the facilities of communication have increased in a remarkable way, and their cost has considerably decreased. Coffee-planting has passed from the experimental to the practical stage, and the cost has been greatly reduced. Last, but not least, the whole Protectorate has been put in direct telegraphic communication with the Cape and Europe, a result entirely due to Mr Rhodes, without the cost of a single penny to the British Central Africa Administration. I have absolute faith in the future of the country, and I do not share the views expressed by many people as to the precarious state of the coffee industry. The railway from Lake Nyassa to the coast, a thing of the near future, will give a fresh impulse to coffee-planting, and reduce the cost of transport; and if it causes a small exodus of local labour this will be fully compensated by the increase of facilities it will give the natives to come and work on the plantations. It will also relieve the strain now existing on the local resources of labour, so much of which is absorbed by the transport of goods to

and from the Shiré River. The Tanganyika Railway will give a fresh impulse to the opening up of Northern Rhodesia, and when the federation of South Africa is an accomplished fact, Northern Rhodesia and the British Central Africa Protectorate will naturally be included in that great movement. The Protectorate will soon be as ripe for self-government as Southern Rhodesia, so long as it does not stand isolated as it now does, but as part of a system, and its only hope for such a result lies in the prospect of becoming a portion of the Great Federation of the South. This ought to give fresh and increased vitality to the country, and fittingly crown the great work so brilliantly inaugurated by Sir Harry Johnston and continued by Mr Sharpe, who has successfully performed the most difficult of tasks in showing himself able to carry the weight of the heavy legacy left to him by his distinguished predecessor.

THE FOOCHOW TEA TRADE.

DIMINISHED SUPPLIES EXPECTED NEXT SEASON.

The statistics for the season now closed show the Total Export to be 40,342,288 lb against 44,148,650 lb in 1899-1900, 38,718,940 lb in 1898-99, 35,887,522 lb in 1897-98.

As compared with ten years ago, the past season's export shows a falling-off of 33 per cent. The following comparative figures are given to show the changes that have taken place in the destination of the shipments:—

	1900-1901.	1890-91.
	lb.	lb.
Europe	11,299,703	25,661,017
Australia and New Zealand	6,514,722	15,250,738
United States and Canada	11,855,217	3,404,957
South Africa	1,378,864	1,543,652
Coast Southward	4,260,213	4,713,889
,, Northward	5,033,569	8,884,486
..	40,342,288	59,458,739

The comparative figures of the deliveries of China tea in London and Australia are correspondingly disappointing, notwithstanding that the lowness to which prices have made the tea attractive to buyers, if solely on account of its unprecedented cheapness. It has been apparent for some time past that Foochow tea, with insignificant exceptions, is only bought in London to mix with that from Indian and Ceylon, and not then until the importer, tired of holding, parts with it at a price below the cost of production.

Under these circumstances the prospects for the trade are exceedingly gloomy. The Chinese were losers last year and will act with great caution this year. They know, as well as we do, the low scale of prices current in the consuming markets and will run as little risk as possible. Everything points to diminished supplies next season. The money usually advanced about this time of the year is not forthcoming, the native banks giving as a reason for withholding facilities the unsettled state of affairs in the north. Thus the teamen will have to fall back on their own limited resources which the well-informed say may be taken to mean that a considerable portion of the first crop will not be picked at all: and if present current prices in the consuming markets are to be any guide to the Chinese in their later operations in the season the export figures at this date next year will compare very unfavourably with those just published.—*Foochow Echo.*

THE SALE OF NOXIOUS TEAS.

(To the Editor of the London *Times.*)

Sir,—Permit me to refer to and protest against the recent refusal of the Government to use the powers they possess to protect the British tea drinkers from the injurious use of spoilt and damaged teas. For some time past most unpleasant rumours from some of our tea-producing countries have warned us that damaged, and, therefore, injurious, teas were being craftily blended and manipulated and sold as genuine or sound commercial articles. For such purposes "the fine art of blending" was being unworthily used, and should be promptly stopped by the Government authorities. In the Ceylon newspapers, for instance, quite recently, there is a report of a meeting of Planters, called to consider a resolution requesting the Government to supervise or impose checks upon the exportation of unwholesome tea. The mover of this resolution stated, and (what is most significant) he was not contradicted, "that it was well known" that "teas known to be unfit for human consumption" had been exported as tea for sale and consumption. In the examination of a number of recent samples of tea obtained in this country I have been struck by the discovery of dried but perfectly rotten leaf tissues, upon which colonies of microbial forms, both adult and in ova, were found, indicative of damaged and objectionable materials for dietetic use.

I will admit that the adult microbial forms may be destroyed in the process of tea infusion, but the ingestion of the ova and the products of rotten vegetable matter are neither useful nor invigorating to healthy or invalid. If tea was a production of the British Isles, no doubt the Sale of Food and Drugs Act would meet the want and stop the mischief; but, unfortunately, tea is an imported article, and in its dry rolled condition the consumer sees no suspicious signs, and the chances of detection and conviction are in consequence rendered doubtful and remote; and, again, should detection result, the guilt might rest upon the ignorant middleman and the real culprit escape.

Instead of throwing the responsibility upon the British local authorities, as the Government seem disposed to do, it would be perfectly easy and simple for the Government to supervise the imported teas at the London, &c., bonded warehouses. These officials would be in touch with the Government experts of the chemical and biological laboratories of Somerset House and South Kensington. In point of fact, such stoppage of "rubbishy tea" would be advantageous to the trade and prove beneficial to the consumer. In this case the truth of the old saw may be again seen—prevention is better than cure.

The Adulteration of Food and Drugs Act is a useful instrument for local authorities in local matters, but as regards teas and other imports we possess the immense advantage of port supervision. Let damaged tea, like diseased matter, be stopped there and the mischief is stopped from circulating, for it is probably the cause of the modern dyspeptic or "I can't drink tea" condition to a far greater extent than many are aware or have idea of.

I am, Sir, yours faithfully, GEO. BROWNEN, F.C.S.

38, Gloucester-place, Boscombe, Hants, April 9th.
—London *Times*, April 13th.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	—	900	...
Ceylon Tea and Coconut Estates	500	—	—	...
Castlereagh Tea Co., Ltd.	100	...	85	...
Ceylon Hills Estates Co. Ltd.,	100	—	—	—
Ceylon Provincial Estates Co. Ltd.	500	490	500	..
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	—	75	—
Clyde Estates Co., Ltd.	100	...	—	--
Doomoo Tea Co., of Ceylon Ltd.	100	...	62,50	—
Drayton Estate Co., Ltd.	100	...	..	
Eila Tea Co., of Ceylon, Ltd.	100	..	40	40
Estates Co., of Uva, Ltd.	500	210	250	—
Gangawatta	500	—	—	..
Glasgow Estate Co., Ltd.	500	—	940	940
Great Western Tea Co., Ltd.	500	..	—	—
Hapugahalande Tea Estate Co.	200	—	—	..
High Forests Estates Co., Ltd	500	..	575	—
Do part paid	400	—	...	—
Horekelley Estates Co., Ltd.	100	—	..	—
Kalutara Co., Ltd.	500	—	250	—
Kandyan Hills Co., Ltd.	100	...	40	—
Kanapediwatte Ltd.	100	—	85	—
Kelani Tea Garden Co., Ltd.	100	—	—	—
Kirklees Estates Co , Ltd.	100	—	120	...
Knavesmire Estates Co., Ltd.	100	—	60	—
Maha Uva Estates Co., Ltd	500	—	400	—
Mocha Tea Co., of Ceylon, Ltd.	500	—	..	...
Nahavilla Estate Co., Ltd.	500	—	300	—
Neboda Tea., Co. Ltd	500	..	500	—
Nyassaland Coffee Co. Ltd	100	—	—	..
Ottery Estates Co., Ltd	100	—	—	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co., Ltd.	100	—	100	—
Pitakanda Tea Company	500	—	—	--
Pine Hill Estate Co., Ltd.	60	35	37·50	—
Putupaula Tea Co., Ltd.	100	—	—	..
Ratwatte Cocoa Co., Ltd.	500	—	250	—
Rayigam Tea Co. Ltd.	100	—	42·50	...
Roeberry Tea Co., Ltd.	100	..	60	...
Ruanwella Tea Co., Ltd.	100	—	30	—
St. Heliers Tea Co., Ltd.	500	—	500	...
Talgaswela Tea Co., Ltd.	100	—	35	...
Do 7 per cent Prefs.	100	..	70	..
Tonacombe Estate Co., Ltd.	500	..	325	...
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	...	200	...
Upper Maskeliya Estates Co. Ltd.	500	—	450	—
Uvakellie Tea Co., of Ceylon, Ltd.	100	--	65	—
Vogan Tea Co., Ltd.	100	50	...	50
WanarajahTea Co.,Ltd.	500	..	—	—
Yataderiya Tea Co., Ltd.	100	—	300	—

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	..	30	..
Bristol Hotel Co., Ltd.	100	..	130	125
Do 7 per cent Debts	100	105	...	—
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	..	225	225
Colombo Apothecaries' Co. Ltd.	100	137	50xd	—
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	85	..
Colombo Hotels Company	100	..	295	—
Galle Face Hotel Co., Ltd.	100	147·50	150	148·50
Kandy Hotels Co., Ltd.	100	...	125	..
Mount Lavinia Hotel Co., Ltd.	500	—	..	...
New Colombo Ice Co., Ltd.	100	—	210	—
Nuwara Eliya Hotels Co., Ltd.	30	..	27·50	—
Do 7 per cent prefs.	100	...	100	..
Public Hall Co., Ltd.	20	$12\frac{1}{2}$	14	—

LONDON COMPANIES*

Company	paid p. sh.	Buyers.	Sellers.	Transaction
Alliance Tea Co., of Ceylon, Ltd.	10	...	$8\frac{3}{4}-9\frac{1}{4}$	..
Anglo-Ceylon General Estates Co.	100	..	[illegible]5—45	..
Associated Estates Co., of Ceylon	10	..	$1\frac{1}{2}$—[illegible]$\frac{1}{2}$	...
Do. 6 per cent prefs.	10	..	4—6	..
Ceylon Proprietary Co.	1	...	$\frac{3}{8}-\frac{6}{8}$	..
Ceylon Tea Plantation Co., Ltd.	10	...	24—25	..
Dimbula Valley Co., Ltd.	5	..	$5\frac{3}{4}-6$	..
Do prefs.	5	..	$5\frac{1}{2}-6$	...
Eastern Produce & Estates Co. Ltd.	5	...	$4\frac{1}{2}-5$	..
Ederapolla Tea Co., Ltd.	10	...	7—10	...
Imperial Tea Estates Co., Ltd.	10	...	$4\frac{1}{2}-5\frac{1}{2}$	..
Kelani Valley Tea Assen., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	6—8	..
Lanka Plantation Co., Ltd.	10	..	4—5	..
Nahalma Estates Co.,Ltd.	1	—	nom	..
New Dimbula Co., Ltd.	1	...	$2\frac{3}{4}-3$	..
Nuwara Eliya Tea Estate Co., Ld.	10	...	$10-10\frac{1}{2}$	...
Ouvah Coffee Co., Ltd.	10	..	6—7	...
Ragalla Tea Estates Co., Ltd.	10	..	9—10	.
Scottish Ceylon Tea Co.,Ltd.	10	—	13—15	..
Spring Valley Tea Co., Ltd.	10	...	$2\frac{1}{2}-3\frac{1}{2}$	..
Standard Tea Co., Ltd.	6	..	$11-11\frac{1}{2}$	..
The Shell Transport and Trading Company, Ltd.	1	..	$2\frac{7}{8}-3\frac{1}{4}$	.
Uknwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	...	$6\frac{1}{2}-7\frac{1}{2}$	...
Do. pref. 6 o/o	10	...	$10-10\frac{1}{2}$	..

BY ORDER OF THE COMMITTEE.

Colombo, May 3rd, 1901.

* Latest London Prices.

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1896.	1897.	1898.	1899.	1900	Av of 31yrs.	1901
	Inch	Inch	Inch	Inch.	Inch.	Inch.	Inch.
January ..	2·92	3·81	2·32	6·98	3·72	3·24	11·91
February ..	0·35	1·68	1·98	2·78	0·63	1·89	3·55
March ..	5·64	2·66	4·21	0·88	3·71	4·75	5 12
April ..	5·93	10·97	22·81	6·66	15·12	11·43	8·71
May ..	9·31	8·30	5·80	17·73	10·63	12·04	0*
June ..	8·27	10·14	10·94	9·23	7·83	8·35	
July	2·85	5·24	6·15	1·11	6·77	4·30	
August ..	6·35	9·09	0·97	0·62	7·35	3·79	
September	10·99	4·58	6·90	1·48	4·00	4·93	
October ..	16·78	4·71	20·60	12 99	9·47	14·36	
November..	19.81	11·66	17·38	8·58	9·25	12·55	
December..	11·76	8·89	3-05	4·44	5·20	6·35	
Total..	101·06	82·73	103·11	73·48	83·68	88·03	29·29

* From 1st to 2nd May 0 inch, that is up to 9-30 a.m. on the 2nd May —ED. *C.O.*

FLOWERS WITH PERFUMES.—A German botanist is said to have discovered that out of 4,300 species of flowers cultivated in Europe only 420 possess an agreeable perfume. Flowers with white or cream-coloured petals are more frequently odoriferous than others. Next in order come the yellow flowers, then the red, after them the blue and finally the violet, of which only thirteen varieties out of 308 give off a pleasing perfume. In the whole list 3,880 varieties are offensive in odour, and 2,300 have no perceptible smell, either good or bad.—*Journal of Horticulture*, April 11.

EUCALYPTUS IN LONDON.—Mr Colenso Blogg, of Blogg Brothers, Melbourne, who has returned from his European trip, reports that in spite of the competition of Algerian and other eucalyptus oils the demand for Australian oil is increasing, and the price is rising, but it was evident to him that only oil of a high eucalyptol content could be sold. The result probably will be that inferior oils will be kept in Australia, and the best oils will be sent away, so that as in many other places the country of produce will be worse served than the distant market.—*Chemist and Druggist*, April 13.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 29th April, 1901.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·50
Do. dull medium do. R1·30
Special assortment, 0 and 1 only do. R2·00
Seeds do. R1·40

CINCHONA BARK:—
Per unit of Sulphate of Quinine 13c—1½ to 3 o/o.

CINNAMON :—
Ordinary assortment per lb. 56c.
Nos. 1 and 2 only per lb. 61c,
Nos. 3 and 4 only per lb. 53c.

CINNAMON CHIPS :—
Per candy of 560 lb R87·50

COCOA :—
Finest estate red; unpicked per cwt R55
Medium do do R52
Bright native, unpicked and undried R49
Ordinary do do do R43
} Market dull.

COCONUTS—(husked).
Selected per thousand R48·00
Ordinary ,, R38·00
Smalls ,, R29·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R75·00
Do in bags None

COCONUT (Desiccated).
Assorted all grades per lb 16c

COCONUT OIL—
Dealers' Oil per cwt R15·50.
Coconut Oil in ordinary packages f. o. b. per ton R337·50.—Business done.

COFFEE.—
Plantation Estate Parchment on the spot per bus.—None.
Plantation Estate Coffee f.o.b. (ready) per cwt.—None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—50c

COPRA—
Boat Copra per candy of 560 lb. R48·50
Calpentyn Copra do do R48·50
Cart do do do R45·00
Estate do do do R51·00

CROTON SEED per cwt—None

EBONY—
Sound per ton at Govt. depot—R230. As per last Govt. sales of Dec 3rd.
Inferior R155.—As per last Govt. sales of Dec 3rd.

FIBRES—
Coconut Bristle No. 1 per cwt R10·50
Do ,, 2 ,, None
Do mattress ,, 1 ,, 4·00
Do ,, 2 ,, 3·00
Coir Yarn, Kogalla ,, 1 to 8 18·00
Do Colombo ,, 1 to 8 16·00
Kitool all sizes ,, None
Palmyrah ,, None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R550
Ordinary lumps do 425
Chips do 325
Dust do 180
Do (Flying) 125
} Slightly more enquiry.

SAPANWOOD— per ton None.
SATINWOOD (ordinary) per cubic ft. None.
Do do per cubic ft. None.

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	54	45	36
Orange Pekoe do	50	41	33
Pekoe do	44	34	29
Pekoe Souchong do	38	27	24
Pekoe Fannings do	30	26	24
Broken mixed—dust, &c	24	21	20

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1900 AND 1901.

COUNTRIES	Black Tea. 1901 lbs.	Black Tea. 1900 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.	Cinnamon Bales lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1901 cwt	Coconut Oil. 1900 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts No.	Plumbago. 1901 cwts.	Plumbago. 1900 cwts.	Fibre. cwts.	Ebony. cwts.
To U K. ..	2392951	36381598	1763	..	1763	21693	95807	289622	108456	45504	80445	3288	1722641	...	4171470	45014	30959	20323	899
,, Austria ..	16975	2569	..	..	...	...	..	5000	5600	772	2220	10324	31201	.	..	...	..	...	...
,, Belgium ...	5025	1880	53	..	53	...	..	20800	34992	1994	125	16720	96390	6625	59650	4003	13628	6778	...
,, France ..	117476	63632	4	...	4	..	1469	17900	3920	...	..	10567	2240	...	406	..	..	246	..
,, Germany ..	83190	108551	..	..	..	934	8003	135100	182308	..	3634	16146	274230	14822	312855	12494	21772	5806	1967
,, Holland ..	11174	2000	...	..	..	...	..	1000	17920	..	...	..	6500	..	..	..	919	569	...
,, Italy ..	5085	2433	..	..	..	..	...	27500	16800	499	..	..	..	...	2995	..	...	...	...
,, Russia ..	2901036	2315235	..	..	...	48	764	...	..	...	..	14210		..	..	1474	...	..	..
,, Spain ..	...	11970	..	...	..	..	..	50300	22400	..	..	...	10370	..	..	...	..	..	..
,, Sweden ..	17727	35235	...	..	..	..	..	..	..	199	...	...	6450	..	..	..	105	..	...
,, Turkey ..	13266	7061	...	..	...	...	..	..	...	..	...	...	...	...	...	...	...	..	..
,, India ..	528828	202861	59	..	59	..	629 5	..	.	23077	15016	375	..	...	265900	158	69	..	..
,, Australia ..	5922743	4669260	1127	..	1127	75	...	1800	18144	94	83	..	293251	...	..	132	554	1709	..
,, America ..	924690	1733022	27	..	27	960	696	72100	34553	7007	26253	1	591833	...	..	56995	65345	934	..
,, Africa ..	76096	58633	..	..	..	..	196	..	..	76	...	..	1600	..	394785	...	...	...	..
,, China ..	500490	276023	8	...	8	149	1034	5000	..	707	520	..	65000	..	..	..	..	..	...
,, Singapore ..	40676	30776	..	..	...	646	..	4700	..	...	..	...	..	...	...	..	...	96	...
,, Mauritius ..	8590	...	..	..	..	...	..	..	..	..	..	...	..	..	...	..	..	..	...
,, Malta ..	120630	154053	..	...	..	..	..	...	..	..	..	..	...	..	..	..	..	..	..
Total export from 1st Jan. to 29th Apr 1901	45229648	46056792	3041	...	3041	24505	170884	631322	445183	79929	128296	71631	3101706	21447	5208061	120270	133344	36960	2866

MARKET RATES FOR OLD AND NEW PRODUCTS

(From Lewis & Peat's Fortnightly Price Current, London, April 17th, 1901.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	5½d a 6¼d
BEES' WAX, cwt.		
Zanzibar & Bombay White ,,	Good to fine	£6 a £7 10s
Zanzibar & Bombay Yellow ,,	Fair ,,	£6 5s a £6 17s 6d
Madagascar ,,	Dark to good palish	£6 10s a £7 5s
CAMPHOR, China ,,	Fair average quality	175s
Japan ,,	... .	185s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	?s 3d a 2s 4d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ...	1s 6d a 3s 9d
	Seeds ..	1s 11d a 2s 6d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ..	1s a 2s 9d
,, Mangalore ,,	Med brown to good bold	2s a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4½d a 4¾d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s a 45s
CINCHONA BARK.—lb. Ceylon	Ledgeriana Orig. Stem	3d a 5½d
	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	2⅜d a 4¼d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	10d a 1s 6d
2nds	,, ,,	9d a 1s 5d
3rds	,, ,,	8½d a 1s 4d
4ths	,, ,,	8d a 11d
Chips	,, ,,	2¾d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	4½d a 9½d
Amboyna ..	Dull to fine	4¾d a 5½d
Zanzibar and Pemba	Good and fine bright	4½d a 4¾d
	Common dull to fair	4¼d a 4⅜d
Stems ..	Fair	1⅜d
COFFEE Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 110s
	Middling to fine mid ..	80s a 90s
	Low mid. and low grown	
	Smalls	50s a 60s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to fine bold	35s a 40s
COCOA, Ceylon ,,	Bold to fine bold	80s a 100s
	Medium and fair	67s 6d a 75s
	Native	55s a 68s
COLOMBO ROOT ,,	Middling to good	12s a 22s 6d
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair .	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	25s a 35s
CUTCH ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	34s
Calicut, Cut A ,,	Good to fine bold	80s a 100s
B & C ,,	Small and medium	40s a 77s 6d
Cochin Rough ,,	Common to fine bold	32s a 38s
	Small and D's	30s a 31s
Japan ,,	Unsplit	29s a 31s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 55s
Turkey sorts ,,		50s a 75s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale	23s a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 90s
	Ord. stony and blocky	6s a 25s
KINO ,,	Fine bright	1s 6d a 1s 9d
MYRRH, picked ,,	Fair to fine pale	90s a 107s 6d
Aden sorts ,,	Middling to good	50s a 80s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	18s a 23s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 2d a 2s 6d
	Common to foul & mxd.	1s a 2s
Rangoon	Fair to good clean ...	2s a 3s
Borneo	Common to fine	1s a 2s 3d

	QUALITY.	QUOTATIONS
INDIARUBBER, *(Contd)* Java, Sing. & Penang lb.	Foul to good clean ...	8d a 3s
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 1½d
	Ordinary to fair Ball ...	1s 10d a 2s 6d
	Low sandy Ball ...	1s 3d a 1s 7d
	Sausage, fair to good ..	2s 6d a 3s 1d
	Liver and Livery Ball ..	2s 4d a 3s
Nyassaland	Fair to fine ball ...	2s 5d a 2s 9½d
	Fr to fine pinky & white	2s 6d a 2s 9d
Madagascar ,,	Fair to good black ..	2s a 2s 6d
	Niggers, low to fine ..	7d a 2s 3d
INDIGO, E.I.	Bengal—	
	Shipping mid to gd violet	3s 4d a 4s 2d
	Consuming mid. to gd.	3s a 3s 4d
	Ordinary to mid.	2s 8d a 2s 10d
	Mid. to good Kurpah	2s a 2s 8d
	Low to ordinary	1s 9d a 2s
	Mid. to good Madras	1s 9d a 2s 8d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras cwt	Dark to fine pale UG	6s a 7s
	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2s 1½d a 2s 6d
Bombay & Penang ,,	110's to 65's	11½d a 2s 1d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	4s a 5s 6d
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s 6d
OIL OF ANISEED ,,	Fair merchantable	5s 6d
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	4½d
NUTMEG ,,	Dingy to white	1½d a 3d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1s 0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ..	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	6d a 6⅛d
Singapore	Fair	6d a 6s 1-16d
Acheen & W. C. Penang	Dull to fine	5¾d a 6⅛d
PLUMBAGO, lump cwt.	Fair to fine bright bold	35s a 40s
	Middling to good small	2?s a 32s
chips	Dull to fine bright ..	10s a 20s
dust	Ordinary to fine bright	5s a 10s
SAFFLOWER	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD— Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	50s a 57s
SENNA, Tinnevelly lb.	Good to fine bold green	5d a 6d
	Fair middling medium	3½d a 4½d
	Common dark and small	¾d a 2¾d
SHELLS, M. O'PEARL— Bombay cwt.	Bold and A's; D's and B's; Small	£3 10s a £4 15s
Mergui ,,	Small to bold ..	£5 12s 6 a £7 10s
Mussel ,,	Small to bold ...	22s a 60s
TAMARINDS, Calcutta... per cwt.	Mid. to fine bl'k not stony	15s a 16s
Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL— Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	14s 6d a 24s 6d
TURMERIC, Bengal cwt.	Fair ...	28s nom.
Madras ,,	Finger fair to fine bold bright	22s a 30s
	Bulbs ..	18s
Do. ,, Cochin ,,	Finger ..	24s
	Bulbs ...	6s 9d a 7s
VANILLOES— lb. Mauritius 1sts	Gd. crystallized 3½ a 9 in	16s a 26s 6d
Bourbon 2nds	Foxy & reddish 4½ a 8 ,,	15s a 18s
Seychelles 3rds	Lean and inferior	8s a 13s
VERMILION lb.	Fine, pure, bright ...	3s a 3s 3d
WAX, Japan, squares cwt	Good white hard ...	33s 6d

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for May :—

Vol. XII.] MAY, 1901. [No. 11.

A NEW INDUSTRY FOR CEYLON.

THE output of Cacao in Ceylon is not very considerable; in 1900 the quantity exportedw as between 1,600 and 1,700 tons. But as regards quality of produce and market value Ceylon cacao, as the Americans would say, is always 'on top.' That only a very small proportion of Ceylon cacao duce is used in the manufacture of the prepared article can be easily proved by figures and it is therefore clear that a great deal of inferior cacao must enter into the composition of the preparations placed upon the market. But it is an open secret that a good many other ingredients assist in the production of the different brands of cacao powder and chocolate in their various forms, so that the concrete results of manufacture, as carried on on the Continent, are as a rule highly complex mixtures wherein the art lies in the mixing, and the perfection of that art in the concealment of the fact that anything but pure cacao (sweetened it may be with sugar) is used.

When the taste has been vitiated it is no easy matter to educate it to an appreciation of excellence or purity. Coffee, another of our tropical products, has been the object of approved adulteration, and a mixture of coffee with chicory was for a long time more highly appreciated than the pure article. But economical householders may be trusted to recognise before long what is a very clear fact, viz., that it will be cheaper for them to do their own adulteration, and that if there are virtues in the addition of starch to cacao powder (which is problematical) they can make the additions more economically themselves; while the chemist and the family physician may be trusted to complete the victory for the manufacturer of the pure article by reconciling the consumer to the slight natural bitterness of the cacao bean and the true "chocolate colour" which the mixer by his arts has converted into a "burnt sienna."

To Messrs. C. C. Barber & Co., of Grove Estate, Ukuwella, from whose plantations the best of Ceylon cacao reaches the London market, belongs the credit of having started the first factory in the island for the manufacture of cacao powder and chocolate. Their preparations have only just been placed on the Ceylon market, but long enough to secure the high appreciation of all those who have been looking for, and have now found, a pure article; and we have no doubt that the Company's produce has a big future before it outside the island. Prepared on the plantation itself, the raw material used is fresh, uncontaminated by the odours of the ship's hold and of warehouses on this and that side of the ocean, and free from must or rancidity—ready enough to attach any oily seed or preparation. With the saving of freight to and from the West, and crop at hand, the Company have peculiar facilities for turning out a cheap, pure and wholesome article which is bound to have a ready market and a large sale, results which the enterprise of the promoters only deserves.

OCCASIONAL NOTES.

An enterprising Sinhalese gentleman has made a trial shipment of Ceylon fruit (oranges, pineapples, plantains, cajunuts, &c.) to Perth, Western Australia, with a view to ascertaining the possibilities of carrying on a regular fruit trade between the two countries. With many details to be mastered the first trial naturally resulted in a deficit, but not to such an extent as to damp the enterprisng young man's ardour. With experience gained he means to make a second shipment before long, and hopes that in the absence of unavoidable errors and difficulties associated with the first trial, the second will give more promising results. We want more such enterprising men who, with some capital in hand, are anxious to turn it to good account by means of honest trade for the good of their countrymen as well as their own advantage, instead of frittering it away indangerous and reprehensible speculation.

A direct trade in pineapples has now been established between Jamaica and London. We read of a consignment of 500 packages having been received in fine condition and fetching from 1*s.* 6*d.* to 2*s.* 6*d.* per pine. The favourite pine in the London market is the smooth Cayenne, and it is said that the chief reason for this fact is not so much its superior quality but its good looks, size, fine colour and handsome top, the weight ranging from 3 to 8 lbs., the average 4 to 6 lbs. Larger fruit, it is said, are not required in England. Another important fact about this particular variety is that it reaches the market in better condition than any other. Of course a sweet pine is essential for a good market.

The Royal Botanic Gardens Circular, No., 15 has the following note regarding the pine referred to:—"Kew pine" (smooth Cayenne). The best variety for generel cultivation, being a robust grower, usually bearing in the low-country in 6 months from time of planting suckers. Fruit grow to a large size, sometimes weighing over 20 lbs. (exceeding the record for other countries); is very juicy and of a delicious flavour. Leaves not spiny. Suckers of this pine are obtainable from the Peradeniya Gardens at R1·50 per doz.

The proposed Indian Dairy and Agricultural Supply Co. of India is what the Americans would call "a big thing." Among the numerous objects—for the enumeration of which our space is far too limited—are the establishment of dairy farms throughout India and Burma, both for the military and the public, and of breeding depôts, the supplying of milch and ploughing cattle, to teach Dairy Farming and Agriculture, the carrying on of experiments in feeding, &c., cultivation of fodder, the introduction of sterilizing and pasteurizing, the supplying of fodder to Government and the public, the introduction of the co-operative system in dairying, the organising of annual Agricultural and Cattle Shows, the supplying of stud bulls, &c., &c. The Company's operations will be managed by a Board of seven Directors, and the working staff will consist of a Managing Director, two Assistant Directors, one Agricultural and Dairy expert, one Vet, one Medical Officer, one Engineer, one Treasurer and Agent, one Secretary, and such clerical and other staff as may be necessary. Among other details is the arranging with the railway companies for suitable refrigerating vans for conveying milk. The Capital required is estimated at R300,000.

We hear that a local Dairy Company is about to include the manufacture of ice and ærated waters among its operations, which would seem to indicate that their constituents are as solicitous in the matter of "pure milk" as of "iced sodas."

The *Exchange* has the following interesting figures referring to sugar: The English are the largest consumers of sugar in the world. They import 1,500.000 tons every year, equal to 30 % of the world's output of beet sugar. Their consumption of sugar is equal to 86·151 lbs. per head of the population per annum. The next largest consumers are the United States. On the consumption there is only 65·49 lbs. per head. In Denmark the demand falls to 43·65; Switzerland was 42·95 lbs.; France 28·24 lbs.; and Germany only 27·141 lbs., although she is the chief producer of beet sugar. Sugar is thus used more freely in England than elsewhere. The English are the Jam-makers of the world, but the manufacturers import all their sugar and also some of their fruit; and are simply mixers and boilers of the commodity they export to all corners of the earth.

The acme of perfection in the orange world, is as the *Planters' Monthly* of Hawaii remarks, the "Navel." Its superiority over any other variety is admitted all the world over. We have in a previous issue related to the story of the origin of this wonderful fruit.

Dr. Woodbridge, a well-known Agriculturist in California, has succeeded in producing a "Navel" lemon absolutely seedless, and possessing the characteristics and advantages of the orange after which it is named, for he has named the new lemon the California Naval lemon. Besides the entire absence of seed, the texture and thinness of the rind strongly remind one of the model orange which it resembles even to the navel-mark. Here, however, the resemblance stops, for the acidity runs very high.

A king-coconut seedling planted in the grounds of the School of Agriculture on "Diamond Jubilee Day" has already produced its first flower. Taking the age of the seeding when planted at 6 months, it has taken a little under 4½ years to flower.

Mr. D. O'Connor, writing on mangoes in the *Queensland Agricultural Journal*, says:—"If mangoes are not the most extensively grown and abundant fruit in Queensland, they soon will be . . . Almost every one having a garden goes in for mangoes . . . . As an evidence of the in-

creasing appreciation of choice fruit by growers, a seedsman has during the last three years realized 2*s*. 6*d*. each for some fine specimens." Happy seedsman! How the Ceylon fruit seller envies you.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF APRIL, 1901.

1	Monday	Nil	18	Thursday	·79
2	Tuesday	Nil	19	Friday	Nil
3	Wednesday	·02	20	Saturday	·16
4	Thursday	·27	21	Sunday	·37
5	Friday	·01	22	Monday	·34
6	Saturday	·52	23	Tuesday	·88
7	Sunday	·60	24	Wednesday	·83
8	Monday	1·02	25	Thursday	·03
9	Tuesday	·26	26	Friday	·04
10	Wednesday	Nil	27	Saturday	2·12
11	Thursday	Nil	28	Sunday	·37
12	Friday	Nil	29	Monday	Nil
13	Saturday	·09	30	Tuesday	Nil
14	Sunday	·14	1	Wednesday	Nil
15	Monday	·05			
16	Tuesday	Nil			
17	Wednesday	Nil		Total..	8·91
				Mean..	2·97

Greatest amount of rainfall in any 24 hours on the 27th, 2·12 inches.

Recorded by C. DRIEBERG.

THE ROYAL BOTANIC GARDENS.

The work of the Botanical Department in Ceylon now comprises a good deal of what bears directly on the Agriculture of the country, and in the absence of a distinct Agricultural Department, this circumstance must be welcomed. The staff of the department has been considerably augmented within the last year or two, and now includes a botanist, an entomologist, a mycologist, and a chemist, besides a temporary assistant who devotes himself to the detailed study of some one particular subject.

Among the more interesting experiments and researches referred to in the annual report of the Director and his staff for last year are (1) the analysis of the black and variously mottled timbers of the Diospyros family, whereby the cause of the discoloration is said to have been determined, while experiments have been initiated with the object of inducing the blackening of the timber in the peripheral sapwood; (2) the efforts (which are reported to promise success) to graft the mangosteen (*Garcinia mangostana*) on the Cochin goraka (*Garcinia xanthochymus*) a more hardy species; (3) the partly successful attempts to propagate the nutmeg by layering and so secure a certain means of raising female trees; (4) the bringing together of over 23 distinct varieties of plantains; (5) the study of the pollination of the cacao tree with a view to produce an increased fertilisation; (6) the attempt to raise cacao plants from cuttings, which, if successful, will be the means of perpetuating the characters of special trees. All such work as is referred to above must help to give us an amount of definite information, which the individual grower is not in a position to ascertain for himself, but which should considerably help him in the practical work of cultivation.

The reports of the Entomologist and Mycologist shew that a great deal of work has been done, and the fact that the advice of these experts is always available must be very consoling to the cultivators of crops.

We have no doubt that the Botanical Department will continue to extend its sphere of usefulness each year under its present Director and his able staff of assistants.

SOME FACTS AND FIGURES ABOUT COW'S MILK.

In a report of investigations made at the New Jersey Agricultural Station, an average analysis of cow's milk is recorded which may be accepted as a guide and useful information on Dairying subjects; but, as the *Cape Agricultural Journal* (to which we are indebted for a summary of the report) remarks, the average, it is to be presumed, is that of the milk of profitable cows:—

Milk is not a product of fixed composition. But the total amount and the proportions of the constituents contained in it are influenced by a variety of conditions, the chief of which is, perhaps, the individuality of the cow. Breed, food, age, health, period of lactation, and time and season of milking are also determining factors. Of the constituents of the dry matter of milk, viz., butter-fat, proteids (chiefly casein and albumen), sugar and mineral salts, fat seems to vary more than the others, though each may vary considerably. Normal milk may be said to contain on the average the following amounts and proportions of the different constituents, also weights in a gallon of 10 lb. 2 oz. :—

	Per cent.	oz.
Water ...	87·50	141¾
Total solids ...	12·50	23¼
Butter fat ...	3·50	5¾
Casein and albumen	3·75	6
Milk sugar ...	4·50	7¼
Ash (mineral salts)	·75	1

This average composition has served as the basis in both State and City Governments for the enactment of laws or ordinances, the purpose of which is to prevent watering, skimming, and other forms of adulteration. The standards adopted seldom require more than 12·5 per cent total solids and 3 per cent. of fat. Thus, what may be regarded as the average quality of milk usually exceeds the limit fixed by the various laws, particularly in fat contents.

Normal, or whole milk, will, however, show wide variations in both directions from this standard; that is, it may be very much richer or very much poorer.

The influence of breed is also very marked, so much so that dairy breeds are classified into milk and butter breeds; that is, those which give a larger quantity of poorer quality, and those which give a smaller quantity of a higher quality. The milk from animals which naturally produce large quantities shows average quality, and that from

animals which produce a smaller quantity shows a quality considerably above the average. That the contents of fat in milk varies more than the other constitueuts, is also distinctly shown in the investigations of milk from different cities.

The food is au importont factor affecting the quality of milk, not always appreciated. A specific breed possesses certain capabilities, the values of which are dependent in large measure upon the food that is supplied. Owing to the inherent tendency of the animal to produce milk of a definite composition, food may not exercise a positive and immediate influence in improving the quality of the milk; still, a cow cannot reach her normal capacity in this respect unless she is supplied with sufficient food.

The age and health of the animal also affect the composition of milk. Young animals produce richer milk than older ones, though much depends upon health, vitality and vigour. The period of lactation, that is, the length of time which has elapsed since the birth of the calf, also exercises an influence upon the composition of the milk. The milk flow is usually greatest, and the milk poorest, soon after calving; as the period increases the flow gradually falls off, and as a rule the quality improves. However, the influence of all these factors is not so marked in mixed milk as in the milk of individual animals.

The following notes give an idea of the variation in the composition of milk:—

In one series of analyses the variatiou in total solids ranged from 11·82 to 14·03 per cent, a difference of 2·21 per cent; the variation in fat from 2·99 to 4·57 per cent, a difference of 1·58 per cent. In the case of another series of samples, the total solids ranged from 10·81 to 14·86 per cent, a difference of 4·05 per cent; the variation in fat ranged from 2·56 to 6·92 per cent, a difference of 4·36 per cent.

In the third case the percentage of solids ranged from 10·64 to 13·96 per cent, a difference of 3·32 per cent; the fat from 2·97 to 4·80 per cent, a difference of 1·83 per cent.

In the last series the range in total solids was from 12·06 to 16·55 per cent, a difference of 4·49 per cent; the fat from 3·28 to 7·76 per cent, a difference of 4·48 per cent.

Among these samples was one in which the content of total solids and fat was abnormally low, another contained an undue proportion of fat.

On the whole the samples are reported as extremely good, the average composition of all being total solids 12·97; fat 4·13; casein and albumen 3·37; sugar 4·75; ash ·72 per cent.

A CHEAP WAY OF COOLING.

The *Rural World* describes the cheapest and best method of cooling, particularly suitable for milk, but also available for other purposes as well, by means of sal ammoniac and saltpetre (ammonium chloride and nitrate of potash respectively).

Three pounds each of these ingredients dissolved in a gallon of water will reduce the temperature of a gallon of milk by about 40 deg. F., if the full cooling effect is conveyed to the milk. Here are the directions for use:—The salts, which must be quite dry and ground to a fine powder, are weighed out, put into the measured quantity of water, and stirred slowly about until completely dissolved; the crystals, in going into the liquid form, absorb heat and produce an intensely cold solution. This can be used for cooling purposes, and afterwards, by evaporation, the crystals can be re-obtaiued for use again. Hence, with care there need only be a trifling loss, and the same portion of cooling salts can be used for an indefinite period. When cooling milk by means of freezing mixtures it will be found most economical to reduce the temperature first as much as possible with water only, and then to complete the cooling by means of the cool solution. Thus, to begin with, the milk in the bucket as it comes from the cow will be about 95 deg., and by immediately running it over a cooler through which cold water was flowing it might be cooled down to 75 deg. By then passing it a second time over the cooler through which the cold solution was flowing it could be cooled form 75 deg. down to 55 deg. Thus only half the cold solution would be ueeded that would have to be used if the whole of the cooling were done by its means. In this way 3 lb. of sal ammoniac, 3 lb. of saltpetre in one gallon of water would then cool two gallons to the desired temperature. At this rate, to cool 50 gallons 75 lb. of each salt would be needed; and as it would be advisable to have two lots, one to be evaporating and drying while the other was in use, 150 lb. of each would be required, or say $1\frac{1}{2}$ cwt. The salts, which, as before stated, must be powdered and quite dry, are best dissolved in a cask or wooden tub, covered with a lid at the top, provided at the bottom with a tap, and wrapped around and nuderneath with 6 in. or 8 in. of straw or thatching to preveut loss of cold. The evaporation of the solution after it has been used should be done in a shallow pan or tray. A number of kerosene tins cut in half lengthwise and provided with handles will do if nothing else can be obtained. Then place over a slow fire, so that the water will evaporate gently without boiling, loss of salt by splashing or spurting being avoided. When the material is evaporated nearly to dryness, the hot, somewhat pasty mass should be dug out of the pan and spread out on clean wood or iron to finish drying in the sun or in some warm, dry place. When perfectly dry it should be powdered up ready for use.

DISEASES OF POULTRY—HOW TO TREAT THEM.

Fowl Cholera.—This is one of the greatest scourges of the poultry yard. Fortunately, it is not of frequent or general occurreuce. Uncleanliness and overcrowding are great contributors to this disease, but we have seen score of fowls die of cholera on our farm, where th birds had the whole farm to roam over and roost

at night in the open air with only a shelter of bark over their heads. There is practically no cure for the disease.

Bronchitis.—Young chickens often develop this disease in wet weather, which can generally be cured, if taken in time, by removal of the affected chicks to warm quarters and feeding them on soft food only, with mustard, ginger, or hot spice added to it. Give them also a tea-poonful of glycerine twice a day.

Roup.—Roup is one of the highly contagious diseases, and is mostly communicated to healthy birds by the medium of the drinking trough. One sick bird will by this means infect a whole flock. The disease is easily recognised, as the bird's head swells and a foul discharge proceeds from the eyes and nostrils. When the disease has made great headway, it is safest to kill the bird, because a disgusting fungus has grown in the throat, giving rise to the term "diphtheric roup." It is then very dangerous and is communicable to children. The remedies are given in most publications devoted to poultry. Isolate the affected birds; disinfect all their roosts, nests, and houses; destroy or at least thoroughly cleanse with disinfecting fluid all drinking and feeding utensils, and for some time afterwards add a little Stockholm tar to the drinking water. As for the affected fowls, bathe their heads frequently with hot water and Condy's fluid. Use a syringe to clean the nostrils and throat, injecting a solution of bluestone and warm water, sufficient bluestone to turn the water pale-blue. Be sure to prevent the bird swallowing any quantity of this as it is a poison. On first observing the symptoms of roup, give the bird a dose of Epsom salts. Afterwards the best treatment is a pill containing two grains of quinine, morning and night. The only certain way to prevent the reappearance of disease is to kill the affected birds and thoroughly cleanse and disinfect the house and runs.

Scaly Legs.—The cause of scaly legs is a kind of mite which burrows into the skin and causes white scales to appear. Some recommend kerosene as a remedy, but this is too severe; birds often become lame from its application. The best way is to soak the legs in warm water for five minutes, and then rub them with a stiff brush to break the scabs. Then rub in a mild arsenical wash, or sulphur ointment made of ten parts lard, three parts sulphur, and one part crystallised carbolic acid. Usually one application will suffice, and a cure will be had in three or four days.

Lice.—Fowls are infested by four genera and about twenty species of bird-lice. The best treatment for the bird is the dust bath and thorough spraying with powdered sulphur and tobacco dust for the house. Here a hot kerosene emulsion is most effective. Thoroughly spray all the roosts and boxes. Remove the droppings at least once a week. Lice breed in the droppings. The dust bath should be made either in a hollow in the ground or in a roomy enclosure made of three sheets of galvanised iron. Put a quantity of dry road dust in this, mixed with wood ashes and a little tobacco dust. The object of the bath is to destroy the insect parasites. As these do not breathe through the head but through the pores in the body, the dust chokes the pores and the insects die.

Gapes.—The gape-worm (*Syngamus treachealis*) is the most destructive of all the parasites of poultry. It infests the windpipe and bronchi of most land birds, but never of water fowl. The symptoms are the well-known gaping cough or sneeze. The bird seems about to choke.

Treatment.—First remove all the healthy birds to some other place; then kill all the badly infested birds and burn them. If you bury them, earthworms will find and eat the eggs of the parasite and convey the disease to other fowls. Then thoroughly disinfect the pens and yards by sprinkling with a diluted solution of sulphuric acid (two or three pints to 25 gallons of water). If acid is not procurable, use kainit or air-slaked lime, and dust the yards liberally with it. Then give one teaspoonful of turpentine and one of assafœtida in a warm bran mash to each 25 birds A pill of camphor, the size of a wheat grain, pushed down the throat has often given good results. Another good remedy is to remove the fluff from a small feather, except the tip. Moisten this with turpentine or kerosene, and carefully push it down the windpipe, twisting it round. It will kill all the worms it touches, but cannot reach those in the lower bronchial passages. Turpentine and assafœtida in the food soon load the fowl's breath with their fumes, and so kill all the worms in the lower as well as in the upper passages. For drink, give the birds a solution, of salicylic acid—one-third ounce to a quart of water.—*Queensland Agricultural Journal.*

[We have succeeded in stamping out fowl-cholera by the liberal external use of Jeye's disinfectant and giving the birds camphorated water, *i.e.*, drinking water in which a piece of camphor is kept soaking.—Ed. *A.M.*]

BACTERIA AND THE DAIRY.

(*By H. Potts, Dairy Expert, Department of Agriculture, Victoria.*)

(*Concluded.*)

Milk from a healthy cow, and taken under suitable conditions of cleanliness, is free from germ life. During the process of milking, as daily practised at our cow sheds, organisms of various kinds fall into the milk through the medium of the germ laden dust of the shed, the cow's body, the dirty clothes or hands of the milker, the swish of the cow's tail, or the invisible dirt left in the bucket. The most common variety in a cowshed is the bacillus *Deilus lacticus* or lactic acid producing bacteria. They are single cells rodlike in shape, and so small that it requires 20,000 to form a line an inch long, or about 400,000,000 to cover a penny postage stamp, and hence invisible to the naked eye. Milk is a most suitable media for their propagation. Of necessity they must be provided with three conditions to encourage their growth—suitable food, moisture, and temperature. In milk as it leaves

the cow's body they secure these requirements in the most favourable form. Bacteria are vegetable cells and absorb food in like manner to the cells of higher plant life. On reaching the milk they attack the milk-sugar, break it down so as to secure the oxygen associated with it. They disturb the chemical character of the sugar, and through their agency release lactic acid or sourness, carbonic acid gas, and a little alcohol.

After milk is allowed to stand it becomes increasingly sour. This is due to the lactic acid germs, each of which is contributing its quota to the sense of sourness evolved. A study of the germ shows that when immersed in milk the heat maintained at blood or body temperature, they increase by fission, and this is observable every half-hour. This one germ will split in half at the end of the first half-hour, in another it is four, again eight, 16, 32, and so on in progression, and at the end of ten hours this single organism has increased to over a million. To the proper control and development of this family of organisms we are indebted for the correct flavour and other desirable characteristics in butter and cheese. Most organisms, however, may be air dried, and putrefactive germs becoming associated with dried masses of decaying vegetation, stagnant water and drainage, or animal excrement. These are carried about on dust, and contaminate food products. In milk, the milk sugar, casein, and mineral salts provide them with food, and they propagate in similar ratio to the desirable forms, but emit taint, produce false flavors and objectionable odors. These we have to understand and control. It is known that most organisms cease to multiply or propagate at 50 degrees F. From this forward the multiplication increases, where food and moisture are ample, to 98 degrees Fah., when the maximum point of propagation is reached. A gradual decline then ensures until we reach what is known as the pasteurising point, viz., 157 degrees F., when the bacteria die. Organisms, such as the lactic acid series, increase by fission, and hence are readily controlled by heat. Other forms, and particularly the putrefactive series, increase by the formation and shedding of spores or seeds, which often resist high temperature, even boiling in water for several hours. Such abnormal fermentations as we get in milk, denominated false curdling, thinny, stringy, bitter, blue, red milk, as well as milk giving off gases, bitter in flavor, and tainted, may be credited to the invasion or presence of peculiar species of micro organisms, as a rule the result of dirty practices at the milking shed, filthy surroundings, impure storage, and other causes at the source of supply. To prove that milk is absolutely free of germ life, and that bacteria produces sourness and creates the fermentative changes in milk, Pasteur's brilliant successor, Duclaux, took a healthy heifer that he milked under strict methods of bacteriological cleanliness into a sterile flask. The precautions observed were such as to ensure the exclusion of germ life from any external source. The flask was hermetically sealed and kept for four years. The only change observable was the rising of the cream. The bottle or glass was then broken, and it was found the milk was as sweet, sound, and as pure as when it left the heifer's udder. Thus Duclaux conclusively demonstrated the contention of bacteriologists that milk is free from germs in the true udder, and to the introduction of germ life is due the fermentative changes. All bacteria possess in a more or less degree mobile power, chiefly through the use of flagelloe. In form they are found as rods, spherical bodies, or spiral.

We apply the knowledge of germs to everyday life in the dairy, where the aim is to suppress dirt and dust. Cleanliness and coolness are the watchwords to be ever remembered by individuals who are associated with every phase of the industry from the milking of the cow to the consumer's table. The cows should be keenly scrutinised at all times for symptoms of ill-health on the first symptoms of which appearing they should be isolated. This applies with equal force to the milker who may suffer from contagious skin or other forms of diseases. Cow and milker are equally dangerous to the consumer's health if diseased. The cows after being leisurely driven to the sheds and quietly bailed up ought to be groomed, *i.e.*, the belly brushed, udder and teats washed and all wiped with a damp cloth. The milker ought to wear clean clothes, have clean hands and finger nails, the latter well pared. A clean well scalded bucket is essential. The cow's teats are divided into two chambers, an inner and an outer, the former being controlled by the cow through a sphincter muscle. This completely shuts off the inner chamber from invasion by bacteria. The outer chamber is open to invasion through the teat opening. After each milking there remaind in this part of the teat a small quantity of milk. On returning to the paddock the cow, when lying down, creates a suction in the udder by breathing, which causes the milk to ooze from the teat. This communicates the putrefactive and other objectionable forms of organisms on soil, grass and cows' body. They float into the interior of the teat, where suitable conditions of moisture, temperature, and food prevail, with the result that at the following milking the chamber is swarming with hostile forms of bacteria, and these are milked straight into the bucket or over the milker's dirty hands first, there to propagate and impregnate the pure milk, which follows with taints and other milk disorder. To obviate this, the first tablespoonful from each teat should be kept separate, scalded, and sent to the pigs.

Steam and boiling water are acknowledged as most valuable cleansing and disinfecting agents, yet their application proves insufficient at times. In such cases contamination could be rendered nugatory by a process long followed by housewives, viz., the use of a boiling solution of common washing soda. Scientific experiments have been conducted with resistant forms of germ life, and the most obstinate we know are those which create that terrible disease, anthrax. The spore of this bacillus will resist boiling water and steam for hours, but it instantly dies on being immersed in a half per cent of boiling solution of soda. All spores are thus controlled and dealt with. When

the housewife adds 1 lb. of common washing soda to 20 gallons of boiling water, and applies it hot, she is using one of the most powerful germicides and disinfectants we possess. In all cleansing operations relating to dairying, this germicide, where possible, should be used, followed by rinsing the utensils or vessels with water that has been recently boiled.

Flies are a constant source of bacterial invasion to milk. They convey on their wings and feet innumerable organisms, and generally of a very undesirable class. Potable waters and methods of filtration fail to provide a germ-free water. The filters in ordinary use are shown to be faulty; dripstone, charcoal and other forms were proved to pass pathogenic germs, and hence were useless in preventing typhoid and other germs invading the body. The only filters proved to be reliable were those made of a special isinglazed porcelain with a certain density, and the filtering process only made available by means of high pressure. Filters, such as the Abbott, have been submitted to rigid bacteriolgical tests, and found to supply a germ-free water.—*Statics, Farm and Dairy.*

THE HONEY BEE—ITS LIFE HISTORY.

(*Concluded.*)

THE DRONE.

The function of the males is solely that of fertilising young queens. The excessive number of drones always present in a strong colony during the summer has been a puzzle to naturalists and still more to bee-keepers. By some they were considered defenders, others maintained that they assisted in keeping the young brood warm, and others again believed them to be water carriers, and that they also probably assisted in ventilating the hive. The fact, however, that they lack the defensive organs of the other bees—the sting—makes the drones quite harmless. And as regards keeping the brood warm, this supposition falls to the ground, because they appear mostly in summer when the brood does not require to be constantly covered. During early spring when warmth is most needed in the hive they are generally not present, or only in the larvæ stage, and require external warmth themselves; but towards autumn they are, as a rule, driven out and perish. Except when a colony should become queenless late in the season, the drones are spared and may at times even be allowed to live through the winter. That part of their function is to provide water or keep the hive ventilated is likewise a mere supposition. In fact, when in the hive the drones do nothing but eat, most of the time allowing the workers to feed them. For what purpose, then, are so many as sometimes over two thousand produced by a vigorous colony? It is all important that the young queen should be fertilised soon after she becomes mature, and as the act of coition must take place while on the wing, and at a considerable height in the air, it is necessary that there should be many drones available to ensure her meeting one when issuing on her wedding flight. But another more important fact must be considered. When a young queen ventures out for a martial embrace she will, as likely as not, meet one of her brothers, under natural conditions, probably as a rule. This might lead to deteriorations of the race were it not that in the competition for her possession the strongest and swiftest has the best change to achieve the desire. To secure a prompt fertilisation by *natural selection* combined with *sexual selection* the large number of drones are provided. This view corresponds with the general law of nature. The importance of the drones is enhanced by their numbers. Probably no more than one out of upwards of a thousand copulates, but then his virility may assert itself for upwards of five years.

THE WORKER.

The name "worker," given to the great mass of bees found in a colony, is perhaps the most correctly and justly applied. It is in no way misleading like that of queen, and not derived from a mere peculiarity as that of drone (because the male, owing to the much greater expanse of wings, hums much louder than the rest when flying). The worker has to do everything except reproduce the race.* This they are unable to do owing to their aborted sexual organs, which has suppressed their sexual desires without impairing their love for the young. The queen produces the young, but cannot rear them, and this the workers do with a zest that is without parallel. They divide, so to say, with the real mother the labour and pleasure of maternal care. The welfare of their immature sisters absorbs their whole being. They toil incessantly for the young, and sacrifice, in fact, their lives for them in every sense of the word. Their work begins a few hours after they leave the cradle, and only ends with death. During the first ten days or so they tend the larvæ, seeing that everyone is supplied with the proper nutrition. For this they are best adapted at the early age of maturity, owing to some physiological characteristics. Whilst engaged in this duty they do not fly, except for a short period during the warmest part of the day, round about the hive getting exercise (play), and at the same time making themselves acquainted with their environments. In due course the sealing of the cells over the full grown larvæ has to be attended to, and during the progress of these various operations they cluster more or less thickly on the comb for the purpose of keeping the brood warm. All insects being cold-blooded, sufficient warmth can only be created by them through continued agitation. The bees staying at home engaged in the before-mentioned work are more particularly called "nurses."

Meantime the older bees, also called "foragers," are busy bringing pollen and honey, which is transferred to the nurses for immediate use, or stored in cells handy to the brood nest. These provisions are in several ways elaborated into food for the larvæ. To further liquify the honey

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* As the ovaries are not entirely absent but merely atrophied in the workers, some, under exceptional circumstances, are able to produce eggs. This abnormal phase will be discussed later on.

and to separate the agglutinated pollen grains considerable quantities of water are needed, which are brought to the hive as required. Feeding, moreover, is not merely needed for the development of the larvæ, but this task requires also to be extended to the queen and the drones, and particularly whilst the queen is laying she has to be provided with large quantities of a nitrogenous substance. During the period of her greatest fertility the weight of the eggs deposited per day amounts to more than three times that of the body of the queen. To enable her to balance this exhaustive process, she requires to be supplied with rapidly assimilable food. This the workers elaborate in their bodies and secrete in minute globules, through glands situated near the mouth. The constantly changing retinue which surrounds the queen when laying, escorts her for the purpose of supplying food to her. The addition and dimnution of food re-acts upon her laying power, and is entirely regulated by it. In order to stimulate their virility the drones also require to be fed with nitrogenons food. This the workers produce and supply in the same way as with the queen. and the early stage of the larvæ.

Another important duty is the building of the combs. Without these the young could not be reared nor food stored. When a swarm takes possession of a new home the first work is the construction of new combs, which sometimes proceeds with marvellous rapidity. After a few weeks, when young begin to crawl out, their cradles require to be cleaned and thoroughly smoothed inside, to receive another egg almost immediately. When thousaads mature daily many are kept busy with this work. Partly for protection against enemies as well as against draught, and to keep the light out, every chink and crack is plastered up. This is done with propolis, a resinous substance, gathered specially for the purpose. A number guard the entrance against intruders, and often combats occur to keep aggressors out of the hive. Everything of an obnoxious nature is carried out of the hive, or else imbedded under a wax and propolis covering. The sanitary, as well as the other duties, are under the control of the workers. Some are generally engaged fanning fresh air into the hive, which is done by vibrating the wings. In warm weather this is a very trying exertion, and at times nearly all the members of the colony require to be engaged in this work. The functions of the workers, as we have seen are, manifold. They have to build combs, caulk the hive, refit the cradles for the reception of new inmates, remove objectionable inmates, and sometimes fight them, ventilate the home, keep the brood warm, and feed the other inmates, whether larvæ, queen or drones. They hardly ever rest, for the feeding goes on at night as well as during the day. Moreover, their foresight or innate industry keeps them constantly engaged in storing provisions for future emergencies. All this labour takes their energy greatly, and during the busiest time of life, when plenty of honey and pollen is gathered, and consequently much brood is reared by them, they wear out rapidly. The life of the workers lasts on an average only forty days during the summer, but in times of inactivity continues up to four months and sometimes longer.

GENERAL ITEMS.

Reports reached us, writes the Editor of the *Cape Agricultural Journal*, of a new process for branding stock in New Zealand, which is said to be proving satisfactory in that Colony. It consists in the application on a wooden brand of a caustic which obliterates the hair without injuring the skin. It is stated that the cost of branding 100 cattle only amounts to 15*s*., which is fully compensated for by the sound skins put on the market. As cattle must be marked in some legible and indelible way, any method which may supercede the hot branding iron will prove of great advantage.

The uses of ground-nut oil are numerous, and it has been described as the most polymarphous of all oils, adapting itself to all purposes, including nutrition, lighting, lubrication, and blending. It is the most difficult of all oils to detect when adulterating olive oil, for its chemical reaction is white. The best qualities are used for the table, either pure or mixed with olive (or salad) and sesame (or gingelly) oil; as an illuminant it gives a soft, white light. When neutralised it is much esteemed for lubricating, and is always preferred to cotton seed oil. It is also largely used in the manufacture of soap, and is the characteristic component of the famous Marseilles white soap.

The fruit of the banana contains 72 per cent of water, 2·14 per cent of nitrogenous matter, and 22 per cent of saccharine substance, the latter giving it its great nutritive quality. The banana plant, says M. de Lovedo of Mexico, will feed 150 men from the produce of one hectare ($2\frac{2}{5}$ acres), while the same area of wheat will only supply six individuals; for the same time and under the same conditions of cultivation its produce is forty times that of potatoes and hundred times that of wheat.

Here is a recipe for a good liniment: Take two eggs and put the contents into a bottle, then add half-a-pint of spirits of turpentine and half-a-pint of best imported vinegar. Shake the bottle till the ingredients are well mixed, and in about two hours, with frequent shakings, a white liniment will be produced of about the consistency of cream, when it is ready for use and will improve by keeping.

The TROPICAL AGRICULTURIST

MONTHLY.

XX. COLOMBO, JUNE 1st, 1901. No. 12.

HELOPELTIS.

[*From the Royal Botanic Gardens, Ceylon Circular*, April, 1901.]

"WHAT WE KNOW AND WHAT WE WANT TO KNOW ABOUT IT."

HELOPELTIS Antonii, the so-called "Mosquito Blight,"* was described by Dr. Signoret (a French Entomologist) from Ceylon more than forty years ago in 1858. The description published in the Annals of the Entomological Society of France † makes no mention of the plant upon which the insect subsisted in those days, before the introduction of cinchona or tea. Cacao—according to Trimen—had been established in Ceylon for some time previous to that date, and it is possible that there was a sufficient number of trees to afford food for the *Helopeltis*.

The recorded food plants of the insect in Ceylon are cacao (*Theobroma cacao*), the several species and hybrids of tea, cinchona, and annatto (*Bixa Orellana*). Besides these economic plants, I have observed *Helopeltis* feeding and breeding upon the "wax apple" (*Eugenia aquea*).

The earliest notice of the appearance of *Helopeltis* on cacao in Ceylon was in 1880 or 1881 in the Matale District. In 1884 Dr. Trimen exhibited specimens and read a short note upon their occurrence at a meeting of the Linnæan Society in London. It is remarkable that it was the damage done to the young leaves and twigs that then attracted the attention of cacao planters. At the present time it is the pods of the plant that suffer most from the attacks of the insect.

With respect to cinchona, I observed it myself puncturing the young leaves of *Cinchona ledgeriana* and *officinalis* in 1886 in the Pundaluoya district, at an elevation of over 3,000 feet. An allied insect (*H. bradyi*), was reported to be injuring cinchona in Java in 1882.

I have found it difficult to obtain accurate information about the appearance of the pest in the various tea districts. My first personal acquaintance with it was from specimens sent to me from the Morowak Korale district in 1889. But the earliest record is from the Kelani Valley, where it is said to have first appeared on an estate in Yatiyantota in 1892, though it did not become plentiful until 1893, when it was reported from several other estates. In 1893 the matter was brought up at a meeting of the Kelani Valley Planters' Association, when concerted action was suggested, so it is probable that the pest was then causing considerable injury to the tea. In 1890 my attention was drawn to serious damage by the insect to tea in the Kalutara district. The pest was first noticed in Udagama in 1898. I have this year (1901) observed a few cases of attack in the Balangoda district. I am told that it has been noticed there for a year or more, but has not as yet caused any appreciable injury; but it would be rash to suppose that the pest will not increase if no attempts are made to check it.

* The popular name of "Mosquito Blight" is an unfortunate one, and has led many planters—by a false analogy—to suppose that the *Helopeltis* may breed in swampy ravines and stagnant pools. The very slight resemblance to a mosquito is purely superficial. The two insects belong to widely separate Orders, and undergo a very different development in their early stages.

† VI., p. 502, t. 12, II. f. 2 (1858).

LIFE HISTORY.—Though we have a knowledge of the different stages of the insect, from the egg to the adult, the full life-history is not accurately known. The eggs are laid either singly or in groups of from two or five, in the rind of the pod (in the case of cacao), and in the young stalks (in the case of tea). In the latter they are almost invariably deposited at some point above the "initial" or "fish" leaf. They are embedded in the tissues of the plant, the only external indication being the presence of a pair of silvery hair-like horns projecting from the extremity of each egg. In ten days' time the egg hatches out into a small reddish insect, with longish legs and antennæ, looking not unlike one of the slender ants that frequent the tea blossoms. This insect grows rapidly in size, without greatly altering in form, until it is nearing the final change when small rudimentary wings may be observed sprouting from the sides of the body. In the course of its growth it changes its skin some three or more times (the exact number has not yet been determined), and, after the last change, appears in the red, black, and white grub of the adult *Helopeltis*. In all its stages the insect may be readily recognized by the so-called "drum-stick," or erect-knobbed horn projecting from the middle of the back (technically from the part called the scutellum). We do not yet know how many moults occur during the growth of the insect, the duration of these immature stages, or the length of life of the adult insect. The young insects do not thrive in captivity, and I have never been able to rear one up from the egg to the adult.

Nothing is known of the natural enemies of the *Helopeltis*, if it has any. Should any insect or other animal be noticed attacking the *Helopeltis*, I should be greatly obliged if the observer would send me particulars of the fact, and, if possible, specimens of the assaïlant.

HABITS.—The *Helopeltis* insect feeds—in all its stages—upon the sap of the young leaves and shoots (or, in the case of cacao, upon the fruit). The symptoms are almost too well known to require description. Each puncture of the insect is followed by a dark brown or black spot, the tissues of the leaf being actually killed at that spot, partly by the exhaustion of the contents of the cells, and partly (probably) by the injection of some irritating fluid, though this has not been actually demonstrated. When the punctures are close together the spots coalesce, and the whole leaf shrivels and dries up. When a young bud is punctured, that bud dies back. When the insects are very numerous, every single bud may be killed back in this way, resulting in a complete cessation of flush.

The insects feed at night and during the early hours of the morning. After 9 a.m. it is often difficult to find a specimen at work. It is still somewhat of a mystery where they conceal themselves. It was thought at one time that the adult insects flew away to the jungle during the heat of the day, or retired into neighbouring shade trees. But this has never been proved, and is extremely doubtful. It is certain that the immature insects cannot remove themselves in this manner, and it has been observed that when disturbed these young insects run down the stems into the heart of the bush. It is most remarkable how, even in fields where they must be swarming, the *Helopeltis* insects secrete themselve during the heat of the day. I have frequently tried to shake or beat them out of the tea bushes, but it is quite exceptional to secure a specimen in this way. A minute examination of the centre of the bush produces no better results, though it is almost certain that they are somewhere there. It was thought possible that the insects might go into hiding under stones and loose earth below the bush. To test this theory, a broad band of sticky substance (jak juice was used) was applied to the stems of a certain number of trees at midday. All punctured leaves were plucked from these marked trees, but fresh punctures—evidently made by immature insects—appeared during the following night, proving that they had been resting somewhere above the sticky zone. Bunches of dry grass were placed in the centre of some bushes to see if the insects would hide in them, but on pulling these to pieces later they were found to be untenanted.

The comparative immunity from attack of certain species or varieties of tea is most marked. Pure Assam indigenous is practically untouched. Of the hybrids, the more the plant partakes of the Indian strain, the greater is its immunity; the nearer the China strain, the more is it open to attack. This fact was most conspicuous on an estate visited by me in Kalutara. Two adjoining blocks, without any intervening boundary, were planted, the one with Assam indigenous plants, the other with a low jat hybrid. It was possible to walk up between the two adjoining rows and see the tea on one side quite healthy, while every bush on the other hand was badly blighted. In another field of "indigenous" plants supplies of an inferior hybrid had been put in. These supplies could be at once detected from a distance by their unhealthy blighted appearance.

It is difficult to obtain careful records of attack—noted month by month—extending over several years. But I have one such record from an estate in the Kelani Valley, which gives the numbers of *Helopeltis* insects collected month by month during the last seven years, together with the monthly rainfall throughout that period. From these figures it appears that the worst attack takes place in July and August. After September there is a rapid drop, reaching its lowest level in November, followed by a tendency to gradual (fluctuating) increase up till February or March, when there is another rapid fall. In April and May the pest practically disappears. The recrudescence commences towards the end of June and reaches its height in July or August. There thus appear to to be two periods of increase and decrease during the year, a major and a minor period. The major period is represented by the zero point in April and May, followed by the maximum in July and August. The minor period consists of the fall in September, October, and November, followed by the increase up to March. The March attack never approaches the gigantic proportions of the July-August attack, the figures being approximately as 4 to 9.

The results obtainable from a study of the rainfall are rather conflicting. December, January, February, and March, during which time the pest is on the increase, are comparatively dry months and register the lowest rainfall. April, May, and June are very wet, and there is then scarcely any attack. Studying this period alone, one would be led to the supposition that dry

weather favoured the pest, while rain deterred it. But if we examine the second period, we find that July, August, and September are distinctly wet months, and it is during these very months that the pest attains its maximum development. We find, therefore, that the two periods of increase viz., December to March and June to August, are marked by dry weather in the first case and wet weather in the second. Similarly, the first period of inactivity (in April and May) occurs during heavy rains, and the second period (October and and November) during comparatively dry weather. It is noticeable that both the maximum and minimum of attack occur during the wettest months.

It should be observed that these deductions are made from records from a single estate in one district. To be of real value they should result from the comparison of a number of records from many estates in different districts. I would appeal to all those interested in the subject for such particulars as will enable me to formulate more accurate deductions. There are doubtless many records of captures now available. I know that it is the custom to count the number of insects brought in each day, and the figures are entered in the estate books. Even a statement of the number of coolies employed in the work, day by day, will be of considerable value in estimating the rise and fall of the attack.

But the chief problem requiring solution is, "What becomes of the insect during the period or periods when it disappears from the tea?" Does it subsist upon some other plant? Does it lie dormant in some hole or crevice? Or does the insect, towards the end of its period of activity, deposit specialized eggs that remain unhatched for a much longer period than is ordinarily the case?

These questions are of the greatest importance, and can only be answered by very careful and long-continued observation on the spot. I hope to undertake this investigation very shortly by repeated visits to an affected estate at the critical periods.

Until these points have been satisfactorily elucidated I can suggest no other remedial measures than those which are now being carried out on most affected estates, viz., (1) the careful collection and destruction of the insects; (2) plucking to the initial leaf, in badly attacked fields, to ensure the destruction of the eggs.

E. ERNEST GREEN,
Government Entomologist.

Peradeniya, March, 1900.

CORUNDUM GEMS.

BY LEOPOLD CLAREMONT.*

The mineral known as corundum (from the Indian "Korund") consists of almost pure crystallised oxide of aluminium (Al 2· 0·3). It crystallises in the hexagonal or rhombohedral systems, and is generally found in six-sided pyramids, scalenohedrons, and prisms, although the coarse opaque variety also occurs massive and granular—that is, devoid of any natural crystalline formation.

In hardness, corundum is only inferior to the diamond, and it, therefore, occupies the position of No. 9 in the recognised scale of hardness. It occurs both opaque and translucent, and its specific gravity varies between 3·90 and 4·16. The opaque variety of corundum, which is generally dull grey, reddish brown, or greenish, and sometimes colourless, is found in large masses in most of the Asiatic countries; it also occurs plentifully in America and Australia. It is, on account of its extreme hardness, of value as an abrasive material, entering largely into the composition of emery. It is, however, the translucent variety of corundum with which we are chiefly concerned at present. Every imaginable shade of every colour presents itself in this variety of the mineral, and the difference in the colour is due in a very great measure to the addition of minute quantities of metallic oxides to the alumina of which the mineral is composed. To every colour in which translucent corundum occurs a different name has become attached—*e.g.*, red corundum is called "ruby," blue corundum is called "sapphire," the yellow "Oriental topaz," the green Oriental emerald, the purple "Oriental amethyst," &c., &c. Therefore, to the scientist, these gems are absolutely identically the same stone, only differing in an infinitesimally small degree in the nature of the colouring matter to which they owe their distinguishing quality. But to the prospector, the dealer in precious stones, and the wearer of jewels, this little distinction with regard to colour makes a great difference, for upon it depends the commercial value of the gems. It is, therefore, necessary for the present work that each precious stone, no matter what relationship it has to any other gem, should receive separate attention from my pen. I do not propose, however, to make a repetition of all the physical and optical properties of these stones, except in the case of the ruby and sapphire.

RUBY.

The ruby or red corundum is, undoubtedly, the most coveted of nature's treasures by the human race throughout the universe. In this most precious material it is possible to concentrate the greatest amount of wealth in the least possible bulk.

A ruby equal in value to a "king's ransom" can be carried in the corner of one's waistcoat pocket without inconvenience. A fine ruby weighing, say, four carats, is worth in the gem market to-day quite ten times as much as a fine white diamond of the same weight. As already explained, the ruby is one of the group of the precious stones, which consists of oxide of aluminium and, consequently, has many of its properties in common with all the other members of the same group. The specific gravity of ruby is 4. The hardness is generally recorded as 9, but, as a matter of fact, ruby is slightly softer than the other corundum gems, which occupy the position of being next in hardness to the diamond.

The ruby acquires electrictity by friction and retains it for several hours. The lustre is vitreous, but the surfaces of the crystals are usually more or less dull. The fracture is conchoidal or uneven, and the cleavage basal, but imperfect. Some specimens of semi-opaque and cloudy rubies display a shimmering six-pointed star when cut with a convex surface. These are called star rubies, and will be more fully described under the heading of "Star Stones."

Ruby occurs in the hexagonal or rhombohedral system, assuming the form of the hexagonal prism or pyramid. Water-worn and rolled fragments are, however, of much more frequent occurrence, often showing, by the absence of any trace of crystalline formation, how severe are the many hardships endured during the unrecorded ages of their existence. The ruby is doubly refractive, but not to a very great extent, and is always dichroic, showing the two squares of the dichroiscope of distinctly different colours—namely, aurora red and carmine red—when viewed at right angles to the principal axis of the crystal. This is a most useful means of distinguishing ruby from garnet and spinel, which show both squares of the instrument of the same colour, no matter in what direction through the crystal they be viewed.

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The occurrence of corundum in the form of ruby is extremely rare in comparison with the immense areas in different parts of the world where the opaque coarse variety is plentifully distributed. There are three principal sources whence the rubies of commerce are derived, viz :—Burmah, Siam, and Ceylon; but they are also found in unimportant quantities in Brazil, Thibet, Afghanistan, New South Wales, and the United States of America.

The centre of the ruby-mining industry of Burmah is the town of Mogok, and the operations of mining extend over an area of upwards of 400 square miles to the eastern bank of the Irriwaddy River. The rubies are found associated with garnet, graphite, and spinel in beds of course gravel, and embedded in more or less crystalline limestone which exists alternating with gneissic and schistoee rocks. By the ever abrading effects of the elements these igneous rocks have become disintegrated, the debris forming the gravel beds lying in the valley below. It is in these gravels that the finest rubies are found, the explanation of which probably lies in the fact that flawed and imperfect stones are unable to withstand the hard wear and tear to which they are subjected by nature. They gradually get chipped and broken up by the constant process of grinding and pulverising which they are destined to undergo, leaving only the flawless and more perfect stones to survive.

In Siam, the most productive district of rubies is the province of Chantaboon, Bo Wen and Taphad Hin being the principal centres of mining operations. Another locality which produces large quantities of rubies is Krat, in which province the most important mines are situated at Bo Van and Navong. In the district surrounding Ratnapura, which town is often alluded to as the "City of Gems," and Rakwana, are found the finest rubies in Ceylon. They are found in the detrital deposits of valleys, river beds, and mountain torrents, generally as water-worn pebbles and broken fragments. They are always associated with the paler and many-coloured varieties of corundum, which will claim our attention in due course. The colour of the ruby varies very greatly, for, although it is characteristically red, there are innumerable different shades and degrees of depth of colour in which it occurs. The tone of colour which is the most rare, and which is, consequently, the most sought after by connoisseurs in precious stones, is termed "the pigeon blood" ruby from its resemblance to the scarlet blood of a recently-killed pigeon.

The rubies which come from Burmah more nearly approach to this desired colour than those from any other country and, consequently, they are proportionately of greater value, for it is only in rare and isolated cases that a gem of the true colour is brought to light. Siamese rubies are generally much darker than the Burmese stones, and have a tendency towards being purplish and puce in appearance. Although very occassionally a Siamese stone is found the colour of which may be compared with the rubies of Burmah, the majority of rubies from Siam are unsatisfactory from a marketable point of view.

Ceylon rubies are different altogether from the rubies of either Burmah or Siam. They are very limpid in brilliancy and pale in colour, possessing all the qualities of the most beautiful and attractive gems, yet they do not rank among rubies of fine quality. The actual cause of the flame-red colouring of the ruby has been the object of a great deal of most interesting investigation by some of the greatest scientists of the day. Although it is believed that the many varieties of corundum derive their colour from the presence of most minute quantities of different metallic salts, it has comparatively recently been discovered that the real cause of the colour of the ruby is still unknown. The absence of any salt of chromium, which was formerly suspected of causing the red hue in ruby, has been conclusively proved by the most careful chemical analysis, and endorsed by the still more delicate method of spectrum analysis. When oxide of aluminium is inserted into a partially exhausted glass bulb, and exposed to the action of a high tension electric current, it flashes with a lovely crimson glow, and it has been demonstrated, under similar conditions, that ruby itself will give precisely the same result. Moreover, if to the oxide of aluminium be added some oxide of chromium, the glow will not be produced.

If the light naturally transmitted (through absorption) by the ruby be examined by the spectroscope, it gives the same bands which are characteristic of the phosporescent glow which comes from the oxide of aluminium, in the vacuum tube. Another curious fact is that white oxide of aluminium, when exposed to electrical bombardment for a long time, gradually alters to a pinkish hue.

Altogether, it is quite obvious that some mysterious property exists in connection with oxide of aluminium which the science of the day has not satisfactorily explained. That the ruby has always taken the first place among precious stones is evinced by many references to this beautiful gem by writers of all ages, although, before the development of the science of mineralogy, great confusion seems to have existed with regard to rubies as with many other precious stones. It is apparent that almost any red stone was classed by the Greek and other ancient races under the general heading of "carbunculus," which doubtless included, besides the true ruby or red corundum, spinels and all the many different kinds of garnets.

Pliny, for instance, although he gives the first rank to the "Carbuncle Amethystizontes" (our modern almandine garnets) describes under this heading many of the chief characteristics of the true ruby of to-day. The "Pantarbes" of Philostratus was undoubtedly the modern ruby, and the gem alluded to by Theophratus, as "Anthrax," was also probably ruby, for he writes of its value being equal to forty gold staters, about forty guineas, for a small stone, whereas garnets were so common that their value could not have been very great at the highly civilised period of which he wrote. Both the words "Carbunculus" and "Anthrax" were used in allusion to the 'burning coal' effect of the stones described. The quotation, 'For wisdom is better than rubies," one of the many references in the Holy Scripture to this precious stone, proves that rubies were of considerable importance at the time of King Solomon, to whom the words are attributed.

From old writings we learn that by the ancients the ruby was always enveloped in mystery and accredited with all kinds of strange properties and powers one of the most striking of which was the belief that the stone possessed the power of shining of its own accord in the dark, emitting flashes of light dazzling to behold. It was also supposed to attract other gems in much the same way as a magnet attracts bits of steel. If a ruby were tied to the end of a string and lowered into a river, the bed of which contained precious stones, it would be found upon its withdrawal that the ruby would be encrusted with other gems which had been attracted to it—a most useful virtue indeed!

Ruby was used as a talisman against all kinds of ills but chiefly against fire, which virtue is illustrated in the legend of Chariclea, who, when condemned by the jealous Arsace (Æthiop VIII. 2), escaped unhurt from the pyre by means of an amulet in the form of the espousal ring of King Hydaspes, "which was set with the stone called Pantarbes, engraved with certain sacred letters embodying, as it has proved, some divine charms by means of which a virtue is imparted to the gem antagonistic to fire, and thus giving to the wearer immunity from hurt in the very midst of flames." A peculiar idea, not altogether restricted to by-gone civilisations, is that the different corundum gems alter or ripen in the earth, and that a ruby has changed gradually from yellow to blue, from blue to purple, and from purple to red, which

might be looked upon as the perfection state, which the blue, yellow, and purple varieties of corundum have not reached.

We know that the ruby was the most highly-prized of all gems at the period of the Renaissance, for Cellini, in his "Orificena," referring to the relative values of precious stones, gives the value of a carat ruby as eight times that of a diamond, and 80 times that of a sapphire of the same weight.

Many are the tales of immense and magnificent rubies seen by travellers of old to the Courts of Asia. As these writers generally describe not only what they saw, but what they had described to them, it is wise to take many of their statements with the proverbial grain of salt. We find, for instance, "allusions to a ruby of perfect quality as large as a hen's egg, which was worn as an ear-drop by the King of Ada." Even Tavernier, in his "Travels" although imparting much valuable information about the gem-producing countries visited by him, and the customs and habits of the inhabitants, often taxes our credulity with regard to the gems he describes. But I think we may place reliance upon his account of a fine ruby in the possession of the King of Vishapoor, which he describes as being almost triangular in shape, of a most vivid red colour, and of about 50 carats in weight.

In a curious old book, published in the 14th century, Sir John Mandeville describes a ruby and a carbuncle half a foot in length, which possessed the property of self-luminosity. These marvellous gems were seen by him at the court of the great Chan of Cathay. Some of the most notable gems in the Royal and Imperial regalias of Europe are rubies, and will be described in a chapter dealing with the historic interest connected with them. Besides these there are several magnificent rubies which have from time to time appeared upon the market either from the mines of Burmah or, which is more generally the case, from the treasury of an Eastern potentate. Often these gems, which, perhaps, have been worn for hundreds of generations of their Royal owners, or formed part of the splendour of idol or Buddha, are parted with to relieve some financial crisis of the Court.

Two crudely-cut rubies of superb quality came to light in this way in the year 1875. They weighed respectively 37½ and 47 carats in the native-cut state, but after recutting in London the smaller stone weighed 32 5-16, and the larger one 38½ carats. The smaller ruby was a cushion-shaped stone of a fine rich colour, and eventually fetched the enormous sum of £10,000. The other stone, although of a somewhat awkward drop shape, was of such exquisite quality that nearly double this amount was realised. The larger of these beautiful gems is now in the possession of a Russian count, while the smaller belongs to a well-known American millionaire.

Ruby is seldom selected as an object for carving or engraving upon, chiefly owing to the extreme hardness of the stone. The great intrinsic value of this gem also makes it an unsuitable material for the purpose, as the artistic conception of design and execution of workmanship should claim the first consideration with these works of art. Occassionally, however, to meet the requirements of some wealthy client, the gem engraver of all periods has used the ruby as a foundation upon which to work intagli and camei.

It must be said that among engraved gems of authentic antiquity precious stones of all kinds are extremely rare, as productions of the most famous glyptic artists of ancient Greece were executed upon material selected as most suitable for displaying to the greatest advantage the inimitable genius of the period for cameo and intaglio, and as most suitable for giving a true impression when used as a seal.

A full face of a Bacchante, crowned with ivy, forms the subject of the most beautiful antique intaglio upon ruby known to connoisseurs. The exquisite treatment of the flesh and hair, as well as the half-devilish expression of the countenance, denote the work of an artist of the first rank, Emho by name, at the period when Greek glyptic art was at its height.

Other examples of the use of ruby by ancient Greek artists are the head of Hercules upon a small stone of pale colour in a very bold, effective style, and a magnificent head of Thetis upon a pentagonal ruby of irregular shape. The latter subject is treated in a masterly way, depicting Thetis wearing the shell of a huge crab in place of a helmet. Both these intagli have the heads engraved *en profile*.

In regard to engraved rubies and other precious stones, it is generally the case that careful scrutiny will show the presence of some flaw or other imperfection within the gem, which it has been the object of the glyptic artist to partially hide.—*The Mining Journal, Railway and Commercial Gazette.*

THE FORMATION OF ALKALOIDS IN CINCHONA TREES.

The objective of the extensive system of cinchona cultivation now prevailing in India, Java, and other tropical countries, is the production of cinchona bark containing the largest possible amount of alkaloids since it is to the presence of the latter substances that the bark owes its useful properties. At various times methods of increasing the yield of alkaloid have been suggested, such as shading the stems of the trees from the direct action of the sun, but these have been, as a rule, based on preconceived notions of the *role* played by the alkaloid in the life history of the tree, and were not the result of any real investigation of the conditions under which these bodies are produced by the plant.

This defect has now been remedied by the results obtained by Dr. Lotsy, of the Java Cinchona Gardens, in the course of a series of investigations into the mode of formation and the occurrence of alkaloids in two species of cinchona, viz., *succirubra* and *ledgeriana*. Several papers giving an account and this work have appeared in Dutch periodicals, and recently a *resume* in English has been published in the *Bulletin de l' Institut Botanique de Buitenzorg* (No. 3, 1900), from which the following particulars have been taken.

In commencing his work the author subjected each part of the tree in turn to micro-chemical examination for the presence of the characteristic cinchona alkaloids, and, as a result, was able to demonstrate the existence of these substances in certain cells of every portion of the plant. Thus, in the leaves no alkaloid occurs in the epidermal layer of cells, or in the veins, but the fleshy part of the leaf invariably contains in its constituent cells a certain amount of alkaloid. In a similar manner, the stem, even in its earliest stages, contains alkaloid, but only in the inner layers, never in the epidermis or in the large wood vessels found in adult trees. In the root a precisely similar condition of things is found, and so also in the petals and other parts of the flowers. In general it may be stated that the alkaloid occurs only in the tissue known to botanists as the *hypoderma*, *i.e.*, in the part of the plant where the building-up and breaking-down processes which constitute plant metabolism are most active. In the youngest parts of the plant, such as the tip of the stem and under the root cap, where no differentiation into tissues has begun, no alkaloid is found.

These observations afford an explanation of the phenomenon that the first bark obtained from a cinchona tree is always richer than that of succeeding crops. This is due to the fact that the bark first formed is produced by the drying up of hypodermal tissue, of which each cell contains alkaloids; while the secondary bark produced by continued activity of the cork cambium contains, in addition to hypodermal cells, bast fibres which contain no alkaloid.

A peculiar feature of the distribution of the alkaloids is that they never occur in the sieve-tubes, which are associated with the conveyance of the albuminous products of the plant.

The second part of the investigation deals with the method of formation of the alkaloid. Since the leaves of plants are mainly concerned in the production of starch and albumen, which serve for their nutrition, it was highly probable that here also alkaloids were produced, but the evidence already existing strongly negatived this view. Thus, Howard (*Quinology of the East Indian Plantations*, 1869, p. 14), found that leaves of *Cinchona succirubra* contained only ·11 per cent. of total alkaloid; while Broughton, in 1870, found percentages varying from ·0041 to ·019. In a specimen of leaves examined by De Vry in 1896, a larger amount was found, viz., ·162 per cent., but this was amorphous alkaloid only. As pointed out by Dr. Lotsy, however, a mere estimation of the amount of alkaloid continued in the leaves gives no reliable answer to this question, because it is quite possible that the alkaloid as soon as formed is transported towards the stem; consequently the author adopted a somewhat different procedure, of which the following short account may be given. A leaf of the tree under investigation was selected and cut into two, longitudinally, and on one side of the midrib, while still attached to the tree. The smaller half so removed was examined micro-chemically for its content of alkaloid, while the portion still on the tree was allowed to remain during a day or night, as might be necessary for the particular experiment then being carried out, when it also was removed and its content of alkaloid determined in the same manner.

A large number of observations carried out in this way showed that, under normal climatic conditions, a leaf accumulated alkaloid during the day and emptied itself during the night by allowing the alkaloid to be transported towards the stem. It was also observed, however, that this normal removal of the alkaloid from the leaves does not occur under adverse conditions, such as are found in extremely cold or foggy weather. These climatic influences also have considerable effect on the amount of alkaloid formed during the day. That the alkaloids are transported from the leaves to the stem of the plant was clearly proved by keeping cut leaves both in the light and in the dark, when it was found that the amount of alkaloid remained unchanged, even after a month. It was also found that empty cut leaves were capable of producing alkaloid when placed in stimulating liquids such as dilute solution of ammonia. The author concludes the report of the results of his long-continued investigations with some interesting remarks on the probable methods of synthesis employed by the plant in the formation of the cinchona alkaloids, but these are too technical for reproduction in the present abstract. Attention may, however, be drawn to the bearing which these results ought to have upon cinchona cultivation. In the first place it should be noted that, since the useful alkaloids are formed in the leaves of the plant, then in the selection of varieties for cultivation care should be taken to obtain those having a good foliage, both with regard to quantity and size of leaves formed. The author states that this plan has been generally adopted in recent years in the Java cinchona plantations, with excellent results. Further, it should follow that any method of cultivation which tends to increase the hypodermal tissue in the plant should yield bark containing an increased amount of alkaloids, and so one would expect better yields from *pollarding* than from ordinary growth.

FRUIT TREES FOR CEYLON.

A circular from A. J. Pearson, Colombo, dated March 29th, says that it is proposed to make an importation for S. W. monsoon planting, of first-class named varieties of fruit trees considered to be suitable for cultivation in Ceylon. The trees will be mostly three years old and are guaranteed to be true to name and description. Oranges and Lemons are put down at R2·50 each. Peaches, Nectarines, Apricots, Figs, Plums, and Olives are R2·00 each, while Grape vines are R1·00 each. The only ones suitable for Jaffna are Oranges, Lemons, and Grape vines. Years ago some figs were introduced into Jaffna, but, if we have been rightly informed, they did not thrive well. They might be given another trial, however, and they might prove more of a success. Of the grapes the "Muscat of Alexandria" is specially recommended for trial. A few years ago there was some talk about introducing several new varieties of grape, including the "Black Hamburg" and other dark kinds, but we have heard nothing about it since.

The Lemon advertised is "The Lisbon lemon." It is said that there are several trees of this in the island, three and four years of age, which are bearing heavily. Whether the Lemon would grow in the Jaffna soil and climate can only be known by giving it a trial.

A dozen varieties of Oranges are given, the Washington Navel being most highly recommended. We doubt whether it would thrive in Jaffna. The Mediterranean varieties are much more likely to be successful. Whether the Chinese and Japanese Mandarin oranges could be raised here or not is a question. We hope some of our rich farmers will try a few varieties. Orders should be sent in at once. Delivery is promised in June, and with care the trees ought to get a good start before the north-east monsoon sets in.—*The Morning Star.*

THE EUCALYPTUS.

In an interesting article in the *Scientific American*, Mr. Nicholas Pike makes some useful observations on the nature and uses of the eucalyptus, which appear worthy of notice. After remarking on the great progress made in medicine and surgery during the past half-century, Mr. Pike says that in most diseases fever acts a prominent part, and statistics go to prove that in more than half the cases malaria is found to be the actual existing cause; perhaps imbibed from sewers, foul odours and gases, marshes, etc., Surely, then, any remedy that could purify our surroundings should be heartily welcomed.

In the trees of the eucalyptus family a relief may be found for the malaria so prevalent in some parts of the world. Australia is the principal home of the eucalyptus, where it forms 90 per cent. of the forest trees. All have gummy secretions, and from the varied tints of the foliage go by the local names of blue, red, or white gum trees. From the peculiar bark of many they are also called "stringy bark trees."

Nearly all the eucalypti grow very tall, some of them rivalling the giant *Sequoia Wellingtonia* in height. An English naturalist measured one 400 feet high, and four men on horseback could stand in a cavity of the trunk. One of the *E. Amygdalina* that had fallen in a mountain gorge was 420 feet long, with circumference in proportion, and some in the Yarra district are over 500 feet.

There are more than one hundred species of eucalyptus, but Mr. Pike only mentions a few of the most useful and important. Very many have long attracted notice from their valuable properties, and they ought to be better known. Their flowers are apetaleous, but have masses of stamens like the myrtle. The bud has an operculate calyx, formed by several jointed leaves, united throughout, and separating at the articulation in the shape of a lid, which flies off when the flower expands.

The *E. oleosa* or *piperita* has the smell and qualities of the famous cajeputi (*Melaleuca miner*), so well-known in India for the cure of rheumatic affections. The wood is extensively used for fuel and the bark for

paper-making. It does not grow to the great height of some species, but covers large tracts of gronnd, the roots running horizonally over the surface.

From the *E. mannifera* exudes in the dry season a saccharine, mucous substance, resembling manna in character and appearance. *E gunnii* furnishes a copions supply of cool refreshing, slightly aperient liquid, which ferments and acquires the properties of beer. The giant eucalyptus is sought for its beautifully veined wood, and is called mahogany of Australia. The *E. resinifera* has pendant branches resembling a willow. The bark is very thick, and is taken off in sheets for the covering of the houses of the natives, and it yields also a kind of gum kino, sold in the medicine bazzars of India for its use in diarrhœa. From the last two mentioned an abundant juice flows of a red colour, containing much gum and tannin, and a single tree will often yield 60 gallons. All the above are valuable, but none to such an extent as the *E. globulus*. It has strong roots and smooth bark, and the bluish leaves give it the name of blue gum tree. Every part of it exhales a powerful, balasmic odour, and the leaves and seeds when crushed smell like tobacoo. Bees are strongly attracted to this tree, and nests yielding abundant honey are often found in it. The wood is very hard and heavy, and greatly used for building and naval purposes. It is of a fine red oclour, and very durable, and insects do not attack it. It is especially sought for in the construction of railways.

Many species of encalyptns have the properties of cinchona in their leaves and bark, but none equal to the *E. globulus*, which has them more abnndantly than the Brazilian tree. Van Vauquelin obtained from it an essential oil containing eucalyptal camphor closely resembling the resin of cinchona. This extract yielded a substance capable of neutralising the strongest acids, and forming crystalline salts. The sulphate crystallises in star-shaped crystals, like sulphate of quinine or cinchona. The narrow leaves of the tree are principally used, dried and powdered, and strong tinctures are made from them. The bark also produces favourable results. So efficacious are preparations from this tree in marshand other feves that it is known as the "fever tree." The medicine has a warm, aromatic, bitter taste. and is invaluable in exciting the flow of saliva. It lowers arterial tension, and is useful in hysteria, cerebral anœmia etc. When the leaves are smoked, they relieve asthma, bronchitis and whooping cough, and have also been employed instead of lint for wounds. When properly administered, it will cure malarial fevers, where quinine utterly fails to do more than temporarily arrest them. The preparations from the eucalyptus have a great advantage over those of qninine. When excess sive or constant dose of the latter are taken, they will often establish some local disease. In some malarial districts qninine pills are taken, with every meal for weeks together; the alimentary canal beoomes disordered in consequence, nausea and constipation ensue, and a febrile state is set up, with excitement of the whole vascular system. The cerebral and spinal organs become deranged, throbbing headaches and giddincss often occnr, sight and hearing are weakened, and the spleen sensibly affected. In fact, unless administered by a skilful physician, quinine is a dangerous drug, and Mr. Pike has known many fatal cases from its mis-use.

Now, the effects of encalyptns are almost the reverse of those of quin ne; it produces none of the ringing of the ears and troubles caused by quinine, and prevents all stomach complications. If fresh powder could be procnred, it would be of inoalculable benefit to the victims of malaria.

Up to 1870, one of the most fever-stricken countries of the world was the Maremma, the Roman Campagna, where the neglect of ages had allowed stagnant marshes to form in what was once a well-populated healthy district, till it conld only be inhabited during a small part of the year. At that time large plantations of the eucalyptus were made, and the Trappists have now a large establishme there where they live all the year round, fever being almost eradicated. They use the wood for their buildings, and say it is the best and strongest they can procure. In Nice, Mentone, Corsica, the South of France, Egypt, Sierra Leone, Natal, Tahiti etc., where they have been extensively planted, fevers are fast disappearing. Over a million trees have been planted in Algeria, and their sanitary influence has been most marked. Wherever they have been planted in compact masses, there intermittent fevers are greatly diminished. They have been very largely cultivated in some districts of India, and the inspector of forests writes that, irrespective of their salubrity, the wood is very valuable, and at ten years old a tree is worth £20. In Calfornia the eucalyptus has been planted with the object of lessening droughts along the line of the Central Pacific railway.

All these places were more or less deadily from the miasma engendered by festering marshes and other causes. Now life is not only bearable, but enjoyable, from a very simple source—the taking advantage of one of nature's own cures. By planting these trees in numbers their roots have drained the soil, and the leaves give out the balsamic odours so healthful to breathe.

The peculiar region of these trees is the temperate part of Australia and Van Diemen's Land. They thrive in a mean temperature of 59°, to 72°, but will grow in 45° to 50°. Of conrse, this prevents them becoming hardy denizens of northern climates. They will, however, suit admirably in the Southern States, especially in sandy soils near the sea. They grow easily from seed, and are of very rapid growth, and if the various kinds are planted out unsparingly, they may become large factors in the new industries that would spring from their cultivation, and vast waste marsh lands would be ntilised as well as rendered salubrious for occupation.

Though our northern climate forbids this culture out of doors there are plenty of ways and means by which the eucalyptus can be made available. The pecular conditions of temperature, etc., of hot-and green-houses render all who work in them very liable to malaria. To florists it would be an easy matter to grow a plant in every house, which could be checked back to keep it within bounds, and the sanitary state of their premises would soon change. It would be well to grow the seeds of the *E. globulus* largely for distribution. Every railway depot, hotel, or any other building where many people congregate could use this plant advantageously. Especially is it advisable, as persons are constantly coming and going who are filled with malarial and other germs from varions infected localities. The powerful germ-destroying odonr of the plant would kill any floating in the atmosphere and help the sufferers too.—*Imperial Institute Journal.*

THE CAMPHOR INDUSTRY.

Considerable interest has been shown during the last few years in the production of camphor and camphor-oil, partly owing to the increased demand for these products in the arts, and partly as the result of the restricted output of the substauces, which was the immediate consequence of the cession of Formosa, with its extensive camphor forests, to Japan.

Although camphor is still produced in China and Japan, and the cultivation of the camphor tree has been commenced in Florida, yet practically the world's supply of this commodity is derived from Formosa. In this island the distillation of camphor has been carried on from the earliest times by the natives, but in the 18th century the Chinese Government established a monopoly, any infringement of which was visited upon the offenders with savage penalties. In 1720, over 200 people were executed in the island for such offences, and so badly were the aborigines treated that they rebelled, and finally the right of production was declared free, the Govern-

ment reserving the right of buying all camphor distilled in the island at a fixed price. This arrangement lasted until the opening of the treaty ports, when European traders refused to recognise the monopoly and began to trade directly with the native distillers. This procedure was resented by the Mandarius, and much trouble ensued between the Chinese and the Europeans. Finally the Monopoly was completely withdrawn in 1868.

Since that time the industry has flourished, and has gradually extinguished camphor production on the Chinese mainland and in Japan.

As a natural result of this unrestricted trade, the forests have been worked in such an improvident fashion that they would have been exhausted in a few more years. The restrictions on the output which have so far been the most remarkable feature of the Japanese administration are, therefore, to a certain extent justified by the condition of the forests. The island has now been divided up into six camphor districts, each being controlled from a central office, which issues licences, and fixes the price at which the Administrator will buy camphor in that district. The number of stills licensed has been reduced to 1,400, while formerly 4,000 were said to be continuously employed. The crude camphor bought by the Government is now sent to a central factory at Taipeh, where it is pressed free from oil, compressd into cakes and prepared for export. This preliminary refining ensures the camphor being put on the market in a better condition than formerly. It is not intended at present to make any change in the native method of distillation, although this admits of great improvement, as will be seen from the following short description. A rough oven of loam, clay and stones is first built to a height of about four feet from the ground; in this is placed a quantity of wood, and on the latter a large iron kettle, to which water is continuously supplied from a second vessel provided with a tap. The kettle is surmounted by a cylindrical barrel packed full of small pieces of camphor wood. From the the top of the barrel a bamboo tube leads to an air-tight box used as a receiver. The whole apparatus is carefully luted with clay, and when ready the wood is lighted, and, as a result, steam from the kettle passes up through the camphor wood carrying with it the volatile oil, which condenses in the long bamboo tube and runs into the receiver. Here the oil separates into a solid part, which is camphor and a liquid portion, which constitutes crude camphor, oil. The latter material still contains from 20 to 30 per cent. of camphor; formerly it was exported to Europe in this state, but now it is sent to Japan, where the valuable camphor is extracted, and the residual oil only sent to Europe. It should be noted, therefore, that the camphor oil now found in commerce is a much less valuable product than formerly. The distillation is chiefly carried on in the interior of the island, and is always liable to interruption from the semi-civilized natives, who also plunder the caravans on their way to the coast, the frequency of such depredations during last year accounting largely fo the high price of the substance, which is at present just 100 per cent. greater than before the establishment of the new regime (*Schummel's Report*, October, 1900). In addition to restricting the production, the Japanese Government also for a time prohibited the export of camphor, in the hope of forcing up the price with the object of obtaining a certain fixed revenue from the island. It is very doubtful whether this policy will succeed, since already celluloid, the manufacture of which formerly required a great deal of camphor, is now being made with naphthalene as a substitute. Camphor-oil also, which is chiefly used for perfuming common household soaps, will no doubt be replaced by other inexpensive oils, if the price increases largely.

It is of interest to note in connection with the rise in the price of camphor, that Messrs. Schummel and Co. have suggested India and Ceylon as suitable countries for cultivating the camphor tree (*Berichte Von Schummel*, April, 1896), and they point out that Mr. D. Hooper's investigations show that camphor may be successfully produced in India. This author found that the leaves of a camphor tree grown in the Indian Government plantation at Ootacamund yielded, on distillation in a current of steam, an oil containing 10 to 15 per cent. of camphor, while a second specimen of leaves collected at Nadavatam, on the slopes of the Nilgiris, gave a richer oil, containing about 75 per cent. of camphor. This possibility has also been favourably regarded by Dr. Watt (*Dict. Econ. Prod. India*, page 89). That the establishment of plantations of camphor trees would be very profiable is clearly shown by the following statistics, which are those upon which the selling price in Formosa has been fixed by the Japanese Government.

The world's requirement of camphor is estimated at 10,400 000 lb. per annum; of this, under the new administration, about 5,200,000 lb. will be supplied by Formosa, while about one-third of the whole will be exported from Japan, leaving a diminution on the export compared with 1898 of about 3,640,000 lb.

According to articles in the *Taiwain Nichi Nichi Shimpo*, published in Formosa, the actual cost of the production of camphor is 26·67 yen per picul (about £2. 14s. od. for 133 lb.), the expenses of administration amount to about 28 yen per picul, and the selling price in Hong Kong is 70 yen per picul. The profit accruing to the Government is therefore about 30 shillings per picul at present, but it is hoped to increase the price so that on the total production of the island a profit of £135,000 will be made per annum.—*Imperial Institute Journal.*

PLANTING NOTES.

HOW TO GET A GOOD MILKER.—If you want a good milker, make her, and begin to make her the day she is weaned. If you want to keep a good milking machine in good order when you have made it, take as much care of it, and look at it as often as you do at your watch, and keep it even more regularly wound up. You must keep time with your milch cow if you want her to keep time with you. Supply her with properly-balanced rations, if you want a good ration of really valuable milk. Dispense with any cow that does not prove a good milker after her third calf, but remember, the fault is usually altogether the owner's, not the cow.—*Journal of the Department of Agriculture.*

SAVING SWEET POTATOES FOR SEED.—Mr. E. J. Lance, of Colyton, *via* Mount Druitt, writes:—"Knowing the difficulty of getting sweet potatoes for seed, last March I got some from a greengrocer in Newtown, which were grown in the Gosford district. After picking out the soundest and best, I got some sand, dried it in the oven, and sifted it so as to have no gravel to injure the tubers. Then I got a box about 4 inches deep, and put a layer of sand and then a layer of sweet potatoes, then another layer of sand and a layer of potatoes till the box was full, the last layer being of sand. I kept the box in the house on a chair till September following, when they were all as sound as when put into the sand. On planting they all came up, and grew splendidly. I planted them in a warm position, close to the surface, and gave them plenty of water. I had frequently grown sweet potatoes on a small scale before, and my method is not to cut the shoots to grow, but to layer them when long enough, covering various joints here and there. I can always get a bigger crop of sweet potatoes in this way, off a given piece of ground than common potatoes. I might add that the seed-tubers had not sprouted when I put them into the ground, in September. The shoots did not show up until nearly a month later."—*Agricultural Gazette of N. S. Wales.*

THE PRODUCTION OF EXPORTABLE ORANGES.

In a lecture on "Orange Culture and Diseases," delivered at a meeting of the Malta Archeological and Scientific Society, Dr. J. Borg, M.A., M.D., made the following remarks concerning the production of oranges best adapted for export purposes:—

"Too sandy and too compact soils are alike unsuitable for the regular growth of the orange tree. This tree, when planted in a sandy soil, is very liable to suffer from dry weather. A sandy soil is, generally speaking, a poor soil, because the nutritive compounds on which the tree subsists are very readily carried away by rain water, beyond the reach of the roots of the orange tree, which, it must be remembered, is essentially a surface feeder. A too compact soil keeps the water stagnant and is one of the chief causes of chlorosis. Moreover the roots are compelled to remain very near the surface and therefore must be exposed to great heat in summer and to great cold in winter. Also, in a compact clayish soil tho root system is particularly subject to dry rot. With regard to the chemical composition of the soil, we may say that the orange tree requires a soil containing a high percentage of carbonate of lime and oxide of iron, and only a moderate quantity of clay (alumina). When the percentage of clay is very high, or when the orange tree is situated on a subsoil of clay, it produces fruit having a very thin rind, and a very luscious flavour, but, unfortunately, easily subject to rot and cannot be much depended upon for exportation. This is the case of some orange groves at the Boschetto. When the subsoil consists of soft porous rock, the fruit is large, has a thick rind, the oil glands and the aromatic properties are well developed. This may be observed in the orange groves of Casal Lia, Casal Balzan, and Casal Attard, Malta. If the subsoil is very hard and compact, and therefore very dry, as the subsoil of the orange groves at Musta, the fruit is small-sized, the rind is thin, but the pulp is very juicy and delicious. Fruit grown on such a subsoil ripens early and is in every way suitable for exportation. Whatever the quality of the soil may be, still we may grow the orange tree to advantage, provided that the soil is so regulated that there will be a perfect drainage. A layer about two feet in thickness, and consisting of rubble and stones, and covered by two or three inches of thin rubbish will constitute by itself a perfect system of drainage to favour the flow of superfluous water in winter. The layer of earth which covers that of rubble should be two feet in depth and never less than one foot and a half. As the rootlets will hardly ever penetrate beyond the layer of rubbish, and as drought prevents the formation of roots within six inches from the surface, we may say that the soil in which the orange tree thrives is from twelve to eighteen inches in thickness."

Concerning manures, Dr. Brog said:—"The orange tree does not exhaust the soil very rapidly. The produce of the orange tree are the fruit and the pruned branches, so that, strictly speaking, the soil is depauperated of its nutritive substances for the same amount which these substances enter into the composition of the fruit and the pruned branches. If the nutritive elements of the pruned branches are again returned to the soil in the form of wood ashes, we will find that, even after the lapse of several years, the orange grove can hardly be said to be impoverished at all. In the raising of crops of cereals and other annual vegetables we meet with the roverse. In these crops we carry off both the fruit and the plant which produced it, or in other words the earth loses for ever all the nutritive substances absorbed by the action of the roots. Now, the vast percentage of the weight of an orange consists of water and hydrocarbons, and of a few nitrogen compounds which the tree receives directly or indirectly from the air. The small amount of phosphates and potash necessary for the formation of the fruit and the perfection of the orange pips is compensated by the stable manure which is supplied to the orange grove at regular intervals of six or eight years. The effect of a too liberal supply of stable manure on the orange grove is the production of exuberant foliage and large fruit with a thick peel. The fruit loses much of its aroma and becomes fibrous. On the contrary a soil very poor in nitrogen compounds produces tiny oranges delicious in flavour but unfit for commerce. The chemical manures which preferably should be supplied to the orange grove are the assimilable salts of phosphorous and potash. Already we see that the more experienced foreign cultivators are abandoning the use of nitrate of soda and have taken to use the superphosphates and "sulphate" of potassium in moderate quantities. To this chemical manure I prefer bone-dust and wood ashes, which are cheaper, less active, and have a more durable influence on the soil. Stable manure, particularly cow-manure, is an excellent compost for the orange grove, provided it is sufficiently rotten to prevent any undue fermentation when supplied to the soil. But as it contains a high percentage of nitrogen compounds, a liberal supply should be avoided to prevent the deterioration of the fruit."—*Agricultural Gazette of N. S. Wales.*

Gaseous Diffusion.—Dr. Horace Brown, F.R.S., in the course of a lecture of the Royal Institution, said that:—

"The question how the minute quantities of carbonic acid in the air found their way into the leaves in sufficient quantity to nourish the plant had long been a matter of controversy; but it was now established that they entered wholly by way of the minute openings known as stomates. But this fact presented a further difficulty, since the aggregate area of these stomates, when expanded to their fullest, was less than 1 per cent. of the total leaf-surface, and the amount of carbonic acid taken in by the leaf was such that it must enter by these openings more than fifty times faster than it would if each of them were filled with a constantly renewed solution of strong caustic alkali. There appeared to be only one way out of the difficulty, and that was the assumption that the leaf knew more about the laws of free diffusion than we did. This was proved to be the case. If diffusion of gas were established down a cylinder of equal diameter from one end to the other, the rate, other things being the same, varied directly as the area of the cross-section of the cylinder. But if the cylinder were obstructed somewhere in the line of flow by a thin diaphragm pierced with a single circular hole, the acceleration of flow was inversely proportional to the diameters of the apertures—as the aperture was made smaller, the flow through a given unit of area was proportionately increased. Since the stomates corresponded to the latter case, it became easy to understand how, in spite of the small area of leaf they occupied, they could drink in the atmospheric carbonic acid with such rapidity; the leaf constituted a multiperforate septum, and the distance at which the stomates were arranged on the underside of most leaves was that which by experiment had been found the most economical arrangement of very small apertures in such a septum."—*Times.—Gardener's Chronicle.*

THE CUTIVATION AND USE OF SUN-FLOWER SEED.

The common sunflower, *Helianthus annuus*, is a native of Mexico and the northern portions of South America, and was probably first brought to Europe by the early Spanish expeditions to Peru and Santa Fe, since it was grown at Madrid in the sixteenth century. The plant has, therefore, long been known in most European countries as an ornamental shrub, but in Russia it has for many years been extensively cultivated as an economic product. In 1892, Mr.

Crawford, Consul-General for the United States at St. Petersburg, presented to his Government a report dealing in detail with the sunflower-seed agriculture of Russia, and this report aroused so much attention among farmers and others that the Agricultural Department of the United States has issued a bulletin on the subject for the guidance of farmers who propose to raise crops of this plant. The indnstry first began to assume importance in Russia about 1830, and since that time has steadily increased. The seed is the most useful portion of the plant, and this is commonly eaten raw or cooked, while the oil obtained from it is used as a substitute for almond and olive oils. The oil-cake left after the expression of the oil forms a valuable cattle food, being superior in this respect to maize or linseed cake, while it is also said to act as a natural "condition powder" for horses, owing to its easy digestibility and its great nutritive value. There is also a very prevalent opinion in America that the plant acts as a preventive of malaria in low-lying districts, which is probably founded on its capacity for absorbing water rapidly, and so improving swampy country. In America the seeds are at present mainly employed in feeding poultry, although they are also to some extent used as a cattle food. For the cultivation of the plant, it is stated that the best results are obtained by sowing the seed in April or May in a light soil, such as that which gives good results with Indian corn, liberal manuring being carried out, unless the land is very fertile. The number of seed heads to each plant should be limited, the superfluous ones being removed as they form. In harvesting the seeds, the heads are removed just before they are quite ripe, and the seeds obtained either by beating with a flail, or by holding the heads against a rotating disc studded with iron nails. The united States Agricultural Department has collected a considerable amount of information regarding the composition of various parts of the plant, of which the following seleotions may be given, the composition of other better-known foods being added for oomparison:—

Part of plant examined.	Where grown.	Water.	Ash.	Protein.	Fibre.	Carbohydrates.	Ether Extract (Oil).
Sunflower heads ...	Maine	84·0	1·16	2·18	4·21	5·96	2·49
Peas, whole plant ...	,,	86·1	1·12	2·59	4·51	5·29	·39
Sunflower heads ...	Canada	75·6	1·35	2·35	7·94	7·88	4·86
Sunflower stalks ...	,,	84·45	1·93	·96	5·67	6·12	·87
Sunflower seeds ...	Gardens of Agricultural Department	4·43	3·41	14·97	29·17	20·94	27·08
Black-eye peas	—	7·57	7·45	17·19	30·0	35·18	2·61

It will be seen that the plant possesses a high content of nutritious constituents, and since it is easily grown it should become an article of more general cultivation. It appears that no sunflower oil is made in America, several attempts to express the oil having given very poor yields in the hands of oil makers. It is now pointed out that the poor yield is due to the great absorptive power of the seed husks, which should be carefully removed before the expression of the oil is attempted.—*Imperial Institute Journal.*

FERTILIZING ORANGE TREES

First of all, in growing oranges, we must remember we are not treating our orange trees in their natural condition, as forest trees. They are entirely artificial, and we are trying to improve upon nature as far as fruit and flower are concerned, though at present, in this Colony, the fruit is our only consideration. The orange fruit is made up roughly as follows:—

Potash	$36\frac{1}{2}$	per cent.
Soda	$11\frac{1}{2}$	,,
Lime	$24\frac{1}{2}$	,,
Phosphoric Acid ..	11	,,

Magnesia peroxide of iron, sulphuric acid and silica comprising the remainder.

The tree is:—Potash ..	11	per cent
Lime ...	55	,,
Phosphoric Acid	17	,,

The rest in small quantities.

Fruit and tree together thus give:—

Potash	$47\frac{1}{2}$
Lime	$79\frac{1}{2}$
Phosphoric Acid ...	28
Soda	$11\frac{1}{2}$

These chemical elements are extracted from the soil and what is contained in the fruit actually taken away. For instance, suppose the average orange weighs 4oz., a dozen weigh 3lbs. and 250 dozen or 3,000 oranges $6\frac{1}{4}$ cwt. A full bearing orange tree removes of absolute soil or soil elements, which must be in some way be restored, $2\frac{1}{2}$ lbs., and taking 70 trees to the acre nearly two cwt. per acre. Now it appears that nearly the ha f of this in the case of the fruit is potash, the other half lime and phosphoric acid; and as potash is not supplied to the soil by water or the atmosphere, like some other essential elements, but exists in the soil in varying quantities, and is every year being used up, therefore, as you cannot have the pie after you have eaten it, you must in some form return the potash to the ground, and the moral is, when you throw away your wood ashes, throw them away around your fruit trees. But here comes the rub. How are you to determine, short of analysis of your soil, whether any essential element is wanting or in insufficient quantity? One, and one hint only, have I come across by which you may be able to judge of an insufficiency of potash by the appearance and growth of the tree, and that is an excessive growth of weak, immature, angular wood, which does not harden up. The effect of nitrogenous farm manure is to cause tree growth at the expense of fruit. This is desirable while the trees are young, but, if continued, large fruit will result, bad in colour and very thick in rind and rag, and the evidence of a sufficiency of nitrogen in the soil is the beautiful dark green colour of the foliage; inclining to yellow is an indication of its supply failing.

Some rough and ready method is badly needed to enable farmers to supplement their observations as to quality and constituents of their soils. It is not enough to say the soil is deep and rich and only requires moisture. It may be lacking in one essential element, and one general lack in deep flat lands here is lime. Remember the ash of the orange trees shows 55 per cent. of lime, and one rough and ready method to find if your soil is deficient in lime is to pour a little muriatic acid upon it. If it bubbles, lime is present, and you can guess pretty near how much, if you mix lime in the testing soil, say half and half, and notice how much it bubbles, then try less and less till you come to the pure soil, which will bubble very little and yet may be sufficient for a fertile soil, but not enough to grow oranges successfully in.

I find the orange groves, counting their existence by centuries, such as in Spain are on dry situations well drained to carry off superfluous moisture. Strange also to say, shelter belts were not anciently

known in the Azores, the groves being allowed a free circulation of air, light and sun, very little cultivation was done and no manuring, but the drainage being neglected about 1846, the trees began to show signs of foot rot which affected old trees and younger seedlings alike. It was arrested by cutting down affected parts to sound wood and then treating them as previously mentioned. When they began to recover, manuring, alteration and planting large shelter trees was resorted to, with the result that they increased the quantity at the expense of the quality, and while they previously were able to send their oranges to Norway and Russia they would afterwards barely keep sound landed in England. This decided them to resort to old methods again. They cut down the high dense shelter trees and planted thin ones and not too high, pruned the trees to let in air and practised less manuring, with the result that the groves are improving.

The fact is, only broad principles can be given the individual to guide him, and these are somewhat approximate. The only true guide is to learn from the tree itself by intelligent observation. Watch it as you would your child. The strongest and healthiest are those which are coddled least and astonish you with the amount of flesh and bone-forming food they can eat, but it must be wholesome. Our orange groves are not in quite such a natural condition, but they are equally under our control, only requiring of us an intelligent knowledge of their artificial condition.

For instance, we can stimulate and determine the character of our fruit by the kind of fertilizer we use, and as this is what we are mainly concerned in I offer you a few suggestions on the authority of Mr. H. J. Webber of the U.S.A. Agricultural Bureau.

Realizing, then, that the character of fruit we aim at is size, with thinness of rind, and minimum of rag, he says, to promote this, use nitrogenous manure from inorganic sources, viz., chemical manure containing nitrogen in moderate quantity with considerable potash and lime.

Sulphate of ammonia, a compound of nitrogen used in considerable abundance, and diminishing the potash will produce sweetness.

To render the fruit more acid use plenty of potash and juices mixed with farm manure rich in nitrogen.

A heavy dressing of nitrogen from organic sources will increase size and may be of service where the tangerine is concerned, but remember the caution previously given as to "indigestion."

One word of caution as to chemical fertilizers. Personally, I would refuse to use any one unless a complete analysis was supplied and guaranteed with each consignment. It stands to reason that any particular fertilizer will not be equally good or desirable for every varying class of fruit or vegetable, much less may it be suitable for every variety of soil, and it may be that a particular soil would be benefited more by a particular manure at £5 per ton than one at £10 per ton.

Moisture conditions will probably differ in every case, and in face of protracted droughts it is well to know that chemical manures have the quality of preserving surface moisture and drawing moisture from below.

A finely pulverized yet compact condition of the soil when dry under and around the trees is a strong preservative of moisture, and on this condition solely depends the growth and productiveness of our orange trees and the ability of the roots to draw the necessary sustenance.

A concluding word as to irrigation of orange trees. It has been said that watering round the trunk of the tree is a fruitful source of the disease known as foot rot. My observation and study lead me to conclude it is more the result of improper manuring and cultivation and bad drainage. I know of groves in healthy full bearing where it would be a waste of time to try and teach the owners any new ideas or methods. The only mode of watering they understand is to make a miniature dam round the trunk, cutting all the surface rootlets in the operation, and then filling the dam with water. They have been practising this for years and yet the trees are healthy and profitable. I have often thought if I could apply my irrigation from overhead it would be more natural. What then should I witness! I have stood under one of my large trees during a heavy rain and observed how every twig and branch formed a channel to conduct the rain to the trunk, and while the root of the soil was watered by the drop from the leaves, a full stream was running down the trunk directly into the soil, and even in a light rain you will observe that all trees, however small or large, are wet round the trunks while all the rest is comparatively dry. I also observed that the millions of rootlets all over the surface covered by a large tree are near the surface quite healthy, and are ready to contribute their share to the maintenance of the tree if only they get their share of moisture and food, and I say again if I could devise a scheme for overhead irrigation I would prefer it in the absence of rain. I do not recommend making a dam round the trunk, but prefer running a furrow round the outside circumference, trusting the moisture will rise to the rootlets under the tree, and to ensure this I would discard organic manures altogether, and use chemical fertilizers: and though these latter days demand science with practice, yet one cannot help longing for the good old times when there was very little practice and much less science, and the groves were handed down from generation to generation. There is a great future in front of citrus growers not alone for the fruit, but for the production of flowers for perfume and essentials oils, and an abundant field before the intelligent energetic cultivator, and I see no reason why we should not prove powerful rivals to France and Italy in the perfume industry, and Spain, Portugal, Azores with our fruit. If we cannot do it, we can least begin on sound principles, and our orange groves, the noblest and most generous responder to our intelligence, will still remain for our children's children to carry on to our own credit and a blessing to our country.—"*Cape Agricultural Journal.*"

REPORT ON A VISIT TO THE AFRICAN LAKES CORPORATION'S GARDENS AT BLANTYRE,

AND SOME COFFEE ESTATES AT MLANJE WITH BRIEF REMARKS ON A COCOA TREE GROWING AT MR. MOIR'S LAUDERDALE ESTATE MLANJE.

At the request of Lieut-Colonel Manning, H.M. Acting Commissioner & Consul-General, I visited Blantyre and Mlanje recently to ascertain whether cocoa or any other economic products, not represented in the Botanic Garden at Zomba, was growing at Mandala, and to observe the condition of the theobroma cacao tree growing at Mlanje, and also to report on some of the coffee estates on the south and south western slopes of Mlanje mountain.

From the lists of plants sent out from Kew to the African Lakes Corporation, in 1886, 1892, and 1894, it is seen that cocoa was sent out, as also to the Livingstonia Mission.

Although there are a considerable number of introductions growing at Mandala, their identity, unless specially known to the observer, is a matter of conjecture, as all trace of their labels is gone. The majority of the fruit trees now in British Central Africa are represented in these gardens, such as apples,

oranges, lemons, limes, loquats, guavas, peaches, nectarines and figs, as also an avocada pear tree, although this latter is not in good health. Grevilleas, eucalypti, coniferæ, ficus elastica and cotton trees *(eriodendron)* are all represented, and amongst these I noticed some rubber trees of about 15 to 20 feet high, which are probably *hevea spruceana* (Guiana rubber), six of which were sent out by the Kew authorities in 1886. A fair amount of milk might be extracted from these, and the yield of rubber is good. Few rare or unknown introductions were noticable, nor did I meet with either cocoa or coca *(erythroxylon.)*

The theobroma cacao at Mr. Moir's was next visited. Its general appearance is good : leaves large and a rich green, denoting active growth. It is in the form of a standard, branches commencing about 1½ feet from the ground. Side leader shoots have evidently been made a year ago and grown about 2½ feet, after which the point has been nipped as if by drought. Side leader shoots are now growing strongly. The tree was flowering when I saw it and had one fruit set; the other flowers were nearly out. The situation is somewhat exposed to strong south-east winds and a grass wind-break has been erected recently, close by, for its protection.

Eucalyptus trees are growing alongside it, and shield it from the morning sun, but it is otherwise exposed to the afternoon sun. Were it the reverse, I have no doubt but that it would be more to its advantage. As this tree is now over eighty years old, it may be considered to be a failure, as it has only grown some five or six feet in that time ; had it been in a more suitable and agreeable situation, I think it would have been a distinct success, and evidences may be adduced to show that cocoa cultivation may with confidence be taken up by the planting community. As the subject will form a special report, and be issued by this Department in connection with a recent treatise on cocoa, it is unnecessary for me to say anything more on it at present.

Regarding the importation of seed and the difficulty of transporting it from home in a satisfactory condition for growing, steps will be taken by this Department to have a quantity sent out, packed in a special manner. When these seeds arrive and are established here. arrangements will be made for their distribution as H.M. Commissioner may direct.

Some fine specimens of *cyphomandra betacea*, (tree tomato) were noticed, their clusters of fruit hanging in large numbers and evidently grown under the best conditions. Oranges, loquats, and lemons are abundant, and three mulberry trees seem to luxuriate in the rich black soil.

Tea seems to do well here also. The bushes show good growth, and a very palatable tea is made entirely; by natives, who were, I understand, instructed by Mrs. Moir. Tea has been largely planted throughout the upper part of the estate and, were more attention given to the preparation of the leaves, no doubt a tea of good class would be the result.

The coffee, with the exception of a small patch on a little hillock, is not in bearing ; much of it has been cut back, and much more requires this same operation. This operation, however, should be followed up by planting with young plants between the lines and removing the old roots after the crop is taken off. Since tea does so well, more attention should be given to this product at this plantation than coffee, for the soil being too much subjected to torrential rains gets washed away, leaving many of the coffee roots exposed, and, as a result, weakly coffee trees.

Leaving Lauderdale and proceeding round the south-eastern part of Mlanje, one passes over good roads where several streams are met with, bridged by wire-rope suspension bridges ; the country becomes densely wooded, and what might be considered ideal cacao land, temperature, rainfall and soil all being what is considered necessary for this product.

Situated in the midst of this dense forest and well watered country is the Nyasaland Co's Luchenya coffee estate of about 600 acres. A small crop is on some of the trees, but it is doubtful if there will be a satisfactory crop, as weeds have apparently got the upper hand (owing to the scarcity of labour) from which condition there can be no doubt the coffee will severly suffer.

Other estates in this neighbourhood are looking fairly satisfactory and, where the weeds have been kept in check, promise well.

Mr. Brown's interesting estate at Thornwood was next visited. On first looking at the coffee, it is difficult to believe that such good results could be arrived at from the dense shade under which the coffee is grown. Very few of the original forest trees have been removed, and as the forest is thick the shade is dense. It is remarkable to find, under these conditions in B. C. Africa, coffee trees of three years of age in such a promising condition.

The first blossom was, I am told, exceptionally fine and set well but, during the dry season of last year, following on the blossom, thrips infested the whole estate and almost destroyed what would have been a heavy crop. A curious instance of how ants have been of assistance in combating the thrips, and saving parts of the estate from damage, occurs here. On several patches throughout the plantation are colonies of reddish-yellow ants, probably "formica bispinosa," which live on the trees, making their nests by using some cotton-like material with which they fix together several coffee leaves in the form of a cocoon. On these trees the ants are numerous, and do not fail to attack any small insects which come in their way. It was evident they kept these trees clear of thrips and thereby saved part of the crop from the pest which infested the plantation and completely destroyed the crop on the trees where no ants existed. The soil at Thornwood is deep, of a rich reddish chocolate colour, apparently suited to the cultivation of tea which is also grown here. There is about six acres under cultivation and doing well : the older bushes are vigorous and very promising in appearance. Chillies are largely cultivated amongst the coffee and yield a good return, fetching frequently 40s. to 50s. and over, per cwt.

Tobacco is being grown in considerable quantities for local and South African markets, where B.C.A. tobacco is in great demand.

While going through the coffee gardens, I observed a few rusty spots on some of the leaves of a fungoid nature.

Examination shows that it is black rot, known in India as *pellicularia koterega*. It is a fungus affecting the leaves superficially and may be easily rubbed off with the thumb, but although it may not cause much damage, still it would be advisable that a few boys should be given this work to do before it spreads much more. The end of the wet season is approaching, and the time for fungus pests to disappear before the dry season, but attention should be given before it to be too late. It was only met with in a very few instances.

Mr. Bradshaw's Lujeri estate of about 400 acres, compared with Thornwood, presents an entirely different appearance. It is situated at an elevation of from 2,809 to 3,300 feet approximately, on the immediate slopes of south Mlanje. It is sheltered by ridges of hills to the west, by the high peaks of Mlanje to the north and east, and open to the south only. The soil is of a very deep nature, easily penetrated by a stick for about four feet on any part and composed of rich vegetable mould, and has undoubtedly accumulated for centuries past.

Huge timber is met with all over the estate, and where coffee has been planted nearly all trees have been cleared away ; those that remain exhibit injurious effects on the coffee bushes underneath, and it would certainly be bettter if they were all removed. I felt that, at this elevation, the atmosphere was entirely different to that at Thornwood, and had in it the "nip" which is felt when one

ascends through different strata of the atmosphere. Not only is it felt, but, from the robust healthy appearance of the two-year-old coffee, one sees that the growth does not rush up so quickly as is usually the case at lower elevation. It presents a remarkably healthy appearence, and the few stray berries that were found were seen to be of sound quality and no sign of light berry or any disease.

Of insect pests, very few need be feared at this elevation, and it is evident that neither borer nor bug visits this coffee.

A few red spots were observed on some of the leaves in which was found the coffee-leaf miner *cemiostamâ coffeellum.* It is remarkable that at about 3,300 ft altitude the best plants were observed, showing good sound healthy growth and giving great promise. As an experiment the owner had six two-year-old trees brought up from his lower plantation at Bloomfield and planted at about 3,000 ft. altitude and now these trees show a heavy crop of clean berries, and all the six trees in good growth, whereas at the lower elevation plantation the coffee has not been a success. According to a list of altitudes fixed by Mr. Lloyd, late Government Surveyor, the plantations of Bloomfield and Thornwood are at about 2,200 to 2500 feet, so it would seem that, at the lower elevation of this part of Mlanje, where high temperatures are obtained and heavy rainfall predominates, dense shade is necessary but at the higher situations shade may be dispensed with altogether. The temperature is cooler and the rainfall, although quite as much as at 2,000 ft., does not seem to be of such a torrential nature, as the soil does not exhibit much wash.

Tobacco and tea should do very well here, and for cocoa a more ideal situation could not be found. It is heavily forested country, well watered by numerous streams, and the soil is of that nature where cocoa would lxuriate, and with such conditions an even humidity would be maintained throughout the year. The temperature for one year, I believe, did not go lower than 48° Faht. nor higher than 91° Faht. The rainfall at this part of Mlanje is large, and seems to culminate at Lauderdale, where the highest rainfalls are recorded.

The phenomenon apparently commences beyond the Ruo stream where the first peaks of Mlanje meet the south-east winds, and increases in volume till Lauderdale is reached, and from there round to the northern slopes at Lukulesi it diminishes rapidly, beginning at probably 60 inches at the Portuguese Fort and reaching 130 inches at the Luchenga and Lauderdale estates, diminishing from that to about 50 inches at Lukulesi, a fact which is indicated on comparing the heavily-forested country at the Ruo to the sparsely-covered country at the Lukulesi.

Although I did not visit Lukulesi and cannot say anything about its present condition, it is still significant that with such a small rainfall this estate has given heavy crops for some years, and shade is not extensively adopted.

Mr. Simpson's Ntundulima estate was visited, and I found that he had partially given up coffee and was directing his attention to the cultivation of chillies. He has also planted out a lot of ceara rubber trees. His fine orange and mango trees are objects of admiration, and from these he gets good crops.

On arriving at Blantyre I proceeded to Soche to observe a reported fungoid disease. On going over the estate with Mr. Inglis, I found that much of what had been affected had long since been cut away, and it was only a small patch of coffee which I observed showed any sign of injury.

A few of the shoots exhibited signs of the bark having been removed at the base or junction to the main stem. The wound appeared old and cankered, and the wood dry, while the shoot itself, although not dead, appeared unhealthy and somewhat swollen, from the fact that the sap therein could not return to the main stem because of the wound. It is probable that canker was the cause of the injury, but some of the shoots exhibited signs of having been eaten. The injury, however, is comparatively slight and not likely to cause any considerable loss; to remedy it, ascertain if there is sufficient depth of soil where it, has occurred, and if not it will be advisable not to plant coffee on that part of the estate.

Lunzu and Chipande estates look clean, and promise fair crops.

J. Mc. CLOUNIE,
Head of the Scientific Department.

—*B.C.A. Gazette.*

SELANGOR PLANTERS' ASSOCIATION.

ANNUAL REPORT FOR 1900.

At the end of the year under review, the cultivated area according to all the returns that could be obtained, and estimating the area of estates from which no returns could be obtained, is less by 473 acres than that of the previous year, and on the back of this report is a statement showing how these figures are arrived at.

PLANTING PRODUCTS.—(*a*) *Coffee.*—Prices ruling during the year have shown a distinct improvement over those of last year and are as follows: January $20 per pikul, February $22, March $22.50, April $21, May $20.25, June $22, July $22.50, August $22, September $21.25, October $19, November $19, and December $19: an average of $20·89 per pikul, or $3·69 higher than the average for last year. Prices were firmer at the comencement of the year; but, towards the end, prices were dull and the market still remains so. The low prices, although better than those obtained last year, have necessitated the strictest economy on all estates. Under these circumstances your Committee consider that it is a matter for congratulation that estates are looking so remarkably well, and that the planters are showing such determination to do everything in their power to tide over the present crisis.

The attempt to improve the quality of our coffee, commenced in 1899, has been continued during 1900, and it can safely be said that the sample generally is better than it ever before was. During the year five samples of sun-dried and machine-dried coffee were sent to a London Broker by the Committee of the United Planters' Association for report and valuation, with the result that such samples were favourably reported on, and showed a considerable improvement in value on the Singapore prices for similar samples, and your Committee have followed up the action of the United Planters' Association in obtaining promises of contributions from estates in Selangor to form regular monthly shipments to London: and we trust that this may lead to something substantial being done towards shipping our produce direct to European markets. To show that it is realised how important it is that the quality of our coffee be raised to the highest standard possible, the fact may be mentioned that three patent driers have been added to those already in use in the state.

Your Committee consider the above references to Brazil estates regarding manure and case of Ceylon sufficient to stimulate you in continuing to keep your young and vigorous coffee in as good order as your finances will allow of, for we are in hopes that the days are coming, and perhaps not far off, when large crops will mean large profits.

Para Rubber.—During the year the cultivation of this product has increased considerably, 1,146,870 seeds having been imported or obtained from local sources, all of which have been planted out in the field or in nurseries. It is to be regretted that seed imported from Ceylon germinated exceedingly badly; but, as hitherto, we are indebted to Ceylon for a large percentage of the rubber now flourishing in Selangor, we hope this will not occur again. Local seed gave an outturn of at least 75 per cent.

Termites still continue to be the worst pest which cultivators of Para rubber have to deal with but these have been, more or less, kept in check by various remedies.

Rambong.—The planting of Ficus elastica has occupied the attention of planters much more this past year than hitherto, 52,147 trees having been planted out. A sample sent by the Superintendent of Forests, Perak, to London was valued at 3*s*. 6*d*. per pound, and sold at 3*s* 10*d*. per pound.

For further information your Committee refer you to the minutes of a general meeting, held on 5th January, which have been placed before you. The year shows that Gutta rambong is likely to occupy the attention of planters more in the future than it has done hitherto, for, although the largest operations are being carried on with Para, there seems to be a tendency to extend the cultivation of Ficus elastica.

Coconuts.—An area of about 500 acres has been planted during the past year, altogether 1,504 acres are planted with this product, all of which is reported to be doing well and promise, especially in the coast districts, to bear fruit at an early age; there are trees in the Klang districts which have started blossoming at the age of three years and three months from date of planting, or three and a half years from seed. The Government have been, and are still, doing their best to check the ravages of beetle and it is hoped in time, with the co-operation of planters, that this pest will be brought within such bounds that its presence will not be a serious drawback to the cultivation.

Ramie.—One estate is carrying on the cultivation of ramie in a praiseworthy way, and we wish this estate all success.

Minor Products.—The planting of catch crops has not been neglected in the past year, the largest operation in this line being chiefly in the coast districts. Your Committee are in hopes that the Superintendent of Experimental Gardens will be able to find out some paying catch-crops to plant with rubber.

Labour.—During the year under review, the number of coolies of all races employed by members of the Association shoows an increase of 181 over the year before, judging from all the returns that could be obtained, and estimating the amount of labour on estates from which no returns could be obtained (see statement on back of report.) Labour has been easily obtainable in sufficient quantities, and the full number of tickets agreed to be issued by the British India Steam Navigation Company at the cheap rate under agreement made with the Government of the Federated Malay States—viz., 6,000—were taken up, either by Government or other employers of labour.

Some considerable trouble has been experienced by planters by the action of the Agent for the Government at Negapatam towards kanganies and coolies, but on representation of facts to the Government a reply was received that the officer in question was being discharged and a new one appointed. Dr. Foston took up the duties of Agent for the Government of the Straits Settlements and the F.M.S. at a recent date. The British India Steam Navigation Company still continue the issue of cheap tickets, pending a new agreement being made with the Government of the F.MS., the old one having expired. Some correspondence took place between the Association and the Government with reference to the arrangements for running a direct line of steamers between India and Kuala Klang; but up to the present nothing definite in that direction has been done. In connection with the question of labour imported from India and elsewhere, it may be mentioned that the Government has decided to erect a quarantine camp, and have chosen a suitable site for same. When this scheme has been carried out, coolies who arrive in the State, should there be a case of any infectious or contagious disease on board, will be landed at the camp. Formerly they were not allowed to land and this was a source of extra trouble and expense to employers.

Experimental Gardens.—The Government of the F.M.S., have appointed a Superintendent of Experimental Gardens, and your Committee are in hope that he will as soon as possible make experiments in tapping rubber trees of different ages, and different kinds, and be able to give us some trustworthy information as to what yield we may expect from the different kinds of rubber; also that the Government will supply him with a Biffen separator which may prove of some use to him. We are also in hopes that Mr Stanley Arden will devote a good deal of his attention to hybrid coffee, and that he will be able to instruct us in the best methods of destroying and keeping pests in check.

As the planting of rubber has to some extent taken place in the attention of planters, a good deal of his time should be devoted to gathering and giving information on every branch of that cultivation, and his services in that direction will be most useful.—*Selangor Planters' Association.*

TEA-GROWING IN SOUTH RUSSIA.

The following report of H.M. Consul at Batoum on the tea industry in the Caucasus, published in the "Board of Trade Journal," will be read with interest and satisfaction by those concerned in the production of British-grown tea:—

"The progress made with the cultivation of tea along the south-east coast of the Black Sea is but slow. The opinion held by many is that this industry cannot possibly assume any very great proportions for a considerable number of years. With the exception of the Imperial Domains and the firm of Popoffs of Moscow, no other tea-planters of any importance have shown any inclination to come forward and follow the example of the pioneers mentioned above, by purchasing land near Batoum, or along the coast for this purpose, and in reality the results obtained up to the present are not of such a nature as to inspire would-be tea growers with the confidence which is necessary to induce people to place their capital in enterprises of this kind. The Imperial Domain authorities are, nevertheless, extending the area of land under the cultivation of tea, within the limits of their estates, and are also endeavouring to encourage their neighbouring small landholders to embark in the industry by giving them seed to sow and seedlings from their nurseries to plant out.

"The firm of Popoffs, which has three extensive plantations under tea in the vicinity of Batoum, after spending large sums of money on these estates and also in setting up a tea factory, has evidently become wearied of the results attained in the eight years during which it has been engaged in the industry, and it is rumoured that the negociations with the Administration of the Imperial Domain Lands are in course of progress for the sale of these estates.

"The quality of the limited quantity of tea which has been manufactured locally, about 12 to 15 tons at the utmost is nevertheless fairly good, except that the samples of tea, which I have had an opportunity of tasting, differ from the ordinary teas imported into Russia from China, in so far that they have a somewhat astringent taste. Samples of the tea grown here have been analysed, and the results of the analysis have proclaimed the tea to be of satisfactory quality, but I am not in a position to give the detailed particulars of the analysis. Samples of the tea sent to London, however, were very favourably reported on.

"The great question does not, however, lie in the quality of the tea, which, I dare say, can be brought up to a high grade by scientific and careful handling, seeing that the climatic conditions of the district in which the plantations are situated are all in favour of the culture of tea, but in the fact that a permanent scarcity of labour exists: the rate of wages paid is comparatively high, and this circumstance makes it most difficult to render the industry remunerative.

"The rate for unskilled labour is from 1s 6d to 2s per diem I believe an unheard of price in any tea-growing district. This speaks for itself, since it is a well-known fact that cheap labour is one of the primary conditions under which the advantageous cultivation of tea can take place.

"I understand that the scientific agriculturist attached to the staff of the Imperial Domains at Chakva is preparing a work on the culture of the tea plant, the publication of which may have the effect of extending the cultivation of this plant among the more intelligent class of landowners along the Black Sea littoral of the South-Western Caucasus."

"RINGING" FRUIT TREES.

I have read Mr. Pandya's letter (which the Editor has kindly sent to me, together with his reply) in regard to the European Olive tree not fruiting in Kathiawar. I am of the same opinion as the Editor, and believe that some result may be obtained by root-pruning. I would, however, suggest, as an experiment, that "ringing" may also be tried in the case of a few trees. For the benefit of your amateur readers, I may state that the process of "ringing" consists in removing a ring of bark sufficiently deep to prevent the reunion of the separated portions during that season of growth. The ring so removed should take away both the outer and inner bark, leaving the pith, or cyolinder fully exposed. The best time to perform the operation is when the cambium laysr (inner bark) is in its greatest activity of growth. The effect of the removal of this bark is a violent interruption of the normal processes of circulation of the sap of the plant. The upward passage of fluids is only slightly affected, and is practically maintained as in the ordinary shoot. It is in the downward passage of the sap that the interruption takes place. The upper end of the shoot or stem beyond the ring becomes gorgod with the elaborated food brought down from the leaves, which results in its aging unnaturally and becoming mature. Shoots so treated will develop ripe fruit much earlier than the rest of the tree. Strangulation by a ligature of wire or cord has the same result, namely, the interruption of the downward sap.

I must point out, however, that in practice it has been found that the produce of "ringed" plants, though larger and more developed than that from normal plants, is not of the same good quality. My plan, however, in several cases, has been to "ring" the main stem, or trunk, of the plant, with very gratifying results in the matter of fruiting. Trees which had never flowered or borne fruit, did so when subjected to "ringing."

There is, however, the secondary and more permament result of ringing to be considered yet. From what has been already stated it will be easily understood that the operation benefits the upper part of the shoot at the expense of the other. The effect of starving the body of the plant must be taken into consideration. No plastic material is received from above; the region of active growth (the cambium layer) is starved, and as a consequence of the defective nutrition the buds on this lower portion are not likely to form flowers and fruit. Whatever advantages are to be had by this operation may perhaps, be attained equally as well by judicious root-pruning, and if so, certainly without the almost positive danger of loss of limbs. The liability of the ringed branch to break off must be remembered; if constriction by a ring of wire is adopted, this danger is somewhat reduced, and moreover the wire itself will ultimately be enveloped by the new growth and the condition of the tree becomes normal again.

PRACTICAL GARDENER.

THE CAMPHOR MONOPOLY.

The export of camphor rapidly decreased after the Japanese occupation, and it ceased entirely from June 22, 1899, when the Formosan Government-General issued an ordinance establishing a camphor and camphor oil monopoly. Up to that date 855 cwts., valued at £2,979, were exported. There were no deliveries during the year to foreign merchants, who thus for the first time had no share in a business originated and entirely developed in South Formosa by themselves. The reason of this is that foreigners had already invested large sums in camphor, for which no return had been made, and that it had become too risky to invest further capital owing to the persistent interference and obstruction of local officials.

All the camphor produced in the island during the remainder of the year, from June 22 to December 31, was purchased by the Government-General, but none was exported until after March 24, 1900, when the monopoly of the export of camphor from the island was disposed of.

The Government-General reserves to itself the right of disposing of up to 5,000 piculs of camphor at the same price, as that paid by the purchasers of the monopoly, to buyers in Japan, for use in the country, and has also sold the monopoly of the camphor oil production of Formosa to a Japanese in the main island.

Taking the mean production of Formosan camphor to be 40,000 piculs a year, there is still available for use in Japan or export abroad, independently of the monopoly, camphor to the extent of about 18,000 piculs a year. The area of the camphor forests is vaguely computed at between 2,000,000 and 3,000,000 acres, but this is merely guess-work. The monopoly was established with the object of protecting the forests which, it was said, were being wantonly destroyed by wasteful cutting; but its effect will, probably, be to accelerate their destruction.

For the information of those interested in the camphor business, a translation of the Camphor Monopoly Tender Regulations, together with some particulars of the contract between the Formosan Government-General and the purchasers of the monopoly is appended to the report by the Consul.—*Sell's Intelligence.*

COFFEE ON THE CLARENCE—Many persons who have grown coffee in the South of Queensland have affirmed that it will only prove remunerative in certain favoured localities, such as the Buderim Mountain and parts of the Blackall Range. Others go so far as to say that coffee cannot be profitably grown anywhere south of Mackay. The Clarence River is very far south of Brisbane, yet we learn from the *Farmer and Grazier* that Mr. John Ball, of Chatsworth Island, has been most successful with his coffee crop this year. His last crop returned 1,694 lb., which sold at 1s. to 1s. 3d. per lb. This year the crop is expected to amount to something like 6,000 lb. Mr. Ball has mastered the manufacture of coffee of the highest quality, and finds a good demand for it. His trouble is to secure sufficient quantities of beans. In reply to inquiries made of Mr. Holmes, a planter in Fiji, Mr. Ball has been informed that, owing to unsatisfactory prices offering in Sydney for the Fijian bean, the growers there were abandoning coffee-growing. Mr. Holmes forwarded Mr. Ball some seeds of the Liberia coffee, which is a sturdy-growing tree with deep tap root, and which bears a larger berry than the ordinary Arabian variety. In Fiji, even at the extremely low prices (3d. to 5d. per lb.) paid for the beans, this variety returned 4s. 7d. per tree. Mr. Ball finds that he can pay 10d. a lb. for good beans. His harvesting is done by lads, who are able to earn 15s. a week at the work.—*The Queensland Agricultural Journal.*

RUBBER CULTIVATION.

SUMMARY.

I have not seen any published accounts on Hevea (excepting Brazilian) where as good results are obtained as in Malaya, either in rate of growth, seed production, dimensions, yield and adaptability.

India Rubber (*Ficus elastica*). A sample of 5½ lbs. was sent to London, with the Para parcel, for sale and opinion. It was reported on as "good clean Java character" and valued at 3*s*. 6*d*. per lb., but sold for 3*s*. 10*d*.

The largest tree at Kuala Kangsar is about 90 feet high, measures 88 feet at 3 feet from the ground, measuring round all the aerial roots, the branches extend to 36 paces, and the largest leaves are 13" x 7", its age, 19 years. The growth of this tree has been remarkable during the last three years, from the time its aerial roots reached the ground.

Ficus elastica is an indigenous tree, found in Upper Perak. It is naturally an epiplyte, and its growth would be no doubt assisted if planted at the bases of felled trees. Its growth is slow at first but rapid when well established. Considering the enormous dimensions this tree attains, 10 to the acre would be close enough planting, and as perhaps 8 years would have to elapse before the tree could be profitably tapped, the intervening spaces could be utilized by some other crop, even Bevea, which would be beneficial to the growth of the *Ficus*.

TAPPING.

As the latex of *Ficus elastica* coagulates on the tree it is best to tap on dry days only. From single incisions, about 4 inches long, and rather more apart, the latex slowly exudes, and in 2 or 3 days afterwards can be collected. At times the latex runs more freely and then some drops to the ground, this can be collected on plantain leaves, but the quality is not so good as that which coagulates on the tree. At Kuala Kangsar seeds ripen about October, the fruiting season being between July and October, and I should not think these the months for tapping. I consider December, January, and the following months best.

YIELD.

I have not any information as to the age when *Ficus elastica* could be profitably tapped. At Kuala Kangsar there are two trees 12 years old, and two 19 years old, from the latter 25 lbs. of rubber has been obtained from each tree, and the tapping was far short of being exhaustive. The result of the other trees has not yet been ascertained, but I expect good results.

Getah Singret (*Willughlina firma.*) A small sample was sent to London with the Para parcel, and reported on as "good strong Borneo character," valued and sold at 2*s*. 6*d*. per lb. This is the best of the indigenous creepers, but I doubt very much if it ordinarily reaches the European market in a pure state, being usually used to adulterate getah percha.

Getah Taban Sutra (*Dichopsis gutta var*). There is one example of this tree in the Kuala Kangsar garden which is said to be 17 years old, and fruited for the first time in November, 1900. A few herbarium specimens were obtained, all the other fruits being carried off by squirrels before being ripe. The height of this tree is 25 feet, and girth 2 feet at 3 feet from the ground, a jungle tree growing under heavy canopy would of course be much higher, with less branching habit, and smaller girth.

Getah Percha (*Dichopsis Polyantha*). A variety of getah percha which grows from near the foot of Larut hill to 3,000 feet. A mountain form which may prove valuable for planting on high land. None, however, were observed in fruit, and it is probable that with this tree, as with many indigenous trees, a fruiting season only occurs every few years. Seedlings are abundant, but the smallest seem two years old.—R. DERRY.

PLANTING NOTES.

SUGAR IN HAWAII.—Regarding the possibilities of the cultivation of sugar cane in the Hawaiian Islands, Prof. Stubbs said the soil was the best in the world for the cultivation of cane, being superior to that of Cuba. The yield on the arid and irrigated lands of the islands is from eight to fifteen tons of sugar per acre, while in Louisiana the yield is about 1½ tons per acre. But about all the available lands having been taken up in the cultivation of cane already, the increase of production cannot far exceed the present output. The total value of the agricultural produce of the islands is $20,000,000 of which $17,500,000 is to be credited to sugar. Thus it will be seen that the islands have already reached, or nearly reached, the limit of yield. The drawbacks to the cultivation of cane in these particularly favored islands are the high price of coal—which reaches as high as $12 per ton—the cost of irrigation, and the great cost of sugar house plant. Nevertheless, the profits are so large as to practically preclude the cultivation of any crop but cane.—*Louisiana Sugar Planters' Journal.*

ZANZIBAR PRODUCE.—Mr R N Lyne, Director of Agriculture at Zanzibar, in his annual report for 1899, just issued, states that the cultivation of vanilla is increasing, and that three thousand vines are now planted out. No further expenditure has been incurred in experimenting with chillies, as they do not pay to cultivate in Zanzibar, except for the native, to whom time is no object. Their growth is uncertain, the crops light, and the collection of the crop expensive. The year was a very bad one for cloves, the general crop of the island being, if anything, slightly less. Rubber, tea and cocoa are also dealt with in the report, which, however, lacks interest owing to its stale information.—*Chemist and Druggist*, May 11.

INDIAN AND CEYLON TEA SHARES VALUES: RECOVERY BEGINNING AFTER A STEADY DECLINE.—In view of the smart drop which recently took place in many of these shares, the following figures, compiled by Mr. George Seton, of 120, Bishopsgate-street, E.C., should prove of interest. Recent figures, it will be seen, show that the values of the shares of 45 of the leading companies dropped to nearly the lowest point at the commencement of the month of April. There has been a slight recovery since, but the figures will not be again compiled until 1st prox.

Face value of 45 companies		£9,000,000
Market value	1st January, 1900 ...	9,500,000
Do	1st July, 1900 ...	8,900,000
Do	1st January, 1901 ...	8,550,000
Do	1st February, 1901...	7,950,000
Do	1st March, 1901 ...	7,450,000
Do	1st April, 1901 ...	7,500,000

The tendency, for the moment, is towards rather higher values, but in view of the unfavourable results for 1900 that are expected to be shown in many of the annual reports, some reaction may, not unlikely, again occur.

COFFEE UNDER SHADE.

In support of what our correspondent in Nyasaland says of the success of coffee under shade, it is cheering to have the following report from a well-known Passara planter:—"If only men had planted coffee under judicious shade, we should not have been bothered in Uva very much by Tea Over-production. I have coffee growing here as vigorously under shade as it was a quarter of a century ago." This is probably on or near to Mr. C. B Smith s estate of · Mousagalla, the first clearing on which we saw burned off by old Thomas Wood in 1865! The soil and lay of land were all that could be desired. Pity there are no suitable reserves on which to try coffee under judicious shade now.

REVIEW OF THE INDIAN TEA TRADE FOR 1900-1901.

FROM MORAN & CO.'S MARKET REPORT.

Calcutta, April 18.—The main feature of the crop, especially towards the end of the season, has been the undue proportion of poor tea made from rough coarsely plucked leaf; this style of plucking had the effect naturally of largely increasing the out-turn; and the very poor tea thus made not being in demand, has sold at very low rates. Much of this class was no better than common China tea in cup and vastly inferior in appearance. The extra weight forced on the trade tended to lower prices generally.

The average prices realised for the crop for the last season and the previous, including all tea sold in Calcutta and London from 1st June to end of March by public auction, are as follows:—

TEA OF SEASON.

	1900. Pkgs.	Av. As.	P.	1899. Pkgs.	Av. As.	P.
Assam ..	709,500	7	0	644,500	7	7
Cachar and Sylhet ..	564,000	4	7	585,000	5	6
Darjeeling ..	122,000	8	2	113,000	8	9
Dooars ..	304,000	4	9	273,000	5	11
Terai ..	56,000	4	5	52,000	5	5
Chittagong ..	15,000	5	0	14,000	5	10
Chota Nagpore ..	4 500	3	11	5,000	4	10
Kangra Valley &..	13,500	4	7	17,000	5	6
Packages	1,779,500	5	10	1,703,500	6	7

The estimate of the crop, based on the quantity made to 16th August, was published by the Indian Tea Association early in September, and it appeared from returns then available that the out-turn would be about one hundred and eighty-two millions pounds. The actual amount proved to be one hundred and eighty-seven and a half millions. Of this increase, Assam contributed about one and a half millions, the Dooars about two millions, and the Terai about one million, the other districts being much as estimated. The distribution has been as follows:—

	1900.	1899.
Great Britain	..160,440,589	149,374,164
Foreign Europe	.. 1,779,904	1,435,146
America	.. 4,529,604	5,923,404
Asia	.. 7,332,289	5,492,815
Australia	.. 10,102,292	8,250,436
	184,184,678	170,475,965

GREAT BRITAIN.—The heavy increase in the quantity shipped proved to be far in excess of requirements, and in consequence the market there gave way, and the lowest prices ever known have been recorded. This, however, has not been altogether caused by the increased imports, but to a great extent by the upsetting of the market, caused by the uncertainty about the duty, and the expectation that it would be raised 2d a pound in the coming budget. Latterly this difficulty appears to have been overcome, and it seems now probable that the tax will remain as before; in consequence, the Home market is higher for all good quality teas, in fact, for all but undesirable common kinds.

FOREIGN EUROPE.—The shipments from here have not increased to the extent that we hoped to see, but it is not that demand for our teas has declined, but buyers have been able of late to fill their orders more cheaply in London than in Calcutta, even after taking into account the heavy London Dock charges and the extra freight from London.

AMERICA.—Direct shipments have fallen off, probably for the same reason as above; in fact, it seems certain that it is so, as exports from London both to America and the Continent have very largely increased during the last few months.

ASIA.—The enlargement of the trade is very satisfactory, and there seems a certainty of a still larger demand this coming season. New orders are constantly coming into the market, and there are many enquiries from new places for samples and prices.

AUSTRALIA.—Also shows a large increase, and it is satisfactory to learn that many shipments are giving remunerative returns. The low prices at which Indian tea was selling have certainly been of some advantage here, and will evidently bear fruit in increasing the consumption.

RUSSIA.—We are glad to report that exports to this country are increasing, notwithstanding the great advantages enjoyed by Ceylon in the facilities afforded to those who ship by the Volunteer fleet.

From the above analysis of the Exports, it is, we venture to think, undeniable that London is oversupplied, and the other markets stinted. Our prices for kinds suitable for "outside" places have, owing to shortness of supplies, been run up to as much as 1½d per pound over London rates; in fact our market has paid as many annas as pence have been realised in London, with actual loss to gardens of the amount paid for freight and dock charges, besides interest. The heavy competition here for these classes, and their consequent high price, renders it difficult to fill orders: if there were sufficient supplies, and prices a little lower, the export to all these outlets would enormously increase.

LOCAL CONSUMPTION.—The difference between the crop and the shipments is about 3½ millions. This, we take it, must be held to represent the quantity consumed in this country, and it seems absolutely ridiculous that among such an enormous population so little should be used. There is no doubt in our opinion that there is a very large opening in this country for the disposal of a considerable proportion of the crop, and with the facilities now about to be afforded to the inhabitants of India to procure good sound tea, by the Indian Tea Association, there should be a far larger quantity consumed in the country next year;

Green Tea.—The Indian Tea Association in their endeavours to relieve the industry of the heavy surplus over consumption of our ordinary teas are offering a bonus for the manufacture of green tea. This description of tea can well be made in this country, and could be relied on as uncoloured and unadulterated, and, we think, there is a good remunerative outlet for it in America, where, we understand, such green tea would be taken freely. The quantity of green tea shipped to America from China is rather over 14 millions a year ; surely some of this might well come from India. Some Indian greens made in Kangra Valley have met with a good reception in that market. Some 35 to 40 millions of tea goes also from Japan, and some of this, we do not know how much, is green.

For the coming season, we recommend most strongly the greatest attention to quality of cup, in all districts and gardens where strength or flavour can be expected ; if leaf is good so much the better. For other places not so favoured as to soil and climate, we say, pay particular attention to leaf ; if the liquor is good, too, so much the better ; but the chief outlet and best market for these teas is the "outside" markets where well-made tippy leaf is wanted, and the liquor is of secondary importance. But avoid as much as possible sending down rough, coarsely-plucked, half-rolled leaf with no liquor to speak of ; such tea is not in demand in any market, and only helps to lower prices all round.

TOTAL EXPORT OF SEASON.

Amounts passed through Calcutta from 1st April to 31st March :—

	1900-1901.	1899-1900.	1898-99.
Great Britain	160,440,589	149,374,164	135,381,722
Foreign Europe	1,779,904	1,435,146	1,171,146
America	4,529 604	5,923,404	3,273,096
Asia	7,332,289	5,492,815	6,972,251
Australia	10,102,292	8,250,436	6,398,002
	184,184,678	170,475,965	153,196,217

IDENTIFICATION OF VARIETIES OF CACAO.

In answer to our correspondent "Pod's" enquiry, Mr. Carruthers, at our request, has been good enough to supply the following explanation :—

The identification of the varieties of *Theobroma Cacao L.* is, like the identification of varieties of other cultivated plants, a matter which varies considerably with the expert who observes them, and in Ceylon so much crossing takes place that it is not possible to "classify" all fruits as "Forastero" or "Criollo."

Many pods contain seeds of the distinctly Criollo character, viz., white cotyledons when cut and roundish in shape as well as other seeds with the Forastero purple-coloured cotyledons and longer in shape. It is impossible to give a varietal name to such pods and they may be produced by a tree having the habit and characters associated with Forastero or those recognised as Criollo.

In a large number of examinations, weighings, and measurements of pods from trees of both varieties, I have not as yet found the mean weight of seed contained to be distinctly greater in either of the two varieties generally grown in Ceylon. The diagrams—of pods not typical of either variety—were published to show the unwisdom of trusting to external characters in valuing the fruit, the exact commercial value depending, as it does, on the quality of the individual seeds, and their preparation for the market. This was not considered; that is another and a most important question.

EWING'S ONE-RAILED TRAMWAY.
MR. L. DAVIDSON AGAIN.

ON THE NORTH TRAVANCORE TRAM.

The writer has frequently been asked if the Ewing's tramway laid by us in North Travancore was a success, and the following notes will answer, so far as lies in his power, these enquiries. Unfortunately, we are still in the experimental, or rather experimenting, stage but the knowledge gained during the last two years, in rectifying mistakes and improving the installation, affords sufficient data to come to a reasonably reliable determination as to what conditions this class of tramway is suitable for, and under what conditions it would not be a commercial or, perhaps, engineering success.

I believe—and this is a point we would have determined accurately before this south-west monsoon, had the writer remained in Travancore—that the power necessary to move a given quantity of goods by Ewing's tramway on a fair road, with reasonable curves, is less than half what is required to move the same quantity of goods by country carts—in other words, the same number of cattle will do double the work by tram that they can do by carts, and having arrived at this factor, the other points to be determined are :

(1) What are reasonable curves ?
(2) What is a fair road ?
(3) What is the cost of laying in the installation ?
(4) *a*, What is the extra cost, if any,of supervision and upkeep of rolling stock and permanent way as compared with (*b*) upkeep of a metalled cart-road.

Reasonable curves in the case of Ewing's tram are curves of about 60 feet radius or less.

What the writer considers *a fair road* is a metalled road with grades of about 1 in 28 or flatter.

The cost of laying in the installation on a *suitable existing cart-road* may be roughly put at R3,000 a mile, for a light tram to carry 1-ton loads.

The cost of upkeep of tramway will be far less than the cost of upkeep of road, which will be readily understood when one considers the wear and tear is mostly on the rail instead of on the road. At the same time I very much doubt whether it was a profitable investment to lay the tramway as we have done in South India, for the cost of constructing a road in a hilly country, with 60 feet radius curves, is at least 50 per cent. more than it would cost to cut a small road for a double-railed tram, which could negociate 30 to 40 feet radius curves quite well and do as much or more work than Ewing's tram.

THE SAVING AS COMPARED WITH CART HIRE.

I do not believe it will pay to lay the tram on ordinary low-country roads in South India, where transport charges are very low (about R8 per ton for 50 miles) and where the roads have a good many steep up-and-down grades on them, and many rivers are not bridged *but I do believe*, where cart hire is dear, as it is up-country in Ceylon, or Burmah, and especially where heavy loads (such as timber), of from a ton to 30 cwts. per pair of wheels have to be carried, it will pay well to lay this tramway along the edge of existing roads, where these are suitable. The writer had an offer from a contractor, shortly before he left Travancore, to transport goods over the tramway at R3 a ton for 21 miles and the same man asked R6 per ton for

cart hire, which shows a great saving in using the tram, more especially as the tram track cost much less for upkeep than the whole road.

I believe the 25 miles of rail laid in North Travancore is the only instance of Ewing's one-railed tram being tried on a practical scale.

Mr Ewing's Agents are Messrs. Parry & Co. of Madras, from whom all information regarding it can be obtained.

It need hardly be mentioned that the writer has no interest whatever in it, further than having been the purchaser of the above installation. Briefly, the system consists of

(1) A single rail attached to sleepers in the ordinary way ;

(1) Trucks, with two or more double-flanged wheels running underneath the centre of them, tandem-wise, so that, *theoretically*, if a truck were properly loaded on level ground, it should balance itself on the railwheels just referred to ; and

(3) An outrigger wheel of large diameter (four feet or more) made of very light materials and wide tyre (four inches or more) revolving on a hinged axle, fixed to the centre of the truck and projecting over one side, while attached to the axle at the edge of the truck are two spiral springs, one above and one below it, that allow the axle to move up and down freely and compensate for any inequalities of the road.

The object of the outrigger wheel is to prevent the truck from upsetting, and it is not *intended* to carry any load, the whole weight of the truck and the goods on it should be carried on the rail wheels.

SLEEPERS AND RAILS.

The rails we laid down were 14 lb to the yard, and they were dog-spiked on the sleepers 2 feet 3 inches and 4 feet 6 inches long by 8 inches wide and 4 inches thick, and we found it best to place alternately a 2-feet 3-inch sleeper across the rail, and then a 4-feet-6-inch sleeper, longitudinally, leaving a space of about 15 inches between them. Lighter sleepers would not, in the writer's opinion, do.

These rails cost R1,700 per mile, including fish-plates and spikes C.I.F. at Madras ; and sleepers cost R250 to R600 a mile, according to the cost of sawing and distance of transport, while bending and rail-laying and rolling-stock should cost another R700 a mile, bringing up the cost of the complete tramway to about R3,000 a mile.

Our trucks were 12 feet long by 6 feet wide, and had simple platforms running on two wheels for carrying rice and tea chests, costing about R400 each, and built to carry a load of 1 ton ; but, of course, rails of heavier section can be laid to carry heavier goods, and the trucks can be built of any ordinary form and have more than two wheels if necessary, in which case I think the *extra* wheels or wheel should have plain treads and no flanges as the friction on these double-flanged wheels is a serious drawback to the tramway.

EXACT POWER REQUIRED TO HAUL A TON.

I intended to test, with an electric motor-car we had built, the exact power required to haul a ton of goods on the tram, compared with the power required to move it in country carts ; and I hope this experiment will be carried out yet, as it would be valuable. It could either be done with the electric motor or with cattle and an ordinary hauling bar with a weight-tester attached, and I believe that the efficiency of the tram will be comparatively lessened *whenever curves of small radius have to be negociated*, because double flanges on the wheels involve much more friction than single flanges, as the wheels are fixed in a straight line, three or four feet apart, and any deviation of the rail from a straight line involves considerable friction on the rail at the four points where the flanges of the wheels bear on it. In ordinary railway-wheels this friction is overcome by the shape of the *tread* of the wheels, and, if any means can be discovered for getting over this difficulty in Ewing's tram-wheels, the power required for haulage will be greatly lessened, and the life of both rails and wheels greatly lengthened.

Mr. Kemlo designed two arrangements, one for swivelling one wheel to meet the curves, and the other for using four single-flanged wheels instead of two double-flanged wheels, but those have never got beyond the stage of drawings, so far, although they are well worth experimenting with.

CURVES.

We were led to believe that curves of 20 or 30 feet radius were suitable for our tram, but after seven miles had been laid it was evident that these sharp curves caused immense wear and tear to wheels, rails and cattle, so the writer reluctantly had seven miles of rails pulled up and relaid at curves of 60 feet radius as a minimum, and the grades of the road were at the same time corrected, the steepest part being one in 28, and I would not advise anyone to lay in a Ewing's tram at steeper grades than this, unless for a short portion of the total distance. In making a new track for a tram of this description, therefore, it should be borne in mind that curves should be 50 to 60 feet in radius, and where a tram road has to be cut in a steep and broken country, its cost is probably increased by 50 per cent. in extra embankments, retaining walls and extended culverts; and the whole question of the cost of laying the tramway, compared with cutting metalled road and using country carts or a double-railed tram, requires careful consideration.

The laying of the tram in our case was, therefore, under the misapprehension that it would work on curves of 30 feet radius or less and the cost of correcting this mistake was very considerable. I believe, however, that it will work all right when the outrigger wheel track is properly metalled, for reasons I will presently give, and this I believe is now being done.

A few of the mistakes made by us are noted below, and I think that the company did more than its share in making Mr. Ewing's invention a practical and useful means of transporting material.

(1) The curves of the road were too sharp.

(2) The trucks were not sufficiently strong.

(3) The brakes were defective.

(4) The outrigger wheels were too weak (to stand bad loading and bad road).

(5) There was great friction between the flanges and the rails.

(6) There were no proper points or crossings.

(7) There were no proper lubricating arrangements.

(8) The rail wheels were cast-iron and they should be of good cast-steel not chilled.

(*a*) With regard to the *sharp curves*, we put that right, but only at the expense of specially widening the road and relaying seven miles of rails.

(*b*) *Trucks* are now properly built and two new ones can be seen at Messrs Walker & Co.'s, Colombo, and will, I am sure, interest visitors.

(*c*) These trucks have the latest brake designed by Mr Michie and myself and it is very efficient.

Lever brakes, unless they have plenty of travel, soon wear the blocks of wood down while screw brakes blocked the wheels and caused "flats" to be ground on the tread due to friction between rail and wheel, and were therefore unsuitable.

d. The outrigger wheels supplied were too light for the inferior unmetalled road they had to travel over and the careless loading; but we have now a very good wheel, designed by Mr Kemlo, with tangent spokes, giving little trouble.

As I mentioned before, the weight of the loads is *theoretically borne* entirely by the rail wheels, but too often the native truck-men load the trucks so that two or more cwts of the load is thrown on the out-rigger wheel, and besides this, when there is any hollow in the road and the out-rigger wheel is *below the proper level*, a lot of extra weight is thrown on it ; therefore it should be comparatively strong.

Mr Kemlo has designed a pair of springs, which I would have tried and which show exactly the weight

on the out-rigger wheel. If they work in practice they would be invaluable as they exactly indicate if any extra load is carried by the outrigger wheel

(e) The friction on flanges of rail, wheels, and rails is very serious; and this is one of the weak points of the tram.

I forgot to mention that Mr Kemlo and Mr Thorp both designed wheels with sloped flanges; and the former gentleman says, if they are properly made, they will work well. I hope so and would like to see them tried further.

(f) The difficulty in regard to points or ramps for crossings is considerable, due to the difficulty of dealing with double-flanged wheels, but this can be got over in a fairly simple way.

(g) Lubricating bearings have just been designed by Mr Michie and will be successful, I hope, as they would save a lot of wastage through oil running on to the track. Rail-wheels of cast-steel which can be returned are far the best. Our cast-iron wheels wore out very quickly, the chilled ones could not be returned, but the new wheels now being made should do well, and be easily returned with the lathe; while the chilled ones cannot be treated in this way and are lost as soon as they are worn somewhat, especially if they have a "flat" on the tread."

Although, theoretically, the out-rigger wheel carries no load, in practice it frequently carries a good deal and for this season the wheel track should be metalled to prevent its being cut up in wet weather; and the part the animals hauling the trucks travel on should be metalled too, as they cut up the track if of earth.

With those improvements in Ewing's tramway and a metalled truck to run it on, Ewing's tram can be made to do a lot of useful work.

It can be laid within 2 feet of the outer edge of any road and therefore impedes cart traffic very little, and although we were naturally disappointed at the mistakes made it did not get a very fair chance in the past; and if the road is properly metalled and trucks and track kept in proper repair, the writer will be surprised if it does not prove quite successful, and this is also the opinion of Mr Kemlo.—Local "Times."

L. DAVIDSON.

MOSQUITOES AND THE CASTOR OIL PLANT.

(*To the Editor of the Pioneer.*)

SIR,—Some short time back, there appeared, in the correspondence columns of your paper, I think, a recommendation to use the castor oil plant to keep a bungalow free from mosquitoes. I, being a sufferer, had six plants placed in pots in my rooms, I fancy we must breed a different variety of mosquito than your correspondent, for the castor oil plants are thickly covered with the insects by day, who, at night time, seem to be actually invigorated by the apparently stimulating effect of their new quarters.—*Pioneer*, April 22. D.

SCIENTIFIC AWARD TO THE CEYLON GOVERNMENT ENTOMOLOGIST.

The late Surgeon-Major Barclay, of the Indian Medical Service, contributed to science some most valuable work on various Fungi. His untimely death at the early age of 39 was a severe loss to science in the East and it was felt that some suitable memorial should be instituted so that the influence of his example and work should be kept alive. With this purpose the Bengal Branch of the Royal Asiatic Society founded the "Barclay Medal" to be presented annually to the investigator in Biology in India and Ceylon who has done the most valuable work. The first award has been made by the Council of the Society to Mr. E. E. Green, F E.S., Government Entomologist, Ceylon, for his work on the Insects of India and Ceylon. That Mr. Green has been honoured in this way will be a gratification to those in Ceylon who know his work; for we feel sure that the first award of this medal could not have been made more judiciously, and we heartily congratulate the Government Entomologist who is so widely esteemed. The medal bears a clever bas-relief portrait of Dr. Barclay.

OLDEST TEA IN CEYLON.

DOING WELL IN ITS 33RD YEAR WITHOUT MANURE.

In answer to our enquiry, Mr. G F Deane, Manager of the Loolecondera Group, writes:—"About the old Tea fields on Loolecondera, I am glad to tell you that the oldest 20 acre-clearing (planted in 1868-9) is still doing well, the yield for last twelve months, ending with March, 1901, was 566 lb made per acre; this field has not been manured. The next oldest field 84 acres planted 1874-5-6 gave a yield of 390 lb. made tea per acre during a similar period, the smaller yield being partly due to some of it having been pruned during that time. No manure has been applied to these fields as far at I know."

THE TEA TRADE.

MARCH STATISTICS—RUBBISHY QUALITIES—RESTRICTED PRODUCTION.

(*From an expert correspondent.*)

INCREASE IN CEYLON AND INDIAN EXPORTS.

The only satisfactory feature in March statistics is the continued increase in the exports of Indian and Ceylon descriptions, and last month the former advanced 45 per cent and the latter 70 per cent as compared with the previous year. How the largeness of the bonded stock is to be accounted for in view of the recent heavy clearances I cannot make out, but doubtless the investigator's explanation will be forthcoming in time. During March the prices of all good teas improved generally a penny per lb—in many instances twopence—owing, it is said, to better quality. Common descriptions, especially those averaging from 5d to 6d per lb, have participated in the improvement in a minor degree, and even the lowest grades are ½d per lb better. From the tone of the market recently it looks as if the prices of the qualities averaging 9d per lb and upwards have for the present culminated, especially if the finer plucked common teas now on the way prove to be as satisfactory as they are reported to be. In the Colombo market the higher grades have been realising an advance of 2d per lb.

PROPORTION OF LOW GRADES.

It appears by the brokers' circulars that, whilst last year's Indian crop exceeded the previous season's by nearly 13,000,000lb, the sales were about the same; consequently, there is this surplus quantity to be got rid of during this and the next two months. This excess consists largely of the lowest grades of common tea, so there is not much hope of the average prices of Cachar, Sylhet and Dooars descriptions improving until it is disposed of, unless in the meantime the prospects of

largely restricted production affect the market generally. That the disastrous slump in prices of common during the last four or five months is owing to the excessive import of the lowest grades from India is clearly proved by analysis of the assortments offered for sale. Out of 36,790 packages sold last week 17,559, or 20 per cent, were Pekoe Souchong; 12,371, or 6½ per cent, were broken or Souchong, and 3,445, or 9¼ per cent, fannings and dust, making together 35¾ per cent of those grades which dealers stigmatise as "rubbish."

EXTENSIONS AND COARSE PLUCKING.

Though Ceylon proprietors are by no means exempt from the charge of having contributed to over-production by extensions and coarse plucking, an analysis of the proportions of the grades of their tea show that they have not erred in the latter respect nearly as much as their neighbours. Of 25,479 packages also offered for sale last week, 2,991, or nearly 12 per cent, were Pekoe Souchong; 107, or ½ per cent, were broken and Souchong; and 1,167, or 4½ per cent, were fannings and dust; making together 17 per cent, as against India's 35¾. Moreover, whist 50 per cent of the Indian tea is selling on an average below 6d per pound, only 20 per cent of Ceylon tea is selling as low. From the Ceylon newspapers and private sources I gather that proprietors are very much in earnest both in inteution and practice in reducing production. On every estate where finer plucking is practicable it is being adopted, and in all districts temporary abandonment of cultivation of unremunerative tracts is being carried out. The effect of this is already showing itself in the March shipments from Colombo, and it appears probable that the decrease in April, May and June will be on as large a scale.

PLANTERS' NEW POWER.

If Indian planters follow the example of their Ceylon brethren, as I believe they intend to do, the result may be to place the producers of common tea in a more permanent and prosperous position than they have ever heen in by proving that they have the power of rapidly curtailing the output at a trifling increase of the cost, and of thus regulating to some extent the prices of their produce. The consensus of Ceylon opinion as to this year's crop points to an export to this country of about 101,000,000 pounds of better tea. To a small extent this depends on the export to other countries; so far there is no increase over last year, owing to Russia and America having taken less, probably because tea has been relatively cheaper here than in Colombo. This estimate would give a decrease of about 13,000,000 pounds, but there are some experienced planters who think the decrease will be larger. The question will, however, be settled by the close of June—the end of the heavy flushing months. In the meantime we know that restriction is being energetically carried out.

AN UNSUCCESSFUL EXPERIMENT.

Two or three months ago, when so much reliance was placed by intelligent planters and others on the capture of the American market by the manufacture of green tea in competition with Japan as a remedy for over-production, you may remember I expressed an opinion, based on personal knowledge and experience, that whilst Japan held 30 per cent advantage in exchange the enterprise could only be carried out as long as sufficient funds were available to pay manufacturers a countervailing subsidy. Industries are created and maintained indefinitely by state bounties, paid out of the general revenue of the subsidising country, but the bounties to be paid in Ceylon on green tea are not provided by the Government, but by the tea planters themselves from a fund raised by a small export duty or cess for the special purpose of sending emissaries to advertise and push the consumptien of their tea in foreign lands. This fund will not admit of the committee who distribute it subsidising more than 2,000,000 lb. or 3,000,000 lb. annually. I never thought the game worth the candle. It is simply taking money out of one pocket to put it into another. I notice by the Ceylon newspapers that the experiment already shows symptoms of collapse. As usual with all novelties, last year the green teas offered for sale went off like hot rolls at remunerative prices; now they are unsaleable in Colombo, and a Press warning has gone forth to planters recommending them to hold their hands.—*Financial Times*, April 12.

PRODUCE, PLANTING, AND COMMERCIAL NOTES.

The *Grocers' Review*, a Manchester trade journal, comments as follows upon the tea crisis.

"Twenty-five years ago it dawned upon coffee planters that tea would grow in Ceylon. They tried the experiment, and the result exceeded their most sanguine expectations. Its success was immediate, and, as they thought, assured. Ceylon tea became fashionable, dealers boomed it, and within a few years it was an indispensable adjunct to the British tea-table. From 10,000,000lb in 1879, the output increased by leaps and bounds. Suitable land went to a premium, existing estates expanded, huge companies were formed, and things went merrily on until last year, when it was found that the export reached nearly 120,000,000 lb, and that fancy prices had disappeared. But as to how the trouble came about, the planter himself is not to blame so far as the quality of the article is concerned. As much care is bestowed upon the cultivation and manufacture today as was the case twenty years ago. In spite of rumours to the contrary—and it must be remembered that it is advantageous to some people to disparage Ceylon tea—the quality is just as high as it ever was. It is the quantity that has done the mischief. Another very serious factor towards the downfall of tea has been the fluctuation of exchange. When the industry was in the most flourishing condition the rupee was worth little more than a shilling. The planter thus got over seventy cents for his tea at 9d a lb Today, when he is only getting 6d, his local inquivalent is thirty-seven cents. The cost of output, of course, never varies, hence a very big drop on the credit side of his ledger. But although 6d may be the average—and on 6d there is a microscopical margin of profit to be made—it must be remembered that scores of estates are now selling under that and a large number are actually realising in London less than the cost of production. These estates it will be that will go first. With their abandonment the others may look up, but even at that the result is dubious. The public has found that it can get its tea—and good tea too—at half the price it used to pay, and it is not likely on the score of sentiment to give more."

While new markets for British-grown tea are eagerly sought for, attention might well be directed to the needs of the Army in this respect. In an article on "British Fighting Food," by Mr Annesley Kenealy, in the "Morning Post," this is referred to. He says: "The soldier is blamed in season and out of season for his habit of drinking muddy and dangerous water on the line of march, and thus contracting enteric and malarial fevers. Now, one-sixth of an ounce of tea and one-third of an ounce of coffee was the daily drink ration issued to the South African troops. The resultant brews resembled the palest brand of pale sherry, and the entire day's issue was consumed at one meal, with the natural result that Tommy quenched his thirst at the first poisonous pool on his daily march. In the absence of any means of procuring the alcohol to which most soldiers are accustomed, tea

and coffee should be issued generously on field service with the double purpose of supplying the stimulating element which hardworking soldiers need and of obviating the possible dangers in unboiled water. A United States soldier on active service is allowed an extra 21 cents daily for 'tea and coffee.' British soldiers might feel a momentary temptation to belong to the American nation, were they to contemplate the liberal rations issued to those who fight under the Stars and Stripes."

TEA INSPECTION.

In Canada an effort is being made to push the sale of Japan tea, "every pound" of which is, according to an advertisement in a Canadian paper, "officially inspected before export; only that which is absolutely pure and of high quality is allowed to leave that country."—*H & C Mail*, April 12.

POOR OLD COFFEE:

COORG—THE STRAITS—QUEENSLAND—JAVA.

Looking over the latest Administration Report for the Province of Coorg, we are much struck with the evident symptoms of decay in poor old coffee even in this last stronghold of the Arabian plant in India; and the "Coorgites" (to coin a word) or rather the Anglo-Indian administrator has invented a term to indicate a discontinuance of cultivation. Where we in Ceylon speak of an estate being (in plain Saxon) "abandoned," or in the less disturbing term now adopted in the Directory of "uncultivated," in the Coorg Report before us, we are told of "resignations" among old estates! Thus during 1899-1900, we are informed that one of the best-known and longest-established of Coorg coffee plantations—Fischer's, with an area of 490 acres—"was resigned entirely." In the one year, over 2,000 acres were "resigned," leaving in cultivation:—

In the hands of Europeans	31,980	acres.
,, ,, Natives	70,234	,,
	102,214	,,

But then, this comparatively large area only gave a total crop of 55,200 cwt. or not much more than ½ cwt. on an average. We suspect that most of the native gardens are more than "semi-resigned," perhaps cropping at ¼ cwt. to the acre, leaving the European estates to average about 1¼ cwt—a miserable enough return only compensated for by rather better prices; but Mr. Meiklejohn estimates that the expenditure on coffee cultivation was, at least, three lakhs less than in the previous year owing to the short crop. This, of course, can only result in further "resignations."

Turning next to Selangor, we have a return published by the local Planters' Association for 1900 which indicate a total of 15,064 acres under cultivation and an estimated coffee crop for 1901 of 25,578 piculs—about 30,000 cwt—or an average of about 2 cwt. an acre, and this, mainly Liberian coffee which at an average of 20 to 21 silver-dollars per picul—say 42s to 50s a cwt. at the highest—cannot possibly leave much profit.

In Queensland, coffee-growers—of whom Mr. Newport reports some 200 altogether, cultivating from 1 to 75 or 80 acres (the biggest estates) or in all 700 acres—are so far more fortunate. They sell all their coffee for local consumption and get 56s per cwt. for it in parchment or 112s per cwt. clean, according to sample. With such a difference, it ought to pay to run a pulper and drying-ground in some of the districts. The oldest coffee is not more than six years old, and the Indian planter who is now Coffee Inspector for the Government is sanguine enough to peak of 10 cwt. an acre *without manure* and a total crop worth £20,000 to £30,000. This would mean £30 to £40 gross return per acre—rather a contrast to say £4 in Coorg and £4 to £5 in Selangor! And moreover Mr. Newport tells us that a good deal of the coffee is Liberian, though chiefly *C. Arabica*. However, we must remember that it is principally garden cultivation in Queensland, and the soil and climate must be splendidly adapted to coffee when we are told:—

On the whole, the condition of the estates as I found them was not encouraging—in some cases the weeds were over the coffee. Where the coffee had been kept clean, the growth and bearing were remarkable. For amount of crop the Buderim Mountain is noticeable, the quality being also specially good here. On the Daintree River one or two estates that had been kept assiduously free from extraneous growth showed remarkable development, trees of thirteen and fifteen months being topped at 4 feet, having a good spread of secondary growth, and spiking heavily, showing promise of a 5 to 6 cwt. crop that would ripen when the trees were not more than two and a-half years old. For a l-round good qualities, some of the properties in the vicinity of Cairns, especially on the range about Kuranda, are pre-eminent

Of course labour is the difficulty: a Ceylon planter with 50, nay 20, good coolies might quickly make his way to fortune; but would he be allowed to import even one cooly to work on the land is a question not likely to be answered in the affirmative from Queensland.

Finally, we are surprised to learn of the great progress made with Liberian coffee—(such a complete failure as it was in Ceylon)—in Java where, for 1901, Liberian is expected to contribute 131,000 piculs against 106,000 in 1900, and this out of a total coffee crop (Government, Private and Liberian) of only 383,000 piculs as against 542,000 piculs in 1900. So that in Java also, coffee is going back as a whole, though the Liberian kind is apparently keeping up. But then all that the Eastern and Austral world can produce, of coffee, is but as a very little in comparison with the great and ever-increasing coffee crops of Brazil, Central America, and Mexico.

RUBBER GATHERING IN BOLIVIA.

The Chicago Bolivian Rubber Co. (Chicago) is organised to collect rubber on a large scale on concessions in Bolivia, the rubber collected being shipped via Mollendo, on the Pacific coast, to Europe. We have a large force of Indians in the woods, and expect to get a large quantity of rubber during the current year. The rubber is of fine quality.

The Belgian company, L'Abuna, formed to develop a rubber property bought from Señor Ballivian, of Bolivia, report that this property is one of the finest on the upper Madeira. Some 2,000 *estradas* of trees are embraced, which will afford employment for 1,000 workers, with a possibility of gathering 7 kilograms (=17½ pounds) each per day. The season for employment is estimated at seven months in the year. Besides the rubber proper (*Hevea*), the lands contain a large number of Caucho (*Castilloa*) trees, which it is proposed to work. It is intended to send at least 150 collectors into the forest this season, besides such native labour as can be secured. During the past season twenty men, without supervision, gathered 21,560 pounds of rubber, or 1,078 pounds each.—*India Rubber World*, April 1.

CEYLON IN 1889 AND 1901: GAMPOLA AND ITS NEIGHBOURHOOD REVISITED.

April 29.

(*By an old planting correspondent*)

We reached Gampola in time for dinner and, after travelling from Neboda in the Kalutara district from five o'clock in the morning, felt tired. Next morning we found our way to good old

SINNAPITIYA,

the oldest estate in Ceylon (over three score years and ten and still "comes up smiling") everything looking as fresh as a daisy, the timber trees well grown and giving a grateful shade to the roads with fine old mango trees and jak and a most valuable collection of Grevilleas in all stages of growth.

There is no necessity to buy timber for firewood on Sinnapitiya, it is a dense forest of valuable timber; and as the trees are kept well-lopped, the tea flushes well and good average crops of leaf are obtained; only fancy, the oldest estate in Ceylon turning out such a valuable property. Over seventy years ago, the late Colonel H C Byrde ploughed Sinnapitiya with elephants for coffee planting and the coffee held its own until the seventies; the writer has known Sinnapitiya for over thirty years during the time the brother of the Rev. Mr. Mitchell was Superintendent, then Mr. Jones for a short time about 1879. The present Superintendent, Mr. Waring, has been many years in charge of Sinnapitiya estate and to him is due the great credit of bringing the tea and timber to its present state of perfection. The bungalow is shaded by two gigantic Flamboyant with their gorgeous scarlet flowers and by clusters of yellow bamboo and some grand old mango trees; the Grevilleas fifty or sixty feet in height protect the bungalow from wind and sun. The factory is a very fine one with plentiful supplies of timber cut and dried ready for use.

At the back of Sinnapitiya towers the Vellakande Hill and the zig-zag road leads to Mr Gaddam's properties,

BUKANDE AND AMBALAWA,

(formerly owned by the late A C White). Mr. Wilkins owns a neat little estate beween Sinnapitiya and Gona Adika; he is trying cacao and cinchona in addition to tea. Mr. W. intends to put out 40 or 50 thousand cinchona plants of good quality, including Ledgeriana. This seems a wise thing to do, considering the low price of tea prevailing in Ceylon and India. Mr Wilkins is one of the old school of planters and had a varied experience in this island; it was a pleasure to have a conversation about Ceylon and the planting enterprise with Mr Wilkins and wish him every success.

Old

GONA ADIKA

like good old Sinnapitiya is still flourishing under the able management of Mr. W. Macgregor. There are some 360 acres of tea. The coolies call this place Massie Coombera and I found it a very stiff climb from Sinnapitiya during a storm of rain, taking shelter with Mr. and Mrs. Wilkins and reaching Gona Adika about six o'clock, very wet and tired. Shank's mare is not such a comfortable way of travelling in a steamy place like Kadugannawa, especially some of the lovely "short cuts" through wet mana-grass.

We remember the old bachelor days of this district. The scene is changed. When George Anderson was at Gona Adika—in the days of coffee—nearly all the planters were young bachelors except William Theobald of Mount Temple. Now we find married men in nearly every bungalow and of course their houses are more comfortable and lives more enjoyable. Talking of Theobald, he is still plodding on at Deltotte, another old and hardy planter, of over thirty years' experience in Ceylon. In Theobald's time

MOUNT TEMPLE

Estate was under coffee (planted by Dr Shipton and still called Doctor Dorai Totum); we remember tea being introduced there and poor James Robertson of the Mercantile Bank made this place his head-quarters; the last time we saw the old banker he was weighing his tea leaf at four o'clock. Arthur Calvert Hoare was stationed here and running the Nuwara Eliya coach. Mount Temple is now a *very important* place and *like the Phœnix risen out of its own ashes*! The estate has developed into a very pretty estate with a good

CART ROAD TO THE BUNGALOW.

Mr. Shelton Agar, the present proprietor, is planting avenues of coconut palms and these, added to the great quantity of ornamental and useful timber trees, will enhance the beauty of this property commanding one of the most comprehensive views of the lower planting districts with the grand old Mahaweliganga winding its way through the valley. Nestling under the shade of a palm and jak grove is the large and substantial factory of Mount Temple, five minutes' walk from the town of Gampola. Mr. Shelton Agar kindly showed me over his factory. There is a patent fan at the apex, oil-engine power driving three rolling machines: the Davidson, Brown and Jackson, all doing good work. Tea-sifting machines, tea cutter, sirocco and other machinery with good withering space upstairs, the jute hessian tats screwed to the stanchions with a coir rope binding to prevent the tearing of the jute hessian.

Mr. Shelton Agar is a man of inventive genius and he conceived the idea of binding the edges of the jute hessian with coir rope. This scheme is being generally adopted, I believe, by other factories. Mr Agar made some improvements in the Davidson roller but up to date received no remuneration, and the least the Messrs. Davidson could

do would be to present Mr Agar with a new rolling machine with the improvement added.

On Mount Temple the

COCA

(*Erythroxylon Coca*) plant is doing well, and there was a large quantity drying in the store, come from another estate. The leaves of coca are prepared for shipment. Most of the Kadugannawa estates are giving this enterprise a fair trial

The old fruit trees of Gampola shade the cart-roads, and cacao does very well under the mass of tropical vegetation skirting the high road to Kandy. My time was employed well in visiting a snug little estate belonging to Mr James Hawke, called

ORION,

managed by Mr Robert Northway. There is an imposing two-storey house built by Mr L D'Espagnac and now occupied by the Northways. The tea is a good jât and there were eight acres of indigenous Manipuri. There is a nursery of good plants raised from that seed. I believe the price is reasonable and both plants and seed may be obtained by intending planters. Here is another oil-engine and water power, driving three rollers—the Davidson, Brown, and Jackson. Orion is about four miles from Gampola, a stiff pull up the hill, though an easy and pleasant walk back through Gampola wattie. Two of the Messrs. D'Espagnac were located on a small estate of their brother's, Mr. L. D'Espagnac. They were glad to meet the writer again and have a talk of old times. It was exactly thirty years ago since we met Mr. N D'Espagnac at Vella Kande in Gampola and at Kehelwattie when managed by Mr Fred. Hawke (late of Kirimettia, Kadugannawa.) We enjoyed a Kew pine-apple grown here, in fact it is one of the pleasures of returning to Ceylon to partake of the fruits of the country. At Kalutara we tasted the Mangosteen and enjoyed the cooling draught of the young "King-coconut"— at Gampola some mango and small sweet Bananas, papau &c.

Returning from the trip to Orion, we remained at the Gampola Hotel to dinner and to sleep. This is one of the great improvements of Gampola.—We have stayed at the hotel twice to dinner and slept there twice and breakfasted on Sunday morning at the hotel. The place is very clean and well-managed—the food very good and attendance everything one could wish. On Sunday evening I visited another small property of Mr James Hawke, about three miles outside the town of Gampola, on the Kandy road. There is a large quantity of cacao along this route, growing beneath dense shade of palms, breadfruit and jak. Some enterprizing Sinhalese have planted pine-apple plants between the tea. On Mr Hawke's place the cacao was doing remarkably well and here we found quite a forest of grevilleas. Mr H informed me that for building purposes or for firewood the grevillea was worth from one rupee to oneandahalf rupee per tree; in this case what a wealth of timber exists in Gampola at the present moment.

When Mr Kershaw lived near the Suspension Bridge over the Mahawelliganga, he little thought what a fine estate would spring up from his worn-out old properties purchased by Messrs Reid, Rutherford and Company after they had constructed the railway.

MARIAWATTE

is still doing well and looks as fresh as ever. Old

VELLA KANDE

has again changed hands and Mr. de Soysa has built a beautiful little villa on the site of the old bungalow and is making terraced flower and vegetable gardens down to the stable. The old breadfruit trees are still there, some of them with mango and jak planted by the writer thirty-two years ago.

In the old days of coffee we thatched the ground with mana grass shunted down to the field requiring it by means of a rope-shoot. We should recommend Mr de Soysa to thatch his tea in the same way with both grass and jungle stuff. This will absorb the moisture and prevent wash on the steep slopes of Vella Kande.

A small portion of

BOTAWA

has been put into tea. We passed by on our way to

COOROONDOOWATTE,

and found the estate in full swing though Mr John Stephens has departed and his son, Mr. Arthur John Stephens from the Fijis, returned to Ceylon and on his old totum. We hope Cooroondoowatte will be as valuable as a tea estate as it was in coffee, the lay of the land is so well adapted for manuring.

Cooroondoowattie is really in Dolosbage District and will form the subject of another letter exclusively on Dolosbage. There are a few places in Gampola we had not time to visit but from information gained regarding them they are much improved in appearance and value. Mr. James Hawke has just built a large factory and stocked it with Machinery, Siroccos, Davidson, Brown and Barber rollers driven by oil-engine. I believe his store is in a position to buy tea leaf from the numerous small gardens around this part of Gampola on the old Kandy road. Vellakande, *my old diggings* thirty years ago, has got a new name, "Lantern Hill," named by Mr. de Soysa after a celebrated race-horse called "Jack-o-Lantern." The gentlemen I met at Vellakande or Lantern Hill were not aware that a race course exists on the top of the Vellakande Hill in front of the site of the top bungalow. We used to jump small hurdles there to get an appetite for dinner on Saturday nights and there was a small lake there.

HENRY COTTAM.

TEA *vs.* POTATOES.—When the former slump in tea occurred about the end of 1878, there was (says the *Indian Planters' Gazette*) a mild kind of rush for potato cultivation, but it died out as the former recovered. It may not be out of place to inform our planters that in some parts of the Nilgiris as much as R150 per acre is realised from raising the homely *spud.* Eight to ten tons is no abnormal yield, and this at R1 per maund is well worthy the attention of those who have low lying arable land at command, such as the edges of bheels and flats between teelahs, that, though submerged (or partially so) during the rains, are suitable enough for the six months of cold weather and spring cultivation.

AGRICULTURAL PROGRESS IN ZANZIBAR.

A DIRECTOR, MR. LYNE, ASSISTED BY A CEYLON PLANTER, MR. W J ROBERTSON, AND MR. H LESTER.

Zanzibar has so far come into line with the progressive States of the world as to have set up for itself an Agricultural Department, with a full blown Director of Agriculture. Mr. Lyne, who fills that useful post, has shown in a recent report to the first Minister that the Directorship is no sinecure, and that Zanzibar will not fall behind for want of energetic endeavours to develop its resources. In African native agriculture there is less danger than in India lest exotic attempts to improve things should prove to be so many essays in the art of teaching one's grandmother to suck eggs. Indigenous agriculture like indigenous labour is seldom of high quality in that part of the world, and an energetic Director of Agriculture, who has had tropical experience, may be able to introduce many practical improvements. In the Sultan's nurseries some excellent results seem to have been achieved by protecting clove seedings by planting rows of bracken ferns which shelter them from the sun and from the excessive dripping of water. Some successful experiments have been carried out in coffee planting, the growth of some Liberian plants being reported to be equal to anything seen in Ceylon, and as the soil constituents are said to be highly favourable for this culture we may hear more of Zanzibar coffee. Tea, too, has been introduced with satisfactory results. But Zanzibar is not destined to be a formidable competitor with Ceylon or India, notwithstanding that soil and climate seem to favour it, as there is not enough suitable land to allow tea to be grown on a large scale. The most that the Director looks for is the growth of as much as is required for local consumption, which cannot be much. Experiments in rubber planting both in Zanzibar and in Pemba have so far not yielded promising results. It is probable, however, that, until labour problems have solved themselves, the physicial conditions with which the Agricultural Department have to deal will be of secondary importance. Zanzibar and the country adjacent are passing through a transitional stage in the matter of labour supply. The Arab proprietor, instead of cultivating his land with slave labour, now deals with freed slaves, who settle on his land under agreement, giving him a certain amount of labour in return for cultivating rights on a portion of the estate. He has not yet brought himself into line with Western labour methods, and it will be long before he becomes reconciled to ordinary paid labour. His old hands are dying off, and he cannot replace them except by enticing people from his neighbours' land. Nor do the people themselves take kindly to the system of paid labour. So much is this the case that the Director of Agriculture says that, if these labourers were told that they would have to work regularly for payment, they would think they were hardly used. Labour difficulties in the Zanzibar and Pemba plantations have led to enquiries as to the suitability of the Indian cooly, but he is held to be too dear; for, although the Indian is a much more efficient labourer than the Swahili, he is not four times as good, as he would need to be to make it worth while to employ him. Apparently when the Indian coolies have finished their work on the Uganda line they will not be tempted to settle in Zanzibar.—*Times of India*. April 27th.

AN EVENING ON DODABETTA.

(*From a correspondent.*)

It was a Sunday afternoon, and the bells of St. Stephen's were ringing as I reached the Dodabetta saddle. From here to the top of the hill no driving road exists, and one must either ride or walk. The distance, however, is not more than 1½ miles. Once having attained the summit, one feels amply repaid for the trouble necessitated in getting there, and standing on the small crown which tops the

8,760 FEET, A SUPERB VIEW

is commanded. To the east lie Coonoor and Wellington; beyond Coonoor, and, looking through a gorge formed by the picturesque Droog on the one hand and another hill on the other, the far distant plains can be seen, disagreeably arid and low-lying. Gazing around in a circle, and commencing from the Droog, one sees where the horizon rests, comparatively near Kotagiri, before stretching away and dipping deep into the far-off Mysore country, with its knolls of hills rising haphazard from the dead level of the surrounding country. Here and there gleams of water may be distinguished, indicating the existence of tanks, the habitat of wild duck and teal. Coming round the bend, the view is curtailed by Snowdon—barely a mile away as the crow flies—but lengthens again over Bilicul and in the direction of the Segur Ghaut, and thus runs into the Pykara and Neddivattum ranges of hills, and so on to the Kundahs, in which latter rises Makoorty Peak, to be seen of all men. Coming homewards and into the Straight the Kundahs are traversed, left behind, and one glances over the hills which presumably form the southern boundaries of Kartairy and Kulla Kumby and thus back again to the Droog. It was comparatively early when I reached the top, and Ootacamund to the West, peeping out here and there from beneath her mask of blue gums, with Coonoor and Wellington to the East, lay

BASKING IN THE SUBTLE CALM OF A SABBATH EVE.

Leaving Coonoor bathed in sunshine, one's glance travels towards Ootacamund, with her beautiful lake and fine Hobart Park, the latter conferring additional attraction and the former lending light and expression to her natural charms. Her various public and other buildings, too, may be seen, not arranged in the abhorrent regular maze of large cities, but existing in diversified disorder, in some places standing out clearly defined, in others indicated only by a glistening house top, or the tip of a spire, the rest being buried behind a leafy canopy of *Melanoxylon* and the ubiquitous blue-gum. Taken as a whole, and in conjunction with her climate, Ootacamund may surely rightly claim to represent the model of a "blessed Arcadie." The air at this elevation is delightful, pure and vivific, and one must have lived a twelve month in the plains to thoroughly appreciate a climate the antithesis to what one has been accustomed to. Lying stretched out under the shade of a hill-guava clump and lost in admiration of the scenery, I had well-nigh forgotten that it was growing late, and that night was fast approaching. Over the distant Kundahs

The evening sun, descending,
Sets the clouds on fire with redness,
Burned the broad sky, like a prairie,

It was not, however, the month for gorgeous sunsets, and this one, from a purely scenic point of view, was not extraordinary. Sinking and ever sinking, great Sol soon reached the boundary line where substance and shadow merge into one another. Here he stood for a moment, poised upon a hill top, and then sank peacefully into oblivion.

A QUIET TWILIGHT

now pervaded everything, but, on looking back upon Coonoor, alas! and alas! "what a falling off was there." Only a few minutes before she had worn a bright smiling face; with the departure of the sun, however, a sombre gloom had succeeded, in which the Droog stood out exceptionally forbidding in appearance and possessing a savage grandeur all its own. Yet a little while, and the scene was still further changed. Cloud upon cloud, masses of them, a whole army corps of them, floated down from the surrounding hills upon luckless Coonoor and ill-fated Wellington. One moment, and both the townships with their environments were in full view under a deep grey pall; the next, and the canopy had descended, blotting out and enveloping everything in a fleecy mist. A wind, starting from somewhere behind cloudland, had now arisen, and as one body

THE PHANTOM ARMY BEGAN TO MOVE UPON DODABETTA.

Soon, immeasurably soon, it had traversed the intervening valley and had arrived at the foot of the heights. As wave upon wave the fleecy clouds came rolling along, a rent in their substance occurred and for an instant revealed to view, below in the valley beneath, a Badaga homestead, or a cultivated field with a swathed figure travelling over it. The next moment, and, as if angry at its interior being revealed, a huge billow charged up, and again nothing existed but chaos. Phantom figures, too, with widespread sheeted arms, dashed themselves in frenzy against jagged rocks, were torn to shreds and partially dissolved, only to reappear the next moment, and, having donned forms a trifle more fantastic, to travel on, and ever on. But by this time

THE NIGHT RACK CAME ROLLING UP.

In another moment the heights had been gained and, standing up there, the phantasmagoria passed one in endless review order. Leaving detachments to hold the hollows and sweep the crests, it immediately rolled down towards Ootacamund. Looking thitherwards, a transformation in the scene was all apparent, the spirit of her beauty being essentially clouded. Twilight had almost departed and the town was wrapped in gloom, rendered almost impenetrable in corners wooded with blue-gum. The only physical feature which remained unchanged was the lake, which shone in all its purity, like a huge crucible full of molten silver. Then a breeze troubled its surface and it became ruffled. At this instant the rough portions caught a few departing rays of sunlight and lightened up with a deep crimson glory, which gradually toned away into shades of blue—into brown as darkness began to arrive—into grey as the mist next swooped down—and into indiscernible nothing as night (accompanied by squally gusts of wind) settled upon the landscape and assumed sway, clothing the world with chilly darkness.—*Madras Mail*, April 26.

THE AFRICAN ELEPHANT.

(*To the Editor of the London "Standard."*)

SIR,—It is discouraging to learn from books of travel like "The Cape to Cairo" that the reckless slaughter of this magnificent animal is still going on so relentlessly that in a very few years it must become extinct. The same book tells us that these elephants make their way through the dense bush in a marvellous way, and thus might prove most valuable as a means of transport into the interior, and so help to solve one great difficulty in the civilisation of Africa.

Why has no serious effort yet been made to domesticate the animal? Could not we, with our Indian experience, establish a colony of experienced Indian trainers and drivers in our East African possessions? We know that the ancient Carthaginians were very successful in taming and training the elephant, and it is said that the Jesuit missionaries in Angola have done it. Is it not a stigma upon us that nothing of this sort has yet been attempted?

I am, Sir, your obedient servant,
Shrewsbury, April 4. A GRADUATE.

The persecution of the African elephant by sportsmen and others is lamented by a correspondent whose letter we publish this morning. This magnificent animal is not, perhaps, so near extinction as some recent accounts would seem to suggest. Indeed, the convention recently made between the countries most interested should serve to check indiscriminate butchery. Unfortunately, however, the increase of man means the decrease of the beasts of the field. The great herbivorous creatures have large appetites, and prefer the fruits of cultivation to those of nature. A full-sized pachyderm in a maize field or kitchen-garden is about as bad as a bull in a china shop; we can hardly wonder, therefore, that the settlers wage war on big game. Efforts were made to preserve a small herd of hippopotami in one of the Natal rivers, but they became such marauders that they had to be killed off. This was unfortunate, for they, like the rhinoceros and elephant, are old-time creatures, and their lumbering forms seem constructed after ancient patterns. The elephant has alone lived on this earth longer than man; it made its way to these islands some time in advance of its future destroyer. But the genus once had a wider range than now. It has been found in all the great regions of the globe except Australia and South America, though in the Northern Continent of the New World a closely allied genus, called the mastodon, was more common. Even the Maltese Islands had a couple of species which, in harmony with their restricted range, were pigmy forms, about the size of donkeys. In our own islands primæval man, when he had no better weapons than roughly-clipped flints, must have some time hunted the ancestors both of the Indian and African elephants. The former, well known to us as the mammoth, was quite at home in a cold climate, for it had developed a woolly covering to keep itself warm. It ranged to the extreme North of Asia, and its carcase has been found frozen up in mud and ice on the Siberian Tundras. In fact, unlike the modern Indian elephant, which is undoubtedly its descendant, it seems to have disliked warmth, for in Europe it hradly reaches the extreme South, while the ancestors of the African elephant never wandered

so far North as the mammoth, and is found on both sides of the Mediterranean. Indeed, the present African species once existed in Spain. In each case the older forms are regarded as specially distinct from those now living, but yet as their undoubted progenitors. The African elephant may be readily distinguished from the Indian. Its ears are larger and of a different shape; so also is the forehead; the folds of enamel on its molar teeth make another pattern; its tusks often are slightly larger, and the animal is, on the whole, a little bigger. All that the Indian elephant can do the African should be capable of doing. It is said to be more powerful and active, more rapid in its movements, especially on broken ground. According to Sir Samuel Baker, it could beat an Indian elephant in a race, and keep up the pace for a longer time. It is also said to endure the sun better. This species was often brought to Rome in the days of the Empire, and the animals were tame enough to be led in processions and exhibited in the arena. Pliny has plenty to say about both kinds in his Natural History, including some stories which we fear would not now command respect. Elephants figured, as everyone knows, in the Punic Wars; indeed, Hanibal managed to bring nearly forty of them across the Alps, though it was hard work to get them down the slippery slope on the Italian side of the Pass. The late Mr. Oswell suggested that these were not native animals, but imported from India. This, however, is not very likely. Though the species is said to be rather less docile than the Indian, it could probably be made useful, if enough trouble were taken.—*Standard,* April 5.

COFFEE IN NORTHERN INDIA.

COFFEE IN SYLHET AND ASSAM.

I note, in your 4th of April issue, that your South Sylhet Correspondent attributes the want of a sufficient supply of moisture as the principal cause of his coffee bushes having been a month later than usual in coming into flower. No doubt the abnormal drought, which they have had to contend against down south, would have more than an ordinary tendency to delay the flowering period, but how would South Sylhet account for the bushes up here being a month later in coming into blossom than they were last season, or, as a matter of fact, any season since they have been planted? We had a copious and evenly distributed rainfall during January, February, and half through March. The latter month, too, was extraordinarily hot for March and brought on all other vegetation with a rush. It did not appear, however, to have the same effect on the coffee bush. About the beginning of March there were certainly a few flowers here and there stimulated to activity, but the principal show—and it certainly is a good one—is still in the unopened bud.

Perhaps the age of the bush has got something to do with determining the flowering period. I remember when my bushes came into flower for the first time that the display occurred about the 18th February.

INDIGENOUS COFFEE.

It is more than a month now since the indigenous variety (*Coffea Bengalensis*) was in full flower. By the bye, why "Bengalensis?" Would it not have been more appropriate to have named it *Coffea Assamensis*? I spent a good number of years in Bengal before coming to Assam, but I cannot remember having ever seen a single plant of it there; while here you cannot go any distance anywhere, where there is the slightest patch of jungle, until the large, pure, white, circular flower of Coffee Bengalensis catches your eye. It is one of the most plentiful and attractive shrubs which is to be found in the jungle up here. I even found one growing side by side with a tea bush the other day. I used to have a number of them round my compound, and during the flowering season they were the first to attract the eye, but my gardener cut them out last year when I was at home. There will, however, be little difficulty in replacing them.

It is not so very long ago since I met a planter, who had been "looking for land" on the north side of the Brahmaputra, who told me that he came across a piece of land amounting to some hundreds of acres simply clothed with the native variety of coffee. If such is the case—and judging from the number of bushes which are to be found almost everywhere, I see no reason whatever to misdoubt the statement—I should think that Upper Assam would be a much more suitable place for the other varieties than further South. It stands to reason that, if the native variety can propagate itself to such an extent and grow luxuriantly without any cultivation or attention whatever, that the other varieties of the species would do equally well with the ordinary treatment which they are supposed to require in all coffee-producing districts. Judging from my own robust and vigorous bushes, I should say that the Assam soil is capable of producing the very best of food for the coffee bush.

My bushes are luxuriating on a piece of ground which was formerly occupied by tea and has reared pineapples and fruit trees for years.

As a matter of fact their shed, if such it may be called, consists of a number of peach, banana and plum trees, and what little space remains unoccupied between them is filled up with pineapples. So much for soil. The Assam climate, I should say, is a long way ahead of South Sylhet for the production of coffee, as we are never troubled with the prolonged droughts which they are undoubtedly subject to. The elevation is something over 400 feet above sea-level and my bushes are growing rank and luxuriantly two feet above flooding level.—DIBRUGARH CORRESPONDENT in *Indian Gardening and Planting*, April 25.

"BONE MEAL AS A MANURE" is the title of an interesting and useful lecture delivered on the 23rd March in the hall of the Triplicane Literary Society by John Kenny of the Madras Bone Mills—a copy of which is before us. Mr. Kenny brings together a great deal of valuable information; but his pamphlet is chiefly noteworthy as a protest against the export of bones, and he winds up as follows:—

"That India has not hitherto used bone meal as a manure is not surprising. In Germany, the land of agricultural studies, its use was scarcely known, certainly not appreciated, even in the forties. Till then bones had been regularly shipped to England. Hunter had recommended the use of bone in agriculture in England in the year 1774. With the rise o the beet sugar industry in Germany exportation of bones soon came to an end. At present there is absolutely no export of bones from Germany but an immense import from all parts of the world. India will soon, like Germany, learn the worth of so valuable a manure and stop the dreadful drain from the land of one of its best fertilisers. Last year's exports must have reached somewhere near a lakh of tons, yet every bone that left these shores was sadly needed by the soil."

We shall quote several parts of the lecture in our *Tropical Agriculturist.*

TEA CULTIVATION: MANURING TO LIVE—AND MANURING FOR QUALITY.

During the scare created by the excess of tea shipments to London, a great deal of nonsense was written about the injury done by "manuring", some writers—no doubt the owners of plantations on virgin soil—going so far as to recommend a prohibitive import duty on artificial manures. These gentlemen would probably have protested loudly, if they had been told:—"then, you want to ruin and snuff out your poorer neighbours with tea on old coffee land"; but such would have been the inevitable and immediate result of their policy. Liberal cultivation, including the application of a certain proportion of artificial manure, according to scientific principles, is an absolute necessity to make tea at all remunerative in certain old districts, and indeed we have lately had evidence put before us that it is equally required at an early stage in some of the younger districts if the crops are to be maintained and the bushes kept healthy and vigorous. What for instance do the opponents of manuring say to an authentic case of this kind:—

"Originally —— was one of the finest estates in the Kelani Valley; but some two or three years ago, it was drifting into an exhausted, played-out condition, the flushes being poor, and the teas characterless, greatly wanting in body and strength. The fine free loamy soil and forcing climate produced heavy crops for 10 years with consequent exhaustion of essential fertilising constituents, while the excessive rainfall added to the exhaustion by loss of nitrates, through the soil, especially so when root decay set in, the first indication of declining fertility.

"Some 12 heavy crops were carried off on the older fields without manure; no prunings were buried. The crops and prunings represent a loss of 1,052 lb. nitrogen, 850 lb. potash, and 235 lb. phosphoric acid, apart from heavy mechanical surface wash and filtration loss by leakage of nitrates through the soil. It would cost to replace these essential ingredients by artificial mixtures R624 per acre. This represents the drain of capital in the shape of essential food constituents taken from the land, which is not returned in the case of tea by any ordinary natural process. The importance of burying prunings from the exhaustion point of view is clear, and can scarcely be gainsaid, as considerably more than half the loss would in this way be avoided.

We suppose it will be agreed that the proprietor of this plantation ought to have "manured to live"—to keep up his tea—from an early stage. No doubt the burying of prunings would have helped; but that is not enough as experienced managers in the Agras division of Dimbula, for example, know well.

Next as to "manure spoiling the quality of tea" instead of, when scientifically used, causing an improvement, we have a communication from a planter who ought to know a good deal experimentally on the subject. He writes as follows:—

"MANURE SPOILING THE QUALITY OF TEA."

A good deal has been written lately in regard to this. I have myself no evidence that manuring on the lines I have laid down lowers the quality, if elevation, soil and climatic conditions are similar, and the plucking and condition of the bushes from pruning, are identical. Until after September last year a large yield from more or less coarse plucking paid me best. On my return here in December last, however, I found the system completely played out,—for the present any way if not for good and all,—and that finer plucking must be adopted, if we are to realise a fair return on our capital. I gathered from my friends in London, including one of the largest blenders, that if Ceylon and India continued to glut the market with common teas, they might any day become unsaleable and with clear, and sweet pekoe-souchongs down to 3d to 3¼d. per lb., we do not appear to be very far off this point; in view of this I altered my whole system. Two breaks have been shipped to London and the balance up to 10th April has been sold locally and includes all teas made during the time. The whole of the teas has realised 41 cents per lb. average. This compares favourably with any of my neighbours who are plucking fine and who don't manure or manure lightly. The prices realised are nearly double compared to what was realised for October, November and December teas plucked in the old way,—some 123,000 lbs of which sold for an average of 23·36 cents per lb. This only showed ¾ cent per lb profit over cost of production. So far as I have yet judged we shall get 500 lbs per acre average all round and produce it with liberal cultivation, at 28 cents including the keeping up of the full manuring programme, against 800 lbs produced at 22 cents and probably only realising 23½ cents, if that; in the one case showing a profit of Rs 12 per acre and in the other Rs. 65. I have on several occasions sent teas from the regularly manured fields on Pitakande, every two years since 1888-89, and have invariably had them reported on as better both in regard to strength and quality than teas from fields unmanured or manured only once—other conditions being as near as possible the same, the valuations were ¼ to ½ per lb. better in favour of teas from the manured fields. I consider the "lowering" of "quality" from "manuring" argument absurd, if all other conditions are equal. Of course, the manures must be balanced to requirements. There is still considerable scope for investigation in regard to this. I have no doubt further improvements will be effected and the joint action of the essential ingredients in regard to improvement in quality better understood. A good many of us are working at the problem and we may safely hope for good results when sufficient time has elapsed to test the various points raised."

There speaks common-sense as well as shrewd observation and actual experience. Manuring cannot be dispensed with in many cases; but it can be so used, with fine plucking, as to reduce the quantity of the crop—as in the above case—not 10, but 40 per cent; while the quality and probable prices are improved 47 to 50 per cent!

CACAO PODS AND SEEDS.—Following up the discussion started by Mr. Carruthers in the *Tropical Agriculturist* a "Cacao Planter sends us a register of measurements kept by him which may perhaps be of service, in pursuing the enquiry. It will be found an another page.

GOLD IN CEYLON.

We would offer a word of caution both to the Government and to the hero of the present exploitation of Ceylon for gold. Much has happened since we compiled, from every available source and authority we could find at the time, our little work on "Gold, Gems, and Pearls in Ceylon." Nevertheless, we would venture to commend the perusal of its pages, so far as "gold" is concerned, to Captain Reilly as showing him how often, by experienced miners as well as by scientific and amateur authorities, Ceylon has been pronounced an auriferous country with paying deposits in our river-beds, or better still with payable quartz reefs, if only they could be got at. First of all, it is well to bear in mind the adage of a leading Colombo merchant in his day, good old Robert Dawson, who was accustomed to say, as the result of his 40 years' observation in Southern India and Ceylon:—"Gold, gold—why, of course, there is gold—the very coolies when they have no work, go and wash in the nearest stream and sometimes make as much as two fanams (12½ cents) a day, and it is on record that a man once made four fanams"! Nevertheless, we, of course, know that Rangala, Ramboda, Ruanwella, &c., indicate where the King of Kandy got some of the gold in his treasury and jewellery, undoubtedly collected for him within his own territory; but at what expense of labour and even life, who can say? We know, however, that during the coffee depression, leading London Firms and their Colombo Agents, acting on the very best advice available, spent much money in blasting and mining into our quartz rocks and reefs in different locations; but with no result to speak of. Then came Sir Samuel Baker to trace the "home" (the matrix) high up in our rock and mountain system, of our sapphires and rubies as well as gold; and we know how he and Mr. LeMesurier worked and wandered; but with absolutely no result. Nevertheless, we should be very sorry to discourage Capt. Reilly unduly; but we think it a public duty to warn the Government since there is, perhaps, few members of the Executive or Provincial Agency, who have had personal experience, in any particular districts, of the "gold fever" of the sixties, seventies and eighties—the first outburst was in the early fifties. The first real step to progress in regard to the development of our mineral wealth is through a GEOLOGICAL SURVEY.

A NEW MANURE: BASIC SUPERPHOSPHATE.

We have received a pamphlet on a new fertiliser from Mr. John Hughes—the well-known Agricultural Chemist—accompanied by a small sample, which can be seen at our office, and the following letter:—

"London, E.C., April 18.

"I send you copy of a paper read on the 1st instant at Burlington House before the Society of Chemical Industry on my new manure, Basic Superphosphate. Favourable notices have already appeared in *The Times*, April 8th; the *Dublin Farmers' Gazette*, April 6th; the *Morning Post*, April 10th; the *Standard*, April 16th; the *Field* (page 522) April 13th. I enclose you also a small specimen that you may see the material which, though only invented last November, is now being made by six of the largest manure firms in the United Kingdom. Already the manure has been shipped to Calcutta, Mauritius, Demerara and Trinidad. You will see what a fine dry powder it is."

From the pamphlet we make one extract:—

ITS USE AS A MANURE.—Basic super is not intended to supersede ordinary superphosphate on good arable land containing plenty of lime, but is intended to be applied on soils that are either deficient in lime or contain an excessive quantity of vegetable acids such as sour pastures do. It is also recommended as specially suitable as a fertiliser for turnips grown on land subject to the disease known as "finger and toe." Manure manufacturers have suffered seriously from competition with basic slag because on sour grass land acid manures were unsuccessful, but now by the simple addition of slaked lime, ordinary superphosphate can be converted into a manure particularly adapted to all sour soils.

The manure is known as "Hughes' Patent": no doubt local Agents will be appointed and the article duly advertised.

NUWARA ELIYA FISHING CLUB.

A general meeting of the Ceylon Fishing Club was held on the 8th May, at the Hill Club, Nuwara Eliya, preceded by a meeting of the Managing Committee—the whole lasting nearly 3 hours.

MANAGING COMMITTEE MEETING.

At the meeting of the Managing Committee, there were present Messrs. E M de C Short, (Chairman), C H Bagot, Jeffries, Masefield, T Farr, C A Johnson, Major Hilman and J Fraser, (Secretary).

Mr. Fraser's letter of resignation, desiring that Mr. Masefield should take his place, was placed before the meeting. Mr. Masefield was unwilling to take up the post, in spite of its being urged that he was more conveniently situated for the post; and, Mr. Fraser agreeing, his resignation was withdrawn.

A letter from Mr. W F Dew, complaining that Ambawela had not had its fair share of fry and asking that the distribution be handed over from the Managing to the General Committee, was the subject of considerable discussion and was referred to the general meeting which then followed.

GENERAL MEETING.

Those present all remained for the General Meeting which followed, their number being added to by the appearance of Messrs. C De Winton and J Wickwar later on.

LETTER FROM MASKELIYA FISHING CLUB.

The CHAIRMAN read the following letter from the Maskeliya Fishing Club.

11th February 1901.

The Hony. Secy., Ceylon Fishing Club, Nuwara Eliya.

DEAR SIR,—I am requested by the Committee of the above Club to write and inform you that they understand that the original agreement between the Maskeliya Fishing Club and the Ceylon Fishing Club, as to membership and the grants of fry, no longer holds good, and that all future supplies of fry for the streams here, must be purchased by the Maskeliya Fishing Club. The members of the Maskeliya

Fishing Club will apply to the Government Agent of this Province for licenses to fish in the streams here.—Yours faithfully.

R. MACLURE, Hony. Secy., M. F. C.

Mr T FARR asked what the original agreement was.

Mr FRASER said it was that R100 should be paid to the Ceylon Fishing Club annually and that Maskeliya should get a certain proportion of the fry. Now they had their own Fishing Club, Maskeliya wants to fish in its own streams without paying any license whatever.

Mr MASEFIELD said they could not get on, unless they purchased fry.

Mr FRASER said the question was whether it was their own or Maskeliya water that they fished.

Mr FARR said it was the Ceylon Fishing Club water and that they had only a right to a certain proportion of the fry. They wanted now to fish for a license of R5 and pay nothing to the Club.

A long discussion ensued as to Government claims on streams running through private property, Mr. Farr stating that fishing from a balloon was permissible to licensees on a stream running through private property but not from the banks. The Government claim, it was mentioned, applied to all streams above 4,000 feet elevation, and all such streams, Mr. Farr stated, were leased to the Ceylon Fishing Club.

MR. MASEFIELD proposed, and Mr. T FARR seconded, a resolution that the Hon. Secretary, do write to the Maskeliya Fishing Club to explain how the matter stands and that their status is the same as that of other members of the Fishing Club.

MR. BAGOT.—That letter from Maskeliya was evidently written under a misapprehension.

LIMIT OF FISH KILLED PER SEASON.

MR. FRASER, at the Chairman's request, then brought forward his motion "That the limit of fish killed by any one member during the current season do not exceed 50 in number."

MR. FRASER said.—"You all know that some members have felt aggrieved more or less because of their being disadvantageously placed in comparison with other members of the Club and because they could not get a fair look-in in this Club. Members living in or near Nuwara Eliya kill a very large number of fish in a year. Of course we have tried to limit tnem before and get extra subscriptions out of them, but the thing fell through this year and we must keep up the supply. I propose, therefore, that some limit should be placed on the number of fish killed by each member and a fair limit would, I think, be 50.

MR T FARR.—How would your restrict them?

MR FRASER.—We must call for returns from each member. We must trust to the honour of members. There is no other way.

MR BAGOT.—Has any one taken fifty fish in one season?

MR FRASER.—Yes, Mr Farr got 78 last year. I am not aiming at him particularly, though.

MR BAGOT—Was pleased to hear it had been done.

MR MASEFIELD said he thought that fish caught in the lakes should be excluded. Trout was, of course, the only fish meant in the resolution. [Mr Fraser assented.] He thought that 50 would be a very good number for this season and that there should be a limit for every season fixed yearly.

MR T FARR opposed Mr Fraser's motion. He did not see how the members could be controlled. At the Horton Plains there was a register book and each man coming in could hardly fail to register his catch each day. There should, if the motion were carried, be a board of bailiffs appointed—two of them at least—and they should go up to each man and register his catch after a day's fishing, going to the houses of members if need be. They had a flagrant case of poaching to deal with that very day and, unless proper control of members were exercised in Nuwara Eliya as elsewhere, it was not fair to the whole Club. If one man could be dishonest, the whole rule fell to the ground.

MR MASEFIELD agreed that watchers should note who was fishing each day and make a point of getting their register for the days fished.

Mr FARR read a letter from Mr Cuff in which he suggested that a daily limit should be imposed. With this the meeting unanimously disagreed. Mr Cuff also wished the size of the fish caught to be increased to twelve inches.

Mr MASEFIELD said he had seen no watcher in Nuwara Eliya lately.

The CHAIRMAN said he had been engaged in the trout-house.—The opinion was expressed that at least one other watcher should be employed, when this was the case.

Places were suggested for sundry register-boxes to be kept, the idea being Mr Farr's. Mr Fraser mentioned scandal corner as the most suitable place for the Nuwara Eliya stream. Mr Masefield urged that the Managing Committee could arrange these details.

Mr FRASER'S motion was then carried, the Nuwara Eliya and Barrack-Plain lakes being expressly excluded from this new rule limiting the number of fish caught for the current season to 50.

A FLAGRANT CASE OF POACHING.

Mr MASEFIELD said that the watcher's duty would include the watching for fishing for trout with worms. Such a case had been seen of late and he asked Mr. Johnson to give the facts.

Mr. JOHNSON said that he had seen Mr. —— (a member, whose name was mentioned, but not to be published) fishing for trout about two or three weeks ago in the Barrack Plains, with worm bait, just where he was going to fish. He warned the offender it was against the rules, though he hadn't them with him; but agreed not to report him, as Mr. —— professed ignorance of them. The float ran away as they were speaking and a big trout was landed with the worm-bait. Last Sunday he had seen Mr. —— fishing just below the big white bridge on the Government Road. His own podian pointed out the "gentleman who fished with worms" and he accosted Mr. —— again, saying he would report him this time. Mr —— of course asked him not to, and asked what would come of it. He said that would be for the meeting to decide. That was all the story he had to tell.

Mr. FARR:—A very bad case.

Mr. MASEFIELD.—He must be asked for an explanation, and (if this is unsatisfactory) resignation of membership.

Mr. BAGOT.—Yes, without further explanation. He has a whole salmon roe he uses, too; and invites his friends down to join in his huge hauls. With salmon roe it is even worse than with worms.

Mr. FRASER.—His bag was 45 lb 14 oz. in March.

Mr. BAGOT.—Yes. I've seen that in writing.

Mr. de WINTON.—He fishes time after time in still water.

On the CHAIRMAN'S suggestion, it was resolved in the name of the Club) to ask Mr.——— for an explanation and, if it was not satisfactory, to cancel his membership.

LETTERS FROM MR. FARR.

The following letters were then read from Mr. Farr, by the Chairman. They were read piecemeal and discussed, but we give the letters as they stand:—

———

North Cove, Bogawantalawa, March 16.

The Hon. Secretary, Ceylon Fishing Club.

DEAR SIR.—(1) Has any rule been made about the taking of rainbow trout this year in Newara Eliya or elsewhere or is the old rule of last season "that they are to be returned to the water" to hold good?

I am of opinion that last season's rule should remain in force or, should this not meet with the approval of the majority, that the limit for these fish be raised to 12".

(II) I wish to propose the opening of the upper reaches of the Horton Plains stream. This water has been closed now about 2 years, with what object it is difficult to imagine, for it is, I should say, the very worst breeding ground on the Horton Plains.

(III) Is the close season on the Horton Plains to commence on the same day as at Nuwara Eliya or is it to be deferred until November 30th, 1901.—I am, Sir, Yours faithfully THOS. FARR.

———

North Cove, Bogawantatawa, April 20.

The Hon. Secretary, Ceylon Fishing Club.

DEAR SIR,—I find members are retaining all rainbow trout of 11 inches and upwards—would yon kindly send a notice of the resolution of the managing Committee.—Yours faithfully, THOS. FARR.

[The resolution was that rainbow trout of above 12 inches only should be taken.—ED..

SIZE OF FISH.

Mr FARR urged his proposal that the size-limit of rainbow trout taken should be raised to 12 inches.

Mr BAGOT asked what the difference in weight was. Mr Farr said he had caught one 15 inches long weighing 1¼lb; and Mr Fraser 15 inches, weighing 1lb 7oz. Mr Farr added that 11-inch. fish were very good to return. Mr Fraser seconding, this was carried.

FENCED AREA IN THE HORTON PLAINS.

Mr FARR said, with regard to the stream in question, it was very muddy, had very steep banks and little sand. The fish caught there tasted muddy and were black underneath.

Mr BAGOT asked when these upper reaches were first reserved.

Mr FRASER said 2 years ago.

Mr FARR said no fry were put there for fear they should be eaten.

Mr FRASER proposed they should be kept closed indefinitely, the black appearance of the fishes indicating that they were ready to spawn and went to this quarter on that account. There was no better breeding ground in Ceylon. Mr Bagot saying that, if trout were going to breed, they would breed anywhere (except in deep water), Mr Fraser urged that, though this was true, if they *were* going to reserve any portion, these upper reaches were best suited for reserve water.

After discussion Mr. FRASER withdrew his amendment, and Mr. Farr moved that the upper reaches of the Horton Plains stream be thrown open, but that the tributaries throughout the Plains be closed water.

CLOSE SEASON FOR 1901-2.

Mr. FARR said he wished to see the Open Season prolonged, as it had been curtailed by a month at the beginning.

The meeting agreed to the fixing of the season for the Central Province from October 31st to the end of February; and for the Sabaragamuwa Province from November 30th to March 31st.

OVA.

The CHAIRMAN stated they had ordered three consignments of Ova from the Earl of Denbigh's, the Wyresdale, and New Zealand hatcheries, of 15,000, 10,000, and 5,000 ova each. The first were received, the second were not sent after all, and for the third the order had not yet actually been sent off. He read the following from the Wyresdale fishery Co:—

The Wyresdale Fishery Co., Ltd., Scorton, Garstang, Lancashire, April 2nd.

E M de C Short, Esq., Hon Secretary, Fishing Club, Eluja, Colombo, Ceylon.

DEAR SIR,—I was very sorry that the matter of the rainbow ova to be sent by our firm to your Club fell through at the last moment. We communicated with the P & O Co., as well as the Orient, and although we did our best to arrange matters they point blank refused to carry the ova to Colombo. I then made a special journey to Liverpool to consult with the Bibby Line, whose Manager I saw, and he very kindly undertook to do everything possible for us, but as your instructions were so emphatic about receiving the fish before the 15th of March no boat was available which would land the ova at Colombo before the latter end of March or early in April.

I suggested to Mr. Leeming, as an additional assurance that the ova would land in Colombo in fairly good condition, and so as to shorten the sea voyage, that he would allow us to send one of our staff to Marseilles to hand over the ova to the steamboat authorities there, as by this means we would reduce the voyage by five or six days.

Perhaps you will kindly communicate with me by and bye, and let me know whether your Club would care to place an order with us for execution next season. We would be quite willing to share in the expense of one of our staff going to Marseilles, or if you cared we might consider whether it were advisable to send you Alevins, that is, of course, the fish, directly they hatch out, before their umbilical sac is absorbed.

When you write me, please let me know what sort of temperature you would have in Ceylon, say about the beginning or middle of May.

I am very sorry that this year's order has fallen through, but we still hope to see our rainbow breed of trout introduced into Ceylon.—Yours truly,

ANDREW HENRY, Secy.

The Chairman mentioned that Mr. Elhart had found the Denbigh ova excellently kept on board, but that nothing came of them. They now had 1,500 fry for distribution. They would certainly be glad to send another order to Wyresdale hatcheries but the question was what was to be done about the Denbigh order which had failed.

After discussion it was resolved (1.) to send another order to Wyresdale Co. and (2.) as it was against their positive instructions that the Denbigh consignment was packed, they (the Ceylon Fishing Club) desired to know what they proposed to do.

DUTY ON OVA.

The discussion on this evaporated in a few minutes, it being found that the duty was very

slight (R35 in each case) and not worth the request for a concession.

AMBEWELLA'S SHARE OF FRY.

The letter from Mr. W F Dew, complaining that Ambewella was not sufficiently served with fry last year, and asking that the General and not the Managing Committee, distribute the fry, was then considered. The letter was held to be out of order, not being addressed to the Managing Committee, nor given notice of as a motion. Another letter from Mr. Maudslay was answered but contained no points of importance. The meeting lasted 2½ hours.

MEETING OF THE CEYLON KENNEL CLUB.

HELD AT NUWARA ELIYA ON THE 8TH MAY.

The Board room of the Hill Club was obligingly placed at the disposal of the members and though fixed for an early hour it was late before sufficient members attended to form the necessary quorum. A Committee meeting preceded the general meeting, at which Capt. Farquharson was in the chair, those present being Messrs. J A Henderson, W Saunders, H A Oliverson, J B Coles (Hon. Secretary) and J Wickwar.

The previous minutes &c., were read and confirmed.

THE GENERAL BUSINESS OF THE DAY.

Capt. FARQUHARSON resumed the chair and informed the meeting in a lucid but summary manner, much appreciated by his hearers, of the present state of the Club, which the speaker said was financially on a firm basis, though the figures given were disappointing as to the amount of co-operation received outside the Association There were 147 members, and Dogs Registered equal 163, and R156·20 to credit of Club. Subscriptions overdue, which were a good many, amounted to R14 and many members had been lost owing to the departure of the Ceylon Contingent for South Africa.

THE LOSS AT THE KANDY SHOW

was R549·82, which was more favourable than the exhibition held later in

COLOMBO SHEWING FURTHER DEFICIT,

10 Entries costing R844·84.

MR. STURGESS CONSENTS TO CONTINUE

giving his valuable services to the Club as Veterinary Surgeon.

NEW PRIZES.

These consisted of a valuable one, kindly offered by H E the Governor; another by H E the Officer Commanding the forces for the best dog exhibited by a soldier; and a 3rd prize given in a most sporting liberal manner by Mr Oliverson, value R160, for the best class of harrier.

BALANCE AND ACCOUNTS

These were passed round, approved of, and duly passed.

PROGRAMME AND VENUE FOR NEXT SHOW.

Originally it was intended to hold this in Kandy but, owing to the postponement of the R A and C C, the place was altered to Colombo, but the date was not fixed; but it would be in August previous to the Horse show

DIFFERENCE IN CLASSES.

These had been considerably altered and will no doubt be fully advertised. As a summary I give the principal ones to suit all breeders, being intended to "fetch" those outside the sporting circle.

1st—Toy Dogs—value off for weight.

"This should interest the ladies," said Capt. Farquharson whose genial and gallant presence is ever welcomed at all meets; 2nd. A prize for the best dog belonging to a soldier and the 3rd by Mr. Oliverson, as before mentioned, for best country-bred Harriers who have never won a 1st prize.

ENTRANCE FEES REDUCED

to R1 for members and R2 for non-members was a sum which would make no serious call on the public purse and should be popular.

ELECTION OF OFFICE-BEARERS

Mr. Wm. Saunders proposed Capt. Farquharson, as vice-president, in the place of Mr. Price who was away, and Mr. Henderson as Hon. Secretary, as Mr. Coles felt he was too far away to meet the interests of all. Eulogistic references were made to both these gentlemen, Captain Farquharson having always showed much zeal in all questions of sport and towards the Kennel Club, and Mr Henderson had not only rendered Yeoman service according to the retiring Secretary but he had held an acting office on previous occasions. Both these gentlemen were unanimously elected and with a hearty vote to the Chair the meeting closed but not without an enthusiastic offer of thanks to Mr. Coles who was not only the originator, but the promoter of the Kennel Club, and to whom was due its present satisfactory position. Mr. Coles duly returned thanks to Mr. Henderson and all members, who had given him their most cordial co-operation.

PLANTING NOTES.

THE DISTRIBUTION OF PLAGUE VACCINE IN INDIA.—Bombay, 28th April.—5,147 doses of plague vaccine were sent out from the Plague Research Laboratory, Parel, last week. Of these over 2,000 went to Gurdaspur and Sialkot District, 1,407 to Simla for the Punjab, 1,000 to Karachi, and 503 to the German East Africa Government.—*Madras Mail.*

"GAMPOLA AND THE COFFEE REGIONS," was the title adopted by Sir Emerson Tennent for his principal chapter on the Planting Enterprise; but in his day there was not even a bridge over the Mahaweliganga and the ferries at Gampola and Katugastota were great obstacles to traffic, only swept away by Sir Henry Ward.—Mr. Cottam elsewhere tells us a good deal about the estates now found on every side of Gampola and makes interesting comparisons and references to the past of a more recent day than Tennent's.

CARDAMOM CULTIVATION. — Considerable fears were entertained that the planting of cardamoms had of late years been overdone in Ceylon and that our present Directory returns would show a very heavy excess over the last record. We hasten at the earliest possible moment to say that the Directory returns do not bear out this view—that the increased acreage is comparatively moderate and that, so far as Ceylon is concerned, we do not think there is any fear of overdoing this product. The case may be different in Southern India as a whole, although Travancore does not show increased crops.

THE STANDARD TEA COMPANY OF CEYLON, LIMITED.

TENTH REPORT OF THE DIRECTORS.

To be submitted at the general meeting, to be held on Thursday, 25th April, 1901, at noon, at the offices of the Company.

The Directors submit Statement of Accounts to 31st December, 1900.

The Profit and Loss Account shows a profit on the working of the Estates in Ceylon of £14,085 3s 9d, which, with the amount brought forward from last year, less interest and home charges, shows a sum of £12,948 1s 3d available for division. In August, 1900, the Directors, under the powers entrnsted to them, distributed an interim dividend for the six months ending 30th June, 1900, of 5 per cent (10 per cent per annum), absorbing £2,975. They now recommend a Dividend at the rate of 10 per cent (making 15 per cent for the year) absorbing £5,950; the placing £1,400 against reserve, and £1,400 against depreciation; and the carrying forward to the next year £1,223 1s 3d.

The Coffee crop was 225 cwt.; it realised about £700.

The Tea crop was 1,129,758 lb., against 918,148 lb. in 1899.

The average Exchange for the Company as drawers in Colombo was 1/4 7-32 against 1/4 9-32 in 1899, and 1/4 5-32 in 1898.

Prices for Ceylon Teas were again generally lower this last season. Of the Company's Teas produced during 1900; those from the St. Leonard's factory sold at about the same average price as the 1899 Teas; those from Gordon, 1d per lb. lower; those from Gouravilla, ⅞ per lb. lower.

The Company's properties at the close of 1900 were 3,466 acres, with 2,150 acres of Tea considered in full bearing, viz.:—

	Acres.	Tea bearing. Acres.
In Udapussellawa—St. Leonards and Coneygar...	902	530
Liddesdale..	814	200
Eskdale ..	240	227
Gordon ..	386	304
Tulloes ..	419	275
In Up. Maskeliya—Gouravilla and Up. Cruden	705	614

There are also 318 acres Tea in partial bearing, and some 41 acres in addition planted with Tea. Mr. Robert Kay-Shuttleworth. the Director, who retires by rotation, being eligible, offers himself for re-election.

By order, A TRAFFORD BROOKE, Secretary.

25, Fenchurch Street, London, 11th April, 1901.

KELANI VALLEY TEA ASSOCIATION, LIMITED.

REPORT OF THE BOARD OF DIRECTORS.

To be presented to the shareholders at their fifteenth ordinary general meeting, to be held at the Office of the Company, on Monday, 15th April, 1901, at 12 noon.

The Directors beg to submit to the shareholders the report and accounts of the Company, duly audited, for the year ending 31st December, 1900. The total crops from the Company's four estates amounted to 662,248 lb. against 575,255 lb. in 1899; the average price realised was 5·794d per lb. against 7d, and the average rate of exchange was 1s 4 27-64d as compared with 1 4 25-64d for the previous year. Owing to the very depressed condition of the Tea Market during the last six months of the past season, the profit earned for the year under review compares most unfavourably with that secured in previous years, but with an improving market, a natural shortfall in crops, and the steps now being generally taken to further reduce output and improve quality, your directors have good reason to expect that very different results will be shewn for the current, and, it is to be hoped, succeeding seasons.

Including £419 2s 5d brought forward from 1899, the net profit for the past year amounts to £1,019 14s, from which has to be deducted the Interim Dividend of three per cent, £562 19s paid in September last, leaving £456 15s, available, and this sum it is proposed to carry forward to next season's account.

Debentures to the amount of £2,100, which matured on the 1st January, 1901, have been renewed for a further period of five yeas at five per cent per annum.

Two vacancies have occurred on the Board, one caused by the resignation of the Hon. D A C Scott, on account of ill-health, the other by the regretted death of Mr. Donald Andrew.

It is not proposed at present to fill the first-named vacancy, but, to occupy the seat of their deceased colleague, Mr. Donald Andrew, your Directors have appointed Mr. George Gray Anderson, who, in accordance with the articles of Association, retires from the Board at this time, and being eilgible, offers himself for re-election.

Mr. J B Laurie, C.A., also offers himself for re-election as Auditor.

G. W. PAINE, Chairman.

16, Philpot Lane, London, E.C., 3rd April, 1901.

THE EASTERN PRODUCE AND ESTATES COMPANY, LTD.

Report, to be presented at the Fourteenth Ordinary General Meeting, to be held at Winchester House, Old Broad Street, at 12 o'clock noon, on the 24th April, 1901.

The Directors submit Report and Balance Sheet for the year ending 31st December, 1900.

The profit for the year is £19,723 17s 1d, which, added to £9,807 7s 8d, balance from last account, amounts to £29,531 4 9

From this has to be deducted:—

Interest on Debentures	£3,937 10 0	
Debentures for £7,500 drawn and paid off, with bonus of 5 per cent, on 31st Dec. 1900	7,875 0 0	
Interim Dividend of 2½ per cent on Preferred and Ordinary Share Capital, paid 5th Nov. 1900	7,475 1 6	
		19,287 11 6
leaving a balance of ... which it is proposed to apportion as follows:—		10,243 13 3
Final Dividend on the Preferred Shares of 2½ per cent, making 5 per cent for the year, and on the Ordinary Shares of 1 per cent, making 3½ per cent for the year	3,001 6 6	
Balance to be carried forward as provision for retirement of Debentures in the current year	7,242 6 9	
	£10,243 13 3	

It may not be out of place to remind the Shareholders that of the balance of £80,000 Debentures, now outstanding, in terms of the issue only £30,000 have to be paid off compulsorily out of profits by

annual drawings of not less than £7,500. As shown in the schedule below the Company, on 31st December last, and 10,960 acres under Tea cultivation of which 10,093 were over four years old. The yield of Tea in 1900 was 4,045,146 lb, the average gross sale price being 6·5d as compared with 7·29d in 1899. To this fall of about ¾d per lb, which corresponds closely to the general average decline in price of Ceylon tea for the same period the Company's diminished profit for the past year is almost wholly due. In the face of so serious a decline in value due to over production in India and Ceylon no efforts by estate proprietors are being spared both independently and in combination to restrict the output of Tea by finer or more careful plucking and by other methods which have commended themselves to the Joint Tea Associations of both countries. At the same time the efforts to promote the further consumption of Indian and Ceylon tea outside the United Kingdom are being actively continued with the same encouraging success as heretofore. The average rate of exchange for the year was 1s 4 7-16d as compared with 1s 4⅜d in 1899.

In view of the exceptional conditions affecting the profits in 1900, the amount written off for depreciation of buildings and machinery has been calculated at one half the scale hitherto adopted.

It is with much regret that the Directors have to inform the Shareholders of the death, in December last of their valued colleague and chairman, Mr C J Lindsay Nicholson. The vacancy thereby occasioned on the Board has been filled by the appointment of Mr G A Talbot, who in accordance with the Company's Articles of Association will retire at the General Meeting and will be proposed for re-election. In ac-accordance with the Articles of Association, two of the Directors, Mr David Reid and Mr Norman W Grieve, retire from office, and being eligible, offer themselves for re-election. The retiring Auditors, Messrs Welton, Jones & Co., offer themselves for re-election.

RALPH A. CAMERON,
Chairman and Managing Director.

—41, Eastcheap, E. C., 10th April 1901.

SCHEDULE OF THE COMPANY'S ESTATES AT 31ST DECEMBER, 1900.

Arapolakande	Hope	Meddecoombra
Asgeria and Bulatwatte	Ingurugalla & Berrewella	Norwood
Colonna	Kirrimettia	Rothschild
Condegalla	Kumaradola	Sogamma
Doombegastalawa	Kumbukkan	Vellai oya and Dandukelawa
Dromoland	Labookellie	Wevekellie

	acres.
Under Tea	10,960
„ Cocoa	600
„ Cardamoms, Cinchona, Rubber and Sundries	429
„ Forest, Grass and uncultivated Land	4,543
Total ..	16,532

NYASSALAND COFFEE CO., LTD.

The report of the Directors for the past year is as follows:

ACREAGE.

468 acres estimated as in cultivation.
2,908 do Reserve.

Total 3,376 acres more or less.

The Directors beg to submit the accounts for the year ending 31st December, 1900, from which it will be seen that season's working has resulted in a deficit of R20,569'76, thus further increasing the indebtedness of the Company to the Agents and Secretaries, Messrs. Carson & Co.

The total crop secured amounted to 896 bushels parchment coffee, but owing to abnormally dry weather experience while the crop was on the trees the out-turn was very unsatisfactory, the proportion of light and damaged beans being unusually large Of the 633 acres described in last report as under cultivation, a careful analysis made by the Company's Manager shows that 121,736 trees equal to say 100 acres are in bearing, and 177,860 trees equal to say 148 acres are of one and two years old the difference say 385 acres representing the vacancies in the cultivated area equal to 220 acres, and 165 acres actually abandoned. The Manager's Estimate of Expenditure for the current year is £995 19s 6d, against an estimated crop of 10 tons, which may possibly yield £400, and the season's working will thus result in a deficit of £595 19s 6d. The 1901 crop is to be gathered from 100 acres in bearing, assuming that the 148 acres of young coffee trees yield at the same rate in 1902, our crop for that year should amount to say 25 tons worth say £1,000, if this is obtained there would be a slight profit on the 1902 working, with prospects of larger crops and increased profits in succeeding years as the vacancies supplied up during the recent rains amounting to say 220 acres come into bearing. Scarcity of labour has precluded the Manager from keeping the land clean, and he ascribes the large number of failures to the plants being choked by weeds.

The Manager writes under date 11th January :—"I am planting rubber in most of the clearings this month."

As will be seen from the Balance Sheet the Company was indebted to Messrs. Carson & Co. as at the 31st December to the extent of R25149·21, and a further sum of R9,091·29 has been advanced since that date, making a total of R34,240·50. As intimated to the shareholders in copies of letters which were circulated by order of the Directors, Mesrs. Carson & Co. have demurred to financing the Company after 31st March last, and failing some scheme being adopted with a view of providing funds for the liquidation of their advances and for the carrying on of the Company, they will take steps to recover the amount due to them by such means as they think advisable, and by a forced sale of the Company's property if necessary. In the latter alternative the return to the shareholders of the capital invested will probably be very small, and it is urged that they should in their own interests support the scheme put forward by the Directors for carrying on the Company.

In terms of the memorandum and articles of Association of the Company, Mr W Shakespeare retires from the Directorate and does not offer himself for re-election. The appointment of an Auditor for the current year rests with the meeting.

THE CRAIGHEAD TEA COMPANY.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December 1900, duly audited.

The mortgage was reduced to £3,600 by the payment of the second instalment of £450 on the 30th June last. This sum is debited to profit and loss account, and is an ample charge for depre-ciation.

To complete the withering shed and to meet the cost of an oil engine, a new roller and drying machine, amounting in all to £1,173 15s 5d, which has been debited to Estates Account, one hundred of the unissued six per cent Preference Shares, ranking for dividend from the 1st July last, were offered to and subscribed for shareholders at par.

The increased accommodation and new machinery provided will enable the Manager to deal satisfactorily with the increased yield from the younger fields now coming into bearing.

The total yield, excluding 6,500 lb. made from purchased leaf, was 395,105 lb. Tea, and the gross average price obtained in London was 6·85d per lb. Last year the crop was 342,250 lb. Tea, and the gross average was 7·82d per lb.

	£ s d	£ s d
The Net Profit for the year amounted to	2,272 6 3	
To which has to be added the Balance last year of	636 9 3	
		2,908 15 6
Interest on the Mortgage has been paid	191 5 0	
The Second Instalment of the Mortgage (£4,500) has been paid	450 0 0	
Dividend on the Six per cent. Preference Shares for the year has been paid	451 16 0	
An Interim Dividend of 2½ per cent. on the Ordinary Shares, free of Income Tax, has been paid	572 15 0	
It is proposed—		
To pay a final Dividend of 2½ per cent., free of Income Tax, on the Ordinary Shares, which will require	572 15 0	
And to carry forward the Balance of	670 4 6	
		£2,908 15 6

Colonel Robert Hugh Wallace, the Director who retires on this occasion, being eligible, offers himself for re-election.

Mr. J. Hamilton Alston, the Auditor, also retires, and offers himself for re-election.

By Order of the Board, ROBERTSON, BOIS & Co.,
Agents and Secretaries.

London, 10th April 1901.

The approximate acreages are as follows :—

	Craig-head. Acres.	Cholan-kandel. Acres.	Total.
Tea—Five years and older	489	233½	722½
Planted in 1896 ..	68	—	68
Do 1897 ..	52	—	52
Do 1898 ..	40	13	53
Cardamoms ...	8	—	8
Timber Trees ..	38	—	38
Waste	15	47½	62½
	710	294	1,004

EDERAPOLA TEA COMPANY OF CEYLON LIMITED.

REPORT OF THE BOARD OF DIRECTORS.

To be presented to the shareholders at their fifth ordinary general meeting, to be held at the Office of the Company, 16, Philpot Lane, London, E.C., on Wednesday, 8th May, 1901, at noon.

The Directors beg to submit to the shareholders the report and accounts of the Company, duly audited for the year ending 31st December, 1900.

Inclusive of 22,097 lb. made tea from bought leaf, the total out-turn from the three factories amounted to 554,430 lb. showing an increase of 88,281 lb. compared with last season.

The average price realised was 5·803d. per lb. as against 6·959d. per lb. last year, and the average rate of exchange was 1/4 27/64ths, the same rate as that for 1899.

Your Directors have to inform you that the formal agreement between the Company and the contractors engaged in Plumbago mining at Ardross, referred to in last report, was duly completed, and considerable progress has been made and expenditure incurred by the miners in tunneling, though the output of plumbago up to the present has been small.

The low prices current in the tea market for the latter part of the past year are responsible for the shrinkage in the profit earned, but there is every reason to expect that, consequent on the steps now being generally taken both in Ceylon and India to restrict output and improve quality, the results for the current year will be more satisfactory.

The net Profit for the year amounts to £1,389 9s 8d., which, with £138 7s 0d brought forward from last year, gives £1,527 16s 8d to be now dealt with, and this it is proposed to apportion as follows :—

Amounts as above		£1,527 16 8
Interim dividend of 3 per cent (free of Income Tax) paid in September, absorbed	£765 0 0	
To write off expenditure for the year on Development Account	341 1 7	
		1,106 1 7
To carry forward to next account		£421 15 1

Mr. James Bett, having accepted an appointment in Ceylon, has resigned his seat at the Board, but it is not at present intended to fill the vacancy thus created.

In accordance with the articles of Association, Mr. George W Paine retires from the Board at this time, and, being eligible, offers himself for re-election.

Messrs. Cape and Dalgleish, C.A., also offer themselves for re-election as Auditors.

G W PAINE,
Chairman.

16, Philpot Lane, London,
E.C., 18th April, 1901.

BURNSIDE TEA COMPANY OF CEYLON, (LTD.)

REPORT OF THE BOARD OF DIRECTORS.

To be presented to the Shareholders at their Fifth Annual Ordinary Meeting, to be held at the Office of the Company, 16, Philpot Lane, London, E.C., on Tuesday, 7th May 1901, at 11 a.m.

The Directors beg to submit the Shareholders the Report and Accounts of the Company duly audited for the year ending 31st December, 1900.

The total crop secured from the four Estates was 402,113 lb. Tea as against 378,608 lb for last year, and 52½ maunds of Tea seed were obtained and sold, as against 62 maunds in 1899.

The average price realized for Midlothian Tea was 7·679d per lb; for the Burnside Group, 5·982d per lb; and for the whole crop, 6·297d per lb, as against 7 3-16d per lb for last season; and the average rate of exchange was 1/4 29-64d against 1/4 13-32d.

The results for the half-year ending 30th June last fully justified your Directors in paying an Interim Dividend of 2 per cent., but the fall in the Market for Tea during the last half of the year so seriously affected the position, that instead of the profit estimated, a loss on the working has been realized of £139 15s 4d, and the final result, as shewn in the Balance Sheet, is a deficit of £324 15s 4d, carried forward to next account.

In view of the efforts now being made, both in Ceylon and India, to restrict output and to improve the quality of the Tea produced, your Directors expect that the results for the current year will be very different, and they feel sure that the Superintendents of the Company's Estates will do all in their power, by careful and economical working, to reduce the cost of production.

In accordance with the Articles of Association Mr George Gray Anderson retires from the Board at this time and, being eligible, offers himself for re-election.

Messrs Cape & Dalgeish, C.A., also offer themselves for re-election as Auditors.—By order of the Board,

LYALL, ANDERSON & Co.,
Agents and Secretaries,

16, Philpot Lane, London, E.C., April 19, 1901.

NUWARA ELIYA ESTATES COMPANY, LIMITED.

REPORT OF THE DIRECTORS.

The Directors beg to submit the Accounts of the Company to 31st December, 1900, to which is appended the Certificate of the Auditors.

The Crop Acconnt shows a working profit of £23,623 6s 11d, from which has been written off, as nsual, the expenditure during the season on additions to Buildings and Machinery, of £2,352 14s 3d, leaving a credit of £21,270 12s 8d, against £20,271 16s 1d in 1899.

The Profit and Loss Account, inclding the sum of £2,599 0 10d brought forward from the previous season, shows a credit of £20,861 2s 3d. From this amount £2,000 has been written off the cost of the Estates, and £962 15s 2d has been used to finally close the "Cost of Sundry Leases" Account.

There remains for distribution the sum of.. ...		.. £17,898 7 1
An Interim Dividend of 3 per cent free of Income Tax, was paid on 11th October, 1900, absorbing ..	..£6,000 0 0	
It is now proposed to pay a final Dividend of 4 per cent, free of Income Tax, making 7 per cent for the year, which will absorb a further... ...	8,000 0 0	
		£14,000 0 0
And to carry forward the balance of		...£3,898 7 1

The weather during the year was favourable to yield, and the Crop of Tea from the Company's Estates was 1,458,911 lb. The average net price realized was 8·66d against 8·62d in 1899.

The average rate of Exchange for the year was 1s 4⅜d per Rupee. The cost of placing the crop free on board Steamer, or delivering to buyers in Colombo, was 4·82d per lb., which cost includes Commission to Superintendents, the rent of leased lands, as also the upkeep of 172 acres Tea not in bearing.

The following table shows the resnlts of the working of the different Estates for the past year :—

Estate.	Acreage in bearing in 1900.	Partial.	Crop.	Average yield per bearing acre.	Net price realized per lb. Tea.	Profit per bearing acre.
			lb.	lb.	d.	£ s d
Park ..	242	22	172,128	652	9·50	14 6 8
Portswood ...	300	20	229,377	717	8·65	11 1 8
Naseby ..	176	15	101,779	532	8·34	6 0 1
Pedro ..	345	143	312,722	640	8·20	10 0 3
Concordia ...	288	132	220,693	525	9·17	8 15 9
Court Lodge..	302	66	200,711	545	9·23	10 16 8
Hethersett ...	367	25	221,501	565	7·84	6 13 0
	2,020	423	1,458,911	597	8·66	9.13 5

The yield from Tea in full bearing was 644 lb. per acre, and that of Tea in partial bearing 371 lb. per acre, as compared with 605 lb. and 362 lb. respectively in the previous year.

With young Tea coming into bearing in 1901, the acreage of the Company's properties stands as under :—

	Acres.	Acres.
Tea in full bearing ...	2,045	
do do leased lands ..	98	
do partial bearing ..	400	
do not yet in bearing ...	72	
Total land nnder cultivation with Tea		2,615
Jungle, Patna and Scrub, and Fuel Trees, &c.		432
		3,047

The Reports received from Ceylon point to the Estates being in excellent condition, and the Directors desire to record their appreciation of the good work done by the Planting Staff and by the Company's Agents.

The retiring Directors are Mr. Alexander Thomson and Mr. W Megginson, who, being eligible, offer themselves for re-election.

Messrs. Cooper Brothers & Co., Chartered Accountants, offer themselves for re-election as Auditors of the Company.

By order of the Directors,

FRITH, SANDS & Co.,
Secretaries.

London, 19th April, 1901.

THE RANGALLA TEA COMPANY OF CEYLON, LTD.

REPORT OF THE DIRECTORS

for the year ending 31st December, 1900, to be submitted at the annual general meeting of shareholders to be held at the Office of the Company, on Monday, 29th April, 1901, at 11-30 a.m.

The Directors beg to submit the Balance Sheet and Profit and Loss Account for the year 1900.

The net profit for the year amounts to		£1,458 12 11
To which has to be added the balance brought forward from 1899 ..		333 19 8
		£1,792 12 7
An Interim Dividend of two per cent was paid on 10th September, 1900, absorbing ..	£440 0 0	

And the Directors now propose to deal with the balance as follows :—

1. In writing off from cost of Properties, as Depreciation of Machinery, &c, ..	£500 0 0	
2. In payment of a Final Dividend (free of Income Tax) of two per cent (making four per cent for the year)	440 0 0	
3. In carrying forward the balance of ..	412 12 7	
		£1,792 12

The tea crop amounted to 218,572 lb., and the cardamoms to 1,828 lb. (or 1,664 lb. net), as against the original estimates of 220,000 lb. and 4,000 lb. respectively. The boaght leaf was 17,770 lb., making a total for the year of 236,342 lb. of tea. The sales of tea show a net average price per lb. of 6·46 pence, being equal to say, 39 cent per lb., the cost being 5·04d, or 30 cents per lb. f. o. b. Exchange for the Company's drafts during the year has averaged 1s 4 39-64d, as against exchange for 1899 of 1s 4 9-16d.

The following tab'e gives the acreage of the estates for the last five yeears :—

	1896.	1897.	1898.	1899.	1900
Tea in full bearing	591½	591½	591½	591½	673
Tea in partial bearing ..	63	63	90	90	22
Tea not in bearing.	61½	61½	34½	34½	21
Cardamoms ..	55	56	56	55	46
Cardamoms not in bearing ..	—	—	10	14	38
Grass and Felled Timber ..	25	25	25	25	25
Forest and Waste Land ..	444	444	434	430	416
	1,241	1,241	1,241	1,241	1,241

The following is a Statement of the tea and cardamom crops, with the yield of tea per acre for the same period :—

		Tea.	Cardamoms.	Yield of Tea per Acre.
		lb.	lb.	lb.
1896	..	228,360	4,842	380
1897	..	212,555	8,291	360
1898	...	206,620	4,026	349
1899	..	211,361	4,211	357
1900	..	218,572	1,828	325

The prospects for the current year are so far satisfactory, the estimated yield being 235,000 lb. of made tea and 3,000 lb dry cardamoms. According to advices from Ceylon, the yield for the first two months of the present year was 5,000 lb. made tea in excess of the corresponding period last season.

Mr. William Keswick, M.P., retires from the Board, in accordance with the Articles of Association, and, being eligible, offers himself for re-election.

The Auditors, Messrs. W B Peat & Co., also offer themselves for re-appointment.—By order of the Board, W. H. BARTLETT, Secretary.

London, 19th April, 1901.

THE YATIYANTOTA CEYLON TEA COMPANY, LIMITED.

REPORT OF THE DIRECTORS

to be submitted at the fourth annual general meeting of shareholders, to be held at the London Commercial Sale Rooms, 30 to 34, Mincing Lane, London, E.C., on Thursday, the 25th April, at 12 noon :—

The Directors now beg to submit their report, and the duly audited accounts of the Company, for the year ended 31st December, 1900.

The plucking area, in full and partial bearing, was 2,854 acres, from which crops were secured amounting to 1,470,590 lb. In addition, 5,835 lb were made from purchased leaf, giving a total crop, as shewn in the Estates' Working Account, of 1,476,425 lb. Of this quantity, 701,430 lb were sold in Colombo, and 774,995 lb were shipped to London; the net average realized for the whole being 4·56d per lb. Including purchased leaf, the average cost, f.o.b. (or delivered to buyers in Colombo) was 3·40d per lb, and the average rate of exchange for the year was 1s 4 7-32d per rupee.

Tho following is a comparative statement of the past three year's working :—

Year.	Acreage plucked, Mature, and in partial bearing.	Crop secured from Company's Estate.	Yield per Acre.	Average Rate of Exchange per Rupee.	Cost of Crop per lb.	Net Average sale Price per lb.
		lbs.	lbs.	s. d.	d.	d.
1898	2.240	1,135,794	507	1 4 5-64	3·62	5 35
1899	2,376	1.343,387	565	1 4 5-16	3·48	5·65
1900	2,854	1,470,590	515	1 4 7-32	3·40	4·58

The lower yield per acre last year is due to the large proportion of young tea not in full bearing, viz, 500 acres out of the plucking area of 2,854 acres. The Directors regret that the result of the year's working shows a considerable falling off as compared with that of 1899, but it will be seen from the above figures that this is attributable to the fact that the Company's teas, in common with those of all low-country properties, have shown a very marked decline in value, especially during the last six months of the year,

		£	s.	d.
The net profit for the year amounts	...	£6,753	4	2
To which has to be added balance from 1899 account	..	2,896	11	1
		£9,649	15	3
Dividends have been paid as follows :— On the preference shares at 6 per cent per annum— On 1st July, 1900. and 1st January, 1901, viz :—	..	2,700	0	0
On the ordinary shares— In October, 1900, an interim dividend of 2 per cent was paid, which absorbed	.. ..	1,800	0	0
		£4,500	0	0
Leaving now to be dealt with	..	5,149	15	3

This the Directors propose to apportion as follows :—

		£	s.	d.
(1) In payment of a final dividend on the ordinary capital of 2 per cent (free of income tax), making in all 4 per cent for the year	..	£1,800	0	0
(2) In writing off cost of properties, including depreciation of Machinery and buildings	...	1,000	0	0
(3) In carrying forward to 1901 the balance of	.. ..	2,349	15	3
		£5,149	15	3

The following are details of the acreage of the different properties as on 1st January, 1901 :—

Estate.	Acreage under Tea. Bearing.	Partial Bearing.	Total.	Forest Reserves, &c.
Polatagama	687	104	791	251
Weoya and New Polatagama	632	95	727	345
Walpola	821	50	871	145
Rondura	496	85	601*	629
	2,636	334	2,990	1,370

* 20 acres not yet in bearing

The Directors trust that the steps which are now being generally taken to reduce output, in which on behalf of the Company they have signified their willingness to join, will result in again placing the tea industry on a satisfactory basis, and that the accounts for the current year will admit of a better return to the shareholders. In terms of the Articles of Association, Mr C Young retires from the Board, and, being eligible, offers himself for re-election. Messrs. Cape & Dalgleish, C.A., offer themselves for re-election as Auditors of the Company.

GENERAL CEYLON TEA ESTATES, LTD.

The Directors beg to submit herewith the Accounts of the Company and their Report for the year ending December 31st, 1900, showing a profit of £8,560 12s 4d.

After allowance for debenture interest and other charges, there remains a sum of £713 17s 3d. at the credit of profit and loss, to which has been added a balance of £1,779 6s 8d. brought forward, from the previous year making a total of £2,493 3s 11d. out of which the directors have written off £2,000 on account of depreciation of plant and machinery, and propose to carry forward the balance of £493 3s 11d. The crops from the Company's estates amounted to 2,525,088 lb. tea, exclusive of bought leaf, against an estimate of 2,532 000 lb. 2,974 bushels of coffee and 214 cwts of cocoa. The tea cost sold in London, 5.14d, and realised 5.79d per lb. The exchange for the year averaged 1s 4 11-32d. The yield per acre was 505 lb. over the fields in full bearing.

The present cultivated acreage is as follows:—

Tea in bearing	4,933
In partial bearing	348
Not in bearing	545
Cocoa	126
Coffee	118
Total cultivated area ..	6,070 acres.

The past year, has been one of very severe trial to the tea enterprise in India and Ceylon. Prices fell towards the end of the year to a rate unprecedented in the enterprise for all but the most flavoury teas which only two of the Company's estates produce. Hence in spite of the increased crop harvested the result cannot but be considered a disappointment to shareholders. In December the Chairman Mr James Sinclair, went out to Ceylon to visit the estates and has just returned to England. He reports most favourably on the appearance and condition of the properties, which he considers compare well with other estates in the same districts. A fair and reasonable price for tea, is all that appears to be required to enable the company to make substantial profits.

The Directors regret losing the services of Mr. A Melville White, who has acted as General Manager in Ceylon since the inception of the Company, through his retirement from the Colony, and they wish to record their appreciation of his services during his tenure of the office.

Mr. F L Clements, a well-known planter of much experience, has been appointed to manage the Company's affairs in Ceylon.

As will be seen by the Balance Sheet, your Directors have waived their right, under Clause 94 of the Articles of Association, to a commission on the amount paid for Debenture Interest.

Mr. J H Carson resigned his seat on the Board during the year owing to having taken up his residence in Scotland, and his consequent inability to attend Board Meetings. The Directors do not propose filling the vacancy coused by his retirement.

Mr. T C Owen, the Director retiring by rotation, being eligible, offers himself for re-election.

Messrs. Broads, Paterson & Co., the Auditors to the Company, retire, and, being eligible, offer themselves for re-election.

James Sinclair, Thomas J Lawrance; Directors. Rowe, White & Co., Secretaries. April, 23rd 1901.

REPORT OF THE COMMITTEE.

16, Philpot Lane, London, E.C., 18th April 1901.

The Committee appointed by the Shareholders after several meetings and a long interview with the representative of the Vendor Company and subsequent meeting with the Board on various occasions, unanimously arrived at the scheme set forth on the next page.

As it was necessary for the consent to be obtained of all the Vendor Proprietors, Mr Sinclair when in Ceylon secured that of most of those resident there, but others living in England and holding a large interest declined to agree, consequently the scheme could not be proceeded with. Mr Sinclair only returned at the end of March therefore there has been no time for the Committee to prepare any other scheme, but they are of opinion that some reduction and re-arrangement of Capital is necessary and if re-appointed would endeavour to arrive at one with the Directors and submit the same to the Shareholders at a meeting to be called for that purpose.

The Committee wish to acknowledge that every assistance has been given to them by the Directors.—A Horatio Jones, J F Kimmel, W Murray.

HEADS OF SCHEME.

The arrears of preference interest, due to 31st December, 1,900, to be satisfied by an issue of "surplus certificates" for the amount due. These to bear no interest, and to be repayable out of surplus profits after provision for debenture interest, depreciation (£2,000) and expenses and maximum interest in both classes of preference shares. All preference shares to be entitled to 5 per cent interest instead of 6 per cent as from 1st January, 1901. The preference shares to be divided into two classes—namely, preference and deferred preference. The former to take the place of those held by non-vendors, the latter of those held by vendors and sellers of the estates.

The following represents approximately the holders of Vendor and other Shares respectively. The figures might require a slight alteration on a careful scrutiny:—

	Shares.	£	
Non-Vendors	11,841	59,205	to be 4 per cent Preference.
Vendors	14,0?3	70,065	to be 4 per cent Deferred Preference
	25,854	129,270	

The first charge is a payment of 4 per cent on the preference, amounting to £2,368, which claim is cumulative against the deferred preference. After this, 4 per cent, or as much as is available to be paid on the £70,065 deferred preference shares, requiring £2,802. Should profits be available beyond this, dividends to be paid on both classes of shares pari passu until they receive a maximum of 5 per cent. These totals would come to substantially less than the present preference shares can claim, and thus the ordinary shareholders would be advantaged. Payments would then be as follows:—Debenture interest, £7,000; expenses, £1,200; depreciation, £2,000; 4 per cent on preference shares, £2,368; 4 per cent on deferred preference, £2,802; and additional 1 per cent on both, £1,292, making £16,662. The ordinary shareholders are not to receive more than 6 per cent until the debentures are redeemed or re-arranged. No reserve or sinking fund must be created out of profits until 5 per cent dividend on both classes of preference shares has been paid. The committee recommend that an additional director should be appointed by the non-vendor shareholders at the next general meeting.

THE AUGUSTA TEA ESTATES COMPANY, LIMITED.

FOURTH ANNUAL REPORT.

The Directors beg to submit the Audited Accounts for the year closing 31st December, 1900. The Profit and Loss Account shows a balance of £168 2s 5d after paying fixed charges, and out of this amount the Preference Dividend has been paid. The low price at which tea has been selling during the twelve months has very much reduced the profit; at the same time the Directors are able to charge all Machinery and building expenses to revenue, and although nothing is written off for Depreciation this year, expenditure under these headings has not been curtailed to the detriment of the Company's property.

The quantity of tea manufactured has been 152,607 lb., of which 121,764 lb. have been sold in London at an average price of 5·78d per lb., and 29,873 lb. in Colombo at an average of 26·18 cents per lb.

The average sale price for the crop is equivalent to 5·68d per lb. London, against 7d per lb. the previous year. The average rate of Exchage has been 1s 4 7-16d, and the cost of production 24·80 cents. or 4d per lb. f. o. b. Colombo, inclusive of manure, costing 1·70 cents per lb. on the Company's tea crop.

By the Articles of Association, Mr. Charles A. Reiss retires by rotation from the Board, and, being eligible, offers himself for re-election.

The Auditors, Messrs. Singleton, Fabian & Co., also offer themselves for re-election.

Charles A. Reiss, Thomas J. Lawrance, Directors. Albin B. Tomkins, Secretary.

London, 9th April, 1901.

CEYLON TEA PLANTATIONS COMPANY LIMITED.

Report of the Directors to be submitted at the fourteenth annual ordinary general meeting of shareholders, to be held at the Office of the Company, on Tuesday, 30th April, 1901.

The Directors have the pleasure to submit the General Balance Sheet and Profit and Loss Account for the year ending 31st December, 1900, duly audited.

	£ s. d.	£ s. d.
The net amount at credit of Profit aud Loss Account, including balance brought forward at 30th December, 1899, and after providing for General Expenses, Directors' Fees, Income Tax, &c., is ..	..	47,367 8 11
Dividends on the 7 per cent. Preference Shares were paid for 1900 (less Income Tax) amounting to ..	5,415	
An Interim Dividend of 7 per cent on the Ordinary Shares was paid 28th October, 1900, amounting to ..	11,716 12 0	
It is proposed to pay a final Dividend of 8 per cent on the Ordioary Shares (making 15 per cent in all, free of Income Tax, which will absorb	13,390 8 0	
To write off for Depreciation ..	10,000 0 0	
And to carry forward to next year a balance of	6,845 9 6	
		£47,367 18 11

Owing to the largely increased production of British-grown tea being in excess of market requirements, the past year has been the most unfavourable one on record for producers generally. The results, however, ef this Company's working have been such as to enable the Directors to recommend the payment of a dividend of 15 per cent on the ordinary shares, for the fourteenth consecutive year.

The Reserve Fund stands at £100,000, and it is not proposed to further add to this at present, but the sum of £10,000 has been set aside for depreciation.

The purchase of Pitaratmalie estate in the Haputale District was concluded during the year, and this fine property stands in the Company's Books at £40,580. The acreage of the estate is as under :—

	Acres.
Tea in bearing	501
Tea not in bearing	183
Grass Lands, Ravines, &c. ..	193
Forest	728
Total ..	1,605

The yield of tea from the Company's Estates was 526 lb. per acre as against 485 lb. the previous year.

The crop for 1900 was as under :—

Estate Tea.	Bought Leaf Tea	Tea Manufactured for others.	Total.
lb.	lb.	lb.	lb.
4,432,132	481,656	449,104	5,362,892

The gross price realised for the teas sold in London was 7·36d as against 8·10d last year, and the rate of exchange comes out at the same as last year, viz. 1s 4 19-64d.

The coconut crop was disappointing and considerably below estimates, owing to an unfavourable season. The present year, it is confidently expected, will shew a marked increase. The crop was 1,389,418 nuts as against 1,416,843 the previous year.

The Board have to record with deep regret the death of their colleague, Mr. Henry Tod, who was a Director of the Company from its foundation. Mr. William Herbert Anderson has been elected to the vacancy thereby created and you will be asked to confirm his appointment.

The Directors again cordially desire to express their appreciation of the services rendered by the various officers of the Company in Ceylon and London.

Uuder Clause No. 69 of the Articles of Association Mr. G A Talbot retires on this occasion from the Board and being eligible, offers himself for re-election,

The Auditors, Messrs. Harper Brothers, Chartered Accountants, also retire from office and offer themselves for re-electiou.—By Order of the Board,

WM. JOHNSTON, Secretary.

London, April 22nd, 1901.

THE RAGALLA TEA ESTATES, LIMITED.

REPORT OF THE DIRECTORS

to be submitted to the shareholders at the Sixth annual ordinary general meeting, to be held at 30, Mincing Lone, E. C., on Tuesday, May 7th, 1901, at 12 o'clock noon.

The Directors beg to submit their Report, and also Statement of Accounts, duly audited, for the period of 12 months ending 31st December last—

Shewing a net Profit for that period, after writing off £700 for depreciation, of		£4,498 19 9
Add the balance of last account ..		93 8 7
		4,592 8 4
Out of which the following dividends have been paid :—		
1900, 1st July—Preference Shares ..	£1,050 0 0	
1901, 1st January ..	1,050 0 0	
		2,100 0 0
		2,492 8 4
From which the Directors recommend a dividend of 6 per cent on the Ordinary Shares		2,340 0 0
Leaving a balance to carry forward of		£152 8 4

The Directors are glad to report that theanticipations of the Chairman at the last general meeting have been fully realised, and notwithstanding the low prices current in the tea market, the accounts justify them in recommending a dividend of 6 per cent on the ordinary shares, after making provision to the extent of £700 for depreciation.

The tea crops for the season amounted to 634,208 lb., and the net average price after deducting the usual charges was 7·68d per lb. A small amount of coffee, 27 cwt., was also secured.

The following are the acreages of the Company's Estates :—

Name.	Tea.	Coffee.	Timber	Patna, &c.	Total.
Ragalla and Halgran Oya,	911	—	177	302	1,390
Kelburne	742	10	165	64	981
	1,653	10	342	366	2,371

and it is estimated that the tea crop for the current season will be 750,000 lb.

The Directors have arranged a further issue of £12,000 of debentures to pay off the existing loan

on current account. It will be of interest to the shareholders to know that the Company's properties, which cost according to the annexed balance sheet £106,865 0s 4d, were valued in March last by an independent valuer on behalf of the Board at £167,500.

Under Clause 97 of the Articles of Association Mr. C Hannen retires from the Board, and being eligible offers himself for re-election.

The appointment of Auditors rest with the shareholders, and Messrs. Fuller, Wise & Fisher offer themselves for re-election.

C. E. STRACHAN, and C. HANNEN, Directors; M. P. EVANS & Co., Secretaries.

25th April, 1901.

POONAGALLA VALLEY CEYLON COMPANY, LIMITED.

REPORT OF THE BOARD OF DIRECTORS.

To be presented to the Shareholders at their Fifth Annual Ordinary Meeting, to be held at the Office of the Company, 16, Philpot Lane. London, E.C., on Tuesday, the 7th May, 1901, at 12 noon.

The Directors beg to submit to the Shareholders the Report and Accounts of the Company, duly audited, for the year ending 31st December, 1900.

The net profit for the year after providing for Debenture Interest and other charges, amounts to £474 8s 10d, which with £191 13s 10d brought forward from last accounts, gives £666 2s 8d from which has to be deducted the Interim Dividend of 2 per cent paid in September, amounting to £450, leaving available £216 2s 8d which it is proposed to carry forward to next account.

To those familiar with the conditions which obtained in the Tea Market for the latter part of the past year this diminution in the profit earned will not cause much surprise, but the prospects of the season now entered upon are, from various causes, more favorable, and your Directors hope that their next Report will confirm this view.

The following figures furnish a comparison between the season now closed and the preceding year:—

	1900	1899
Total Tea Crop secured	480,886 lb.	302,614 lb.
Total Coffee Crop secured	231 bushels	960 bushels
Average Price realised for Tea	6·544d per lb.	7·509d per lb
Average rate of Exchange	1/4 13-32d per Rupee	1/4 19-64d per Rupee

The increase in the Tea Crop is partly accounted for by the acquisition of Cattou Estate, comprising 147 acres of tea, and a considerable area of young tea which has come into bearing during the year.

The acreage of the five properties owned by the Company, viz:—Lunugalla, Udahena, Cabragalla, Poonagalla and Catton Estates is now as follows:—

Tea in bearing	.. ...	1,237 acres.
Tea and Coffee	... ...	53¾ do
Coffee ...	.. ..	18 do
Fuel Clearings	.. ..	201½ do
Jungle Patna and Scrub	...	1,244½ do
	Total	2,754¾ acres.

The Central Factory at Poonagalla is now completed in every detail, and this, in conjunction with the extensive system of wire shoots connecting the various estates, is proving of great advantage to the econmical working of the properties.

The Chairman has recently returned from one of his periodical visits to Ceylon, and reports most favourably of the condition and appearance of the different estates, an opinion fully confirmed by the visiting Agent, Mr. R. Morison.

In accordance with the Articles of Association, Mr George G. Audersou retires from the Board, and, being eligible, offers himself for re-election.

Messrs. Cape and Dalgleish, C.A., also offer themselves for re-election as Auditors.—By order of the Board, LYALL ANDERSON & Co.,
Agents and Secretaries.

16, Philpot Lane, London, E.C., 20th April, 1901.

THE GALAHA CEYLON TEA ESTATES AND AGENCY COMPANY, LTD.

The report of the directors, to be submitted to the shareholders at the fourth annual ordinary general meeting, states that the gross profit for the season after providing for depreciation on machinery, &c. is £8,017 9s 3d; and balance of last account, £42 13s 9d total, £8,060 3s. From this has to be deducted: Interest on £55,000 debentures at 5 per cent peannum, £2,750; dividends on £60,000 preference share, at 6 per cent per annum, £3,600. London charges; Fees to trustees, directors, and auditors, £550; interest on loan, £629 10s 10d; income tax, insurance, &c., £419 17s 6d. Leaving a balance to carry forward, £110 14s 8d. The tea crop during the season, including 15,200lb from bought leaf, amounted to 1,170,436lb and the cardamom crop was 15,546lb. This company, in common with others, has suffered from the extreme depression which ruled in the tea market during a considerable part of the year, and the directors regret that they are, therefore, unable to declare a dividend on the ordinary shares. They are pleased, however, to report an improvement in the prices recently obtained. The company's teas meet with continued favour, their general uniformity in character and quality being highly appreciated by the trade, but the directors have decided to raise still further the standard of quality, believing that this policy will have beneficial results, although it will necessarily entail a higher cost of production and reduced output. As the company found it necessary to incur certain expenses in connection with the tramway and factory, which were not anticipated when they purchased the properties, Mr. C E Strachan, the vendor, being the only holder of ordinary shares, voluntarily contributed after the last meeting the sum of £3,400 to cover same, and the directors have placed that amount to the credit of the reserve, bringing up that fund to £5,700. On December 31 last the company had under cultivation in tea 2,867 acres, and in cardamoms 235 acres. Mr. W L Strachan having resigned his seat on the board in consequence of his departure for Ceylon, the Board appointed Mr. J. H. Strachan in his place for the residue of his term of office. Mr. J. H. Strachan now retires and, being eligible, offers himself for re-election.—*Home and Colonial Mail*, April 26.

CHEAP TEA.—Tea sweepings (for the manufacture of caffeine), when mixed with assafetida, can now be imported duty free into the United States by a decision of the Treasury Department. By the ruling permitting this, it is expected that refunds to a considerable amount will be made. The Treasury Department declined for a long time to permit the importation of tea sweepings to be classified in any way, holding that the Pure Tea Act excluded such merchandise, although it is not designed for consumption as tea. The first concession that was made to the importers was to allow the importation, upon condition that sufficient assafetida should be mixed with the tea sweepings. Then the courts decided that the mixture can be imported as a crude drug.—*Retail Druggist.*

THE KANDAPOLLA TEA COMPANY, LTD.

The report of the Directors for the year ending 31st December, 1900, states that the profit and loss account shows a profit on the working of the estates of £4,400 19s 2d ; interest £66 12s 11d : doubtful Coast advances recovered, £7 17s 2d ; transfer fees, 10s ; brought forward from last year, £182 8s 3d equal £4,658 7s 6d. The Directors have paid the interest on the debentures viz., £1,575 ; dividend on the preference shares for the year 1899, £1,878 ; home charges as per account, £36 13s 11d ; leaving a balance to be disposed of £836 13s 7d. The Directors propose to place to depreciation of machinery account, £250 ; carrying forward the balance £586 13s 7d.

The result of the year's working, is, on the whole, satisfactory, taking into account the fall in the average price of Ceylon teas. The estimates for the year were based upon a yield of 480,000 lb. The crop resulted in a total of 484,379 lb., an increase of 4,379 lb. As compared with the preceding year the improvement is 34,334 lb, and as compared with the yield for 1898, the increase is 114,385 lb. During the year 110 acres have been manured chiefly with non-stimulating artificial manures, as recommended by Mr. Bamber, also 105 acres have been treated by applying Basic Slag. The cost of this has been included in the current expenditure. The cost of production averages 34·31 cents per lb. of made tea. The amount realised by sale, works out at 47·51 cents gross, the gross profit being 13·20 cents per lb., as compared with 14·20 per lb. last year. The estimates for the current year were prepared before the scheme for reduction of output of Indian and Ceylon teas was brought forward, and will have to be revised. The Directors propose to cordially co-operate in any scheme of united action which is supported by both India and eylon, provided that sufficient support is forthcoming to assure success. The labour supply and coast advances are reported as in a satisfactory position on all the estates belonging to the Company. The buildings and machinery have also been maintained in their usual good order and repair. With a view to necessary renewals and the provisions of a machine on one estate for the manufacture of green teas, the Board have, for the first time, decided to write down 5 per cent. from the value of machinery. A bonus of £100 has been paid to the superintendents, as shown in the accounts.

Mr. R. A. Bosanquet, the Director who retires by rotation, being eligible, offers himself for re-election.

The appointment of Auditors rests with the shareholders.

THE BATTALGALLA ESTATE COMPANY, LIMITED.

THE REPORT OF THE DIRECTORS

for the past year states that they are pleased to be able to give again a generally satisfactory account.

The increased production has necessitated a considerable outlay for new machinery, but the Factory is now thoroughly equipped to cope with the larger output, and no further expenditure is likely to be incurred under this head for some years to come. The quantity manufactured shows a considerable increase on the past year, totalling 274,556 lb, against 224,803 lb in 1899. The average selling price in London has been 8·38d per lb, against 8·43d in 1899, and in Colombo 36 cents against 37·04 cents in 1899. The total crop averaged a selling price of 7·85d, against 8·22d last year. London sales were 169,285 lb, netting £5,128 12s 2d, and Colombo sales 104,925 lb, realizing R37,737·95. This compares with 191,350 lb, netting £5,835 7s, and 32,600 lb, realising R12,075·20 in 1899 in London and Colombo respectively. Exchange for drafts has averaged 1s 4 7-16d, against 1s 4 13-32d in the preceding year. An interim dividend of 5 per cent, on the shares, free of income tax, was paid in September last, and there is now a balance at credit of profit and loss account of £766 14s 1d, from which the Directors propose to pay a further dividend of 5 per cent, free of income tax, absorbing £750, and to carry forward £16 4s 1d. In accordance with the Articles of Association, Mr. C A Reiss retires by rotation, and, being eligible, offers himself for re-election. The Directors are very sensible of the services rendered to the Company by their estate Superintendent, Mr G C R Norman, who has handled a very large crop with unceasing attention and efficiency. In tendering him and his assistants their very best thanks, the Directors desire also to express their appreciation of the valuable services rendered to the Company by their Colombo Agents, Messrs. E Benham & Co.

BANDARAPOLA CEYLON COMPANY LIMITED.

REPORT OF THE BOARD OF DIRECTORS

To be presented to the Shareholders at their Eighth Annual Ordinary Meeting, to be held at the Office of the Company, on Wednesday, 8th May, 1901, at 3 o'clock, p.m:

The Directors beg to submit to the Shareholders the Accounts and Balance Sheet for the year ending 31st December, 1900, with Auditor's Certificate attached.

After payment of Debenture Interest and all other charges, there remains a net profit for the year of £822 13s., which with £211 18s. 5d, brought forward from last Accounts, gives a total sum of £1,034 11s. 5d. to be dealt with.

It is proposed to write off the Capital Expenditure incurred during the year, viz., £626 13s. 1d., and to carry forward the balance of £407 18s. 5d. to next Accounts.

In view of the period of severe depression through which the Tea Industry has been passing, the serious shrinkage in profits disclosed by the Accounts now published will not be altogether unexpected, but as a result of the steps already taken—in common with other Proprietors—to restrict the output and improve the quality of the Tea produced, your Directors confidently look for better results during the current year.

The crops secured during last season amounted to 487,432 lb. Tea (including 8,850 lb. from bought leaf). and 267 cwts. 1 qr. 13 lb. Cocoa, being 36,827 lb. and 28 cwts. 2 qr. 7 lb. respectively less than 1899. The average return from all Tea in full and partial bearing was 612 lbs. per acre, and the average price realized was 5·512d. against 6·633d. during the previous twelve months.

A few acres of land have been acquired during the year, and the holdings of the Company are now approximately as follows ;—

Tea in bearing	.. ...	782 acres.
Tea not in bearing	.. ..	6 „
Cocoa in bearing	.. ..	224 „
Grass, Ravines, &c.	.. ..	12 „
Reserve, Jungle, &c	.. ..	525 „
Total Acreage	.. ..	1,549 acres.

The Board have with much regret to record the death of Mr. Hugh Fraser, who had filled the post of Managing Director of the Company since its initiation.

To occupy the seat thus unfortunately rendered vacant, the Board, as empowered by the articles of Association, have elected Mr. George Gray Anderson a Director of the Company.

On the death of Mr. Fraser, it was deemed advisable to appoint a Visiting Agent to furnish periodical reports on the Company's property, and this post

was offered to, and accepted by, Mr. Joseph Fraser. The latter gentleman paid his first visit of inspection at the beginning of the present year, and his Report is of a satisfactory character, being summarised in the remark that "the general appearance of the Estate is highly satisfactory, and the agricultnral condition creditable to Mr. Anderson." In accordance with the Articles of association, Mr. C. J. Scott, retires from the Board, and, being eligible, offers himself for re-election. Mr. John Dalgleish, C.A., also offers himself for re-election as Auditor. G. W. PAINE, Chairman.

16 Philpot Lane, London E.C., 20th April, 1901.

THE IMPERIAL CEYLON TEA ESTATES, LIMITED.

REPORT OF THE DIRECTORS

to be submitted at the annual ordinary general meeting of Shareholders, to be held at the Company's offices, 9, Fenchurch Avenue, London, E.C., on Tuesday, the 30th April, 1901, at 3 p.m.

The directors now beg to submit the balance sheet and profit and loss account for the year ending 31st December, 1900.

	£	s.	d.
The nett profit, after payment of debenture and other interest for the year, amounts to	£2,326	11	11
To which has to be added the balance brought forward from1899.. ..	658	5	5
	£2,984	17	4

This the directors propose to deal with as follows:—

(1) In writing off from cost of Properties, as Depreciation of Machinery, &c.	£500	0	0			
(2) In payment of a dividend of 2½ per cent (free of Income Tax) on the paid-up share capital of the Company ..	2,250	0	0			
(3) In carrying forward to next year the balance of	234	17	4			
				£2,984	17	4

The following table gives the acreage, and results for the year:—

Estate.	Acreage in full and partial bearing.	Tea Crop lb.	Yield per acre.
Binoya ...	441	194,780	442
Edinburgh ..	362	188,309	520
Friedland ..	161	62,278	387
Mottingham ...	221	105,089	475
St. Vigeans ..	185	82,358	445
	1,370	632,814	462
Nonpareil	81	18,235 Bt.leaf 4,765	—
	1,451	655,814	462

	Cost of Crop per lb. in cents	Net Price realised per lb. in pence.	Working Profit.		
Binoya ..	27.44	5.34	851	16	11
Edinburgh ..	29.27	6.63	2,036	0	1
Friedland ...	28.45	6.72	545	5	3
Mottingham ...	29.88	5.52	289	11	9
St. Vigeans ..	31.48	6.46	462	2	6
Nonpareil ..	29.02	6.03	4,184	16	6
	—	— Loss	697	19	0
	29.02	6.03	£3,486	17	6

In the above table the Superintendents' Commission has now been inclnded in the cost per lb. of tea, and taken into acconnt in arriving at the working profit.

The deficit in the working of Nonpareil was anticipated, and was provided for when dealing with the balance of profit at the 31st December, 1899, the Nonpareil surplns in that year being represented in the amonnt carried forward. The reports from Ceylon about Nonpareil point to the progress of the yonng tea being quite satisfactory. 38 acres in all have been successfully planted with cardamoms.

The Directors regret the falling off in the profits from the tea-bearing area, bnt this is attribntable to the generally unsatisfactory condition of the tea market during last year.

The total acreage of the estates as on 1st January, 1901, was as follows:—

Acreage nnder Tea.

Estate.	Tea in full bearing.	Tea in partial bearing.	Tea not in bearing.	Total.	Coffee and Cardamoms.	Forest Reserves, &c.	Total Acreage.
Binoya ..	441	—	85	526	—	403	929
Edinburgh ..	306	56	48	410	—	40	450
Friedland ..	161	—	—	161	—	2	163
Mottingham ..	212	9	—	221	—	37	258
St. Vigeans ..	185	—	—	185	—	—	185
Nonpareil ..	36	45	235	316	44	189	549
	1,341	110	368	1,819	44	671	2,534

In accordance with the articles of Association Mr. R S CORBETT retires from the Board at this meeting and, being eligible, offers himself for re-election.

Messrs. W B PEAT & Co., also offers themselves for re-appointment as Auditors to the Company.—By order of the Board, W H BARTLETT,

London, 22nd April, 1901. Secretary.

THE ALLIANCE TEA COMPANY OF CEYLON LIMITED.

REPORT OF THE DIRECTORS

to be submitted at the Annual Ordinary General Meeting of Shareholders to be held at the Company's Offices, 9, Fenchurch Avenue, London, E.C., on Tuesday, 30th April, 1901, at 11·30 a.m.

The Directors have pleasnre in snbmitting the Balance Sheet and Profit and Loss Account for the year ending 31st December, 1900.

	£	s.	d.
The Nett Profit, after payment of Debentnre and other interest for the year, amonnts to..	£4,659	15	11
To which has to be added the Balance brонght forward from 1899	2,180	18	2
	£6,840	14	-

An Interim Dividend of 3 per cent was paid on the 2nd October, 1900, absorbing ..	£1,957 16 0
And the Directors now propose to deal with the balance as follows—1. In writing off from Cost of Properties as Depreciation of Machinery &c.	1,000 0 0
2. In payment of a final dividend (free of income tax) of 4 per cent (making 7 per cent for the year)	2,610 8 0
3. In carrying forward to next year the balance of ..	1,272 10 1
	£6,840 14 1

The result of the season's operations is not so favourable as that of the previous year, but will doubtless be considered satisfactory in view of the period of extreme depression through which the Tea Industry has recently been passing.

The following Table gives the Acreages and Results for the year:—

Estate.	Acreage in in full and partial bearing.	Tea Crop lb.	Yield per acre.
Aberdeen ...	316	143,361	397
Calsay ...	352	171,674	488
Dunkeld ...	517	235,106	455
Luccombe ..	550	209,732	381
Thornfield & Gleneagles ...	457	248,087	543
Uda Radella ..	420	202,947	483
	2,657	1,210,907	456

Estate.	Cost of Crop, per lb. in cents	Net price realised per lb. in pence.	Working Profit.
Aberdeen ..	25·05	4·41	201 8 2
Calsay ..	31·62	7·08	1,387 0 7
Dunkeld ..	29·13	5·91	1,156 17 8
Luccombe ...	29·94	5·27	397 5 0
Thornfield & Gleneagles ...	29·27	7·34	2,667 19 9
Uda Radella ...	30·61	8·01	2,564 8 2
	29·42	6·43	£8,374 19 4

In the above Table the Superintendents' Commission has now been included in the cost per lb. of Tea, and taken into account in arriving at the Working Profit.

Uda Radella has done well, but all the other Estates show much reduced profits, the falling off being most marked in the case of the Estates producing low-grade Teas.

The total Acreage of the Estates as on 1st January, 1901, was as follows:—

Acreage under Tea.

Estate.	In full bearing.	In partial bearing.	Not in bearing.	Total.	Forest Reserves &c.	Total Acreage.
Aberdeen ..	347	14	—	361	119	480
Calsay ..	342	10	13	365	22	387
Dunkeld ..	517	—	—	517	79	596
Luccombe ...	550	—	—	550	200	750
Thornfield & Gleneagles	457	—	7	464	48	512
Uda Radella ...	380	40	52	472	83	555
Kehelgama ...	—	—	—	—	322	322
	2,593	64	72	2,729	873	3,602

In accordance with the Articles of Association, Mr E J Young retires from the Board at this meeting and, being eligible, offers himself for re-election.

Messrs. W B Peat & Co. also offer themselves for re-appointment as Auditors to the Company.—By order of the Board, W. H. BARTLETT, Secretary.

London, 22nd April, 1901.

PLANTING NOTES.

THE DIRECTORS of the Anglo-Indian Evangelisation Society, which will hold its annual meeting in the Lower Exeter Hall on the 29th inst., are most anxious to send out more men to occupy new fields on the tea estates, among the European employees on the 20,000 miles of railway, and other lonely districts, where it is impossible for the missionaries and ministers of the various denominations to visit or hold meetings. Bishop Welldon, of Calcutta, and all missionaries testify to the good done by this Society.—*British Weekly*, April 25.

ON SOME NEW SPECIES OF EUCALYPTUS.—By R T Baker, F. L. S., Curator, Technological Museum, Sydney, (with Plates) has just reached us from Sydney, the specimens noticed being:—Eucalyptus Vitrea, sp. nov.; White Top Messmate; Eucalyptus Delegatensis, sp. nov.; White Ash, Silver-Topped Mountain Ash; Eucalyptus Intertexta, sp. nov.; Spotted Gum, Gum, Coolabah; Eucalyptus Morrisii, sp. nov.; Grey Mallee; Eucalyptus Vividus, sp. nov.; Green Mallee, Red Mallee, Brown Mallee.

COFFEE PLANTING.—One of the errors, committed by our early coffee planters in both Ceylon and Southern India, was the establishing of small clearings surrounded by heavy jungle in the shape of underwood. The plant, as subsequent experience has shown, should be put down on the most open ground procurable, unmixed with other shrubs; and where there is jungle in the immediate vicinity, it will be as well if a belt of plantain trees were laid down between. On the West Indian islands an idea prevails that many tropical parasites exhibit an aversion to the neighbourhood of plantain trees; the smooth stems and leaves affording no lurking places as other plants.—*Indian Planters' Gazette* April 20.

ALTHOUGH CHINA is so old there's always something new from it. The last is that the Chinese dread decapitation, not because it is painful, for (so far as is known) consciousness ceases at the first cut, but because he starts life in the next world with his head off. This is a serious handicap. But look at the ingenuity of the people? They get over the difficulty by paying the headsman a stiff figure to get hold of the tete and trunk as quickly as possible and then either sew them or gum them together on reaching home. Thus they make sure that if there is an after life their relatives will be at least presentable. Naturally, mistakes occasionally occur, and the nuts are screwed on the wrong way—looking down the vertebral column instead of down the front. A somewhat similar belief (regarding the prudence of dying intact) is to be found in the valley of the Ganges. That's why we blew so many persons away from guns in '57, and why we'd blow them again tomorrow if the necessity arose. Surely man's idea of what comes when consciousness goes is the standing riddle of the ages.—*Sydney Mail*, April 27.

Correspondence.

To the Editor.

COFFEE IN B. C. AFRICA.

III.

SHADE AND BORER &c.

Dear Sir.—Shade mitigates the borer evil to a great extent; the beetles love basking in the sun; but I find they do not object to shade either, although there are a few trees they evidently avoid, one especially so, which is standing in 6-year-old coffee which is riddled with borer, but not a coffee tree under "anjowa"—native name—was ever touched. There may be other trees distasteful to the longicorn beetle, and of course, *that tree*, above all others (if otherwise suitable) should be selected as the shade tree for B. C. A.—N. B., by having a variety of shade on a coffee estate, it will soon be found out which trees ought to be selected and planted on account of borer.

I am perfectly well acquainted with a few trees in our jungle which the borer breeds in, and of course, they must be an attraction to the beetles, and should be all felled when opening land for coffee.

We have the branch borer also in B C A, the larva of a white moth that lays its eggs (only one at a time) usually on the budding leaf of a primary in a small web like that of a spider. When the egg hatches, the larva then enters the tender end of the shoot and makes its way along the pith of the branch till it reaches the trunk of the tree, working down the centre, making small air-holes as it goes along. In the course of a few months the ground is reached, where they turn into the chrysalis stage, usually about July or August, and emerge a full-fledged moth in January and February.

This borer is easily detected by the end of the branch, where it begins to work, drying up. They begin to shew up about April and should be destroyed the same as the other borer.

I have never seen a coffee tree over two years old die from the work of this borer, and as they are not very numerous they don't make such a formidable enemy to the coffee as the stag-beetle larva does.

I have found this borer working down the branch of a young forest tree, with a soft centre, just in the same way as in a coffee tree. I have also found the same *red* borer in Ceylon about the edges of the forest; but the damage done there, as well as here, is very slight, although the moth lays about 40 eggs.

By the way I have never hatched this moth, so I may be wrong; but the moth, a sluggish dirty white one, I have often caught amongst the coffee, and it seems identical with the Ceylon one, but I may have to stand corrected; I may be wrong.

I secured at different times the stem of a coffee tree with the borer in it and tried to hatch it; but it always died in the pupa stage—probably through the drying up of the wood. I have also blocked up the hole in a coffee tree in the field with the borer in it, but he always managed to escape.

I suppose I have tired your readers with drought and borer, and shall now turn to an enemy of the coffee tree, which is perhaps not generally known as such in B. C. A. although a most destructive and formidable one, both here and in other countries.

WHITE GRUB.

The fansi or funzi is the Mangarga for the common white grub, the larva of the bronze cockchafer, which I am about to try and describe as well as depict the damage it does to our coffee.

The beetle is bright-copper-coloured, about ¾ inch long and ½ inch broad, and the grub is of a yellowish white colour, and is bluish at the hinder extremity—obtuse and thick. When unearthed, the grub curves into a circle; it must be familiar to all observant planters who are present in the field when the earth is being turned over.

As this is the only cockchafer I have seen in B. C. A which does any harm to coffee, out of about 20 known specimens in the country, there can be no mistake made in identifying it.

When the beetle appears, when it dies, and how long the grub lives in the ground, I cannot say; for I have found beetles ready to fly, fully matured grub, the newly hatched grub, and the pupa all in the same coffee pit; when re-digging for supplies in the months of February, March and April. I should imagine, however, that the beetle only flies at night, and lays from 24 to 30 eggs, about an inch under the surface of the ground; it is said to live and feed on the roots of any plants it comes across in the soil.

However long the grub may live, it does a great amount of damage to coffee, especially to young plants before they have made many roots, by eating them up as fast as they grow.

I have been at war with this grub ever since I came to this country, and it was owing to my representing the terrible amount of damage done to nurseries and coffee in the field that one planter, so far back as 1892 or 1893, brought out a grubber with him, and tried hard to get the turkeys, but he forgot all about the tree roots and stumps in the land.

I remember, I think it was in 1873 or 1874, may have been later perhaps about 1876 or 1878, when leaf disease weakened the coffee so that the leaves after turning yellow blackened at the points, dropped, the wood died back with the crop on it, the blame was all put on this grub. What was not done for grub? Everybody was grubbing, catching beetles by shaking cinchona trees at night, forking the ground, fetching the grub from the roots of the coffee trees, and lime and chemicals were not stinted, but nothing saved the coffee from going out, in spite of every effort made by planters to prevent it. Estates were stinking with manure, scientists were appointed, but nothing which man could devise or apply to the coffee tree stopped the ravages of leaf-disease, (for which there was no remedy, and the weakening and ultimate abandonment of coffee as a remunerative investment, I remember.

As a great deal of light, black, chipped, and empty berry was the result of leaf-disease caused by the weakening of the trees, as the branches died back annually, the roots also decayed; and the white grub was blamed for the damage; so might also our own white grub here be blamed for the same diseased state of our trees and their fruits.

I have not the slightest doubt that the ravages of grub have a little to do with diseased beans; but I cannot make myself believe that a coffee tree either here or elsewhere in good health and vigor, and in its prime, with an abundance of rootlets for grub to feed upon, would ever suffer to the same extent as Ceylon coffee did from leaf disease, or our coffee does lend from a combination of evils to produce an alarming amount of diseased beans, although I am well aware young coffee in the field as well as our nurseries suffer a good deal from root trimming.

This grub is to be found in all cultivated land to a much greater extent than in land which is sterile, and the richer the land is in vegetable nurseries the more numerous they are; instinct leads the beetles to seek the most friable, light, rich soils to lay their eggs, thus becoming the parasite of agriculture.

In coffee nurseries when seedlings and plants are seen to dry up without any visible cause (when search is made) it is usually found to be the work of the white grub. On clearings one year old or so, when plants are seen looking yellow and unhealthy with variegated leaves, blackening the points, in some cases, it is invariably the work of the white grub, but not always so, for when examined sometimes not a grub is to be found at the roots; but when we cut down the plant and examine the stem it is found black-hearted, not necessarily because it has few or no roots, or the tap roo turned, but because it is that of a diseased bean, or i

has been scorched in the nursery, when the shade has been too suddenly removed, instead of being thinned off gradually, or it has been scorched in the field. In any case, it should be cut down, when a fine healthy sucker will spring up, *only* if cut below all the diseased spots, many of which are often found in the stem but more freqently at the joints which are unnaturally thick and cankered-looking in most plants.

The natives are well aware of the damage done to coffee plants by the white grub and when I have taken up a dead or dying plant, to examine it, that has been thrown away to make room for a supply, I have had my planters volunteer the information that it was the work of the "*funsi*," also that they are very destructive in their *chineauga*, Indian corn gardens, and, when asked what remedy they adopt, "Oh! none," is the reply, "we kill them with the head of our hoe-handle."

There is great difficulty in getting plants, especially if they are small when put out, to come on in rich hollows the first year, principally owing to the ravages of grubs; but when once the coffee tree gets a sufficient quantity of roots for the grub to feed upon we have our finest coffee there, with a soil almost inexhaustible.

The black grub, another common enemy of all vegetables, the larva of a black moth, does much harm in those hollows (where the wash from the surrounding lands collect) by eating the bark of the coffee plants, and should be destroyed both in nurseries and field.—Yours truly, H. B.

IV.

REMEDY FOR BLACK GRUB.

DEAR SIR,—Young planters, and perhaps old ones, may benefit by my relating what appears to me the only remedy for grub, and the method I have followed ever since I came to this country to get rid of them.

In the first place, when going over a plot for a nursery, make the workmen kill all the white and black grub they discover, or better still give the men a few jam or butter tins to put them into, or have one or two boys for collecting and have them brought home to feed your ducks. This will do an immense amount of good in clearing the ground of a pest and would assuredly render a disappointing nursery, in most instances, a success.

When filling-in the holes in a new clearing it would well repay all planters to give a small reward of some kind for all the grub brought in by the labour force, for it is surprising the quantity they will secure in this way; whereas if no reward is given they are too indifferent to see the utility of master's demand, or order, to kill the grub. If this work is carefully attend to, there will be few supplies wanted and the young plants will not suffer by root trimming which so often proves fatal.

It may be said or imagined by some that the burn will destroy all the grub and other insect life on a new clearing, but this is not the case with the white grub, unless the fire is a very strong one, such as rages in a *virgin forest* clearing, but there are few of these cleared for coffee in B. C. A. and all grass lands are full of grub, and the fires on grass and thin forest land are not strong enough to kill grub two or three inches under the surface, besides the 'fungi' is to be found from a foot to eighteen inches under the surface in free soil.

There are fewer grub in forest than in bush land; that is one of the reasons why coffee makes such rapid progress in new clearings of the former description—and there are so few vacancies.

A coffee clearing that has been grubbed carefully when felling in, usually, with our superior soil and forcing climate, during the rainy months makes rapid progress and looks promising and healthy, if planted with good plants, and early in the season; but after a year or eighteen months' growth, many plants are seen hanging back, looking yellowish, and sickly, and the planter cannot fathom the reason for it. Now I shall tell you what to do; arm a few boys with sharp pointed sticks to dig at the roots of the sickly yellowish plants, in all such patches, and grub will invariably be found to be busily at work and not a root is to be found except the large primary ones, and even they are being barked most carefully by the grub, many of which are sometimes found sticking to the bark, busily at work, when unearthed.

I have seen this myself when watching the boys at work amongst my young coffee after the grub have been removed; the coffee looks worse than before for a time, but soon recovers.

It sometimes happens, however, those patches of sickly-looking coffee is not the work of the grub at all, but weakly black-hearted plants, perhap, the gleanings of a nursery which the coolie reluctantly keeps in his hand till the last; and when good plants are not supplied to him in they go, which is much to be regretted, as they never make healthy trees unless cut down and the diseased part cut off. This plan of cutting down does not always result in a healthy sucker, as it sometimes happens that the disease is in the root portion of the plant, or below where where it is cut, in which case it will never become a good coffee tree, and it will always produce diseased beans, I think, to a much greater extent thon coffee trees (which have been otherwise weakened or damaged.

I don't think that it will be borne out by experiment that the diseased bean so prevalent amongst our coffee is inherent in our coffee, but that it is caused by our system of cultivation; and that, although diseased beans are planted in a nursery, I believe they will not produce diseased plants, for they don't grow at all as a rule, and any that do spring should never be put out in a clearing.

From the fact that young coffee always produces a sound crop, I think it requires no further proof that the diseased beans are produced through natural causes —I am simply relating my observations, and what experience has made me believe is the truth; but it is more the work of a scientific observer to decide the cause of diseased beans than the planter. After the grub has been removed from young coffee, if other conditions are favourable, a wonderful improvement takes place. I may mention another cause of yellow plants is poor soil, which has not got vegetable humus enough in it to support even grub, and not a single one is to be found near the roots. Of course that land ought never to have been put in coffee, and the sooner it is abandoned, the better for the proprietor.

The heavier the soil is, the fewer grub are to be found in it, and in clayey soils that bind like a brick on the surface I doubt whether any would be found at all, although this sort of soil in B.C.A. produces the soundest coffee.

There is a great deal in the selection of land in this country for coffee; this fact I have only after years of experience found out; this is not my subject, however, in this paper.

When coffee trees attain their full size or come to maturity, or full bearing, say at six years old, I firmly believe that no grub in the soil does the trees any harm. I have dug some 20 or 30 from the roots of one single coffee tree, whereas I have never found more than half a dozen or so here.

The natural enemies of grub are far too numerous here, and coffee estates too scattered, and limited for them to become, for many years at least, a serious pest on our old coffee fields. Shade helps us again here; where we have a carpet of decaying leaves in a shade clearing, it provides the natural and preferable food for such grub, and they fatten and thrive on the humus thus formed instead of seeking live roots to feed upon.

A shade clearing is also an aviary of birds in B.C,A., any many other enemies of the grub, including ants, are to be seen under shade; whereas in an open clearing crows are about the only friend we have got in clearing grub, and they can only get at the grub by following the weeders.

In conclusion, anybody who wants to study grub and its ravages may find much interest in perusing Nietner's little handbook, published by the *Ceylon Observer*, also some urther information on grub in

the *Coffee Planters' Manual* and complied by Mr. J. Ferguson, Editor of the *Observer* and *Tropical Agriculturist*.* I am sorry I had not got that little book for reference when writing this paper. Ceylon has many cockchafers, and their larva according to my experience did far more damage (especially in dry low districts) than our *one chafer* in B.C.A. does, and those districts, I know, gave crops of 7 to 10 cwts. per acre for years, without manure (before leaf disease days), and there was not the chipped light and diseased bean the same as here to complain of.

Now I must leave your readers to judge for themselves as to the cause of spotted, light and black beans in our coffee, and hope that this paper may prove of some use to young planters in this, our youngest coffee-growing country. H. B.

* Not forgetting Mr. Haldane's Monograph on "Grub."—ED. *T.A.*

COFFEE IN COSTA RICA.

METHODS OF WEEDING, &C.

DEAR SIR,—By way of prelude for purposes of explanation it is as well to mention that the most common distances at which coffee trees are set apart is generally three varas by three, though other distances such as 2½ by three varas and four by 2½ varas are known but are not common, the natural lay of the ground often being the reason given for a distance greater or less than the three varas both ways, (the Spanish vara being 33 inches.)

After

NEW COFFEE IS PLANTED,

the best time being considered the commencement of the rainy season in May the first weeding or shovelling follows as soon as is practicable, to prevent wash from the heavy tropical rains which are the most violent and destructive at this period of the year: supposing the ground to have been ploughed up and harrowed previously during the dry season the first shovelling is the aporca, which is effected entirely by hand labor, and to accomplish which no machine has so far been introduced that will effectively do the two things, firstly the barking up and completely covering of all weeds to the line of coffee trees and secondly the prevention of wash by means of cross dams whose distance one from another is determined by the pitch of the ground, and vary on hill sides from a cross dam at every tree known as labtero system to a cross dam to every four or five trees on ground almost flat, forming what are called cajones or boxes to translate literally; in new coffee shovelling to the trees in aporcas it is not considered advisable to raise up the ridge higher than 10 or 12 inches on account of burying up the young plants too much. Any less height however is not advisable for the reason that the ground shovelled up packs considerably after a few heavy rains and the following cleaning, the raspa, has to taken into account in which ground is taken from the ridges to the centre of the rows: it is good policy to have special care taken in building the cross dams of sufficient thickness and a few inches higher than the ridges there being the risk of water breaking out and washing in a heavy rain, an idea of which can be formed supposing one to break out at the upper end of a row of coffee trees, in turn breaking through all in its course to the lower end of the row taking with it tons of the best soil in a single rain: on a hillsides where tableros are in vogue the ground to build up the cross dam is taken from the centre of the square of trees and in sufficient quantity to give the bottom of the hole thus made a perfect level, thus giving each tablero a maximum capacity of holding rain water until it soaks into the soil. On flatter ground, where the pitch will allow of doing so, and cross dams can be effective for instance at every second tree, they can be made more secure by taking the ground from the lower instead of the upper side of the dam, thereby lessening the chances of a break out through the levelling of the ground, the water standing back the full length of the cajon before passing over the dam at its lower end. In coffee planted out older than one year ridges are often built up higher than 12 inches, many going as high as 24 inches, though the good results of this are questionable, much mischief being caused to tree abundant in lower branches by excessive piling up of the ground. The aporca described above is all the cleaning done till about July when the ground is pretty sure to be up again in weeds and in need of the second cleaning or raspa, which is also done by hand labor and is the reverse of the aporca in that the weeds are shovelled to the centre of the row and covered with ground, a few boys cleaning around the stems of the trees in advance of the shovellers; this is done to save them from being cut by the shovels in cleaning close to them, a good custom being to reinforce the cross dams at this time with a little additional ground if necessary, there being at all times the danger of a break out in heavy rains.

This second cleaning is considered sufficient till about the middle of October when

THE CROPS

are sure to be showing signs of ripening, when an aporca is repeated, leaving the ground clean and favorable for picking; in January or February at latest a raspa is given, differing from the one done in July in that the weeds are left uncovered, causing them to dry up quickly in a season of the year which is always rainless.

The shovel used is, I believe, peculiar to Costa Rica, being round-nosed, square-backed, slightly indented to the centre, measuring from 14 to 20 inches across, according to numbers and is manufactured principally in U. S. A. Considerable strength and practice are needed to make an expert shoveller and the majority of the working classes begin working at it in their early teens; during the rainy months from May to November shovellers work almost daily from 6 a.m. till 12 and often till 2 p.m. when the rain permits, and it is considered that the work done is a good day's work, when the leader or man who takes the first row sets a good pace and example, for which a little increase in pay is made, all shovellers by custom having to even up their work with that of the leader.

This custom of cleaning is

SOMETIMES VARIED,

a machetea with broad-bladed machetes taking the place of a raspa, though a cleaning in this manner is only effective in the dry season: the machete being very much like the Cuban cane-knife, but with a thinner blade besides having a twisted handle which enables the worker to skim over the surface of the ground lifting very little dirt: covered cleanings of both kinds with shovels though costing more are at the same time more effective, as they annihilate all stubborn weeds and grasses, this not being the case with machetes. The amount of ground that can be gone over in one day working till 2 p.m. varies according to its nature and other conditions; in ground moderately steep, where shovelling is customary and the surface well pulverised, a labourer can do about ⅛ of a manzana or ⅙ of an acre, in some cases more, but this can be taken as an average in aporcas. Raspas with shovels and machetes cost 25 and 40 per cent. less than aporcas, the former generally having the preference during the rainy months.

The saying that what is worth doing is worth doing well has no better application than in shovelling, a shovelling badly done causing more loss of ground than if left alone, a state of things which is generally admitted as only needing time to cause the ruin of an estate.

Some adverse critics declare that the roots of the trees are cut and suffer from the shovelling; ocular evidence, however, proves that trees over 30 years old when pulled up have a complete system of roots extending over six feet all round and this often two feet or more below the surface.

That rain should be induced to soak into the soil instead of rnnning off is cousidered a point of advantage by many recognised as authorities in such matters; this is one thing accomplished by good shovelling, beside the perfect pulverisation of the surface to a depth of about four inches, added to which the thorongh mixing of any class of manures applied to the surface is insured.

The above applies to the interior of the Republic known as the Pacific slope: cultivating with machines has been carried on in newer coffee farms on the Atlantic slope with different success, but here again the soil is very porous almost everywhere, and the native labonr which is always preferred in coffee is much more expensive than on the western slope on acconnt of climatic conditions. When prices of coffee were at their zenith a few years ago, several investments were made in coffee farms on the Atlantic slope; results, however, have now shown that labor, seasons of the year, and last bnt not least that prices in the market are all in favor of Pacific-grown coffee. YOUNG CEYLON.

THE FLOWERING OF BAMBOOS.

Ambegamuwa, May 2.

SIR,—I have just noticed an article in your "Tropical Agriculturist" of April on the "Flowering of Bamboos."

It may interest you to know that a particularly fine clump of bamboos near a bungalow in this district flowered about 2 or 3 months ago. It now looks as if it is going to die, and I suppose there is no doubt but that it will?—Yours etc., X.

[We fear death is inevitable after the flowering, as that result seems always to follow in India. Do the coolies care for the seed?—People in some parts of India often live for weeks on Bamboo seed.—ED. *C.O.*]

CEYLON GREEN TEAS IN AMERICA.

Kandy, 2nd May, 1901.

SIR,—In forwarding the enclosed extract of a letter from Mr. Mackenzie to Mr. Rosling on the subject of Ceylon Green Teas, I would also avail of the opportunity to correct one paragraph in the letter published with my letter of the 26th April, as a clerical error inadvertently crept into the copy. The sentence in the letter should read as follows :—

"I did not go to Chicago this time, because I met down here all the men I wished to see. I send you some papers to show you what Lipton is doing for our Greens in that city. This is evidence of disposition to build a trade, not merely to catch a trade already made by others. Those four stores are the largest in Chicago."—I am, sir, yours faithfully,

A. PHILIP.

EXTRACT OF A LETTER FROM MR. MACKENZIE TO MR. ROSLING, DATED LONDON 12TH APRIL, 1901.

Before leaving New York, I wired to Mr Philip that there was a better demand for our Greens. In fact the supply had run out in America and nearly all known to be afloat were sold. I am more convinced than ever that we have a splendid field in America for our Greens and that we can make them to equal, even to surpass, Japans in liquor. It depends on Ceylon itself, when it can capture the trade. *Business methods.*—A combination of Colombo merchants, to make to standards and regulate prices, would secure much of the business at once. The difficnlties now lie with the supply, and the method of snpply. Publish again the letter headed "Good dvice" which appeared in the *Observer* last August. t foretells the probable pitfalls and difficulties. Abusing me, becanse I do not and caunot find purchasers for shipments dumped into Toronto market will do no good: I cau only advertise, which is of little use without other means. Many Firms have been buying the Greens and shipping them. I found only oue besides Salada, amongst the importers, making any special efforts to sell them. *That one* may get disgusted; cease to blend to standards in large quantities, and intending purchasers in the States especially may turn again to Japans. Any Firm undertaking to do the business properly should have support. The American Firms dealing very largely in Japans said to me the day before I left New York, "We are tired of Japans—never want to handle them again. Your Greens are splendid at 15 to 18 cents. But can we get them regularly and to standard in large quantities.'' I replied, "I cannot say. One Firm has been working on those lines, but I cannot vouch for their continuing to do so. You should try to arrange a contract with them."

(Signed) WM. MACKENZIE.

(*The letter referred to.*)

"If the planter rushes in, manufactures, consigns, and jams the market with green teas, the jobbers will at once do as they have done this year with blacks. They can get along without our teas, and can therefore wait. We will all begin underselling, and thus playing into their hands. As there is no other market for our greens we must keep them here, and Japan will share our loss, to the profit of the wily American jobber. Unsuitable teas do us more harm than good. They are usually consigned, and those familiar with the trade here would not ship them; as a consequence they are sooner or later sold for what they will fetch, and as they are Ceylon greens in name, the price they fetch is taken as the market quotation for all Ceylon green tea. The consignment and 'sacrificing' business is the accepted feature of the black tea trade from Ceylon and India. But that branch of the business is snfficiently robust to continue in existence on the prospect of the gradual extinction of the possible sources of consignment as firm after firm buys its experience and retires *beaten*. But in the case of green tea it is different, and it would not take very much to break the market while in its infancy. At present the principal buyers of green tea use them for packets, and of course have to advertise and push them. Moreover such firms have special outlets for their goods. As these packets become better known and people are educated up to the appearance of the unadulterated and undyed tea, the demand will extend and, when once the grocer can sell it in bulk, the natural merit of the tea and its similiarity to that which consumers are accustomed to will give a great outlet. In the mean time, if such green tea is rushed into this market, the price will be run down to below cost; there will be no money in it for planters or for importers, and the trade will get a serious set-back from being rushed too soon. You will observe that I try to make two points. One is, send only suitable tea, and put a limit on its price. The second is, feed and do not choke the market. While pointing out the difficulties, I entirely agree with you that there is a great future for our greens. In due time rubbish and anything will be taken: but wait till the channel is open before turning on a flood. Rely upon merit at first; remember that Japan has only this one outlet, and in the future the competition for it will be exceedingly fierce, and that they can beat us at making cheap trash. Maintain prices, otherwise it will not pay the planters to persevere. I do not think there is any short cut to a great market."

CEYLON TEA IN FRACE.

Sir,—I herein enclose copy of letter from Mr. Renton to Mr. Rosling, on the subject of Ceylon Tea in France together with the figures *re* importation of Tea into France.—I am, Sir, yours faithfully, A. PHILIP.

My dear Rosling,—Before returning to Germany I can now give you my impressions of the work in France. I visited the Riviera, the South and the West, and have now been nearly a month in Paris. I find everywhere that, owing to the exhibition, even in some of the smaller provincial towns, Ceylon tea has got to bo known, alas, I am sorry to say I fear by name only. In the Vaucluse and in Nimes, Montpellier, Avignon, you get tea at all the Cafés; it is very poor stuff indeed and invariably served with orangeade. I am also sorry to say that in Marseilles at the Café de France, where our tea is supposed to be for sale, tea was so bad that I could hardly drink it, and here also it was served with orangeade.

In the Riviera there is a large quantity of tea taken. Most of the hotels seem to draw their supplies from London, but good tea is sold in cup at nearly all the afternoon Tea Rooms and Confectioners' shops in Mentone, Cannes, Nice, Beaulieu, Pau and Biarritz. I was disappointed to find that our Paris friends were not doing as much with pure Ceylon tea as they led me to expect; there is only one small agency at Mentone and Cannes and two at Monaco; still I find that they send a lot of tea from Paris direct to private customers in the south. In Marseilles, we seem to have made more progress. I saw Ceylon tea in packets for sale in two grocers' shops. In the principal one the whole of the window was given up to Quaker brand teas in packets, and the tea pots similar to those we had at the exhibition. Ceylon tea is also for sale in one Café and one Restaurant, only they don't make it properly. There is a very nice Tea Room which has been established in Marseilles, in the Rue de Noailles, where coffee and cocoa are served as well, but tea seems as much drunk as anything. I asked the proprietor what tea it was and where it came from? He replied "Ceylon," and that he got it direct as the steamers from Ceylon called there!! I feel inclined, however, to believe that it was not Ceylon but Darjeeling; however, it was well made and good tea, which is the main thing. In addition to these retailers there are two wholesale firms who are giving Ceylon tea a good deal of attention, the 1st, * * will not sell more than they can help, but the other * * are inclined to push it; altogether I am very pleased with the result in Marseilles.

I found an English firm at Biarritz who have already been importing tea and who will now give it more attention; they will work all the Basque country and the north of Spain as far as San Sebastian.

In Bordeaux I called on the four principal wholesale houses; the largest, who I thought from their correspondence at the Exhibition seemed inclined to take the matter up in earnest, have now grown very lukewarm, and did not give me much encouragement; but I find since my arrival in Paris they have written to a Broker for samples so that they may prepare an order for the autumn delivery. Two of the other three firms keep it, but only for sale when asked for. An enterprising lady who runs a millinery and dress-making shop seems to do the biggest tea business in Bordeaux; she has one room full of chests of tea, but only gets through about 200 lb. of Ceylon in a year. The grocers in Bordeaux and in the small provincial towns in France do not seem to keep tea, but it is the confectioners and pastry-cooks who have it for sale done up in packets. Everywhere in France I found the so-called Russian tea for sale in packets with the Russian Government bandrole on them; this is looked upon by the public as a sure sign that it is genuine Russian tea. Hence my reason for thinking that we should do well to have a Customs stamp on all Ceylon tea packeted in Ceylon. An English grocer in Bordeaux keeps the tea for sale and so does an English and American Bar which is a funny place to find tea in.

In Paris no doubt most is being done, our friends of the Exhibition * * are keeping up the interest in the article by advertising, by personal canvassers, and by a vigorous campaign among shops, hotels and restaurants. * * tells me that his trade since 1st January, in tea generally, is more than double what it was last year. The * * * have, as you are aware, gone to the expense of engaging Sinhalese boys and have opened a swell tea room in the Rue Caumartin. They have also been asked to run a tea room at the "Infants' Exhibition" which is to be held in the Petit Palais from the 15th of April to the end of July. This Exhibition is for a charitable purpose and the great world of Paris is taking a great interest in it; only, the organisers have exacted very heavy terms for the space. They wanted a rent of 8,000 frs., but in lieu of that the * * * have agreed to give them 20 per cent. of their TAKINGS; they will make no money out of this show but it is a capital advertisement. From the letter I sent you last week, you will see what * * are doing, and intend doing. With the exception of two wholesale houses and another which I may call wholesale, the Compagnie Coloniale, all the importers of tea are buying our tea more or less. I am sorry the Compagnie Coloniale have avowed to me their intention to do all they can to oppose Ceylon tea; last year at this time they agreed to try it. This Company sells a very fine quality of tea; they do a big trade and they charge a fine price.

I enclose you the statistics of importation of tea into France for 1899 as compared with 1898; this gives the countries of origin. The returns for 1900 are not yet out, and I hear I will not get them until September. What is most striking is the vast increase in the importation from Annam (Indo-China); this tea being from a French Colony comes in practically duty free and I hear that in 1900 the imports were 180,000 kilos. This I cannot believe for I do not believe that there is sufficient acreage under tea in Annam to produce this quantity; can you find out what the acreage there is? because it may be possible that tea is brought down from Foochow and Hankow to Annam and shipped from there as that country's tea.

I am not making any war against China tea. I do not think it politic to tell a man that the tea he buys is rubbish; all I do is to tell him that Ceylon tea is better and that he can improve his China tea by adding Ceylon tea if he does not care to drink Ceylon tea alone, because I think that, where a taste for tea has been established, it will be much easier to get our Ceylon tea taken into consumption; and I know that amongst retailers a good deal of tea is being sold as Annam which is blended with one half Ceylon. My war is against coffee and alcohol.

I enclose copies of the advertisement programme being made this year in France and Paris by two firms, and our friend * * is to do a good deal in the way of advertising as well. I am also giving * * a subsidy for a traveller and demonstrator, who is to go round the provinces within a year and give tea away and also when he can get a grocer willing to take the matter up, he will distribute for a fortnight or a month, say, in front of that grocer's shop, or on the pavement in front of his shop, tea in cup gratis for two or three afternoons in the week. The Ceylon tea house at Versailles is doing very well, and one on a small scale is to be opened on the south side of the river close to the Bon Marché.

I am leaving for Germany: I go to Bremen first and then to Berlin, Magdeburg, and Hamburg. As I shall probably have to go to St. Petersburg in the autumn to see after the start of the tea room there, I leave the East of Prussia and Poland over for the autumn and will take Stettin, Konigsburg, Breslau, Lemberg, and Cracow then.—Yours, &c.,

J. H. RENTON.

Ed. Rosling, Esq.

IMPORTATION OF TEA INTO FRANCE.

From		1899.	1898.
		kilos.	kilos.
England	..	168,146	175,558
Belgium	..	1,465	1,734
British India	..	124,698	174,951
China	..	523,064	448,930
Other Countries	..	21,422	13,843
Japan	..	—	7,400
		838,795	822,416
Indo-China	..	46,015	12,439
Other Colonies	..	116	300
		884,926	835,155

Paris, April 10th, 1901.

NOXIOUS LETTERS ON TEA.

London, April 24, 1901.

Sir,—I am glad to see a protest being made against the attempt on the part of certain individuals, who ought to know better, to advertise themselves by posing as purists in the matter of Ceylon tea.

I should like to ask those gentlemen to say what percentage of the 300,000,000lb of tea imported last year, or of the 250,000,000lb taken for home consumption, consists of the tea which is alleged to be dangerous to health.

In the present day there is a perfect mania for discovering bacilli in everything we eat and drink. I should think it highly probable that even in "Osborne" (or any other) tea a scientist would find bacilli. We are told the air we breathe is full of microbes, and if some of the scientific men who are so mad on the subject were to have their way we should all have to live in hermetically-sealed glass cases, and have our food administered in the form of concentrated lozenges cooked at a temperature of 2,000 deg.

Seriously, however, it is really deplorable that men who have a craze for writing should be allowed to air their fads in the public press, and lead people who are apt to treat everything which appears in *The Times* as gospel truth, to think there is some danger in drinking Ceylon tea, because, forsooth, out of some million and a half packages imported last year a few hundreds possibly of "rubbishy" tea have pased the Customs undetected, or have been condemned as unfit for tea drinking.

I do not for a moment palliate the offience of people who ship inferior tea, as has been done lately to a small extent, but it is very easy to magnify this offence into a serious blot on the Ceylon tea industry, which I maintain does not exist.

I enclose my card, and subscribe myself as
NO RUBBISH.

CACAO PODS AND SEEDS.

DEAR SIR,—As "*Pod*" complains about Mr. Carruthers' diagram of cocoa pods, &c. I now send you an extract from my diary of tests made by me in 1894 and 1900, and since kept as my guide as to what pods to use for planting.—Yours faithfully,
CACAO PLANTER.

1894. Pods from a Young Estate.	Weight	Length.	Round.	Number of Seed.	Wet.	Dry.
					oz.	oz.
1 Forastero Rough and red, grooves yellow when ripe	2 to	9	12	45	5	3½
2 Condameera Smooth, red, long grooves yellow when ripe	2 to	9	12	29	2½	1¼
3 Hybrid Smooth, red with green grooves, when ripe yellow	2 to	8	11	38	4	2¼
4 Caraccas Rough and red pink grooves, latter when ripe yellow	2 to	8	10	36	3¼	1½
5 Marawa Rough, green, whole pod when ripe yellow	2 to	9	11	40	4	1⅝
6 Condameera Smooth green, whole pod when ripe yellow	2 to	8	11	45	5	2½
Total	12 to	—	—	233	23¾	11½
Say Average	2 to	—	—	38 5-6	3 5-6	1⅞

1894—Selected *small* pods from an old estate well manured—though I had many 3 lb. pods.

	Weight	Length	Round	Number of Seed	Wet	Dry
1 Forastero Rough, red, pink grooves, latter yellow when ripe	1 2-16	9½	11	51	4½	2⅛
2 Condameera Smooth, red, pink grooves, latter yellow when ripe	1-13	8½	13½	43	5	2¼
Condameera Smooth and green, whole pod, yellow when ripe	1-3	7	11¾	36	4	1⅛
3 Hybrid Rough red with green grooves, latter yellow when ripe	2-10	11	13½	38	4	2⅛
Hybrid Smooth red with green grooves, latter yellow when ripe	1-8	8½	12	26	3½	2
4 Caraccas Rough red, grooves get yellow when ripe,	1-4	8	11¾	35	4¾	2½
Carracas partially rough red, whole pod pink when ripe	1-1	7	11½	30	3	1⅝
5 Marawa Rough, green, yellow grooves when ripe	1-2	10½	11¼	21	3½	1⅝
Marawa Short, smooth, whole, yellow when ripe	1-2	7½	12	38	3½	1¾
6 Forastero Hybrid Short, rough, green grooves, latter yellow when ripe	1-3	7	11¾	36	4	2½
Total 10 pods	14 to	—	—	354	39¾	20⅝
Say average	16½	—	—	35½	4	2 1-16

The last three pods from a dying Forastero tree 12 years old experimented on—

Nov. 1900. 1 pod ripened, though husk thin and soft;	7 oz.	—	—	39	2	1¼
1 pod ripened, though husk thin and soft	7¼ ,,	—	—	40	2⅛	1 5-16
1 pod ripened, though husk thin and soft	8 ,,	—	—	42	2⅛	1 7-16

Among cocoa 10 and 10. The tree gave in last seven years 1,666 large good pods, cut out in November 1900, seed equal to 2 oz. for pod or say 1¾, but cocoa seed last seven years—no pods turned black, but all ripened, though tree was dying for practically four months.—Yours truly,

C. P.

OLD TEA ON DOOROOMADELLA.

Gammaduwa, May 6.

DEAR SIR,—In your foot-note to Mr. H Cottam's interesting letter in your issue of 3rd instant, you ask if the old tea on Dooroomadella is still in existence?

The tea referred to must have been abandoned years ago, how many I do not know, but many of the bushes still exist amongst the patna grass.

The cinchona trees must also have been cut down long ago, as the field is now in heavy chena, but cinchona trees are still growing from many of the original stools. —Yours, MATALE EAST COR.

THE TEA INDUSTRY: THE OLD REMEDY.

DEAR SIR,—I suppose the familiar *Requiescat in pace* might be adopted as the epitaph over Mr. Rosling's proposal to *rest* ten per cent of our tea land. As one of those who supported the scheme, I regret that it has not had a fair trial—both as a means of improving prices by imposing a check on overproduction which could be promptly withdrawn if new extensions were attempted, and of benefiting the estates by a cessation in the eternal round of plucking and pruning. The primary condition on which the scheme could be tried having failed, through the non-adhesion of an acreage sufficient to reduce appreciably the output of tea—the acceptance of the inevitable is the most practical and philosophic thing to do. The necessity of a reduced output being recognised as a means of recovering prices, even by those who objected to Mr. Rosling's proposal, it remains that an earnest effort should be made to gain this end by more careful plucking and manufacture, as advocated by yourself, Mr. Editor. But what is this but the old remedy? I cannot recall how many years ago it was, but it cannot be less than three years since you issued a most searching list of questions, and elicited a most valuable body of evidence and opinions from practical planters on the best means of ensuring the permanence and progress of the Tea Industry. If you look up the answers to your circular —were they not published in pamphlet form? —you will find that judicious manuring to keep the bush in heart, careful medium plucking, avoidance of hacking, strict attention to the factory by the Superintendent, were the methods suggested; and that your editorial endorsement of judgment in cultivation and plucking, and infinite pains in manufacture, was unmistakable. So we have come back to the old remedies. Let us give them now, after our recent bitter experience, a full and fair trial. Sports and pastimes, like pruning, can be carried to excess, and may tell on the vitality of business. Let not too much be left to the Conductor and Tea-maker—whether plausible Jaffna Tamil or the docile Indian. If they can do all the work, the expense of a *durai* need not be incurred. Let the white man bear his full share of the burden, and all will come right.

PROPRIETOR.

THE KEA-PARROT OF NEW ZEALAND.

15th April, 1901.

DEAR SIR,—Referring to "O. C.'s" letter in the *Observer* of 27th March, I may be able to satisfy him on the subject of the Kea parrot of New Zealand. When I first settled at the North end of the Wakatipu Lake, in Otago, great numbers of Kea-parrots were to be found on my sheep-run, but they confined themselves to the ranges just under the snow line, and fed on hill berries and the fruit of fuschia and other trees in the bush, but I never heard anyone accuse them of being carnivorous birds. About a year after I left New Zealand the depredations of the Keas, on my old sheep-run, began to be talked about, and from living high up on the ranges they took to frequenting the flats bordering on the lake, and their practice was—and is—to alight on the back of a sheep and, with their strong sharp beaks, dig into the back, just over the kindeys, and devour the kidney-fat. That is all they eat, but, of course, that is enough to cause the death of the sheep so mutilated. Many theories have been given as to their sudden change from fruit eaters to carnivoræ, and my own theory may be as probable as any other. It is this. The birds had increased so much in number that their natural food had become scarce, and they had to look around for something else on which to exist. Probably they had begun on the sheep skins which are, usually, hung over a rail near the shepherds' huts, and had picked the small pieces of fat off these, with much satisfaction. Then an occasional dead sheep had given them opportunities of practising their strong beaks, and they thus discovered the situation of what, to them, appears to be a special delicacy—the kidney-fat. From finding out how to get at that on a dead sheep, they proceeded next to look for it on a living one, and thus, step by step, they gained their experience until, now, they are one of the plagues of New Zealand. I may mention that there is nothing singular in this change of habit in these birds. The starling is called "The Farmer's Friend" in Britain, because it lives entirely on grubs, insects, &c, and, for that reason, it was acclimatized in New Zealand. But, in their new home, they increased at such a rate that their ordinary food ran short and they took to eating grain and, now, they are as much of a curse to the New Zealand farmer as rabbits and sparrows are.—Yours truly,

"COSMOPOLITE."

ERRATA.

Page 856—In letter on Cacao Pods and Seeds, signed by "C.P.", in last para *for* "Seed equal to 2 oz. for pod or say $1\frac{3}{4}$, but cocoa seed last seven years," *read* "Seed equal to 2 oz. *per* pod or $1\frac{3}{4}$ *cwt.* Cocoa seed last seven years."

[illegible]

THE OLDEST TEA IN CEYLON AND PIONEERS.

Dear Sir,—In your issue of the 29th ult. mention is made of the "*Oldest Tea in Ceylon*" planted in 1868-69. I wish to call the attention of yourself and readers to the fact that Captain George Lloyd Williams, of Dooroomadella estate, Matale, obtained seeds and plants of tea from Dr. Thwaites, of Peradeniya Gardens, in 1865, and that the writer became his Superintendent in 1867 and planted out tea plants and made good tea which was distributed in small quantities to Dr. Shipton, Messrs. R B Downall, Walker, Buxton Lawrie, Chippendall and others, in the district of Matale East. Mr. Thos. S Grigson, of Colombo, may also remember the circumstance. Captain Lloyd Williams also obtained 1,000 cinchona officinalis and 1,000 cinchona succirubra from Dr. Thwaites about the same time, and Henry Walker awoke one morning to find himself proprietor of a cinchona plantation and tea bushes planted by—Yours faithfully,

HENRY COTTAM.

P.S.—Mr. Henry Walker, now in Borneo, I believe, bought Dooroomadella from George Wall & Co. and did not know he possessed a cinchona plantation all ready for harvesting at the top of the hill. H. C.

[Mr. Cottam's reminiscences are interesting; we should like to know from a Matale East planter if the old tea (34 years) on Dooroomadella is still in existence? We gave the Loolecondera field preference as continuously worked; but, of course, older tea should be found on Condegalla, Ramboda, where the Messrs. Worms planted a field with China —still existing?—in the "forties"; and in the same decade Mr. Llewellyn of Calcutta sent plants of indigenous Assam to Pen-y-lan; but we suppose they were rooted out for coffee, or ran to jungle. Mr. P D Millie planted some tea in Pundaluoya in 1861; and Mr. A Greig put some on Barra, Rakwana, for Mr. C Shand in 1864.—Ed. *T.A.*]

REDUCTION IN OUTPUT OF TEA.

Kandy, May 2.

Sir,—The following cablegram was despatched to London a few days ago:—"Including London figures total 3,500,000 lb."

The above was in reply to the following cablegram received from London in the middle of April:—"Indian 10,000,000 lb. secured, let us know the number Ceylon," followed by a further wire on 22nd April reading "Indians meet to-morrow, give us all the information you have."—I am, Sir, yours faithfully,

A. PHILIP,
Secretary to the Planters' Association of Ceylon.

HAVE WE FOUND THE OLDEST TEA TREE?

Pen-y-lan estate, Dolosbagie, May 5.

Dear Sir,—Mr. Tringham, of Pen-y-lan estate, Dolosbagie, has preserved one fine specimen of Mr. Llewellyn's tea planted in the "forties." This fine tea tree is probably sixty years old and we measured the stem and found it eight inches in diameter and two feet in circumference; in height it is from 25 to 27 feet and would have been much bigger had not half the roots been cut away in the forming of a side drain near the kitchen of Pen-y-land bungalow.—Yours truly,

H, COTTAM.

[We are indebted to Mr. Tringham for 30 seeds from this old tree—we do not know that there is any special virtue in seed from a very old tree—but they are well worth a trial.—Ed. *T.A.*]

PLANTING NOTES.

Four Tea Companies: Mail News.—In our daily and *T. A.* the reports of three companies, and an account of the annual meeting of another, appear tonight. Top of the four is the Balmoral Company, with its solid 12 per cent for the year and £720 to carry forward; Tyspane pays 3 per cent, and has a balance of £176 7s. 3d. which is nearly £40 less than last year, but the Company is making good progress; Kelani Valley paid 3 per cent interim but no final dividend and carries forward £456 15s, the late Mr. Donald Andrew's place on the board being taken by Mr. G G Anderson, who retires but has probably been re-elected. The Panawal Company pays 2 per cent which is creditable, in view of a decrease of £1400 by sales, and and £505 19s. 6d. is placed to reserve. We congratulate the management and all concerned.

Two Sister Tea Companies: the Alliance and Imperial.—It is strange what a difference the purchase of "one more property" has made to several Tea Companies in Ceylon in absorbing, or destroying, or delaying dividends. We could name several such that would have been all the better off had the Directors not been tempted to add to their estates and responsibilities; but perhaps the most notable is the "Imperial" to which the addition of Nonpareil estate, in West Haputale, has proved a regular "white elephant." We suppose if it had never been purchased that the Company would have regularly given its six to seven per cent equally with the Alliance and that its shares even in these hard times would have been at par in place of 50 per cent below. The figures given elsewhere in the Reports of the two Companies present a notable contrast. Every estate in the roll shows a working profit—such fine Dimbula properties, as Thornfield, Uda Radella and Edinburgh, giving each, over £2,000,—but for Nonpareil, there is the lamentable record of "loss £697 19s 0d." Of course, we do not forget that it had to be turned from an old coffee into a tea estate, and that there are now 316 acres in tea which ought year by year to do much better and 38 acres in cardamoms; but all the same, far better for the Imperial shareholders if their Directors had never touched Nonpareil. Let Directors of other Companies take warning when they are tempted to add still another estate to a prosperous concern.

THE CEYLON GAME PROTECTION SOCIETY MEETING.

This was held in the Nuwara Eliya Board Room shortly after the Kennel Club meeting.

Those present were the Hon. Mr J N Campbell, Messrs. A S Colls, Frank J Hadden, H G Spence, C H Bagot, H H Oliverson, E J S Browne, H W Dickson, John Fraser, C G Wood, C C Herbert, A Hurst, J Wickwar and Thos. Farr, Secretary.

The SECRETARY opened the meeting by stating the difficulty, almost an impossibility, of securing a conviction under the present game laws, which they met today to reconsider; unless a poacher was caught red-handed, no results followed, however weighty the circumstantial evidence might be against him. Mr C H Bagot gave several personal experiences and Major Gordon Reeves wrote to the Secretary, giving an instance in which a delinquent, who admitted to the Magistrate having killed a Sambur and sold the remnants for R35, was only fined R2·50. The presiding Magistrate's name and particulars were unanimously voted to be called for. The Chairman's name was called for before the business of the meeting could be gone into. Messrs. Spence and Bagot were generally called for but the former declined and the latter refused to act.—Mr. Brown, proposed by Mr. Oliverson, was then unanimously voted to the chair when the business of the meeting was gone into:—The minutes of last meeting were confirmed.

THE IMPORTATION OF ANTELOPE.

A long correspondence on the subject was read and owing to the difficulty of catching these it was decided to leave the matter in abeyance.

MR. BAGOT'S RESOLUTION

Was to the effect that no killing of game should take place within limited hours and that even an attempt to shoot at animals within the meaning of the Ordinance should be a penal offence and that the possession of fresh meat of game should be punishable, the proof of legal possession being on the possessor.

RESOLUTION BY MR. FARR.

"That the only way out of the difficulty would be for Government to proclaim all forest, and this was stated by an officer of the Crown to be keenly felt to be a likely necessity by Government and a step to be approved of by their agents."

BRANCH ASSOCIATIONS,

Originating in districts or provinces in which the Government Agents might be induced to take their share in protecting the game of the country, were warmly supported.

THE QUESTION OF WATCHERS.

This was the subject of some discussion as to whether they were "To be or not to be." On Mr. Brown's motion these were considered advisable, if not necessary, in the Bintenne district, towards the support of which the Club has been paying R30 a month, the R M of the districts reporting very good record of services.

Mr. C H BAGOT, addressing the meeting on the difficulty of procuring a conviction, though convincing evidence was adduced, wished to ask the Society to call the attention of Government to the following rule:—"That it shall not be lawful for any person to shoot at any game, unless trespassing in or upon any cultivated land, after dark and before daylight." That the Ordinance 10 of 1891, section 12, did not provide sufficient protection for the preservation of game insomuch as poachers could proceed into Crown forests and kill game between the hours of night, and not be responsible unless actually *caught in the act.* This was the speaker's point of contention and all (the Press included) were asked to support the speaker's resolution to the effect that the game laws should be revised as regards the rules referred to.

Mr. THOS. FARR dwelt on the difficulty arising between the licensed and unlicensed sportsman. It was absolutely impossible to catch the former red-handed, the Ordinance being useless unless Government stretched a point in accordance with Mr. Bagot's suggestion.

Mr. C H BAGOT in further support of the preceding suggestion said that "attempts" to shoot would strengthen the Ordinance, his speech being to the effect that the poacher could not always be seen to hit the game and that he could disclaim all knowledge of its having been slain. Mr Bagot said that he once met a party with guns and dogs hunting in the forest above the Nuwara Eliya Brewery; but, though prosecuted before the Nuwara Eliya court, they were acquitted, no doubt owing to the weakness of the legislation. Referring to the fourth clause of No. 10 of 1891 on

THE POSSESSION OF FRESH MEAT,

Mr BAGOT stated that watchers and aratchis should be empowered to prosecute, but that recent cases, to his knowledge, had been dismissed owing to technicalities.

The SECRETARY, in support of Mr. Bagot's statement, gave

MAJOR GORDON REEVES' EXPERIENCES.

A kangani of his was prosecuted for killing an elk. The Ratemahatmaya, Korale, and Arachchi were interested and even a high Civil Servant was connected in the prosecution. The defendant, replying to the Magistrate stated that the value of elk, which he admitted to have been killed, was R3·50 but, on being questioned, stated he had sold the remainder of the carcase for R35, though he had made sundry presents to gentlemen of the district. Nevertheless an

INADEQUATE SENTENCE

was pronounced, the fine inflicted being only R2·50.

The meeting clamorously called for the name of the Magistrate and particulars, which the Secretary was subsequently authorised to ask for, and censure was proclaimed against those who should have known better than accept such presents, thus conniving at such delinquencies as the Society was so strenuously fighting against. It showed a sorry want of true sport on the part of those who accepted, and their names were much in demand, which, if they had been forthcoming, would have received a vote of censure.

THE WANT OF ADEQUATE LEGISLATION.

A prolonged discussion followed on this question which fully proved the weakness of the Ordinance applying to the possession of fresh meat. It was resolved that anyone in possession of fresh meat should be compelled to prove legal ownership.

BRANCH ASSOCIATIONS.

These were agreed upon to be productive of much good and, in connection with the several roposed Sister-Branches, Mr Shand of Cool-

bawn, Nawalapitiya, was thanked for his kind offer to do all in his power to promote the interests of the Game Protection Society.

THE IMPORTATION OF ANTELOPE.

Mr Farr has not given up hopes of being able to introduce these desirable adjuncts to our game category; but the difficulties were shown to be very great.

LIBERAL SPIRIT OF FOREIGN SPORTSMEN.

The big bags made by visitors which may be accredited to the efforts of the C G P S met with much protestation from all present. The previous donations had been hardly in keeping with the bags made, but, in the last instance of Mr Horsburgh's contribution on behalf of Mons. Dupremont of R20, it was accepted by the Society with very meagre thanks, it being considered a by no means adequate return for the sport enjoyed at the expense of the sporting members of the Colony, this gentleman being credited with a very large return for the trifling fee paid to Government.

In the general sense of the meeting, though no formal resolution was carried, it was unanimously declared that Government should be approached with the object of prohibiting promiscuous visitors indulging in the destruction of Ceylon game fauna without some adequate return. All the resolutions were heartily endorsed. The meeting concluded with thanks to the Chairman.

TEA TRADE IN THE UNITED STATES.

REPORT BY BRITISH AMBASSADOR.

A report was recently made to the British Ambassador at Washington on the tea trade in the United States, and subsequently sent to the Foreign Office. From this report, which has been forwarded by the Colonial Office to the Secretary of the Ceylon Association in London, we take the following:—

"There is now a monthly importation of tea of between nine and ten million pounds. This is an increase of nearly one million pounds per month as compared with twelve months ago, and nearly two million pounds compared with two years ago.

"Taking the figures for the eight months ended February 28 last the amount imported was 78,794,023lb. Of this about 54 per cent. came from China and 37 per cent from Japan. Only a little over 5 per cent was imported from the United Kingdom, British North America, and the East Indies combined.

"The previous year for the same eight months China had about 47 per cent of the trade, Japan about 44 per cent., and the British possessions about 8 per cent.

"China therefore has increased her trade considerably, while all the other countries have sent less.

"The difference may be even greater than is shown by these figures because there is nothing to show from what country the tea imported from British North America came. Part of it may have come from China and Japan.

"Though the quantity of tea drunk per capita in the United States is less than previously, it does not necessarily mean that less tea is going to be consumed. The population is increasing rapidly and large numbers of the immigrants come from non-tea-drinking countries; though they cannot be considered as tea consumers at first, there is no doubt they will in time become so when they or their children adopt the customs of the country. The habit of drinking tea is certainly on the increase, and there will certainly be a very much larger business done in the future than there is at present.

"The demand for Ceylon and Indian qualities is increasing in most parts of the country. With energetic pushing and particular attention being paid to the quality and price preferred there ought to be no difficulty in securing for British dealers a much larger share of the trade.

"If we glance at the prices of tea imported from the several countries it will probably suggest a reason why the sale of that from China has increased so much.

"Prices per pound of tea imported during the eight months ended February 28th:—

From	1901. cents.	1900. cents.	1899. cents.
United Kingdom ..	19·6	19·1	22·8
East Indies ...	13·5	12·6	17·1
British N. America ..	17·2	16·3	16·1
China ..	10·6	12·0	12·4
Japan ..	14·1	12·4	13·7

"It will thus be seen that China has been selling her tea cheaper than her rivals and increasing her trade while other countries have increased their prices and have done a smaller trade.

"The following information supplied by dealers in tea in different parts in the United States may be useful.

"New York.—The China qualities sell best in the East and the Japan in the West, Formosa included in the China teas. The demand for Ceylon and Indian qualities is increasing. The demand is chiefly for the cheaper grades on account of the duty. The proportion of green tea sold as compared to black is about 1 to 5.

"San Francisco.—The China qualities sell best, then Japan, and Ceylon third. The demand for Ceylon tea is increasing; the demand is chiefly for the better qualities. The proportion of green to black is 1 to 3. Demand for green is decreasing.

"New Orleans.—China tea is the best seller, but demand for Ceylon is slightly increasing. The chief demand is for medium and for better grades, the proportion of green to black is about 1-3 green to 2-3 black.

"Philadelphia.—China and Japan sell best. Never much demand for Ceylon. Demand is greatest for medium grades. Proportion of black to green 5 to 1. Demand for latter is decreasing.

"Baltimore.—China sells best. No demand for Ceylon. Demand chiefly for cheaper grades. Proportion of black to green about 5 to 1."—*H & C Mail*, April 26.

Passion-Fruit in New South Wales.—We read in the *Agricultural Gazette* of this Colony that probably no other city in the world consumes in a year anything like the amount of passion-fruit that goes annually into the fruit-salads of Sydney. All attempts to introduce this piquant fruit abroad have thus far ended in failure. The Londoners will hardly look at it. In the United States it is almost unknown. However much we may pity these excellent people,—however much we may wish we might have the pleasure of introducing to them the beauties of the Sydney fruit-salad with its acme of piquancy derived from the passion-fruit, we must admit our defeat up to the present.

THE FOOD WE EAT: APPLES.

[TO THE EDITOR OF THE "SPECTATOR."]

Sir,—*A propos* of apples, there are two old English saws which confirm Mr. Radcliffe Cooke's praise of apples (*Spectator*, April 13th):—

"An apple a day keeps the doctor away."
"Eat an apple going to bed,
You will make your doctor beg his bread."

An experience of some length enables me to support all he says as to the benefit of eating raw apples the last thing at night. A Dr. Searles some years ago wrote to the *Journal of Agriculture*:—"The apple is such a common fruit that few are familiar with its remarkable efficacious properties. Everybody ought to know that the very best thing they can do is to eat apples just before retiring for the night..... The apple is an excellent brain food, because it has more phosphoric acid in easily digested shape than any other vegetable known. It excites the action of the liver, promotes sound and healthy sleep, and thoroughly disinfects the mouth. That is not all. The apple agglutinates the surplus acids of the stomach, helps the kidney secretions...... and is one of the best preventatives known of diseases of the throat. Everybody should be familiar with such knowledge. Next to the orange and lemon, it is the best antidote for the thirst and craving of the person addicted to alcohol or opium."—I am, sir, &c.,

Colwich Vicarage, Staffs. OSMOND DOBREE.

—*Spectator*, April 20.

NOTES ON THE USE OF THE SEED OF THE BAMBOO (DENDROCALAMUS) AS FLOUR.

BY W. A. WALLINGER, *Bo. F. S.*

It would not appear to be very generally known that the seed of the bamboo is not only fit for consumption by man, but that, in this corner of India, it is being collected and so consumed to an extent sufficient to ameliorate a very pronounced local scarcity. The *Dictionary of Economic Products, Vol. I.*, contains interesting information on the topic, and the fact that the seed is edible is also referred to in *Agricultural Ledger, No. 17 of 1900*. But the following remarks may, nevertheless, be of some general interest. The fact that there has been an unprecedented deficiency in the rainfall over a tract of country, which is almost invariably well-favoured in this respect, leading in its turn to a sudden seeding of the bamboo, is significant and of interest; but with this aspect of the question I am not at present concerned, except in so far as to incidentally draw attention to the old Brahmin saying: "When the bamboo produces sustenance we must look to Heaven for food." When the seed is ripe, a very slight shaking of the already dry stems is sufficient to induce it to fall plentifully. The ground is either cleared by firing, if the likelihood of being detected is slight; or the seed is collected in cloths spread on the ground to receive it. A very considerable number of the minute pericarps that drop, however, contain no grain; and I have noticed men and women removing these in the reserves by the well-known process of holding baskets over their heads and then pouring the grain slowly on to the ground and allowing the breeze to do the rest. Some bamboo clumps are abandoned altogether as affording insufficent seed for the labour involved.

The collected seed on being brought home is pounded in order to remove the husks. The accompanying specimens may be of value for educational purposes at the Forest School. The original seed is marked No. 1. No. 2 is the husk removed after beating; and No. 3 the seed after this primary process. No. 3 is slightly damped and roughly ground, resulting in the sample No. 4 and the bran No. 5. Finally the coarsely ground seed (No. 4) is re-ground and results in the cooking flour No. 6.

This flour is either mixed with rice or "jowari," or eaten by itself, prepared into the ordinary flat cakes of the country, termed "chapatis" It is said by the natives to be sufficiently nutritious; and the mere fact that it is so largely collected shows it so to be. Nevertheless it would be of interest to ascertain what percentage of proteids the flour contains, and where it would stand in the scale as a nourishing form of diet.

It has been found that two women can collect about 8 lb. of the seed in the day, which, after the removal of the husk and bran, is reduced to 6 lb. This quantity will make 30 cakes 7″ in diameter, or sufficient, it is said, to feed an able bodied man for six days. It is interesting to note that the flour is being bartered in local markets by the poor for "chillies" and other condiments; but there is, so far, no recognized market rate. My horse, bullocks, goats and sheep refuse to touch the bran referred to, even when mixed with their ordinary grain. The seed is eaten raw under protest but when cooked, is more appreciated.—*Indian Forester* for May.

THE ROSE GARDEN.

ROSES IN CEYLON.

AT AN ELEVATION OF 5,400 FEET ABOVE SEA LEVEL.

Roses at a high elevation in Ceylon do very well indeed, with but a few exceptions, such as the Hybrid Perpetuals, Jennie Dickson, A K Williams, Reynolds Hole, and a few others. The Hybrid Perpetuals have to be allowed to grow very much as they like, that is to say, no pruning is necessary, only the removal of dead wood, and to let the plant grow on. The plants look straggly by this treatment, but it is the only way to ensure success. Plants that are cut down year after year do not flower properly, and only have a very short life. Among the best are Clio, Robert Duncan, Thomas Wood, Alfonse Suppert, Baron de Bonstettin, Beauty of Waltham, Boule de Neige, and Countess of Oxford. The Victor Verdier tribe all do splendidly and are always in flower. Heinrich Schultheis and its sports are excellent, and Hybrid Teas are without doubt the class above all for this country. As a rule they do better than the Hybrid Perpetuals or Teas, with a few notable exceptions, such as Maman Cochet both pink and white. There is no better Rose grown than this; it simply grows like a weed, and makes very large trees in a year or so from cuttings, and the blooms are enormous and exquisitely formed. To begin to enumerate the Hybrid Teas that do well would be to mention nearly all that can be found in a modern English catalogue. Captain Christy and its sports are in the first rank with the La France tribe, Augustine Guinoisseau and Duchess of Albany being the best of this family. Bessie Brown, Mrs. Grant Baldwin, Kaiserin Augusta Victoria, Mme. Joseph Comber, Mrs Whitney, Souvenir du President Carnot, Shandon, &c., are by far the best Hybrid Teas.

Teas as a class do very well, in the first rank being Maman Cochet, Anna Olivier, Niphetos

(climber), Cleopatra, Perle des Jardins (climber), Duchesse Marie de Rotibor, Emile Gonin, Francisca Kruger, General Bitton, Hon. Edith Gifford, Jean Ducher, Mesdames Baldwin, Berard, and De Watteville, Marie van Houtte, Mrs. E Mawley, Rubens, Safrano, Sappho, and the Souvenir d'un Ami tribe, Zephyr. A lot of the Teas are bad growers, and never make good trees. Noisettes as a class do well. Niel, both yellow and white, Cloth of Gold, L'Idéal, Reve d'Or, W A Richardson, and Lamarque are the best. Both Banksians do well, and soon make extra large trees.

The Bourbon class does not do well, only the Hybrid Bourbon are of any use, such as Mrs Paul, Philemon, Cochet, Purity, and both the climbing and bush Malmaison. The ordinary Bourbons do not flower well. Rosa polyantha, such as Aglaia and Crimson Rambler, grow fast and soon make very large plants.

Chinas do well, but this class as a rule are not very useful, the flowers being very poor and not lasting. The best Chinas are Cora, Duke of York, Duchess, Flora, Mrs Bosanquet, and Red Pet.

The Japanese Rugosa Roses do very well, but have a very straggly growth, and can only be grown as a hedge or back ground.

The Penzance Briars are worthless, and only flower once in a way, though they make good growth. I have all the varieties, but use them as the stock for budding on. Moss Roses are also useless. The only two that flower at all are White Bath and Perpetual Moss, both of very straggly growth aud of little or no use.

Roses from seed are very easily raised, and with care good varieties are obtained. The seed ripens all the year round, and is produced freely, if the flower has been fertilised. The writer has raised some fine new sorts from M Neil, Niphetos; Robert Duncan, Thomas Wood, General Jacqueminot, &., and they may be heard of in the Rose world. A CEYLON ROSARIAN.

—*Garden*, April 13.

TEA INSPECTION.

A Visiting Agent writes :—

"How could an Inspector possibly examine all the tea exported? I fancy that is the difficulty. So long as you have buyers, there will be sellers."

To which we reply:—"Don't you see that inspection would be confined to packages bearing unknown marks? No need to touch Directory estates or well-known marks, as the only time tea has been stopped in London is when it was shipped under unknown marks. Think of the grand advertisement it would be to be able to telegraph to the London *Times*:—'Inspector of Tea Exports appointed; standard fixed, below which no tea can leave Ceylon.' It would do more good than fifty answers to Skrine. The Inspector might not reject more than 2 or 3 boxes a year because 'black sheep' and natives would stop shipping rubbish; yet his appointment would be repaid to the honest planter many times over. At present 'the million' at home are being impressed with the idea that "any kind of rubbish can be shipped from Ceylon."

COCONUT PLANTING IN THE NORTH.

During a considerable period, the Pachchillapally district in the Peninsula was the district for coconut planting. In this District there are more coconnt estates than in other parts of the North. The best estates, Karampaham, Kotte, Dromore, Ivanhoe and Tanmakeny are situated in this District. A few years back, a new field for coconut planting was found at Vaddukadu and some enterprising men have opened up lands there and have planted them with coconuts. Prominent among those who are planting at Vaddukaddu are Dr. Kandyah, Mr Proctor Casipillai and Mr. Advocate Vanniasinghem. Large tracts have been bronght under cultivation and the prospect is reported to be very hrigbt.

The water and soil in Vaddnkaddu are alleged to be superior and it is generally helieved that, in due time, the district is likely to be a flourisbing coconut district, a great rival to the Pachchillapally District. Mr. Proctor Casipillai, who is perhaps tbe largest and most enterprising speculator, has opened np nearly 300 acres and has applied for more lands. If Vaddukaddu fulfils the expectations formed in respect of it, Mr. Casipillai would be the largest Tamil coconut planter in the North.

The Roman Catholic Mission at Jaffna possesses some valnable estates in the Peninsula. The Melizan Estate, just coming into bearing, is admitted to be a splendid property. But His Lordship Dr. Joulain, the present Catholic Bishop, whose knowledge of tbe people and the country is perhaps nneqnalled, has discovered a district suited for coconut planting and which is likely to take the shine ont of Pachchillapally and Vaddukaddu. A few years hack, His Lordship, favourably impressed with the soil and condition of the land at Mullaitivoe, applied for a block of 500 acres aud planted a portion of it with coconuts. The reports we have received of this new plantation are highly satisfactory. The trees are not only in good condition, but compared with those in the old districts tbey are "giants" and are coming into hearing earlier than in other parts. In view of tbe excellent water and the peculiar soil, tbe land is mnch snperior, and as a coconut District, it will, in a short time, become very important and popular.—Jaffna "Patriot," May 10.

PLANTING IN GERMAN EAST AFRICA: GREAT PROGRESS: 25,000 ACRES UNDER COFFEE.

In his report for the year 1900 the British Vice-Consul at Dar-es-Salaam says, — Nearly 600 acres have been planted with Mauritius agave hemp (*Fourcroya gigantea*), and a field railway has been constructed. At the present time some 20,000 leaves, producing about 750 lb of dry fibre, are cut and cleaned daily. The fibre goes through the process known as breaking and scutching the woody stem or boon being cracked and broken up by means of a simple rolling machine. After the bruised leaves have been left in soapy water for one night, they are well rinsed in fresh water and then placed in the sun. When dry as much as possible of the broken wood is shaken out, after which the fibre is beaten by rotating wooden paddles, by which means the remainder is removed. It is then pressed and formed into bales weighing 2¼ cwt.

VANILLA.—There are three vanilla plantations near Bagamoyo. Two, Kitopeni and Shambesi, belong to a private company, the third to the Roman Catholic Mission. In the two former are 30,000 vines, each of which bears on an average 20 pods annually. During the drought of 1898 half

the vines died. To prevent a recurrence of such a catastrophe the plantations are now irrigated, the water being fetched a distance of about two miles in pipes. The flowers are fertilised artificially, and the vines are not allowed to grow more than six or seven feet in height. The pods are cured by the wet treatment and are dried in an oven, a temperature of 120 Fahr. being maintained. Some are also sun-dried, being wrapped up in woollen cloth. The trees planted for shading purposes are *Pithecolobium saman* and *Albizzia lebbek*, and as a prop *Jatropha curcas*. Labour is cheap, 3d a day being the price usually paid.

Three or four small vanilla plantations have been started. The largest, on the banks of the Mkulumuzi River, was flooded a few months ago, and most of the vines were lost.

The vines belonging to the Mission are said to be less productive. The prices obtained for 1 lb of vanilla (from 30 to 50 pods) ranges from 1*l* to 3*l*.

BREAD-FRUIT.—A trial has been made by the Mission with the bread-fruit tree which has answered admirably.

COFFEE, ETC.—32 estates have been opened by various German planting companies and private persons in the Hinterland of Tanga and Pangani, and in the highlands of Usambara. About 25,000 acres are under cultivation, 7,500 acres having been planted with coffee, a like number with coconut palms, and 3,260 acres with hemp. Experiments are also being made with ramie, vanilla, cardamoms, Ceara rubber, grape vines, sideroxylon trees, cinnamon, cocoa and tea. Cotton and tobacco have, so far, proved a failure. There are over 5,000.000 coffee shrubs of the Mocha variety (*Coffea Arabica*), one quarter of which are now in bearing. The plantations are situated at an elevation of from 3,500 to 6,000 feet above sea-level. The soil of Usambara appears to be particularly suited to the cultivation of coffee, and the plants come into bearing at two years of age. *Albizzia Lebbek* and *A. Moluccana* are generally used as shade trees, but neither is considered very satisfactory. In some of the estates the shrubs are not shaded at all. Up to the present no signs of sunstroke or canker have been observed.

Hemileia vastatrix broke out in some of the gardens in 1895, and has since made its appearance on one or two occasions. The planters do not, however, consider it a very serious matter, and, after the leaves have been plucked and destroyed, the diseased plants recover. Considerable damage is, at times, done by beetles and field bugs. Very little manure has as yet been used; but the German East Africa Company is following the example of the Guatemala coffee planters, and a mixture of bone meal, sawdust, rotten coffee husks, and lime has been found a good substitute for animal manure which is wanting.

On several of the estates the berries are pulped by machinery (Walker's or Gordon's). Fermenting vats and drying-houses have also been built. Each tree is said to bear on an average ½lb of parchment coffee per annum. The price obtained for the first and second qualities, which are sent to Hamburg, averages 75s per cwt. Inferior coffee is sold locally or in Zanzibar, and fetches about 28 rupees (37s 4d) per cwt. In the following table is shown the total amount of coffee exported from German East Africa since the plants came into bearing:—

Date.				Quantity Cwt.
Jan 1 to	Dec 31	1895	..	700
Do	do	1896	..	500
Do	do	1897	...	1,470
Do	do	1898	..	2,670
Do	do	1899	..	1,020
Do	September	1900	..	1 220

It is believed that next year's crop will be heavy. About 500,000 Liberian coffee shrubs have been planted. The price obtained at Hamburg is, however, not sufficient to pay for the cost of transport, and the gardens are for the most part being allowed to go to weed.

CARDAMOMS.—The cultivation of cardamoms has been taken up by two or three Companies. A sample was sent to Germany at the commencement of the year, but the price obtained (56s per cwt) was disappointing.

GRAPE VINES—10,000 grape vines were planted last year at an altitude of 4,500 feet. They are growing well, but a rust has been noticed on the leaves.

SIDEROXYLON—These handsome and useful trees (the "djohor" of Java) are being planted extensively to mark the garden boundaries.

CINNAMON.—Cinnamon is to be found in many of the estates. A sample which was sold in Zanzibar a few months ago fetched 70 rupees (4*l* 13s 4d) per cwt.

COCOA.—No soil has yet been discovered suitable for the cultivation of cocoa, but there exist a few trees in several of the coffee plantations.

TEA.—Tea grows well; up to the present, however, it has only been planted in small quantities.

LABOUR.—A very important factor in the cultivation of coffee, etc. is, from the planter's point of view, the labour question. The natives of the Tanga and Usambara districts are of little use as workmen, and labourers are usually recruited in the towns of Pangani and Bagamoyo and, in a less degree, on the banks of the Rufiji River. Wanyamwezi and Wasukuma are preferred. It is customary for the men, who receive from 9 to 14 rupees (12s to 18s 8d) per month without food, to bind themselves for six months. There are probably between 3,000 and 4,000 native workmen on the various estates. Asiatics are no longer employed.

A private company has opened a small plantation at Lindi, and a little Liberian coffee is grown near Mikindani.—*Planting Opinion.*

ON A NEW AROMATIC ALDEHYDE OCCURRING IN EUCALYPTUS OILS—By Henry G Smith, F.C.S., Assistant Curator, Technological Museum, Sydney. —We have to acknowledge receipt of a copy of this paper.

THE JUICE OF THE GREEN PINEAPPLE is accredited in Java and throughout the Far East generally, says an exchange, with being a blood poison of the most deadly nature. It is said to be the substance with which Malays poison their creeses and daggers and to be also the finger-nail poison formerly in use among aboriginal Japanese women, almost universally. These women cultivated a nail on each hand to a long, sharp point, and the least scratch from one of these was certain death.—*Medical Times.*

TO ALL PARTS OF ASIA, AFRICA, AMERICA AND OCEANIA.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop, August-September delivery; 1901 : booking necessary before the end of April ; quantities of 100,000 and over at special low rates. Plants available all the year round. 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—" I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year."

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery, 1901, booking necessary before the end of March ; large quantities on special terms ; Plants in Wardian cases.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter, in sending an order for this seed, wrote on the 22nd August, 1900:— " If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Kickxia Elastica.—(*Funtumia Elastica*).—Seeds and Plants, orders booked. (Lagos rubber.)

Ficus Elastica.—Seeds available in May-June ; booking necessary before the end of March ; also plants.

Urceola Esculenta and **U. Elastica.**—Same as above. (Burma rubber.)

Parameria Glandulifera.—Orders booked for seeds for January-February delivery ; also plants ; immediate booking necessary. (A good rubber creeper of Malacca.)

Landolphia Kirkii.—Seeds in July-August, early booking necessary. Plants can be supplied all the year round. (A highly-recommended species.)

Chonemorpha Macrophylla.—Seeds and Plants ; orders booked. (A very valuable rubber-yielding creeper.)

Memus ops Globosa and **Payena Leerii.**—Seeds and plants in July-August, booking necessary before April.

Achras Sapota, Willughbeia Firma, W. Edulis and other **Rubber and Gutta Percha** yielding Trees and Creepers, Seeds and Plants.

Cinnamomum Zeylanicum (Cinnamon superior variety). New crop of seed in April to June, booking necessary before the end of February ; also plants.

Coffea Arabica, Liberian Hybrid and **Maragogipe Hybrid.**—New crop March-April ; immediate booking necessary.

Cinchona Ledgeriana.—Seeds now ready, also other varieties.

Seeds and Plants of Nutmeg, Clove, Sandalwood (white and red), Pepper, Cardamom, Vanilla, Cacao, Tea, Coca, Fibre, Medicinal and Fruit Trees, Shade and Timber Trees, Eucalyptus various varieties, also Palms, Bulbs, Orchids, &c.

Our enlarged Descriptive Price List of Tropical Seeds and Plants of Commercial Products of Foreign countries for 1901-1902, now being prepared, and will be ready in a few months.

" South Africa."—The great authority on South African affairs of 25th March, 1899, says :— " An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants, of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Price List of Seeds and Plants for Ceylon use, post free, on application.

Our new Descriptive Price Lists of Seeds of Shade Trees for Coffee, Cacao, Tea, Cardamoms &c., Timber Trees, Trees for Avenues, Hedges, Wind and Shelter Belts, Ornamental Trees, Shrubs and Climbing Plants ; and Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Orchids, Bulbs, Dracænas, now being prepared, and will be ready shortly.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

Agents in London :—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Telegraphic Address :
William, Veyangoda, Ceylon.
Lieber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

EXPERIMENTAL AGRICULTURAL FARM AND SCHOOL,

We are much interested in learning that the historic estate first opened in coffee by Governor Sir Edward Barnes, and for many years leased and worked by Mr. E. Jeffries in cocoa, coconuts, pepper, and arecanuts, has been sold by the proprietrix, Mrs. Horsford, subject to the lease, to the Ceylon Government and for the avowed purpose of making it the site of a model or experimental Agricultural Farm or Plantation—or both combined—with School, &c. Our information goes to show that Gangaruwa estate, situated near the Botanic Gardens, has been purchased by Government for £8,000, and when taken over will be in charge of the Director of the Gardens. It is purchased subject to Mr. Jeffries' present lease which terminates about two years from now. This will give great scope for experimental work in connection with our Scientific Staff; for, in the Gardens, there is at present no room for such. We also believe the Agricultural School will be once more started at Gangaruwa—that is, in 1903 or so. We cannot too highly commend this latest step of Sir West Ridgeway in the Agricultural and Planting interests of the Colony. Mr. Willis, when he takes possession, should change the name and call his model plantation and farm after the Governor who has done so much for his Department and for Agricultural interests in the widest sense.

COFFEE PLANTING IN SUMATRA.

We are always pleased to hear from our old friend "W.T. McK." who, after leaving troops of friends behind in Ceylon, has been so many years now in Sumatra without making a fortune. He sends us as usual a graphic letter with some useful statistics, showing that his district of "Serdang" has about 10,000 acres uder Liberian coffee. The photograph he sends shows magnificent giant coffee trees (backed by Albizzias) laden with crop; for, of course, the soil is superior to anything we have in Ceylon. But then the market price of "coffee" has, for a long time, been even more disappointing than that of tea!

(*By an ex-Ceylon Planter.**)

NOTES FROM SERDANG, EAST COAST OF SUMATRA.

Some time ago I promised you Liberian coffee figures from here: and now, by the kindness of the Chairman of the Serdang Koffie Planters' Vereeniging, I am enabled to send you a copy of the official figures of the District. By this post I also have the pleasure of sending you a photo, showing coolies picking coffee on Greahan Estate from trees not yet four years old. The gentleman in the hat is the Javanese Head Mandor, a much bigger swell than the head kankani in Ceylon. The lady with the cane is the picking mandor, and the other figures on the ground and up the ladders are members of her picking gang [plump-looking females, not unlike Sinhalese women in size and dress.—ED. *T.A.*] The box she is examining is a framed kerosine oil tin, which, oddly enough, is our standard measure. Our coffee pioneer here, (a genial Italian, rest his soul! his house is like Sheriff's in the old days at Helbodde), discovered that 60 kerosine tins of cherry gave one picul of clean coffee, and that standard has been universally adopted in Serdang.

To practical planters the figures will speak for themselves. When I came here early in 1895 there were three small estates, aggregating about 200,000 plants. The bulk of the district has been planted from '97 onwards. Planting distance varies; but an average may be calculated on of 400 plants to the acre, so that the 4,000,000 plants shown in the table represent roughly 10,000 acres. Three small estates give no return.

Transport is our great difficulty. The far end of the District is 40 kilometres, close on 25 miles, from the railway, over *mud* roads, which, through they harden well enough in the dry season, pull the legs off cattle in wet weather. From where I write it is three hours' driving to Loba Pakam in fine weather: and seven hours if the roads are heavy!! Four years ago we were assured we should have a railway within six months. But at the present rate of progress, the trees, from which the sleepers are to be cut, have not yet started to grow.

Apropos of the coffee figures, it is perhaps worth while repeating the following paragraph from my last notes:—"The old trees of Tanah Abang were planted in 1880 and are 20 years old. They were abandoned for seven years when Giovanni took them up, and all that is now left of them are bearing about four to five katties a year each. Enormous." One katti=1⅓ lb. Avoird.

The following para is from p. 346 of the *Graphic*, September 8, 1900:—"The Germans have been quick to recognise the possibilities of this region (Uganda), and their enterprise in East Africa is remarkable. Five years ago the home Government appropriated 800,000 marks *for the establishing* of a coffee plantation not far from Tanga. The first year, *I was told*, the yield paid expenses; the third year it equalled half the capital; fourth year, the entire capital; and in the last twelve months the plantation has made a profit of 400,000 marks." The italics are mine. The *Graphic* correspondent is careful to cover himself with "I was told." As to the letter, the wonder is that the young men did not arise, wind him up, carry him out, and bury him. Each of the years is accurately accounted for, so this wonderful plantation must have paid expenses while the plants were still in the nursery! A planter in this district (Serdang), who went to German East Africa two or three years ago, returned here. I hardly think he would have done so if he had realised the prospects as described in the *Graphic*.

A friend recently pointed out to me what he called a "strange omission" in Ballardie's and Owen's, "Buildings." "There are no stables" said he, and I had to draw him a plan for stabling six horses, two carriages, harness-room, and quarters for three syces. Horses and ponies are a necessity in this country: and I think many estates in Ceylon might be better worked if the assistants had ponies to help them from point to point, or to bring them home from work at mid-day after a stiff four or five hours on foot.

Here's to a good New Year to Ceylon. May prices rise, and all proprietors renounce the sweating system! W. T. McK.

* Omitted by printer's carelessness from page 552 *T.A.* of February, 1901.—ED. *T.A.*

LIBERIAN COFFEE ESTATES, UPPER SERDANG, EAST COAST OF SUMATRA.

Name of Estate.		Actual crop, 1st Jan. to 1st July 1900.	Estimated crop, 1st July, 1900, to 1st Jan. 1901.	Estimated crop for 1901.	Total planted up to 1st July, 1900.	Proposed planting, 1st July 1900, to 1st Jan. 1900.	Proposed planting in 1901.
Balvewa	..	12	50	500	165	50	—
Bangoen Poerba		Included in Damar Gloegoer			200	20	—
Greahan	...	1,750	1,650	4,000	300	—	—
Bandar Maria	..	576	700	2,500	265	—	—
Damar Gloegoer	...	1,950	2,000	5,000	200	—	—
Bah Blua	...	40	200	600	200	—	—
Sialang	...	6	65	400	120	40	20
Batve Gingging	...	420	500	2,000	200	10	—
Begarpang	..	580	600	3,000	330	120	—
Namoe Rambei	...	400	600	1,500	320	80	—
Soengey Karang	...	500	600	2,000	180	—	—
Kotangan	..	30	300	1,000	220	30	—
Soengey Karei	...	200	200	1,000	150	25	25*
Tanah Abang	...	296	360	800	90	—	—
Soengey Poatih	...	280	480	1,300	156	10	—
Soengey Galang	...	200	100	400	65	—	—
Sey. Galang Barat		10	50	200	40	—	—
Serbadjadi	...	20	150	1.000	—	—	—
Bandar Kwala	...	1,300	1,400	3,300	270	—	—
Gallia	..	254	350	1,000	300	50	—
Damar Gloegoer Kiri		—	—	—	60	30	—
Sekalveni	...	25	120	500	—	—	—
Rambey Estate	...	—	—	200	200	30	—
Daisydale	..	54	100	300	—	—	—
Total...		8,895	10,575	32,700	4,021	495	45
		Piculs	Piculs	Piculs	Trees in thousands	Trees in thousands	Trees in thousands

Clean Coffee.

* Not certain.

UDAGAMA TEA AND TIMBER COMPANY LIMITED.

REPORT OF DIRECTORS.

The Directors have now to submit their report for the 12 months, ending 31st December, 1900.

TEA.—The estimate for the year was 170,000 lb., but of this only 137,176 lb. were obtained. The Superintendent attributes the deficiency to abnormally wet and windy weather, chiefly during the latter part of the year,

A very wet season was experienced. Frequent floods caused considerable damage to roads and bridges, materially increasing the cost of transport.

Owing to these exceptional causes the Tea cost 30·65 cents per lb., and in consequence of the unusual condition of the markets realized only 25·69 cents the result being a loss of 4·69 cents per lb. or after deducting one or two small assets a net loss of R6,567·32.

The estimate for this year provides for a crop of 160,000 lb. with fine plucking. As the new clearings are now coming into bearing, this should be obtained.

The cost of this Tea should be about 23 cents per lb. and, as the plucking will be fine, with careful manufacture it should sell well.

THE SAW MILLS—at Gintota have worked successfully and showed a profit of R15,461·71. The Directors anticipate an annual profit from this source in future.

The Directors have thought it advisable to write off a sum of R32,858·33 for depreciation of machinery, roads, tools, &c.

A sum of R12,563·00 is due to the preference Shareholders when a sufficient profit has been made to meet it.

It is the duty of the Shareholders to appoint an Auditor for 1901, and a Director in place of Mr H Creasy who retires by rotation, but is eligible for re-election.

Owing to the loss in working of the Company's Tea Estates and the heavy interest payable to the Debenture holders, the Directors regret to inform the Shareholders that the year's working shows a loss of R6,928·75. Unless money can be borrowed at a lower rate of interest, they feel bound to advise that the Company be wound up. One half the loan, secured by debentures, falls due for payment in June next, viz, R75,000, and, unless provision can be made for the paymsnt or renewal of this loan, it will be impossible to carry on the Company, and the debenture holders will be forced to fore-close and take over the property.

PROPERTY OF THE COMPANY.

AT UDUGAMA.	Approximate Acreage.
Tea. Maminadola	330 acres.
,, Saumarez and Ginidomine	300 ,,
,, Homadola	140 ,,
Jungle	7,000 ,,

AT GINTOTA.

,, Saw Mills fully equipped with Tea-box machinery.

SCOTTISH CEYLON TEA COMPANY, LIMITED.

REPORT OF THE BOARD OF DIRECTORS.

To be presented to the Shareholders at their Twelfth Annual Ordinary Meeting, to be held at the office of the Company, on Thursday, 9th May, 1901, at 12 o'clock noon.

The Directors have pleasure in submitting to the Shareholders the Accounts and Balance Sheet for the twelve months ending 31st December, 1900, with Auditor's Certificate attached.

	£ s d	£ s d
The net profits for the year amount to £5,318 14s 1d, which, with £462 16s brought forward from previous Accounts, gives a total to be dealt with of ...		5,781 10 1
An Interim Dividend on the Ordinary Shares of 5 per cent (free of Income Tax), paid in September, 1900, amounts to ...	2,050 0 0	
Dividends on the 7 per cent Preference Shares have also been paid, absorbing ...	630 0 0	
It is now proposed to pay a Final Dividend on the Ordinary Shares of 5 per cent (free of Income Tax) making 10 per cent for the year ...	2,050 0	
To write off the Capital Expenditure incurred during 1900	637 16 8	5,367 16 8
Leaving a balance to carry forward to next Account of		£413 13 5

The total crops secured from the Company's estates during the twelve months amounted to 899,806 lb tea and 48,809 lb cinchona bark, the outturn of tea being 83,806 lb over estimate, and 80.102 lb in excess of the previous year.

In addition to the above, 80,283 lb of tea were manufactured for others, giving a total output from the Company's factories for the year of 980,089 lb.

The yield from the tea-bearing area was 523 lb per acre, against 480 lb in 1899. The rate of exchange was 1s 4 27·64d., against 1s 4⅜d., and the price realised in the London and Colombo markets respectively averaged 6·94d. and 30½ cents, against 7·71d and 35 cents for the preceding season. The Company's acreage remains unaltered at 1,963 acres, of which 1,720 acres are under tea cultivation.

The past year has been a most unfavourable one for tea producers generally, but it is hoped that the measures that are now being adopted to restrict output, both in Ceylon and India, will have the desired effect of placing the industry on a more satisfactory basis.

The Ceylon Manager, Mr Kerr, resumed charge of the Company's affairs in Ceylon on 1st January last, and reports that the estates are all in excellent order. During his furlough Mr. G M Ballardie again kindly undertook the temporary management in Ceylon, and the Board appreciate the able manner in which the Company's interests have been looked after by that gentleman. The Directors also take this opportunity of expressing their satisfaction with the working of the Company's staff, both in Ceylon and London.

The Directors have to record with much regret the death of their esteemed colleague, Mr. Donald Andrew. It is not at present proposed to fill the vacancy thus created.

In accordance with the Articles of Association, Mr H L Forbes retires from the Board at this time, and, being eligible, offers himself for re-election.

Mr J B Laurie, C.A., also offers himself for re-election as Auditor. H. L. FORBES, Chairman,

London, 27th April, 1901.

THE CEYLON REDUCTION IN OUTPUT.—We have never been great believers in the effect, of an agreement to "rest" so much of our tea, on the London market. Even if Mr. Philip had been able to telegraph 8 or 10 agreed in place of 3½ million lb., we do not think the dealers and others would pay so much attention as they must do to the actual figures of shipment; and the fact, that we have already sent 2½ millions lb. less to London this year than last, should speak volumes as to the greater reduction still to come, owing to fine plucking. It is reassuring to learn, by our Special Telegrams from Calcutta, that the Indian Tea crop must inevitably be short.

SPORT IN CEYLON.—Our columns today afford an unusual supply of interesting reading on Sport in our Highlands, including a long and well-illustrated paper on 'Elk-hunting' by Mr. Thomas Farr, which we take into our Directory and *Tropical Agriculturist* from the "Wide World Magazine" received yesterday; and a special contribution by Mr. H. Brown (now of Nyassaland) on his experiences after Elephant in the Balangoda district.—To supplement these we receive, very opportunely, our representative's description of a visit paid this week to the Horton Plains—so that no one can say our hill-country is not fully dealt with in our present issue.

THE DEVELOPMENT OF THE SIROCCO ENGINEERING WORKS.

The extension of the business of Davidson and Co., Limited, of the Sirocco Engineering Works, Belfast, to the engineering centre of Westminster, where a branch office has been opened at 13, Victoria Street, led to a call a few days since from Mr. F G Maguire, who is the personal director of the London branch. Mr. Maguire's long connection with the firm in India and Ceylon, where he has made many friends, gave rise to a brief but interesting conversation on the subject of the tea industry, and the progress of the tea machinery business founded by Mr. S C Davidson, branches of which, by the way, have been opened in Manchester and Glasgow; and show-rooms are being fitted up in Germany, Austria, and Russia, by specially appointed agents. "It was a case of small beginnings," said Mr. Maguire. "Mr. Davidson, himself a practical tea planter, believed he knew what planters wanted; and he set to work to supply them; the growth of the business has been remarkable. Beginning with an insignificant building, the 'Sirocco' works have developed extensive proportions, while 'Sirocco' machinery is known whereever British-grown tea flourishes, and also in China and Java."

Replying to further questions, he said :—

"The boom in the Jamaica fruit trade has led to their use for refrigerating purposes on Board the British line of steamers engaged in the Jamacia trade. The buildings in which the fruit is stored on arrival at Bristol are also under the controlling action of the 'Sirocco' fans, and if you keep your eye on the events I do not doubt but that you will see the application of the 'Sirocco' fan to many other purposes, such as organ-blowing, elevating grain, tobacco, &c. But with all these developments in directions outside tea we continually keep the needs of tea-planters in view."—*Home and Colonial Mail*, April 19.

MR. KELWAY BAMBER'S GREEN TEA PROCESS.

Mr. Kelway Bamber is the latest in the field with a tea-manufacturing process which he has protected by patent. It having appeared to him that the present processes of green tea manufacture, as adapted for machinery, are defective, he has sought to supply the defects with the improvements which are the subject of the patent. The invention consists in the application of dry air or air saturated with water or steam alone, or with water and steam and carbonic acid gas, to the tea leaf during the processes of wilting, rolling and drying green tea, also the application of regulating gear so as to enable the operator to supply saturated air, saturated air combined with carbonic acid gas, or dry air, or dry air and carbonic acid gas, at will, to the leaf during each or all of the above operations. The object of the process is to fix and retain the green colour of the leaf and thus prevent the discoloration unavoidable, as claimed by the inventor, in the present process of manufacture, and to prevent breakage and improve the twist of the leaf, thus enhancing the market value of the finished product. Mr. Bamber claims that he improves the present process by (1) admitting into the wilting machine, instead of steam only, dry hot air, or dry air saturated with carbonic acid gas, or hot air

saturated with steam from a boiler or with steam or water from a tank placed in a suitable position, the amount of saturation, by means of the appliances for which patent has been taken out, being regulated at will, until the leaf is wilted, when it is replaced with dry hot air only, or with a mixture of hot air and carbonic acid gas only, to remove the excess of moisture, or until the desirable condition for rolling is obtained. (2) By the application of carbonic acid gas to the leaf during the process of wilting, rolling or drying green tea, *this inert gas having the property of retaning the desirable green colour*, and improving flavour, so enhancing the value of the finished product.

The novelties in the above process claimed by Mr Bamber are (1) the conveyance of dry air, or air saturated or over-saturated with steam or water only, to green tea leaf for the purpose of wilting it. (2) The application of gear to regulate the conveyance of dry air, and the saturation of air employed for wilting green tea leaf. (3) The conveyance of air, carbonic acid gas and steam or water simultaneously or separately into the apparatus for wilting green tea leaf. (4) The application of gear to regulate the conveyance of air containing carbonic acid gas, air alone, or air saturated with moisture and carbonic acid gas to the apparatus for wilting, rolling and drying green tea, alternately or concurrently as desired. (5) The conveyance of carbonic acid gas to green tea leaf and the keeping of the leaf in an atmosphere of carbonic acid gas during all or any of the operations of green tea manufacture. (6) The method or procees of wilting tea leaf and of preventing fermentation or oxidation by the application of carbonic acid gas. (7) The application of carbonic acid gas to wilted leaf, while being rolled and dried, to prevent oxidation.

The invention is a promising one and the application of carbonic acid gas to prevent oxidation is a distinctly scientific advance.—*Indian Gardening and Planting*, May 9.

INDIAN CARDAMOMS DISEASED.

In a report on cardamoms in India, J W Mollison, Deputy Director of Agriculture at Poona, says that a form of disease has appeared in the cardamom crops in most of the Kanara gardens, and is restricting cultivation. No particular indications of disease are presented by the affected plants, but they do not seem to thrive, and the leaves in parts become yellow and wither.

Like any other plant under cultivation, the cardamom degenerates when grown for long periods under exactly the same conditions of soil and climate, and without any change in the methods of propagation and reproduction. The Kanara crops have for a long period been grown with practically no changes in the system of general cultivation, and to these conditions, in Mr. Mollison's opinion, the so-called disease is due. The vigor of the cardamom plant may be renewed from time to time, as may that of any other cultivated plant, by change of seed, change of soil, rotation of crops, and other regenerating influences.

Our information in regard to Mr. Mollison's report does not state to what extent, if any, he estimates the crop shortage on account of the diseased plants. In this market at present there is a fairly plentiful supply of the lower grades of cardamom seed, which are held at from 60 to 70 cents per pound. Large, white Mangalore seeds, however, are rather scarce, and are quoted at from $1 to $1·10 per pound. In the event of any shortage in the supply at primary points, there would, of course, follow an advance in the local market price.

Below will be found a table showing the total imports of cardamom seeds during the fiscal years from 1891 to 1900, inclusive :—

Year.	Pounds.	Year.	Pounds.
1891	.. 41,399	1896	.. 24,540
1892	.. 65,204	1897	.. 34,437
1893	.. 31,315	1898	.. 43,644
1894	.. 25,723	1899	.. 77,076
1895	.. 42,587	1900	.. 45,557

—*New York Drug Reporter*, April 15.

DOLOSBAGE AND ITS ESTATES : NOW AND THEN.

Mr. H. Cottam, who is making a peregrination through his old district, sends us some chatty notes about the changes he notes in different estates. These should prove very interesting to old residents of Dolosbage now away from Ceylon,—for example Messrs. W. Rollo, W. Anderson, Cuthbert, Forbes Laurie, R. Porter, &c. Mr. Cottam is not aware that a special "circular" was issuedfrom the R. B. Gardens, dealing with the Lantana bug, and there can be no good excuse for Dolosbage men not burning off and extirpating the pest, let a worse thing befall them and their tea. We lose sight of old names, through amalgamations. Kellie alone now represents in the Directory :–Fairlie, Hormusjie, Moorootie and Inverugie. We believe in this day of low prices that, for any proprietor of a small tea garden, it should pay him well to use chulas in the preparation of his tea, after the careful, slow, old-fashioned style. The result ought to be worth an extra good price, both for the flavour and keeping powers of the tea: so we have been told by our Rood Lane friends. Of course "chulas" will not do where there is area and quantity.—What does H.C. mean by cracking up a flat for giving 1,300 lb. of *leaf* per acre per annum? That is only 325 lb. of made tea. He surely means 5,200 lb. of leaf? That would indeed be worth writing about, though we see that Mariawatte exceeds this with an average of 5,428 lb. of leaf! (1,357 lb. of made tea) for its 100-acre field.

THE CHINA TEA SEASON is now closed and Messrs. Siemssen & Co. show a total for 1900-01 of 123,566,984 lb. against 115,139,377 lb. in the previous season. The following table gives details :—

TOTAL EXPORT OF TEA SEASON FROM ALL CHINA :

	1899-01 lb	1899-1900 lb
To England	21,268,348	29,297,824
" The Continent	10,474,124	4,999,317
" Russia	33,043,881	29,635,815
" America	50,887,045	43,888,486
" Australia	6,514,722	6,094,660
" South Africa	1,378,864	1,223,245
Total lb	123,566,984	115,139,377

[Besides, perhaps 100 million lbs. sent overland to Russia, Thibet and Central Asia generally, including brick tea.—ED. *T.A.*]

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	—	900	...
Ceylon Tea and Coconut Estates	500	—	—	...
Castlereagh Tea Co., Ltd.	100	...	80	...
Ceylon Provincial Estates Co. Ltd.	500	—	500	..
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	—	75	—
Clyde Estates Co., Ltd.	100	..	—	—
Doomoo Tea Co., of Ceylon Ltd.	100	60	..	...
Drayton Estate Co., Ltd.	100	...	...	...
Eila Tea Co., of Ceylon, Ltd.	100	..	40	...
Estates Co., of Uva, Ltd.	500	..	250	—
Gangawatta	100	—	—	..
Glasgow Estate Co., Ltd.	500	—	940	—
Great Western Tea Co., Ltd.	500	—	650	—
Hapugahalande Tea Estate Co.	200	—	—	..
High Forests Estates Co., Ltd	500	...	550	—
Do part paid	400	—	450	450
Horekelley Estates Co., Ltd.	100	65	..	—
Kalutara Co., Ltd.	500	—	250	—
Kandyan Hills Co., Ltd.	100	—	40	—
Kanapediwatte Ltd.	100	—	85	—
Kelani Tea Garden Co., Ltd.	100	—	—	—
Kirklees Estates Co., Ltd.	100	—	120	...
Knavesmire Estates Co., Ltd.	100	—	60	—
Maha Uva Estates Co., Ltd	500	—	400	—
Mocha Tea Co., of Ceylon, Ltd.	500	—	..	...
Nahavilla Estate Co., Ltd.	500	—	200	—
Neboda Tea., Co. Ltd	500	..	500	—
Nyassaland Coffee Co. Ltd	100	—	—	..
Ottery Estates Co., Ltd	100	—	—	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co., Ltd.	100	—	100	—
Pitakanda Tea Company	500	—	—	—
Pine Hill Estate Co., Ltd.	60	—	37·50	—
Putupaula Tea Co., Ltd.	100	—	—	..
Ratwatte Cocoa Co., Ltd.	500	—	250	—
Rayigam Tea Co. Ltd.	100	—	40	...
Roeberry Tea Co., Ltd.	100	45	...	45
Ruanwella Tea Co., Ltd.	100	—	30	—
St. Helier's Tea Co., Ltd.	500	—	500	...
Talgaswela Tea Co., Ltd.	100	—	35	...
Do 7 per cent Prefs.	100	..	70	..
Tonacombe Estate Co., Ltd.	500	..	325	...
Udabage Estate Co., Ltd.	100	...	...	..
Udugama Tea & Timber Co., Ltd.	50	..	..	..
Union Estate Co., Ltd.	500	...	200	...
Upper Maskeliya Estates Co. Ltd.	500	—	450	—
Uvakellie Tea Co., of Ceylon, Ltd.	100	55	..	—
Vogan Tea Co., Ltd.	100	50	...	—
WanarajahTea Co.,Ltd.	500	..	—	—
Yatadeniya Tea Co., Ltd.	100	—	300	—

CEYLON COMMERCIAL COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	20	30	..
Bristol Hotel Co., Ltd.	100	..	127·50	..
Do 7 per cent Debts	100	—	137·50	135·50
Ceylon Gen. Steam Navgtn. Co., Ltd.	100	..	225	..
Colombo Apothecaries' Co. Ltd.	100	135	140	135
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	85	..
Colombo Hotels Company	100	292·50	—	292·50
Galle Face Hotel Co., Ltd.	100	152·50	...	152·50
Kandy Hotels Co., Ltd.	100	...	1?2·50	..
Mount Lavinia Hotel Co., Ltd.	500	...	.	..
New Colombo Ice Co., Ltd.	100	...	200	200
Nuwara Eliya Hotels Co., Ltd.	30	...	27·50	—
Do 7 per cent prefs.	100	...	100	..
Public Hall Co., Ltd.	20	$12\frac{1}{2}$	14	—
Alliance Tea Co., of Ceylon, Ltd.	10	...	$8\frac{3}{4}$—$9\frac{1}{4}$	..
Anglo-Ceylon General Estates Co.	100	..	35—45	..

LONDON COMPANIES.*

Company	paid p. sh.	Buyers.	Sellers.	Transaction
Associated Estates Co., of Ceylon	10	—	$1\frac{1}{2}$—$2\frac{1}{4}$	...
Do. 6 per cent prefs.	10	..	4—6	..
Ceylon Proprietary Co.	1	...	$\frac{3}{8}$—$\frac{5}{8}$	..
Ceylon Tea Plantation Co., Ltd.	10	—	24—25	..
Dimbula Valley Co., Ltd.	5	—	$5\frac{3}{4}$—6	..
Do prefs.	5	..	$5\frac{1}{2}$-6	...
Eastern Produce & Estates Co. Ltd.	5	...	$4\frac{1}{2}$--5	..
Ederapolla Tea Co., Ltd.	10	...	7—10	...
Imperial Tea Estates Co., Ltd.	10	...	$4\frac{1}{2}$—$5\frac{1}{2}$	..
Kelani Valley Tea Asscn., Ltd.	5	..	5—6	...
Kintyre Estates Co., Ltd.	10	...	6—8	..
Lanka Plantation Co., Ltd.	10	..	4—5	..
Nahalma Estates Co.,Ltd.	1	—	nom	..
New Dimbula Co., Ltd.	1	...	$2\frac{3}{4}$—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	...	10—$10\frac{1}{2}$	10xd
Ouvah Coffee Co., Ltd.	10	..	6—7	...
Ragalla Tea Estates Co., Ltd.	10	..	9—10	..
Scottish Coylon Tea Co.,Ltd.	10	—	13—15	...
Spring Valley Tea Co., Ltd.	10	...	$2\frac{1}{2}$—$3\frac{1}{2}$	..
Standard Tea Co., Ltd.	6	..	11—$11\frac{1}{2}$	$10\frac{5}{8}$
The Shell Transport and Trading Company, Ltd.	1	..	$2\frac{7}{8}$-$3\frac{1}{8}$	.
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	...	$6\frac{1}{2}$—$7\frac{1}{2}$	...
Do. pref. 6 o/o	10	...	10—$10\frac{1}{2}$	..

BY ORDER OF THE COMMITTEE.

Colombo, June 7th, 1901.

* Latest London Prices.

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1896.	1897.	1898.	1899.	1900	Av of 31yrs.	1901
	Inch	Inch	Inch	Inch.	Inch.	Inch.	Inch*
January ..	2·92	3·81	2·32	6·98	3·72	3·24	11·91
February ..	0·35	1·68	1·98	2·78	0·63	1·89	3·55
March ..	5·64	3·66	4·21	0·88	3·71	4·75	5 12
April ..	5·93	10·97	22·81	6·66	15·12	11·43	8·71
May ..	9·31	8·30	5·80	17·73	10·63	12·04	6·28
June ..	8·37	10·14	10·94	9·23	7·83	8·35	3·66*
July	2·85	5·24	6·15	1·11	6·77	4·30	
August ..	6·35	9·09	0·97	0·62	7·35	3·79	
September	10·99	4·58	6·90	1·48	4·00	4·93	
October ..	16·78	4·71	20·60	12·99	9·47	14·36	
November..	19.81	11·66	17·38	8·58	9·25	12·55	
December..	11·76	8·89	3-05	4·44	5·20	6·35	
Total..	101·06	82·73	103·11	73·48	83·68	88·03	36·23

* From 1st to 5th June 3·66 inches, that is up to 9-30 a.m. on the 6th June—ED. *C.O.*

A CHANCE FOR TEA IN ITALY.

According to the "Gazzetta degli Esportatori," the trade in tea in Italy at the present time is a monopoly in the hands of one or two firms who supply shopkeepers, and also private customers directly, at extremely high prices, though the quality is not always good. Quite a low quality of tea, the "Gazetta" asserts, is sold at the present time at about 3s 6d the pound. In its opinion, an enterprising firm selling Indian and Ceylon teas, which would open branches in Italy, and content itself with a moderate profit, would soon be able to control the Italian tea market, reaping handsome profits for its enterprise.—*Morning Leader*, May 16.

COCONUT BUTTER IN MANNHEIM.

The manufacture of coconut butter (palmin) is a considerable industry in Mannheim. Palmin is made from the kernel of coconut, and is used as a substitute for butter and lard in cooking. As it does not readily become rancid, it has met with favour in German hospitals and army camps,—*Globe*, May 17.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS.

Colombo, 3rd June, 1901.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·50
Do. dull medium do. R1·20
Special assortment, 0 and 1 only do. R2·00
Seeds do. R1·35

CINCHONA BARK:—
Per unit of Sulphate of Quinine 13c—1½ to 3 o/o.

CINNAMON:—
Ordinary assortment per lb. 55c.
Nos. 1 and 2 only per lb. 60c,
Nos. 3 and 4 only per lb. 52c.

CINNAMON CHIPS:—
Per candy of 560 lb R82·50

COCOA:—
Finest estate red; unpicked per cwt R55
Medium do do R52
Bright native, unpicked and undried R49
Ordinary do do do R43
} Quotations nominal. Supplies scarce.

COCONUTS—(husked).
Selected per thousand R48·00
Ordinary ,, R38·00
Smalls ,, R29·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R82·50
Do in bags None

COCONUT (Desiccated).
Assorted all grades per lb 16c

COCONUT OIL—
Dealers' Oil per cwt R15·00. Business done at the lower figure for September shipment.
Coconut Oil in ordinary packages f. o. b. per ton R337·50. Business done at the lower figure for September shipment.

COFFEE.—
Plantation Estate Parchment on the spot per bus.—None.
Plantation Estate Coffee f.o.b. (ready) per cwt.—None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—47c

COPRA—
Boat Copra per candy of 560 lb. R49·00
Calpentyn Copra do do R51·00
Cart do do do R46·00
Estate do do do R51·00

CROTON SEED per cwt—None

EBONY—
Sound per ton at Govt. depot—R190.
Inferior R155.

FIBRES—
Coconut Bristle No 1 per cwt R10·50
Do ,, 2 ,, None
Do mattress ,, 1 ,, 4·00
Do ,, 2 ,, 3·00
Coir Yarn, Kogalla ,, 1 to 8 18·00
Do Colombo ,, 1 to 8 16·00
Kitool all sizes ,, None
Palmyrah ,, None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R550
Ordinary lumps do 525
Chips do 375
Dust do 250
Do (Flying) 130

SAPANWOOD— per ton None.
SATINWOOD (ordinary) per cubic ft. None.
Do do per cubic ft. None.

TEA—	High Grown Average.	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	48	43	28
Orange Pekoe do	43	33	28
Pekoe do	38	29	21
Pekoe Souchong do	33	26	17
Pekoe Fannings do	26	25	24
Broken mixed—dust, &c	25	22	23

CEYLON EXPORTS AND DISTRIBUTION, FOR SEASONS 1900 AND 1901.

COUNTRIES	Black Tea, 1901 lbs.	Black Tea, 1900 lbs.	Green Tea. lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cocoa cwts.	C'moms lbs.
To U K. ..	46744685	43861799	88599	2642	..	2642	23[illegible]	119773
,, Austria ..	17750	5652	..	..	..	...	...	..
,, Belgium ...	8666	2040	...	53	..	53	...	--
,, France ..	143897	72658	...	204	...	204	..	1469
,, Germany ..	151020	116736	...	1	..	1	1127	11675
,, Holland ..	11174	2000	...	...	..	..	..	..
,, Italy ..	6172	4047	..	..	..	..	..	480
,, Russia ..	4026452	3197759	...	..	..	...	48	764
,, Spain ..	...	15130	...	..	...	..	..	
,, Sweden ..	22009	36735	..	..	..	..	..	..
,, Turkey ..	15926	109[illegible]	...	...	..	...	..	..
,, India ..	614809	265551	1500[illegible]	[illegible]	..	61	..	7[illegible]3·9
,, Australia ..	8104067	7687[illegible]	...	[illegible]	[illegible]0	1279	112	...
,, America ..	8826[illegible]0	[illegible]	[illegible]	[illegible]	..	46	960	2781
,, Africa ..	84425	8[illegible]578	..	..	..	..	..	496
,, China ..	1066121	516506	4450		...	14	149	1034
,, Singapore ..	61173	41[illegible]	...	.	..	...	646	..
,, Mauritius ..	15330	...	..	..	..	..	...	..
,, Malta ..	137235	[illegible]	..	..	.		..	..
Total export from 1st Jan. to 3rd June, 1901	621135[illegible]	6275581	115444	4290	10	4300	26405	210791

COUNTRIES	Cinnamon Bales lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1901 cwt	Coconut Oil. 1900 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts No.	Plumbago. 1901 cwts.	Plumbago. 1900 cwts.	Fibre. cwts
To U K. ..	2[illegible]4322	138071	62307	107801	3288	2725054	...	5485[illegible]84	58854	29549	27206
,, Austria ..	5[illegible]00	5600	1178	3038	14242	31201	...	..	...	..	...
,, Belgium ...	29800	392[illegible]	2495	522	21720	184545	19599	136225	6076	18600	8654
,, France ..	20900	3920	...	..	17215	2240	...	406	..	.	366
,, Germany ..	150900	20[illegible]605	405	3634	30724	360115	20428	430050	18314	26537	6535
,, Holland ..	11000	29120	..	..	..	13000	..	..	..	912	569
,, Italy ..	40600	34272	499	..	..	..	...	4998	..	...	...
,, Russia ..	...	..	...	..	17123	..	..	..	2973	...	..
,, Spain ..	58300	28000	..	..	...	10370	..	..	...	..	..
,, Sweden ..	..	11200	199	...	...	6456	..	..	..	105	..
,, Turkey ..	..	...	..	...	...	...	...	...	...	...	..
,, India ..	..	.	34025	24475	439	..	...	265900	1[illegible]8	163	..
,, Australia ..	1800	27900	94	33	..	322691	...	..	[illegible]3	958	1829
,, America ..	107100	35437	7007	30275	1	679653	...	..	68994	76261	1013
,, Africa ..	..	..	76	...	..	1600	..	7[illegible]0002	...	...	...
,, China ..	15000	..	707	622	..	72[illegible]84	..	..	..	41	..
,, Singapore ..	7700	..	...	..	...	..	...	...	..	...	166
,, Mauritius ..	..	..	..	..	...	..	...	...	..	..	..
,, Malta ..	...	..	..	..	..	...	..	..	.	..	..
Total export from 1st Jan. to 3rd June, 1901	662422	556325	109[illegible]0	17045[illegible]	104752	4409303	40027	7023260	155501	16[illegible]12[illegible]	46[illegible]38

MARKET RATES FOR OLD AND NEW PRODUCTS

(From Lewis & Peat's Fortnightly Price Current, London, May 5th, 1901.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry .	44s a 85s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine .	5½d a 6¼d
BEES' WAX, cwt.		
Zanzibar & White ,,	Good to fine	£6 a £7 10s
Bombay Yellow ,,	Fair ,,	£6 5s a £6 15s
Madagascar ,,	Dark to good palish	£6 10s a £7 5s
CAMPHOR, China ,,	Fair average quality	175s
Japan ,,	... .	185s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	's 3d a 2s 4d
	Middling, stalky & lean	1s 5d a 1s 7d
Ceylon. Mysore ,,	Fair to fine plump ..	1s 6d a 4s 3d
	Seeds ..	1s 11d a 2s 6d
,, Tellicherry ,,	Good to fine ..	2s 11d a 3s
	Brownish .	2s 6d
,, Long ,,	Shelly to good ..	1s a 2s 9d
,, Mangalore ,,	Med brown to good bold	2s a 3s 6d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	4¼d a 4¾d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s a 45s
CINCHONA BARK.– lb.	Ledgeriana Orig. Stem	3d a 5½d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	3¾d a 5½d
	Red Org. Stem	3⅜d a 4¼d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts	Ordinary to fine quill	10d a 1s 6d
per lb 2nds	,, ,,	9d a 1s 5d
3rds	,, ,,	8½d a 1s 4d
4ths	,, ,,	8d a 11d
Chips	,, ,,	2¾d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	4½d a 9½d
Amboyna ..	Dull to fine	4⅜d a 5½d
Zanzibar and Pemba	Good and fine bright	4¼d a 4½d
	Common dull to fair .	4d a 4⅛d
Stems ..	Fair	1⅝d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 110s
	Middling to fine mid ...	70s a 90s
	Low mid. and low grown	
	Smalls	50s a 60s
Native	Good ordinary	30s a 70s
Liberian ,,	Small to fine bold	35s a 40s
COCOA, Ceylon ,,	Bold to fine bold	77s a 94s
	Medium and fair	5s a 77s 6d
	Native	55s a 65s
COLOMBO ROOT ,,	Middling to good	10s a 22s 6d
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	25s a 35s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	35s
Calicut, Cut A ,,	Good to fine bold	80s a 100s
B & C ,,	Small and medium	40s a 77s 6d
Cochin Rough ,,	Common to fine bold	36s a 41s
	Small and D's	30s a 35s
Japan ,,	Unsplit	33s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	20s a 45s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £20
	Part yellow and mixed	£7 15s
	Bean and Pea size ditto	70s a £9 2/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red ...	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	35s a 55s
Turkey sorts ,,		50s a 75s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 35s
Kurrachee ,,	Good and fine pale ...	52s 6d a 55s
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	23s a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	60s a 137s 6d
	Ord. stony and blocky	6s a 25s
KINO ,,	Fine bright	1s 6d a 1s 9d
MYRRH, picked ,,	Fair to fine pale	90s a 107s 6d
Aden sorts ,,	Middling to good	50s a 80s
OLIBANUM, drop ,,	Good to fine white	35s 6d a 50s
	Middling to fair	25s a 35s
pickings ,,	Low to good pale	18s a 23s
siftings ,,	Slightly foul to fine	16s 6d a 18s
INDIARUBBER, Assam lb	Good to fine	2s 2d a 2s 6d
	Common to foul & mxd.	7d a 2s
Rangoon	Fair to good clean ...	2s a 3s
Borneo	Common to fine	1s a 2s 3d

	QUALITY.	QUOTATION
INDIARUBBER, (Contd)		
Java, Sing. & Penang lb.	Foul to good clean ...	8d a 2s 9d
	Good to fine Ball ...	2s 6d a 3s 1½d
	Ordinary to fair Ball ..	1s 10d a 2s 6d
Mozambique ,,	Low sandy Ball ...	1s 3d a 1s 7d
	Sausage, fair to good .	2s 6d a 3s 1d
	Liver and Livery Ball ..	2s 4d a 3s
Nyassaland	Fair to fine ball ..	2s 5d a 2s
	Fr to fine pinky & white	2s 6d a 2s 9d
Madagascar ,,	Fair to good black ..	2s a 2s 6d
	Niggers, low to fine .	7d a 2s 3d
INDIGO, E.I.	Bengal—	
	Shipping mid to gd violet	3s 8d a 4s 6d
	Consuming mid. to gd.	3s a 3d 3s 9d
	Ordinary to mid.	3s a 3s 2d
	Mid. to good Kurpah	2s a 2s 10d
	Low to ordinary	1s 8d a 1s 10d
	Mid. to good Madras	1s 9d a 2s 8d
MACE, Bombay & Penang	Pale reddish to fine	2s a 3s
per lb.	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, cwt	Dark to fine pale UG	6s a 7s
Madras	Fair Coast	5s 6d a 6s
Bombay ,,	Jubblepore	4s 3d a 7s
	Bhimlies	4s 9d a 9s 6d
	Rhajpore, &c.	4s 3d a 8s
Bengal ,,	Calcutta	4s 6d a 6s
NUTMEGS— lb.	64's to 57's	2d 1½d a 2s 6d
Bombay & Penang ,,	110's to 65's	1d a 2s 1d
	160's to 130's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 17s
NUX VOMICA, Bombay	Ordinary to middling	4s a 5s 6d
per cwt. Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	6s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	5s 6d
CASSIA ,,	According to analysis	3s 8d a 4s
LEMONGRASS ,,	Good flavour & colour	4½d
NUTMEG ,,	Dingy to white	1⅝d a 3d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 6d
CITRONELLE ,,	Bright & good flavour	11d a 1s 0½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 16s
	,, wiry Mozambique	10s a 11s
PEPPER – (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	6d a 6⅜d
Singapore ..	Fair	6⅛d a 6s 3-16d
Acheen & W. C. Penang	Dull to fine	5¾d a 6⅛d
PLUMBAGO, lump cwt.	Fair to fine bright bold	35s a 40s
	Middling to good small	20s a 32s
chips	Dull to fine bright ..	10s a 20s
dust	Ordinary to fine bright	3s 6d a 8s 6d
SAFFLOWER	Good to fine pinky ..	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £50
Chips ,,	... ...	5s a £8
Madras, Logs ,,	Fair to good flavour ..	£20 a £50
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	50s a 57s
SENNA, Tinnevelly lb	Good to fine bold green	5d a 6d
	Fair middling medium	3½d a 4½d
	Common dark and small	½d a 2½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	
	D's and B's	£3 10s a £4 15s
	Small ...	
Mergui ,,	Small to bold ..	£5 12s 6 a £7 10s
Mussel ,,	Small to bold ...	22s a 60s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	10s a 11s
per cwt. Madras	Stony and inferior ..	7s 6d a 11s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	14s 6d a 24s 6d
TURMERIC, Bengal cwt.	Fair ...	24s
Madras ,,	Finger fair to fine bold bright	22s a 30s
Do. ,,	Bulbs ..	18s
Cochin ,,	Finger .	21s
	Bulbs ...	7s a 7s 6d
VANILLOES— lb.		
Mauritius ... 1sts	Gd. crysallized 3½ a 9 in	16s a 26s 6d
Bourbon ... 2nds	Foxy & reddish 4½ a 8 ,,	15s a 18s
Seychelles 3rds	Lean and inferior ...	8s a 13s
VERMILION lb.	Fine, pure, bright ...	3s a 3s 3s
WAX, Japan, squares cwt	Good white hard ...	33s 6d

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for June :—

Vol. XII.] JUNE, 1901. [No. 12.

FIRST STEPS IN AGRICULTURE.

First Stage—1st Lesson.

BY A. J. B.

IN the following articles I propose to explain in simple language, suitable to the minds of young boys and girls in the country, the elementary principles and practice of agriculture.

In the absence of any easy text-book on agriculture in the State schools of Queensland, these lessons may be found of some use in interesting young people in an industry which must always take first place amongst those of all countries under the sun. It is hard to say what would become of the world and its other industries if agriculture were abandoned.

You have all heard the word "agriculture," and you know that it has something to do with farming. Well, the word agriculture means cultivating a field. But how the field is cultivated, and how the farmers make the beautiful crops of wheat and lucerne and potatoes and other things grow and produce fruit, you do not yet know. You see a man ploughing a field. Why is he ploughing it? That is what I am now going to explain to you. You know the corn and wheat and green stuff for horse feed and vegetables are grown in the soil. But if you were to try and grow these things in the same way as the grass in the bush grows, you would find that your crop would not come to anything. Why is this? You will say that the grass and weeds grow without any ploughing. Their seeds drop on the ground and they grow; why should not potatoes and corn grow just as well? The reason is, that corn and potatoes require a loose soil. And why loose? Because the plants and their roots require air and water, and they can only get air and water when the soil is soft, so that the roots can easily run through it and get the nourishment they require. This nourishment is called plant food. The air can get into a loose soil, and the moisture can rise through it and be sucked up into the plants. Now look at that man ploughing. If you follow him you will see that his plough has stirred up the soil for several inches from the surface. He has thus made a loose bed through which, when he has sown the seed, the little rootlets can easily make their way and draw up all the moisture they need to enable them to grow up vigorous plants. But ploughing alone is not sufficient. Look at the sod the ploughman has turned over. It is like a long cake, scarcely broken. If the seeds were to be sown after he has finished ploughing, they would not grow properly. So the next thing he does is to drag a wooden or iron frame full of long teeth across the ground. This is a harrow, and it does for the field what a garden rake does for a flower garden when it has been dug over. It smooths down and breaks up the clods, and renders the soil soft and friable, and puts it in a proper condition to receive the seeds.

When the field is ploughed and harrowed it becomes a sort of soft sponge. You have seen the rain falling on hard ground. What becomes of

the water? It runs off over the hard soil into some creek or gully or low place on the land, and very little goes into the soil. That little is quite sufficient for the grass whose roots are near the surface, but would not be of much use to plants whose roots go deeper into the soil. So you see that ploughing is necessary to enable the rain water to reach the lowest roots. Now I must tell you something else about the rain water. After a heavy shower of rain you will notice that often a strong westerly wind sets in. Now, a strong wind will dry up the ground more rapidly than a hot sun; and if Nature had not done something to help the poor plants to get the moisture they want, they would all die.

Now I will show you how they get this moisture. Here is a bit of lump sugar. It is quite dry, you see. I dip one end of it into this saucer of water. Now examine the sugar. You see that it is quite wet. Even the dry part I held in my hand is wet. How does this happen? The sugar is full of little passages through which the water creeps up until these passages are all full, and the whole lump is full of water. Just in the same way the soil, after it has been ploughed and harrowed, is full of little passages through which the rain water which lies below the soft soil creeps up and supplies the roots with all they require until another shower falls. When dry weather lasts for a long time the supply of water below the surface becomes exhausted at last, and the poor plants, which cannot live without water, become sickly, and at last die off. But a good farmer is always stirring up the soil between the crops, and by doing this he provides more plant food for them, and the moisture does not pass away so quickly as if he left the soil to itself. Then there is another reason for knocking the soil about, and for digging and raking and hoeing it. You know what weeds are. Weeds are plants, and some of them are very useful; but when they grow amongst garden field crops these plants are in their wrong place. Now look at a paddock full of Sida retusa, which the youngest of you can tell from any other weed. This Sida retusa is a very valuable plant. Its bark is full of fine, strong, silky threads like flax, and these threads are very useful for making ropes. But you know that no flowers or vegetables will grow properly if they are smothered by Sida retusa, so however useful a plant it may be, it becomes a weed because it is in the wrong place, and therefore the farmer and gardener take care to keep it out of their crops.

There are other weeds, such as thistles, which grow in great quantities in the winter, and these must be carefully kept down or they would smother the plants we want to grow. There is another reason why weeds should be kept out of a crop. The wheat and oats and barley and potatoes want a great deal of plant food; but the weeds want just as much, and they thus take away the plant food which would feed the crops, and these are consequently not so good as they would be if there were no weeds.

Now let us see what you have learnt in this lesson. You learned first why the soil in the farm had to be ploughed up, and why it has to be harrowed. Then you discovered what becomes of the rain water which falls on hard ground and on ploughed ground. Furthermore, you learned that the hot sun and the strong wind dry up the land by sucking up the moisture in the same manner as the wind dries a wet pocket handkerchief exposed to it on a clothes line. Then there was something else I showed you. You remember the experiment with the lump of sugar. That showed you that the water deep below the surface is enabled to reach the plants by means of all the little passages through the soft soil. And, lastly, you learned that one reason for constantly stirring the soil is to bring more plant food to the roots of the crop, and the other for the purpose of destroying the weeds, which would, if allowed to grow, either smother the plants you have grown or else use up so much of their food as to prevent them from coming to perfection. One other lesson you must not forget. That is, that even useful plants may become weeds if they interfere with any crops the farmer may be growing.

Many of you have seen fields of wheat, and in some fields you may have noticed quantities of oats mixed with the wheat. Now, oats are very valuable crop when grown by themselves, but when they get into a wheat field they become weeds, which cause great loss to the farmer, because, instead of his crop being all wheat, it is half oats and half wheat, and is of no use to a miller until the oats are taken out of it.

I will now give you a few questions to answer, and remember this, if you carefully attend to these short lessons, you will have no difficulty in answering the questions without looking at a book, and as you advance further into the subject of Agriculture you will be able to answer far more difficult questions as easily as you can answer these eight first ones.

Questions on Lesson I.

1.—What does the word "Agriculture" mean?
2.—Why must the soil be ploughed and harrowed?
3.—What becomes of the rain water which falls on hard ground.
4.—What becomes of it when it falls on ploughed land?
5.—How do the plants obtain moisture from the soil in dry weather? Can you describe an expirement to prove what you say?
6.—What is plant food?
7.—What do you understand by weeds?
8.—Do useful plants ever become weeds?

OCCASIONAL NOTES.

We have to acknowledge with thanks the receipt of a packet of the Kalihara Melon, a plant found in the arid regions of South Africa known as the Kalihara desert. The Hon. F. R. Moor of the Natal House of Assembly, and a Member of the Natal Government, states that this melon is the greatest boon which can be bestowed on an arid region. The value of this melon is as a standby for stock

in an absolutely arid country, or in a country subjected at irregular intervals to long periods of drought. It is said by many travellers to make exist ence possible in districts otherwise uninhabitable.

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The Ceylon Veterinary Department is slowly and steadily growing, and we are inclined to think Mr. Sturgess, our Colonial Veterinary Surgeon, is wisely cautious in adopting for his motto "*festina lente*," in a country such as ours: and with a stubbornly conservative people to deal with, it would have been a waste of time and money to attempt to rush the scientific treatment of cattle on those who have for generations past pinned their faith to the epiricism of the native cattle doctor. The scientist from the West has much to learn and much to teach, and to expect to effect an immediate exchange of old-lamps for new is an idle dream that the practical man of sound common sense does not indulge in.

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At present we have the following staff composing the newly-formed Department:—Colonial Veterinary Surgeon, G. W. Sturgess, M.R.C.V.S.; Assistant at Kandy, E. T. Hoole, G.B.V.C. Stock; Inspectors at Colombo, E. W. Jayatilleke and P. C. Fernando; at Ratnapura, M. D. Wijayanayake; at Kurunegala, A. M. Fernando; at Jaffna, T. Mahamoot; at Anuradhapura, D. L. Dias.

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We take over from that excellent publication, *The Queensland Agricultural Journal*, for April last, the first of a series of papers entitled "First Steps in Agriculture," written in a popular style and intended for "young boys and girls in the country." These papers should prove useful for village schools, and we commend them to the notice of teachers to whom they should serve as ready-made lessons on Agriculture to occupy the attention of themselves and their pupils during an occasional spare hour. In the present lesson it is only necessary to substitute local crops, weeds &c., to bring it home to the children who are being taught.

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The alleged cures for snake bite and hydrophobia are legion, but their virtues rest more or less on tradition and have not the testimony of the medical faculty to recommend them. Some time ago Mr. J. Wimalasurendra, Mudaliyar, the well-known worker in metal, addressed a letter to the press in which he claimed to be able to cure snake bite by means of an unfailing remedy—the juice of certain seeds. The juice was to be taken internally in certain doses, and it was mentioned that the so-called snake stone had no virtue unless it had previously soaked up some of this juice. Dr. Andrew Wilson, referring to this communication, expressed his scepticism as to the genuienness of the remedy in view of the seeds being nameless in the letter referred to. We have ourselves failed to elicit further information concerning the identity of the seeds, the name of which, we are assured by the Mudaliyar, he has sworn never to reveal. It is to be hoped, however, that he will not allow the secret to die with him, but will at least impart it to his next of kin, so that the power to save will remain even in the possession of one individual. In a courteous letter, Mr. Wimalasurendra asks that any case of snake bite should be sent to him without delay, so that he may make use of the knowledge he possesses and apply his unfailing remedy.

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The *Indian Agriculturist* is responsible for the following:—"The leaf of a variety of Acacia, known in the Deccan (where it grows wild) by the Hindustani name of *Dewana babool*, is declared to possess properties which make it a safe cure for hydrophobia. The leaves are simply ground up, and the juice extracted from them is given to the patient to drink as soon as possible after he has been bitten. It is a nauseating drink, but this need not cause alarm. The decoction should be administered for three mornings in succession, the diet during this period being restricted to plain unleavened bread or boiled rice and curds. The remedy is said to have been tried in a number of cases with unvarying success. Four individuals, who had been bitten by dogs which were unmistakably rabid, and which subsequently bit other men and animals who developed hydrophobia and died, were treated with this decoction, and are still alive and well." Unfortunately a local name of the tree is given. It would have been more satisfactory if the scientific name could have been added as well

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The following are a few *Errata* in Trimen's Flora:—Plantineae at head of page 388, Part III. should be Plantagineae. On page 268, Part IV., in the botanical description of Amaryllidaceae "ovary superior" should be "ovary inferior." The second part of the Sinhalese names of the two species of Curculigo mentioned on page 269, Part IV., should be bintal and not biutal. On page 858, Part V., line 6, Dimorphocalx should be Dimorphocalyx, and on the previous page, 7 lines from the bottom, Crateeva should be Crataeva.

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Andropogon citratus, lemon grass, should not be confused with *A. schoenanthus*, variously known as geranium oil grass, anise-scented grass, &c. It is hardly correct to say that the latter is abundant about Colombo, as Ferguson is quoted by Trimen to have said, Specimens of this grass sent to us by the Government Agent of Jaffna some years ago were identified by Dr. Trimen as of the variety *versicolor* and called anise-scented grass. When crushed the leaves emit an odour of fennel. The grass is said to be common on the Island of Delft.

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In the *Ceylon Flora*, Part V., under *A. Citratus*, the sentence "He (*i.e.*, Dr. Watt) adds that it is called &c." makes it appear that lemon grass is used for scenting tea *in Ceylon*, whereas in his Dictionary Watt's remark as to the use of the grass is made without any reference to Ceylon. If used for flavouring tea, it must be in India. The following quotation from the *Agricultural Magazine* for June, 1893, occurs in the contribution to its pages by a correspondent from Bombay: "More than once I was told by ignorant natives that the tea plant was to be seen growing in the vicinity of this city, and some innocently enquired how the leaf was prepared so nicely in Ceylon. The description of the plant they gave me was very unlike the tea bush. At last I had an opportunity of inspecting the so-called

tea, and found it to be no other than the common lemon grass. This is called by many ignorant people here the tea-plant, and its leaves are infused and drunk with milk and sugar. Sometimes it is said these leaves are cut into small bits and dried and mixed with half the quantity of real tea. I experienced the taste of this lemon grass tea, and my curiosity was satisfied once and for ever!"

"Sera," regarding the identity of which Dr. Trimen was a little uncertain, is *A. citratus.* Bushes are frequently grown in kitchen gardens, and the lower portions of the leaves are always used in the cooking of curries. Dr. Watt is incorrect in saying that lemon grass is called pengiun in Ceylon, unless the word is a misprint for pengiri.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF MAY, 1901.

1	Wednesday ..	Nil	18	Saturday ..	·16
2	Thursday ..	Nil	19	Sunday ..	·33
3	Friday ..	Nil	20	Monday ..	Nil
4	Saturday ..	Nil	21	Tuesday ..	·02
5	Sunday ..	·65	22	Wednesday..	·40
6	Monday ..	·19	23	Thursday ..	·02
7	Tuesday ...	·16	24	Friday ..	Nil
8	Wednesday ...	·43	25	Saturday ..	·02
9	Thursday ...	·17	2	Sunday ...	·52
10	Friday ..	Nil	27	Monday ..	·02
11	Saturday ..	Nil	28	Tuesday ..	·01
12	Sunday ..	Nil	29	Wednesday	Nil
13	Monday ..	·12	30	Thursday ..	3·45
14	Tuesday ..	Nil	31	Friday ..	·03
15	Wednesday ...	Nil	1	Saturday ...	·05
16	Thursday ..	Nil			——
17	Friday ..	·59		Total..	7·34
				Mean..	·23

Greatest amount of rainfall in any 24 hours on the 29th, inst. 3·45 inches.

Recorded by C. DRIEBERG.

ANOTHER NEW FODDER.

We have to thank the overseer of the Kameranga State Nursery, Queensland, (Mr. G. B. Brooks) for some seeds of the Algaroba or mesquit bean (*Prosopis Juliflora*). This tree is said to thrive and flourish in places liable to be afflicted with droughts, and supplies not only fodder but large crops of beans which are also valuable as stock food, and have a high fattening value, while the tree remains in bearing for some considerable time. The bean belongs to the leguminosae order and sub-order Mimosae. Several varieties of it are scattered over warmer Asia, Africa, and America, and the variety here referred to is found growing freely in Honolulu. It attains to a height of 30 to 40 feet, is armed, and the pods are from 5 to 8 in. long. The value of the pods lies in their being filled between the seeds with a sweet mealy pulp which is very nutritions and is liked by stock. The bean is also reported to be fit for human consumption, and is eaten in various forms where better food is scarce.

Fences made of the timber are reported to have stood in a perfect state of preservation for more than 50 years—the timber resembling *Lignum vitae* in hardness and durability and taking a polish like mahogany. The bark and whole body of the tree is rich in tannin. The gum closely resembles gum arabic. Baron von Mueller, in his work on Select Extra-Tropical Plants, gives a good deal of information about the different-species of Prosopis which are some times called cashaw in addition to the names already given. In planting the seeds should be only just covered and not planted deep, or they will take long in germinating. Dr. Watt in his Dictionary also furnishes interesting notes on the genus Prosopis, which he states includes some 18 species of erect trees or shrubs. Regarding *P. dulcis* (the Algaroba or Paray) he says: It produces sweetish succulent pods, 20 to 24 in. long, which are largely used for feeding cattle. It has been introduced into Madras, where it is planted along railway lines, and is known locally as tamarind. *P. Glandulosa*, the mesquit bean, has been successfully introduced into N.-W. India. The tree yield a large quantity of gum used in making jujubes and other sweetmeats. The sweet pulp of the pods, fermented and boiled, is a not unpleasant drink. The beans powdered and mixed with water are used as food in the form of a dried paste. The beans are also used as cattle food. Gamble mentions that the wood is very hard, durable and has a beautiful grain, and is used for furniture and in the manufacture of charcoal. *P. pubescens*, the screw bean or screw mesquit is being grown in the Botanic Gardens, Calcutta. The pods are said to form an important article of food to the natives, and a valuable fodder for cattle, but great caution is necessary in giving them to horses.

Regarding *Prosopis pallida*, Dr. Watt, quoting from Gamble, says that it has been successfully introduced into Ceylon, that its pods contain as much as 90 per cent tannic acid, and that they are imported into Europe under the name of "Algarobilla" or "Balsamocarpon."

[On enquiry the Director, Royal Botanic Gardens, has been good enough to inform us that so far as is known, *P. pallida*—which is the same as juliflora—has never got beyond the Peradeniya Gardens.—ED. *A.M.*]

BIBLE PLANTS OF CEYLON.

Rue (Greek, peganon) is botanically known as *Ruta graveolens*, and belongs to the orange family. As a small and insignificant looking herb one would hardly think it representative of that order. It is mentioned in Luke xi. 42, "But woe unto you Pharisees! for ye tithe mint and rue, and all manner of herbs, and pass over judgment and the love of God: these ought ye to have done, and not to leave the other undone." In the parallel passage Matthew xxiii. 23, Anethon or dill (translated anise) is named instead of rue. Balfour thinks that probably both were mentioned, and each was recorded by a different Evangelist. Both herbs were commonly cultivated in eastern gardens as at present. As its specific name

(graveolens) signifies, rue possesses a powerful odour and a heavy oil is extractable from it. The whole family is characterised by the presence of essential oil, and it is said of one member, the Dittany or Fraxinella (*Dictamnus Fraxinella*) that owing to the large quantity of oily vapour exhaled by it on a warm evening, the air around it becomes inflammable. The odour of rue is considered pleasing by some, but by others most objectionable. It is said to be used as a spice or condiment along with food, and as a flavouring agent in wine, but it is best known in Ceylon as a medicinal plant,—rue oil being a stock remedy for colds and headaches and to allay spasms. This oil is generally prepared here by boiling rue leaves along with coconut oil to which the strong odour is imparted. In England oil of rue is distilled from the fresh leaves and unripe fruit; it has a pale yellow colour, a disagreeable odour and bitter acrid taste. Rue was called by the ancients the Herb of Grace, and Shakespeare refers to it by this name,—

"Here in this place,
I'll set a bank of Rue, sour herb of Grace."

From this we have the word *rue*, meaning the repentance necessary to obtain grace.

Rue is said to grow wild in South Europe and Palestine. It is generally cultivated here as a pot herb.

Mint (Greek, Heduosmon, or Heduosmos, meaning "having a sweet smell") belongs to the genus mentha, of which the most common species found in Syria is said to be *M. sylvestris*. It is commonly cultivated in gardens, is very generally distributed, reaching high altitudes. Mint, like dill and cumin, belongs to the order Labiatae, to which many strong smelling herbs also belong. What is known as field mint (*M. arvensis*) is a variety common in Palestine. Mint and its allies (peppermint, &c.) possess important carminative properties. It was much used as a condiment in ancient times on account of its aromatic properties, in the same way that it is now used for sauce. Pliny mentions it as highly esteemed. It is mentioned in the Bible with other sweet herbs, such as anise or dill, cumin and rue, *e.g.*, "Ye pay tithe of mint and anise and cumin." Matthew xxiii. 23. The giving of the tenth part to God was enjoined on the Jews, and the Pharisees were very particular as to the letter of the law, tithing even the smallest products of the garden. An essential oil of mint is extracted from the plant.

ABOUT MANGOES.

The April number of the *Queensland Agricultural Journal* publishes an interesting article on Mangoes from the pen of Mr. D. O'Connor, and as it contains much information, we take the opportunity of culling from it, to show, among other reasons, how much can be done, and is being done in some places, to improve the quality of fruit.

Probably no fruit in Queensland, remarks Mr. O'Connor, has of late years received as much attention as the mango, and deservedly so, for most persons who have eaten a really good mango regard it as the king of fruits. Comparatively few persons, however, have tasted high-class mangoes; they are still very rare. While a first-class mango might worthily occupy the top of the list of fruits, inferior kinds should be placed near the bottom. Even for cooking purposes a good mango is preferable to an inferior one. This reason alone should be an inducement to growers to cultivate only good varieties. Much may be done by budding and grafting as hereafter described; secondly, by cultivating with care the better forms; and, thirdly, by importing the choicest varieties procurable. The highest class mangoes are not procurable even in India; some care and expense may be necessary in securing the finest. The choicest in India are said to be owned by wealthy natives who guard them with great care. These would probably be unpurchasable, some other means would therefore be necessary to obtain them, possibly by exchange. In India, the home of the mango, it is propagated mainly by one of the following methods:—Firstly, by growing the seed. This is the easiest way and affords some prospect of getting improved varieties, but this seldom occurs. My experience is limited to one instance, the fruit being superior in every respect to the parent; more frequently degeneracy is the case. Secondly, by inarching or grafting by approach. The vigorous plant, called the stock, of suitable size, growing in a pot, is taken to the tree from which a graft is desired, a small branch, the scion, about the size of the stock is selected, a slice about an inch in length is cut nearly half through, and a similar piece cut from the stock; they are then placed carefully together and firmly bound, usually with cotton lamp wick; a coat of varnish, grafting wax or moistened clay is next applied. When the scion and stock have united, the scion is cut off below the stock above the graft. After a reasonable time the little tree is planted in its permanent position. The third is known as "Gootee." In making a gootee a ring of bark is removed from a branch, over this a ring of well-tempered clay is pressed. This is kept in place by a piece of calico cloth or bast wrapt round it. A gootee pot, (a globular earthenware vessel, with a hole in the bottom, through which a cord, having a knot at one end is passed) is suspended above the branch, and filled with water; the other end of the cord is wrapped round the gootee, which is kept moist by the water tickling down. After a few weeks the clay will be full of roots; the branch may then be severed below the gootee and planted. The fourth method may be described as the best. It is called "flute-budding," and is thus described:—The operation is performed in spring. The plants on which the buds are placed is called the stock, and that from which the buds are taken the scion. A ring of bark is peeled off the stock just below the terminal bud, an inch or more as the case may be. A ring of bark is taken from the scion, containing one or more eyes, and of the same length and size as that taken from the stock. The bark with the eyes taken from the scion is then put on the stock, and it should be so placed that its bud

must be exactly underneath a bud on the stock. The bud will attract the sap to the scion bud, and thus promote its growth. After the ring of bark is placed, it is bandaged and mastic applied to any exposed parts of the joinings. Should the diameter of the scion exceed that of the stock, it is easily remedied by cutting off from the scion a longitudinal strip of bark equal in width to the difference. On the other hand should the dimensions of the tube of the scion not correspond with that of the stock, the difference is made good by leaving on the latter a strip of bark of sufficient width to fill up the space not covered over by the tube of the scion. In placing the bud on the stock, care should be taken to make sure that the edges of the back of the stock and the scion coincide all round.

[A description of the method of inarching or grafting by approach as carried out on mangoes in the Bombay Presidency appeared in the *Agricultural Magazine* of August, 1892, under the head "Indian Jottings." In the issue of October last we reprinted a description of the method recommended by Mr. Horace Knight which is very similar to that given above as "flute budding." The notes on mangoes given by Mr. O'Connor, from which we have been quoting, will be concluded in our next issue.—ED. *A.M.*]

FIBRE CULTIVATION IN INDIA.

A considerable amount of attention during recent years has been devoted by Indian planters to the cultivation in that country of indigenous and imported plants from which fibres can be extracted, and the interest shown in this class of products has been increased by the establishment of Government fibre-plantation in Mysore, from which cuttings and plants can be obtained by the private planter. An account of the various plants so far cultivated in India for the sake of their fibres was given recently by Mr. J. Cameron, F.L.S., in a lecture delivered before the Planters' Association of Southern India (*Indian Agriculturist*, February, 1901), from which the following summary has been compiled. The most important of these plants is the so-called sisal hemp (*Agave rigida var sisalana*), which belongs to the *aloe* tribe and is a native of Yucatan, although it is now extensively cultivated in Florida and Bahamas. The Mysore Government imported several thousands of these plants from Florida in 1894, and the latter are now in a flourishing condition and available for the use of planters. The lecturer called attention to the suitability of this plant for cultivation in the scrub and jungle waste places of Mysore, since it grows well under such conditions. The cultivation of the plant is remunerative, especially with the high prices for the fibre which have ruled in London and Liverpool during recent years. The yield of fibre per acre in Yucatan is about half-a-ton, and the average price obtainable may be taken as £25 a ton, although as much as £65 has been paid.

The "China grass" fibre has been grown to a limited extent in the cooler parts of India, but appears to be quite unsuited for cultivation in the plains. At present it has no commercial value, chiefly because of the lack of a machine for cheaply extracting the fibre. Another native plant which yields a fibre which may prove a valuable one is the Ban rhea (*Villebrunea integrifolia*), a plant growing in the sub-tropical Himalayas. The fibre has been examined in the laboratories of the Scientific Department of the Imperial Institute and found to be similar in type to that of China grass but of a much better quality, being more highly resistant to the action of acids and alkalies, and therefore likely to last better.

Of plants which have been introduced into India the Mauritius hemp (*Furcræa gigantea*) seems to be a particularly useful variety. It produces leaves about eight feet in length, which are similar to those of the Agave, and can be manipulated by the same machinery. The plant seems to readily become acclimatised to India, and was observed to have run wild on the Shavory Hills by Dr. Watt in his recent tour through India. This species is suitable, the lecturer stated, for cultivation on abandoned coffee plantations. It yields a fibre similar to the silk-grass, highly resistant to the actions of water, and so suitable for the manufacture of ship's cordage. It has been valued at £27 a ton. A coarser fibre suitable for paper-making is that derived from the Bhabur-grass (*Ischemium angustifolium*) which grows in Northern and Central India. This fibre has already been used in several Indian paper-mills and found to be a satisfactory material for this purpose.

An interesting account of a successful Agave plantation at Pawai, near Bombay, appears in the same number of the journal already referred to. This farm was started on land which had formerly been used for cultivating cocoa and coffee, but had long been abandoned and had run to waste. In this plantation, which is directed by Dr. Suter, the plants are cut when four years old, only the outer leaves being removed, and from these the fibre is immediately extracted by two special machines. The natives operating these machines have to be clothed in absorbent woollen cloth as a protection from the strongly vesicating sap of the leaves. A plentiful supply of water is necessary during the operation of extracting the fibre, as the latter, unless it is immediately well washed, turns brown on exposure to the air. Altogether, the plantation at Pawai gives employment to 250 natives who earn comparatively good wages. It is proposed to commence, in the near future, the manufacture of ammonia and manure from the waste material (amounting to about 97 per cent. of the whole) left after extraction of the fibre.

As a method of utilising the coarser fibres obtained from the stems of trees paper-making seems to be the most satisfactory, and a recent number of the *Indian Forester* (Jan., 1901) contains an account of the native method of making paper from the inner bark of *Broussonetia papyrifera*. The outer bark is first scraped away and then the inner layers peeled off in strips about five feet long which are dried in the sun. These are next boiled in water containing wood ashes, and when they have become somewhat

soft are taken out and beaten into a pulp by means of wooden mallets, any impurities being picked out by hand during the process. The finely divided pulp is next poured into a stretched sheet of cotton through which the water slowly percolates, leaving a sheet of paper pulp. The latter when about half dry is glazed by rubbing with a piece of earthenware. Finally, when quite dry, it is stripped off by means of wooden knives. This forms the common writing paper of Burma. A coarser kind used for packing is also made which is sometimes rendered waterproof by smearing it with melted beeswax. A third kind is also made in a similar manner, but is finished by treating with finely powdered charcoal, so converting it into a paper which can be written on with soft talc pencils.—*Imperial Institute Journal.*

GENERAL ITEMS.

The introduction of synthetic indigo has caused a serious crisis in the Indian indigo trade. Dr. Brunch, chemist to the firm now manufacturing synthetic indigo, lecturing in October last before the German Chemical Society, gave an interesting account of the laborious research of the last twenty years, which were fruitless till 1894. The chief difficulty was in securing an initial material in sufficient quantity, but this has now been found in Naphthalene. By a complicated process this Naphthalene is converted into indigo.

Mr. Wardleworth's lecture on "Jamaica: The Isle of Springs" delievered on March 11th at the Imperial Institute, shews that that colony is alive to its own interests in agricultural matters. Referring to his recent visit to the island, the lecturer stated that the most important feature in the landscape was the coconut palm. Among other products of the palm Mr. Wardleworth said he had tasted excellent butter—quite free from the characteristic flavour of the coconut—from the fruit of tree. Could this be a local product in Jamaica?

Speaking at the Imperial Institute on March 13th, the Duke of Cornwall and York said:— Anything that marks the good work of the Imperial Institute must be of interest to every member of my own family; for it was to commemorate the completion of fifty years of that great and glorious reign—now alas! ended—that this Institute was founded. And I can assure you that our late beloved Queen always had its welfare very near her heart. You know with what assiduous care and keen interest the affairs of the Institute have, from the first days of its existence, been watched over by my dear Father the King; and only recently the Executive Council recorded their grateful recognition of the benefits conferred upon it by His Majesty. Being myself a member of that Council, I naturally take a great interest in the fortunes of the Institute.

A new substitute for leather called "fibroleum," invented in France by M. Brigalant, is described in a report presented to the 'Societe Encouragement by M. Livanche. According to an abstract printed in the *Revue Scientifique*, this product is obtained by chemical treatment of leather waste, which has hitherto been used only for the extracting of the grease that it contains. To quote the abstract: 'The clippings of leather, cut into very small bits, are stored in great vats, where they are macerated in an alkaline solution, which by dissolving the substance that cements the fibres together, leaves them independent. This operation requires great delicacy, for a too concentrated solution or a too prolonged maceration would alter the fibres as well as separate them. The operation, which lasts two to fifteen days, takes place at the ordinary temperature. After washing with cold water the material passes to a special defibrator. The resulting pulp, which is very soft to the touch, is treated in machines similar to those used in paper-making, and the result is a very light, but strong, sheet not more than 1 millimetre (1·250 inch) in thickness. These may be made to adhere, forming sheets varying in thickness from 1 to 10 centimetres (2·5 inch to 4 inches). After treatment in the hydraulic press, these sheets look like leather and have its strength. M. Brigalant has made interesting uses of fibroleum, chiefly in replacing the inferior products that are used in the manufacture of cheap shoes. At present the inventor is making daily 125 to 150 gross of soles, and is putting in machinery sufficient to turn out 1,000 gross a day. Although fibroleum is more absorbtive to water than real leather, its strength and flexibility, as well as its cheapness, make it suitable for all sorts of uses, and M. Livanche thinks that the industry is destined to extend widely."

In view of the increasing price of camphor, a German firm have suggested India and Ceylon as suitable countries for cultivating the camphor tree. The world's requirements of camphor are estimated at 10,400,000 lbs. per annum; of this, under the new administration, about 5,200,000 lbs. will be supplied by Formosa, while about one-third of the whole will be exported from Japan, leaving a diminution in the exports, compared with 1898, of about 3,640,000 lbs.

To prepare sweet potatoes according to the Southern mode, we (*Florida Agriculturist*) are told that they should be peeled and boiled until they are thoroughly but not too well cooked. They should be cut into four pieces lengthwise, and placed in a tin baking pan. Butter and sugar should be placed over the potatoes abundantly before they are put in the oven to bake slowly. After a while, the butter and sugar mingling with the juice of the potatoes form a delicate crust that should be cooked until it has almost reached the point at which it is candy. Under this crust is a thick, rich syrup of the sap of the potatoes, sugar, and butter. Anybody who has eaten sweet potatoes in this way will never be satisfied with any other way of cooking them. The principal merit of this method lies, of course, in having them thoroughly cooked. The fire must be slow, and the cooking must continue until the sugar and butter on top of the potatoes have formed a crust.

The analysis of the sweet potato (according to Dalgety's Review) is as follows :—100 lbs. sweet potato contains 69·32 to 73 11 lbs. water, 1·09 to 1·29 lbs. ash, 1·38 to 2·47 protein or flesh-forming material, ·86 to 1·23 lbs. fibre, 29·73 to 28·46 lbs. nitrogen free extract (starch, sugar, gum, &c.,) and ·43 to ·85 lbs. fat: a total of 27·46 lbs. to 32·49 lbs. dry matter. It thus contains more dry matter and more starchy and sugary food, but less nitrogenous material than the ordinary potato. As a comparison it may be stated that 100 lbs. maize contain 89·1 dry matter, 10·5 protein, and 75 lbs. nitrogen free extract, while 300 lbs. sweet potatoes contain 86·7 dry matter, 4·5 lbs. protein and 75·3 lbs. nitrogen free extract.

In Japan sweet potatoes are preserved by drying thus :—Cleanly washed potatoes are placed in a basket and immersed in boiling water for a short time; when taken out of the basket they are cut into thin slices and spread over mats, exposed to the sun for three or four days. In order to make a superior quality, the skin of the potato is peeled off before slicing.

The *Indian Planters' Gazette* writes :—"The ladybird beetle not having turned out a success for the numerous pests that afflict our tea gardens, we see that the *manthus* has been suggested as a likely ally to wage war with. But there are four *manthi*, though, from its well-known pugnacity, that usually denominated the devout one is probably meant. We have kept this creature in muslin cages, but are not aware that its love of fighting and cannibalistic propensities extend beyond its own species. If, however, it can be trained to turn its attenton to spider, its domestication may be worth attention; but it must be remembered that the insect is as much a vegetarain as a carnivorian, and, though no likely to patronise the bitter tea leaf, would play sad havoc in an adjacent flower or vegetable garden."

Dr. Harvey W. Wiley, of the United States Department of Agriculture, reports that the sunflower is a crop which makes a considerable drain on the elements of soil fertilizers; that one of the most valuable constituents of the plant is the oil, which exists in large quantities in the seeds; that the economic production of sunflowers is now confined almost exclusively to Russia, where it is an agricultural industry of considerable importance; that in the United States it is grown as an ornament and for the production of seeds, which are used chiefly for poultry and bird feeding and for condimental and medicinal properties with farm animals; that the oil of the sunflower seed is not produced commercially in the United States; and that in the cultivation of the sunflower the methods pursued for growing Indian corn are to be followed; and the plant is capable of cultivation over almost as wide an area as Indian corn.

Tomatoes are most helpful to the system when eaten raw, as the volatile oil they contain is dissipated by the heat of cooking. Green vegetables, such as spinach and cabbage, are invaluable as medicinal articles of diet, as they possess blood purifying properties, and act indirectly on the liver. Turnips are nutritious, while the young turnip tops are possessed of tonic properties. Parsley is a blood purifier, and should be eaten both raw and cooked. An almost exclusive diet of fruit and vegetables is supposed to induce purity of complexion.

Says the *Chemist and Druggist*:—We have recently had brought under our notice a fine sample of Egyptian capsicums which have lately made their appearance on this market. The pods are of a bright uniform colour and devoid of the calyx and stalk, are very clean, and have evidently been carefully prepared. They are valued at about 65*s*. per cwt. We have no data bearing upon this sample, but by careful comparison with Natal capsicums the two forms are practically indistinguishable, and it is probable that the sample in question has been grown from Natal seed. In the early part of May last year one of the Mincing Lane brokers included in his spice-catalogue a similar sample from the same country equally well prepared, and valued at the time at 83*s*. per cwt., fine Natal being worth 90*s*. In the catalogue referred to a sample of chillies from the same source was also included, but we do not remember to have seen any further parcels offered since, though we occasionally see quantities from Nyassaland. It is just possible that at no distant date we may receive both capsicums and chillies from the West Indies, as seeds of the commercial varieties were freely distributed through these islands some time since by Dr. D. Morris, late assistant director of Kew Gardens.

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES."

[Under this heading, in future, we mean to give a four or eight page "Supplement" with our *Tropical Agriculturist*, from quarter to quarter, according as there is matter of sufficient value, so to be preserved.]

JULY, 1900.

A LEAF FROM THE PAST:

A FORMER CHIEF JUSTICE OF CEYLON AND THE LORD CHANCELLOR OF ENGLAND; ALSO A LOCAL KING'S ADVOCATE AND A HOME SECRETARY.

A GIFT TO THE SUPREME COURT BY THE LORD CHANCELLOR.—We are glad to learn that the Lord Chancellor has sent as a gift to the Supreme Court an oil-painting of his uncle Sir Hardinge Giffard, a former Procurator Fiscal (i. e. Attorney-General) and Chief Justice of Ceylon. It appears that Lord Halsbury in a conversation with the present Chief Justice when in England expressed his wish to make a replica of an old family portrait and present it to the Supreme Court. The portrait has just arrived and will worthily adorn the walls of the Supreme Court. The thanks of the judges and the legal profession are due to the Lord Chancellor for his graceful present.—Local "Examiner."

The above paragraph from our legal contemporary corrects an error under which we and many in Ceylon have hitherto laboured. We had somehow got the impression that Sir Hardinge Giffard, now Lord Halsbury, and for the third time Lord Chancellor of England, was born in Colombo, and was the son of our former Chief Justice. But, though evidently named after the latter, he is only a nephew. "Who's Who" and "Men of the Time" agree that Lord Halsbury, born in London, September, 1825, is the third son of the late Stanley Lees Giffard, Esq., LL. D., Barrister-at-Law. The founder of the family was a certain Mr. John Giffard, who came into political prominence in Ireland during the troublous closing years of the last century. In a well-known, amusing, but not over-reliable Irish Book of Memoirs, we are told a good deal about John Giffard's climb into notice and a Government office, and how during the process, he came under the scathing sarcasm of Grattan. Of more immediate interest is it to learn that John Giffard's eldest son, Hardinge Giffard, and Mr. Croker of the Admiralty, married two sisters, ladies of Waterford; and that Mr. Croker's good luck and great political influence enabled him to help his brother-in-law, "who, having tried the Irish Bar in vain for several years, has neverthless become Chief Justice of Ceylon." The writer does not make it very clear to which of the brothers Croker—both in the Admiralty—he refers; but we suppose it must be "John Wilson," of the *Quarterly*, of whose writings Macaulay so often made mince-meat.

Returning to Hardinge Giffard, Barrister, we find that he came out to Ceylon not as Chief Justice, but as "King's Advocate-Fiscal"—an office afterwards designated "Queen's Advocate," and now known as "Attorney-General." From 1811 to 1820, or 1823, Giffard did duty in this post in Colombo and then he succeeded Sir Alexander Johnston, and as Sir Hardinge Giffard, KT., LL. D., served as Chief Justice up to 1827, when he was succeeded by Sir Richard Ottley. Sir H. Giffard embarked for England on March 2nd, 1827; but he cannot have lived long; for in a return of retired Judges on pension made up in 1832, his name does not occur, though those of his two predecessors and successor are given:—

Sir E. Carrington, Knight.—Chief Justice, four years nine months, retired 12th March 1806, pension £1,200 per annum.

Sir A. Johnstone, Knight.—Chief Justice, 17 years, retired 1st March 1819, pension £1,600 per annum.

Sir R. Ottley, Knight.—Chief Justice, 12 years nine months, retired 1st January 1832, pension £1,200 per annum.

Harking back, we must notice that Sir H. Giffard was succeeded in 1820 (or 1823) by a notable man in Henry Matthews, author of "The Diary of an Invalid"—a well-known book in those days—who continued as Advocate-Fiscal till 1827 when he was sworn in as Puisne Justice on the same day as Sir

R, Ottley, became Chief Justice; but, alas, the accomplished writer and judge died at Colombo on May 21st, 1828, his remains being interred in St. Peter's Church, where his son, born in Colombo (then Home Minister) placed a brass plate to his memory. It is a singular fact that two members of the Imperial Cabinet for 1886-92, should thus be closely connected with Ceylon—Lord Chancellor Halsbury and Mr. Matthews, Home Secretary.

We must not forget an interesting passage-at-arms between Chief Justice Giffard and Advocate-Fiscal Matthews during the administration of Lieut Governor Sir James Campbell, K.C.B. It was thus related by our late "senior' and corrected (in the note) by Sir Richard Morgan, himself at the time in Mr. Matthews' office and afterwards Acting Chief Justice :—

During his rule a very curious case of *ex post facto* legislation produced much excitement, at least in the Supreme Court, Sir Hardinge Giffard being judge and Mr. Matthews, (author of "The Diary of an Invalid,") Advocate Fiscal. A rascally Frenchman attempting to fly from his creditors was seized and held in arrest by the Military authorities in defiance of the writ of *Habeas Corpus* issued by the Supreme Court. The Chief Justice was much excited, and told Matthews that in defending such high-handed proceedings he was preparing a bed of thorns for himself. Poor Matthews did not, however, survive to claim the seat of Chief Justice. The brilliant humourist died of atrophy. The Regulation which he drew up at the order of Government served its purpose for the time, though it was subsequently revoked by an Order in Council (not till 1st November 1830, however.) It enacted that it "*was*, is and shall be lawful" to hold any person in custody by warrant of the Governor, such warrant being a sufficient return to any order of Court without the production of the person, We are not aware that any grave collision has taken place between the governing and judicial authorities since this period, unless we include the cyclone in the time of Sir Carpenter Rowe, in consequence of some ill-judged proceeding by which social precedence was conceded to Bishop Chapman, a concession which the Chief Justice sturdily denounced.

We must now bring our notes to an end but, before doing so, would say that it is very pleasant to have the Lord Chancellor recalling the memory of his uncle who, as Chief Justice of Ceylon, was no doubt the great man of his boyhood, he little dreaming then that he himself would be thrice Lord Chancellor. By far the most genial account of Lord Halsbury we have ever seen is that contained in the "People of the Period" which may well be reproduced at a time when he has placed this community under an obligation by sending for our Law Courts a portrait of Sir Hardinge Giffard, Chief Justice. We quote it in full in our daily.

ETYMOLOGY OF AFRICA AND OPHIR.

Dr. Carl Peters' contention that the place name Africa is nothing but the Latin form of the unmeaning Semitic 'loan' place name Ophir, is historically and etymologically untenable. Africa, the name by which the Libya of the Greeks became known to the Romans through the Carthaginians, was at first applied by the former exclusively to the territory, subordinate to Carthage.

. . . .

As for Ophir, this place name did probably include the south-east cost of Africa, but it equally included the south coast of Arabia, and the whole coast of Western India, with Ceylon, and possibly also the Malayan Peninsula—' Aurea hersonesus,'—of Farther India. The term, in short, as used in the Bible, may be compared with the Parvaim [compare Sanskrit *purva*, 'Eastern'] of 2 Chronicles iii. 6, and our 'East Indies'; and, less pertinently, with the classical Eous and Pancbaia. It occurs as Ophir in Genesis x. 29; I Kings ix. 28, x. II, and xxii. 48, I Chron. i. 23, and xxix. 4, 2 Chron. viii. 18, Job xxii. 24, and xxviii. 16, Psalms xlv. 9, and Isaiah xxiii 12, and as Uphaz in Jeremiah x 19, and Daniel x 5; and in all these references excepting Genesis x 29, and 1 Chron. i 23, Ophir and Uphaz are associated with gold. In its Greek form the word is written Oupbir, Ophir, Oppheir, Souphir, Soupheir, Sopbir, Sophira, Sophera, Sophara and Sappbeir. Ptolemy places vi 7, 41, a Sapphara on the southern coast of Arabia, and vii 1, 6, a Soupara on tbe coast of Western India; and vii 1, 15, a Sippara on the eastern coast of India; and there is a 'Sofala thought [Milton meant by Purchas] Ophir' on tbe south-eastern coast of Africa. These four place names are all cognate with Ophir, and not with Africa, which, as has been shown, is quite another word; and I believe the Sonpara placed by Ptolemy on the coast of Western India to be the original Ophir of them all. King Solomon's trade, by means of 'the navy of Hiram,' and 'ships of Tarshish' [Tartessus, *i.e.*, Spain, and compare the term, 'Indiamen'], included imports, expressly invoiced from Ophir [I Kings x. II], of 'almug trees and precions stones,' and, not expressly invoiced from Ophir [I Kings x. 22, and 2, h ron. ix. 21], of 'gold and silver, ivory and apes, and peacocks.' All these are Indian products, the 'almug trees' and the peacocks being exclusively Indian products, and the names used in the original text of the above quotations for ivory and apes and peacocks being every one of them, Indian names Hebrewised:—*shen-habbim* literally tooth of elephant, for ivory, being formed from the Sanskrit *ibha* elephant; *kophim* for apes, being the Sanskrit *kapi*; and *tukkyyim* for peacocks, the Tamil *tokei* or *togei*. This is sufficient to prove that from King Solomon's time, and from the earliest times, the Hebrews knew of India in its trade productions; and in this way at least it was nniversally known to antiquity. Indian teakwood has been discovered in the structural ruins [Mugheir] of the temple of Ur of the haldees. An ancient Babylonian list of clothing mentions *sindhu* or muslin, which Sayce [*Hibbert Lectures, 1887*] identifies with the *sadin* of Judges xiv 12, 13, translated in the English Anthorised Version by sheets, and in the Revised Version by linen garments, and the *sindon* of the Greeks the cendal or sendal of Mediæval Europe; all these denominations signifying Indian stuff. In the original text of Estber i, 6, the wood translated green is *karpas*, the Sanskrit *karpasa*, and Greek *karpasos*, cotton, and instead of the passage reading white, green, and blne *hangings*, it should read white and blue cotton *dharis*, the striped floor-cloths and hangings for which India has always been noted. There is no nndonbted mention of silk in the Old Testament, but silk is rightly supposed to be referred nnder the denomination of *meshi* in Ezekiel xv, 10, 13, translated in both the Authorised and the Revised Versions of our Bible by silk and as *demeshek* in Amos iii, 12, rightly translated by Damascus in our Anthorised Version, and wrongly by silken in the offensive Revised Version. In the Book of Esther, moreover, India is twice [i I, and viii, 9] referred to by its vernacular name in the Hebrewised form of Hoddn, in Syrac Hondu, in Arabic Hindu, in Persian Hind in Greek *Indika*, all these being variants of the Sanskrit Sindhu literally a river, but especially the river Indus.

The Hehrew place named Ophir has no meaning; but Sonpara [Ptolemy, vii, 1, 6] identified by James Burgess, the eminent antiquary with the modern Supara, a few miles above Bassein in the Northern Konkan, means the auspicious-far-side, or opposite bank or coast, that is the fair trading coast [compare Surat, *i.e.* Surashtra, the Fair—merchant—kingdom], to distinguish it possibly from the dangerous trading coast, *Ariake And on Peiraton* of the Southern Konkan. Sippara is said to have the same meaning, and both names may be compared with the Greek *Paralia,** coastland, applied to the broken maritime tract of Attica stretching southward from Mount Hymettus to ape Sunium and the Saronic Sea, to the western coast of halcidice opposite the Pierian shores of Macedonia, and by Ptolemy to the coast of Travancore. The people of Western India, particularly those about the Gulf of Cambay have from the remotest past actively tracked with the south coast of Arabia, the Persian Gulf, the Red Sea, and the east coast of Africa; and it would be quite natural for them to have carried with them the name of their own famous port of Supara, and applied it to the chief emporia of their trade in the Hadramaut, and the Zanzihar or Black Coast of Africa; the Arabs in the latter country in seeking to give it a meaning in their own tongue twisting it, with but slight change of sound and significance into Sofala at full length, Sofalatu'l Dhahab, the Coast of Gold, an extension of form which indeed seem to emphasise its indication as a variant of Ophir. Finally to this day India is the Sofir, that is, Ophir of the Abyssinians and Egyptian Copts. Whatever eastern lands, therefore, may be included in the Biblical Ophir, India of the Hindus is the aboriginal, authentic, definite, and inexpugnable Ophir; while the word Ophir has nothing whatever to do with the word Africa, great as I trust may be the 'golden joys' the dark continent of that name has in store or those pioneers of modern civilisation among whom so high a distinction has been achieved by Dr. Carl Peters.

March 12, 1900. GEORGE BIRDWOOD.

—*Journal of the Society of Arts.*

SHOOTING NEAR TRINCOMALEE.

A SMALL MIXED BAG AT PERIYAKULAM.

I believe there are many tanks in Ceylon known by the name of Periyakulam, but the one I refer to is about seven and three-quarter miles from Trincomalee. You go along the Nalavile road nearly to the sixth milestone; then turn away to the left, and go for a mile and three-quarters by a sandy jungle road to

THE TANK.

It is a small sheet of water, perhaps, three-quarters of a mile long by seven or eight hundred yards broad. On the day I am going to tell you about, I went out by bullock cart, arriving at dawn. The first proceeding was to go to the little P. W. D bungalow on the shores of the tank and get some cocoa and biscuits. I had secured the services of a cooly to carry my cold tea and cartridges, and as soon as I had disposed of my little breakfast we started off along the bund towards the sluice, whence a jungle path leads round to the far side of the tank. Periyakulam, like all Ceylon tanks, is purely artificial; it has a bund which forms one end, and another longer bund going all along one side. There are two sluices, and two sets of paddy fields which are irrigated from the lake. One lot of paddy fields are below the side bund, and the other below the one at the end. Everywhere else the jungle is thick, except for some grassy marshy land beloved of buffaloes, which lies on the opposite side to that along which the bund runs. The sluice at the side is quite at the end corner, close to the jungle, and as this is a quiet deep part of the tank, the crocodiles often come out and lie on the bund just there. Below the sluice and between it and the paddy is a large pool surrounded by jungle trees; this is also beloved of crocodiles, and they often lie out on a little raised path which goes from the bund across this pool to the paddy-fields. On that morning, however, no crocodiles were lying out near the sluice, so we walked across it and took the little jungle path, which goes through the woods at the end round to the open marsh land on the far side.

The tank was high, and most of the open part far too wet for snipe; but further up near a native hut, I knew of a tiny strip of suitable ground, a little patch of old cultivation in fact, where I

EXPECTED A SNIPE OR TWO

to be lying. The fertility of my little patch, by the bye, was entirely dependent on the buffaloes; if the fancy took them to remain round about the hut there would be no snipe, but if they went further into the marsh and left my preserve quiet, I was always certain to find a few birds. To my pleasure, we found the herd of buffaloes that morning disporting themselves near the lake with only their heads and the tops of their backs shewing above the grass and water. The little naked herd-boy was sitting on an old ant-heap which rose from the swamp like an island, watching his charge. Near the native hut are one or two palm trees and a tamarind which serve as a landmark to steer a right course from afar. While keeping to the comparatively dry ground near the jungle we laid as straight a course as possible for the hut and arrived to find everything undisturbed, and a couple of red-wattled lapwings (or "did-he-do-its") in possession of the tiny pool near the palms. There were, however, only two snipe in the patch, but they rose easy shots in spite of the gun being barely up, and after sundry explanations on my part to the cooly of the object of a snipe stick, they were at last neatly hung, so as to balance each other at either end of that machine.

A short time after leaving the hut, and while skirting a belt of trees, I heard a jungle cock crow; as the call sounded quite close I went to an opening in the undergrowth opposite where it appeared to come from, and crouched down so as to see under the jungle. I then clapped my hand against my leg so as to imitate the noise made by the wings of a rival cock; and waited almost immediately the bird stalked into my field of vision, and a charge of No. 6 laid him low. To bring jungle fowl right up to one the clapping requires to be very skilfully done, but when they are close by it is easy to excite their curiosity by amateur attempts, and so get them to move and show themselves.

Not far from where I shot this cock there is an old ruined tank with the embankments breached; there is still, however, deep water in one or two places. The jungle has encroached right up the old bund, but here and there are gaps among the trees and bushes through which crocodiles issue for their nightly prowls. Near one of these gaps I found

A CROCODILE SITTING ON THE BUND

with his back towards me. Owing to the thickness of the jungle it was impossible to work round to the side of him without making a noise, so I sent

* Paradise—at one time thought to be derived ultimately from either (1) the Sanskrit *para desa,* a far, a foreign country, *para-desi,* corrupted to purdasee being the name given in the Deccan to natives of Hindustan, or (2) from the Sanskrit *purva-desa* [of Purvaim above], Eastern country, familiar in the adjectival form of *parviya,* corrupted to purboe, originally the name given to Hindus living to the east of the Ganges, and then applied to native writers and clerks generally,—is now traced to the Zend *Para-daeza* enclosure, in Persian *firdauz,* a garden, a park, in Greek the loan word *paradeisos,* and so our Paradise, the Garden of Eden, Heaven, &c., and parvise, the porch under a church tower, or the room above the tower porch, or the cloister close of Cathedrals, that of Chichester being still called Paradise, and of Chester Sprise Gardens.

an "Ubique" bullet into him as he lay, and racked him fore and aft. Of course the shot had very little immediate effect on the tough brute, and he shuffled into the water at a tremendous rate. I then looked about among some trees with damp patches underneath, and put up six or seven snipe; I got shots at five and bagged two. Afterwards seeing no prospects of finding more birds, I started back towards the sluice on my way homewards. When going along the jungle path at the end of the tank I had a bit of luck, a jungle-fowl bolted across, and a quick shot knocked him over —another fine cock bird.

Having crossed the sluice, I looked along the bund and espied a crocodile lying on the top of it, about three hundred yards off. Here was a chance for a stalk. Unfortunately, about 200 yards from the crocodile, a big tree had fallen, blocking up the side of the bund farthest from the tank with a regular abatis. I could not go along the tank side of the bund, as the crocodile had his head that way, nor could I get round the tree, as there was the deep pool below the bund which I mentioned in the first part of this letter. I, therefore, had to make my way inch by inch through the branches in deadly fear lest they should crack or rustle. At last I got through and the crocodile still sunned himself serenely unconscious. The rest was easy and straightforward. The bund was covered with short grass, and I made my way without difficulty to within fifty or sixty yards, when I crawled bit by bit on hands and knees until I was only thirty-five yards away. I then crept very gently up the side of the bund and raised myself little by little till I had a perfect broadside shot. My "Ubique" bullet went through the top of his head, and he shut his jaws, which were wide open when I fired, and lay motionless. To make sure he did not recover and walk away, I cut his throat, and then we went back to the P. W. D. bungalow.

TWO COOLIES FETCHED IN THE CROCODILE

having lashed him with a rope to a suitable pole. They then deposited him, lashed as he was, in the verandah of the bungalow. Three hours later, when there was no one in the bungalow except my old Tamil boy, the crocodile discovered that it was not dead, and after grunting and groaning proceeded to stroll about the verandah pole and all. As my boy was afraid it would get back to the tank, he lashed the crocodile to one of the wooden verandah pillars. As the 12-bore "Ubique" bullet had inflicted a very severe wound to the top of the skull, and as the creature's throat was also cut, I think we may safely deduce that the crocodile is somewhat tenacious of life. "FLEUR-DE-LYS."

Colombo, 21st March. —*Asian*, May 22.

THE CEYLON CROCODILE.

My short stay in Ceylon has convinced me that excellent sport is to be had crocodile shooting. All the large tanks contain crocodiles, and though they may be easy to approach as compared with deer, they are infinitely harder to bag. Unless a crocodile is hit in exactly the right place it invariably gets back to the water. Either it must be shot through the head or the spine shattered. I do not think the shoulder shot is to be depended upon except with a large calibre rifle. Crocodiles are loathsome reptiles, and one never feels any compunction in shooting them; whereas the pathetic eyes of a wounded cheetah are a very pitiful sight. The more crocodiles that can be shot the better, and quite a soft-hearted man might take pleasure in slaughtering them at every opportunity. Many people when asked will tell you they have shot lots of crocodiles, but on enquiry you find that few if any of them were actually bagged. It is pure nonsense, of course, shooting at corocodiles in deep water, or if they are ashore, only wounding them, so that they escape. This is no sport at all. The crocodile must be properly stalked when it is lying on the shore clear of the water, and hit in a vital spot, so that it cannot wriggle back into the tank. The large ones are, I think, more alert than those which are younger and less experienced; but this is the case with every kind of creature.

I do not think a heavy rifle is required for crocodile shooting; the ·303 is quite suitable. Sufficient penetration combined with perfect accuracy are the main desiderata. The Mark IV. Government bullet is not sufficiently reliable; one of the regular sporting bullets should be used. Out of four crocodiles shot at with the ·303 and Mark IV. bullet I only killed one; and out of three crocodiles I have known of, killed with the ·303 and Mark IV, there was only one case where the bullet may be said to have expanded in a thoroughly satisfactory manner. Even a heavy bullet has to be well placed to kill a crocodile outright. I hit one behind the shoulder with a 10-bore bullet; it struggled back into the water, and rolled about feebly at the surface, getting farther and farther out, so that when it eventually died and sank, the water was too deep to fish it up. If I had placed the ball through its head, it would of course have never moved. The difficulty of crocodile stalking is immensely increased by the frogs, which haunt the edges of tanks. Sometimes when one is stealing along the tank side of a bund, a fat frog will jump into the water with a flop, and there go off in a series of ducks and drakes along the surface, effectually scaring the crocodile if it is within hearing distance.

A good crocodile's skull mounted on a shield makes a very decent trophy, and the skin of a small one mounted with the head on does not look at all bad.

I believe that the crocodile found in Ceylon is *Crocodilus palustris*, but I have no book of reference at hand to make certain. As to the size to which they grow, I have *seen* one which I estimated to be 13 or 14 feet long, but I have found the exuviæ of what must have been a perfect monster; and I fancy that in the larger sheets of water there are a few 17 or 18 feet in length. In the small tanks they run from 6 to 9 feet and in the large tanks crocodiles about 10 feet long are a common size.

A crocodile when it has settled comfortably down to bask in the sun usually has its jaws wide open, possibly with a view to airing its inside. When fatally hit, but not quite dead, they open and shut their jaws spasmodically and wag their heads feebly from side to side.

The cross-country journeys made by crocodiles are invariably done at night, and the early morning and evening are the best times to look for them, though they often lie out when not much disturbed in the middle of the day.

Sometimes one will find little pools in the jungle occupied by crocodiles, especially if they are a good depth in the middle. I have found a good sized crocodile in a water hole, only the size of a large room.

Hornaday, the author of "Two Years in the Jungle," shot a great number of crocodiles with a ·40 cal. Maynard rifle, and his aim was always to shatter the spine. I do not know what particular cartridge his rifle took, but it would probably be 60 grains powder and a 260-grain bullet, at any rate he found it was not powerful enough to cope with the large fish-eaters of 15 or 16 feet long, the ball not having weight enough to cut the vertebræ. The ·303 with soft nose bullet is very much more powerful than any of the ·40 cal. American rifles, and I imagine one should be able to kill the largest crocodiles with it, if the bullet is placed just right. I have killed a crocodile with a 12-bore smooth bore "Ubique," and of course when you can get near enough nothing could be more effective than the large spherical bullet from one of these guns. Crocodiles, however, are often in such positions that they have to be shot at from a considerable distance, so that an extremely accurate single shot or magazine rifle is the best weapon.

—*Asian*, May 29th. "FLEUR-DE-LYS."

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES."

[Under this heading, in future, we mean to give a four or eight page "Supplement" with our *Tropical Agriculturist*, from quarter to quarter, according as there is matter of sufficient value, so to be preserved.]

DECEMBER, 1900.

SINHALESE MANUSCRIPTS IN THE BRITISH MUSEUM.

The work on which Mr. D M de Z Wickremasinghe has been for some time engaged has at last borne fruit in a "Catalogue of the Sinhalese Manuscripts in the British Museum." That this catalogue should be the first of its kind, after Ceylon has been for more than a century a British possession, is certainly not creditable to the British Government or people, and is a proof of the small degree of interest taken by the people of Great Britain in oriental matters generally, and especially in eastern languages. Even Copenhagen had, early in the century, thanks to the enthusiasm of the great scholar Rask, a better collection of Páli and Sinhalese manuscripts than London. Matters have improved of recent years, however; and the collection here catalogued comprises some 150 Manuscripts,—a collection not to be compared, of course, with that in the Colombo Museum; but still a very fair one, containing a few codices of exceptional value. The headings under which the Manuscripts are classified are as follows :—

Christian Literature.—Bible.—1.

Buddhist Literature.—*Interpretation of the Canon.*—2-13. (12 MSS.) *Interpretation of Extra-Canonical Works in Pali and Sanskrit.*—14-22. (9 MMS.) *Original Works on Buddhism.*—23-32. (10 MSS.)

Demonology and Local Cults.—33—51. (19 MSS.)

Arts and Sciences.—*Medicine.*—52—61. (10 MSS.) *Astrology, Divination and Magic.*—62-67. (6 MSS.)

History.—68-76c. (14 MSS.)

Inscriptions.—77-79. (3 MSS.)

Language.—*Lexicography,*—80-82. (4 MSS.) *Grammar.*—82a-85. (4 MSS.) *Rhetoric and Prosody.*—86-87. (2 MSS.)

General Literature.—*Poetry.*—88-109. (26 MSS.) *Tales.*—110-125. (17 MSS.)

Manuscripts of Mixed Contents.—126-137. (12 MSS).

Letters.—138-140. (3 MSS.)

It will be seen by the above list that poetry comes first, followed by demonology and local cults, tales, and history. (The canonical works of Buddhism, being in Páli, do not find a place in this Catalogue.)

In addition to a careful description of each of the Manuscripts, and transcripts of the opening and closing sentences of each, Mr. Wickremasinghe discusses, more or less fully, the subject matter, the author, date of composition, &c., his comments showing much learning and critical acumen, and embodying a mass of valuable information. Some of Mr. Wickremasinghe's statements will no doubt form matter for criticism by scholars; but these columns are hardly the place for such controversy.

We may refer to some of the more generally interesting features of this Catalogue. On p. 39 is described an anti-Christian criticism of certain statements regarding Buddhism and the Solar system, which appeared in a Calendar for 1839 published by the Christian Missionaries of Ceylon." (The language is dubious, but the meaning is obvious.) Of this Mr. Wickremasinghe says :—"It is written in a colloquial but chaste style, devoid of the controversial bitterness which marks this kind of literature at the present day. The writer was probably a Buddhist monk, and, considering his limited knowledge, his arguments are very intelligent. Some of them are, however, very amusing; for example, speaking of the revolution of the earth, he argues that if the earth moves on its own axis, the loose tiles and sand on the roof of houses must fall off into space in the course of its motion!"

On pp. 56-58, we have notes on the earliest mention of the *Parangi* disease in a medical work of uncertain date, named *Yogaratnakaraya*.

On pp. 74-78, the death of Raja Sinha II is stated to have occurred in 1692 or 1692-3

while on page 96, the date is given as 1684. But the Dutch, who ought to know, assert positively that their old enemy died in December, 1687. Again, we are not sure that by the Raja Sinha "who defeated the Portuguese at Colombo," as mentioned in the colophon of the *Kurunegala-vistaraya* (Cat., p. 84) is not meant the second king of that name, and not the first, as is here taken for granted.

There are several references to the mysterious capture and deportation (in 1410 ?) of Vijaya or Vira Bahu by the Chinese, but no further light is thrown on this obscure event in Sinhalese history.

If the dates given on p. 85 could be relied on, they would be of value as well as interest; but we fear that they are untrustworthy. (They record an earthquake in 1679, a flood in 1661, and the death of Raja Sinha I. on 8th March, 1593.)

On pp. 106-107, details are given regarding Alagiyavanna Mohottala, the "poet secretary"; but Mr. Wickremasinghe had not, when he wrote, seen the fresh information, from Portuguese sources, regarding this man, communicated in a paper to the Ceylon Asiatic Society.

Among the "letters" described at the end of the Catalogue is an ola envelope addressed to Joan Gideon Loten, the Dutch governor of Ceylon in 1752-57 : the letter itself is, unfortunately, missing.

In an Introduction Mr. Wickremasinghe gives a most valuable and succinct account of Sinhalese literature from the earliest times down to this century, referring for fuller particulars to the introduction to James Alwis's *Sidat Sangara*, many of the statements in which, however, Mr. Wickremasinghe has had to correct.

This Catalogue does the highest credit to its writer; and to all interested in the history and literature of Ceylon it will prove a veritable treasure-house.

MODERN NUWARA ELIYA.

(From a Correspondent.)

The periodical visitor must admit that outward and visible attempts are being made to improve the place; at least I, after a twelve-years' acquaintance, willingly concede as much, and these brief notes are a short record of how I found Nuwara Eliya during a late visit :—

RAILWAY.—The completion of the projected railway from Nanuoya will, I think, prove generally acceptable to intending visitors, as well as residents, because, even if the rate of transit is not more rapid than now, it may be relied on as more positive, and of greater capacity than the present coach service, which, however, is very well served, in comparison to others of a similar nature. The question, as to whether the propelling power be electrical or steam, is of too technical a nature for more than passing reference in these notes.

ROADS.—Of late, complaints (trivial perhaps) have appeared in the Press about the metalling of the roads, with the resulting inconvenience, cruelty to animals, etc., arising therefrom. Repairs to roads generally cause temporary inconvenience to traffic, and if the Improvement Board could afford it, mechanical rolling would greatly reduce this, due to the less time required. On the whole, I think they are maintained in good order, but the widening out of the roads throughout the town proper is a very necessary and urgent matter. At present they are much too narrow for safety and comfort. Extra width would also facilitate annual repairs. The additional new roads and footpaths now in course of construction, or lately completed, will extend the opportunities for enjoyable walks and drives.

WATERWORKS.—The establishment of these is a great boon, and the supply appears to be all that is desirable, except perhaps in quantity, and that only during the dry season! On one occasion in March last, and with only a few of the bungalows taking water from the town main, water was not running over the spill, and as the reservoir capacity is practically *nil*, I question if further conservation will not be very necessary. The distributing main will, I hope, prove adequate, but it seems to me to be too small : and if so, the reduction of pressure, and therefore supply at the bungalow taps, will be noticeable when all are connected on to the main. At the intake works, the stand-pipe now permits of the supply-pipe being easily blocked by any mischievous person. The open end should be 8 or 10 feet higher, or, what is better, fitted with a swan-neck, *i.e.*, the end turned downwards to effectually prevent such a possible catastrophe. A very simple provision would have prevented the flooding of intake well, and thus afforded the intended free access to the valves. I do not know if the town main is arranged, so that portable stand-pipes can be attached at various points, and used for Fire Brigade purposes. By this means a very cheap and effective fire extinguishing apparatus could be placed in the hands of the local police. A good water supply necessitates good drainage, and Nuwara Eliya lends itself to this latter very readily, except that the greater part of the plain is of a very absorbent nature. The laying out of part of the plain as a park, and the improved drainage of the same, will materially help the general drainage and health of the town. During the rainy season, the lowering of Lake Gregory spill, at least by one foot, would be an effective aid in the same direction, and without detriment to any other interest. [Indeed ? We recollect that Sir Wm. Gregory was very irate on his last visit to find how low the water was kept, and declared that his design for a really full and attractive lake—a true ornament to Nuwara Eliya—had been entirely spoilt.—ED *L.R.*]

THE POLICE STATION would, I think, be more convenient if removed from its present position to a more central one. In a short time the present station will be far from central (in fact is so even now) as the general town extension is decidedly away from it. It might be more convenient if near the Post office. Perhaps the authorities conclude they can better watch over

the interests of the town from their present super-elevated position, in preference to being "on the spot."

THE POST OFFICE as an institution may generally be taken as an indication of the importance or prosperity of a town, and in the case of Nuwara Eliya this is no exception. The accomodation of the building as a whole may be equal to requirements. Yet this cannot now be said of the portion allotted to the public for enquiry; a small square lobby often crammed with natives of all kinds and castes, having one opening or window for all forms of business. There is much room for needed expansion in this direction, and may it soon become an accomplished fact.

The proposal of Government to establish a complete TELEPHONE SYSTEM will be another step towards bringing Nuwara Eliya up to date; but if established, let us hope, it will be more successful than that now working in Colombo under the same auspices. For business convenience, the use of it will be quickly apparent.

Some consideration appears to have been given towards the adoption of the ELECTRIC LIGHT, but thus far nothing definite has been decided on. I am informed that the greater part of the power required can be obtained from the existing water supply, but that the carrying out of such a scheme might prove too heavy for the existing revenues, but it is also satisfactory to know that further investigations are most probable, and that some day Nuwara Eliya may, and as it should, have its Electric Light

THE HOTELS give another instance of what is instinctively seen ahead in the matter of town growth, for I believe, without exception, all the existing hotels have been extended and improved, so as to be ready for the coming season. In the case of the Grand Hotel many improvements, alterations and minor extensions have been carried out, and a still more extensive addition is to be made shortly, in which the sanitary arrangements will be quite up to date, and far more complete than during any previous time in its history. The position this hotel occupies, is an exceedingly good one, being central and "well connected" in every way. Under the new *regime* instituted since last season, I conclude visitors to this hotel have a good time before them. The "St. Andrews" and "Keena House" are, I believe, also much improved. The position of these is unique in many respects, and it must be a distinct advantage for a Hill Station to have a diversity of hotels, both as regards position, dimensions, and other minor details.

THE HILL CLUB, under gubernatorial patronage, is a men's private Club, and musters about, I think, 450 members. It is splendidly situated, now very comfortable (though the main portion is an old building) and with lately extended accommodation also. Being a limited Company, I suppose they cannot entirely ignore the question of "profit," and I understand that when chambers are available. outsiders have no difficulty in being made honorary members *pro tem*, and in fact the energetic Secretary gladly welcomes at such times those who are so inclined. If this is the case, it might be more correctly classed as a private hotel than club. [Why so? Do not all clubs extend hospitality to temporary visitors introduced by members? —ED. *L.R.*]

In addition to these, many bungalows in part or wholly are available for visitors also during the season. Most of those, now being or recently built, are of a more modern and substantial type than formerly. Judging by the appearance and condition of some existing ones, and owned by well-to-do landlords, I think it time Government stepped in and compelled them to re-build habitable and sanitary residences in their stead. One important feature is specially noticeable in most, viz.. the general absence of a distinct and legible name of each bungalow or house with name of resident. In Indian cantonments, this is, I believe, compulsory and necessity makes it equally so for Nuwara Eliya. Indistinct stencilling of the letters on a piece of tea-box or similar board is hardly in keeping with the assumed character of a Hill Station like Nuwara Eliya. The religious devotee, whether Muhammadan, Hindu, Buddhist or Christian can find houses of prayers suited for their respective faiths. The Established Church, Holy Trinity, has lately been enlarged, but is already considered none too much so.

MODERN SCHOOLS for both boys and girls, and suited for European children are in existence and very ably conducted.

SOME NEW LINES are being built for the working classes near the meat market, and eventually the whole of the shanties and vegetable gardens close by the coaching office should be abolished, and only approved buildings erected in their stead.

The opportunities for AMUSEMENT are very numerous, the racecourse perhaps standing, first with its grand stand, the enclosed space being suited alike for ladies' golf, polo, cricket, football or hockey.

THE UNITED CLUB AND LIBRARY with its tennis and croquet lawns is also within the racecourse bounds, all from their position being very accessible at any time.

In addition to these there are the gentlemen's GOLF LINKS extending over a large part of the plain, and having their own special Pavilion. Bicycling can be enjoyed without any discomfort or fatigue during fine weather and walking facilities, for those who prefer this exercise, are now unlimited.

The lakes and streams provide good FISHING, sailing and rowing. The addition of a few boats for the latter would be a great advantage. Visitors can participate in all or any of these amusements on special terms, etc. The entire place has grown from a comparative village and temporary place of residence to a permanent township, and with increased opportunities for reaching it, will steadily grow in favour not only as a place of permanent residence and holiday resort for Ceylon folk, but also as a Hill Station equally available for India. Let those interested in its development, carry out their schemes in a liberal and substantial manner, and I feel certain such will speedily contri-

bute to the further success of the place as well as prove remunerative to themselves. A new and improved Town Hall is an urgent necessity and must not be overlooked.

"SACRED BOOKS OF THE BUDDHISTS": A REVIEW.

(Specially contributed.)

"*Sacred Books of the Buddhists*—edited by Max Muller, Oxford University Press, Vol. 1, Játakamálá, translated by J S Speyer, 1895: Vol. 2—Dialogues of the Buddha, translated by Professor Rhys Davids, 1895."

[While the following review from the pen of the best authority in the island was being put in type, the news came of the death of the well-known Oxford Professor whose work is dealt with. The grand old Sanskrit Scholar had seen his best days, and was himself conscious of a failing memory; but his interest in philology and his love of the special studies in which he gained worldwide distinction remained to the end. Not the least of the services he rendered to his adopted country must be reckoned his sturdy defence against German misrepresentation and misjudgment in connection with the Boer war. His keen critical faculty, and his intimate knowledge of British character and of the influences which guide the nation, enabled him to repel with vigour the aspersions cast on the country by those who fancy that the South African war had been of our seeking and that it was inspired by lust of gold or of territory. That was his last, but not least, service to England.—ED. *L. R.*]

Professor Max Müller carried forward his labours as Editor of the Sacred Books of the East by beginning to edit a new series under the patronage of the King of Siam, and under the title of Sacred Books of the Buddhists. Of that series the two volumes before us are the first instalments. Of Professor Max Müller's General Preface it is enough to say that it adds nothing to his high reputation.

The first volume contains translations by Professor J S Speyer of the thirty-four Jataka Stories which are contained in the Jatakamala, a Sanskrit work of the Northern School of Buddhism, ascribed to one Arya Sura, and dating some time before A. D. 700, possibly as early as 400 A. D. The great majority of these stories are identical in substance with stories contained in the Pali Jataka book: many occurring also in the Cariya Pitaka, and in the Buddhavansa.

There is much interest in comparing these with the Pali versions. These are much filled out like the Sinhalese poetical versions of the Kusa Jataka, &c. Like the Pali they are written partly in verse and partly in prose; but the verse part which appears in the Pali only as an occasional quotation is here the larger part. But what is curious is, that while most of the 'gathas' of the Pali appear, though freely altered in the Sanskrit, the narrative slokas of the Pali are not—in any instance we have come across—represented in the Northern version. This, if it is found to be generally the case, will bear out the tradition that the 'gathas' alone are the original substratum of the book, and that all the narrative which surrounds them is "commentary," and may take different shapes in different places and times. The facts are also suggestive as to the Dipavansa tradition that the Vesali heretics played tricks with the Jatakas.

Although the "padding" is often excessive in the Jatakamala, the stories are, as a rule, better told than in the Pali. In Cuddabodhi (Jat. 443) the Sanskrit writer has caught the point of the story while the Pali commentator has missed it. The tale of the Wonderful Pilot again (Supàraga, No. 463) and that of the Lotus stalks (488) were evidently better understood by the Sanskrit than by the Pali writer. But the Monkey's Curse in the last-named reads best in the simplicity of the Pali. Thirteen speakers in succession had uttered each his imprecation on the thief who stole the Bodhisat's lotus-stalks. The monkey's was this, (he knew what it was, the commentator says, to be a snake-charmer's monkey!) "May he wear a garland of flowers and tin earring; may he be forced by blows of a switch to face a snake; and may he go about the streets tightly tied by a string."

The volume which is due to Professor Rhys Davids, consists of a Preface on Buddhist literature in general, and a translation, not of anything new but of the eleven Sutras of the Digha Nikaya, which were published by the Pali Text Society in 1890. In the translation of passages which occur both here and in works which he has formerly translated, (*e.g.* in the beginning of Ambattha Sutta,-Maha Vagga 1-2 22) the Professor has modified his renderings in many places, in accordance with the advance of Pali Study. It is curious that at the same time he should think it necessary repeatedly to point out in his notes some inaccuracy or omission in Professor Childers' Dictionary. It is no disrespect to the reputation of that pioneer of Pali scholarship to say that it is a matter of course that, in the light of present knowledge, Professor Childers' Dictionary should now be far behind the times. The same may be said of Professor Rhys Davids' earlier works.

The chief value of the present work lies in the Preface and in the special introductions. The Preface contains a clear and cogent argument in reference to the date at which the Pitakas, as we have them, must be believed to have been completed; which may be thus abridged:—

The Milinda Panno carries our text back to about the Christian era. The Katha Vatthu, as the early commentators say—and their honesty is guaranteed by the inconsistency of this statement with their theory that the whole canon was the very word of the Buddha—was composed in the time of Asoka about 250 B.C. and this Katha Vatthu presupposes a complete Pitaka. Asoka's own inscriptions, allusions in other inscriptions, and many things in the contents of the Sutras themselves, show that the main parts of the Pitakas were by that time well-known and of recognized

authority. So far the Professor's argument is clear and cogent, and amply carries his conclusion, that the Buddhist literature, in the main, existed *some considerable time before* the end of the third century, B. C. But how long was this considerable time? We believe that the whole may well have taken shape within a century at the longest before that date, and that there is no trustworthy evidence whatever that any of these works existed earlier than that. So that when the Professor ends by adopting, though with caution, Buhler's opinion that these books "are good evidence, certainly for the fifth, probably for the sixth century B. C.,' we hold that he has left the region of proof for that of conjecture.

The Introduction to the Kutadanta Sutta contains an interesting excursus on the word Lokayata: and that to Kassapa Sihanada Sutta, one on the Brahman system of Asramas or Four Stages of life, in its relation to the Buddhist view of withdrawal from the world.

ANCIENT RUINS AND ALLEGED VANDALISM AT KOTTE.

[*To the Editor.*]

Colombo, Nov. 6.

SIR,—At a time when the archæology and history of Ceylon are attracting the attention of scholars in foreign lands, it is greatly to be regretted that at home the ancient monuments themselves should be allowed to be wantonly destroyed. As a case in point, I might instance the vandalism that is at present going on at Kotte, for over two centuries the seat of Government. "On the southern side of Kelaniya," runs the classic page of the *Mahawansa*," nigh unto the village of the mighty wood, which containde a large pond and wherein dwelt men of great wisdom and virtue, Alakeswara built the famous city of Jayawardhana Kotte, and adorned it with rows of great ramparts and gates and towers." It is to these fortifications that the attentions of the Philistines have recently been directed.

Surviving the stress of storm and siege of five centuries, still the trace of the massive walls built of huge blocks of cabook stand out clear round the old Sinhalese fort; but at the place where the wall had been best preserved in height and massive proportion it was ruthlessly torn down by a new purchaser of the land, and two rows of coconut plants take up the ground once occupied by the ancient rampart. And daily the huge slabs are removed one by one until even the trace of it has disappeared, entirely in some parts, and unless immediate steps are taken to arrest further ravages, there will in a couple of years not be the faintest trace of it left for purposes of an archæological survey of the ground plan of the ancient city.

The *Rajawaliya* relates how the great Minister Alakeswara to break the power of Arya Chakkrawarti raised the walls of Kotte, threw up massive dams (*amunu*) to keep back the water, and laying in a good supply of provisions to stand a long siege, hanged the tax-collectors, who had been quartered in parts of the country to levy dues in kind for the king of Jaffna, and ended by flooding the country round the city by opening the sluices. These ancient embankments which remain to the present day on the Talangama road about a mile and a half from Kotte are called Parana Amuna (the old dam) and Kuda Amuna (the small dam) respectively.

The old countryside tradition supplementing the *Rajawaliya* tells us how, after building his city, the ambition of Alakeswara to become king, bade Widagama Maha Sami place the crown of Lanka on his head and as he sat on the coronation slab facing the tank, the old Priest gave the state sword which was to have girded the new king into the hands of his *protégé* Prince Parakrama; how the head of Alakeswara rolled into the tank below, and the lad of sixteen was hailed king under the title of Sri Parakrama Bahu VI. The coronation seat, a raised dais composed of slabs of dressed granite, had long escaped the ravages of the villagers being covered with turf. But recently digging near the spot, a rustic accidently struck at the granite basement, and now the stones forming one side of the throne have been removed to a neighbouring temple garden where they are being utilised in the building of a new Vihare. If the proper authorities would wake up, there is still time to get the stones replaced *in situ* and preserve an interesting monument. The old tank, traditionally ascribed to Alakeswara, has so far escaped, being covered over with thick lantana, but this state of things cannot last very long, the stones, &c., will be removed and the place of the tank will know it no more. Both these monuments stand in the old Palace garden still known as the *Pas Mal Peya Watte*, the garden of the five storied palace.* Only one or two broken stumps of stone pillars mark the place of the stately pile where the mighty Parakrama held court. What Portuguese and Dutch invaders spared, the exigencies of the Public Works Department could not do without, and the few perfect stone columns that remained were carted away some years ago to build the bridge at Hendala ! ! !

Proceeding along the old royal street now disused, the Maligawatte is reached, the site of the three-storied Temple of the Sacred Tooth. Torn down by the fanaticism of Portugal and converted into a Romish Church, it was levelled to the ground, and if we are to credit Pridham, most of the materials removed to build the Dutch Church at Wolfendahl. At last the land came into the hands of the tribe of Genesserie, the Vandal. Not content with selling the pillars, carved capitals, pilasters and dressed slabs lying about, the massive foundations of the palace were attacked on one side and the firmly cemented granite rubble sold and carted away. In the course of these "excavations," the huge iron tripod or lamp on which the lights blazed at festivals was, I understand, unearthed, and other sundries, but where they are at present, the deponent not knowing, cannot say. For a short period operations were suspended, the property being encumbered; the land has however reverted and the work of destruction recommenced. It has entered on a new phase, and the digging has commenced on the hitherto untouched sites of the *Natha*, *Vishnu*, and *Saman Dewalas* which supported the Temple of the Tooth, and some beautifully carved granite capitals have been already thrown up. Their fate is not uncertain as the *Maligawatte* is the common quarry of the village. To set out one more instance of the kind, at the village of Pita Kotte, which constituted the outer city, stood the Dagoba and Temple where, according to tradition, before their coronation, the monarchs of Kotte used to ride on horse-back for the ceremony of cutting the Talipot tree, springing into life again like the golden bough of Virgil with the advent of each successive ruler; and the same spot, adds the legend, will see the palm spront again, when a prince of the Sinhalese should be born to wield the sceptre. The Temple had vanished centuries

* Vide *Selalihini Sandesa.*

ago with the other Buddhist buildings, and the *dagoba* which had remained intact, spared alike by conqueror, and by time, has recently been taken in hand by an enterprising villager, and the bricks in the dome are being daily abstracted to build a house which is rising in the neighbourhood. Now, only the basement is alone left of it and that too is fast disappearing. The peasant passing the spot by night, fancies he sees a white figure on a white steed holding his sword aloft, and imagines it the spirit of the unborn monarch, for the belief is general among the peasantry of the lowlands that a prince called Diyasena—as Barbarossa or Arthur—will appear at the supreme moment of his country's fortune, who will alike be national king and Messiah, proof against shot and shell, and that he will revive the glory of the ancient capital, build its walls anew, and that once again a Sinhalese Prince will ride in State to strike the sacred Talipot and be crowned king of a united Lanka. Such is the national dream that clings to the hoary ruin!

The steps leading down from the ancient moat, and many of the stones that paved it have been removed, and the stone lintels, nay the very slabs with which the public buildings had been paved, have been ruthlessly torn out and do duty as door-posts or stepping-stones in private houses. The mamotty of a villager now and again throws up a clay pipe, belonging to the system of underground pipes for supplying water to the city, and no sooner it is thrown up than it is broken. If effective steps are not taken to check this Vandalism, there will, in a short time, be nothing left from which, as I have said before, even to trace the ground plan of the old capital, much less to judge of the style of architecture or the way that the pipes had been laid.

The antiquities under notice being situate in quite a small area, if the Archæological Commissioner, whenever he comes up to Colombo, could arrange to spend an afternoon at Kotte, he would be able to take note of the more important ruins, make some provisions for their preservation, and even see to getting some of the stones, etc. replaced.

It is high time that the Asiatic Society took the initiative in the formation of a Committee for the preservation and restoration of ancient monuments. The presence in such a committee of Agents and Assistant Agents—many of whom take a warm interest in the subject—supported by select local members, would materially add to the strength of the movement, for it is only by such agency it is possible to check villagers from destroying ancient works in inhabited localities, as once they get some visible proof that the Crown is the custodian of the ruins they will be chary of tampering with them.

The passing of the "Antiquities Ordinance" is a step in the right direction, and it is a pity if it is to be emasculated in Committee. Seeing that the administration of the Ordinance wil, practically be in the hands of the minor headmen the question arises *quis custodiet ipsos custodes?* as that class is the greatest offenders in this respect.

My letter has spun itself out into an unconscionable length, but knowing as I do the antiquarian tendencies and the art-loving traditions of the *Observer*, I make no apology for claiming the hospitality of your columns.

ARISHTANEMI.

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MEDICAL SCIENCE IN CEYLON.

The 31st Session of the Ceylon Medical College was opened by Dr. Perry P.C.M.O., on the 4th October, 1900.

Dr. Vanderstraaten then read his paper. "A Brief sketch of the Medical History of Ceylon" which proved of special interest and was very clearly delivered. We give extracts to afford some idea of its scope:—

The Medical History of Ceylon embraces a period of 2,800 years but only a brief sketch will be attempted of the annals—Mythical, Historical, and Official—touching on the most salient and important points connected with the Sinhalese, Dutch, Portuguese, and British periods.

Although Ceylon has been subject to the "many ills flesh is heir to," yet we must thank a merciful Providence who has saved us from great epidemics of fever such as devastated Mauritius in the sixties and those dire afflictions which continue in India as plague and famine.

The reader will not be wearied with statistics. There is a mine of wealth in the archives of the Medical Office, which will repay exploration by any one seeking full information on the diseases endemic or peculiar to Ceylon, such as Parangi, Anchylostomiasis, Leprosy, Elephantiasis, Ceylon Soremouth (sprue), Beri-Beri, Burning of the feet, Malaria and its sequels, etc.

Although we are informed that a system of medicine was known to the Sinhalese more than a thousand years B.C., I will only count it as from 900 B.C., when the great text book, the "Ayur Veda," was compiled by Brahma, a Hindu. This is referred to by the Sinhalese Vedarales or native practitioners who study the commentaries on it called the *Sastrus Charaka* and *Susruta*.

The "Ayur Veda" consists of Hymns, Prayers, and Precepts, first preserved by oral tradition, in 100 lectures of 1,000 stanzas each called *Slokas*. These are committed to memory and some are recited aloud by the bedside of the sick by the Vedaralas.

Dr. West in his history of Medicine among the Asiatics says: It contains Anatomical knowledge obtained by dissection, prescriptions of drugs, mineral and vegetable; description of diseases and their treatment.

We can trace the study of Sanitary Science from the most ancient books, the Bible.

Our Saviour and the wise men of old, Moses, Solomon, Mohammed, Brahma and Buddha, inculcated all their sanitary edicts by means of proverbs, or religious dogmas which were binding on the people, being engrafted upon the religious ceremonies and performances. To this day the native practitioners, Sinhalese and Tamil, have recourse to charms, offerings and incantations, and devil ceremonies in propitiating demons or evil spirits, who inflict the various diseases.

There are many good experienced Vedaralas who practice native medicine on the lines laid down in their ancient book, Veda, but the majority are village quacks to whom the words of Job are applicable: "*But ye are forgers of lies, ye are all physicians of no value.*"

In the early part of the 3rd Century, B.C., Asoka was a great Buddhist Sovereign of India. He shewed great sagacity in inscribing new doctrines of love and benevolences on columns or pillars of stone, Sanitary edicts were also thus promulgated, priests were enjoined to educate children and relieve the sick, men as well as animals. Asoka taught the duty of reverence to parents, love to neighbours, charity, sound moral precepts, and enjoined the wealthy to erect refuges for the blind, destitute and crippled, and hospitals for men and cattle.

These doctrines were first reduced to writing on *olas*, dry palm leaves, in Ceylon. They also taught the sublime doctrine of total annihilation after death, called Nirvana, and of merit here which was to be the reward of all good works.

The Buddhist contractor of some Hospital wards in Colombo assured me that he only charged actual cost price in their contract in order to obtain this reward.

Asoka recognized the sanctity of human life, no living being, human or animal was to be destroyed. He provided wells and resting-places for travellers, and well-equipped hospitals were in charge of skilful Vedaralas or native doctors, they contained all the necessary drugs, mineral and vegetable. (I may say, *en passant*, the list of these drugs will be found in West's book quoted above. Balfour's Cyclopœdia of India, O'Shaughnessy's Dispensatory and Waring's Bazaar Medicine of India).

The Malabars or Tamils, who came from India, introduced a work called Vagadam written by Agasteur, *the Great* sage some thousand years B.C. There are in it mysterious poems which were first handed down by oral tradition, and subsequently inscribed on olas. They are said to be very little understood by the Tamil medical men of the present day, who were styled Vyittiyar or Paryari.

The Moorish Practitioners called *Hakim* use the "Vagudam," as well as Arabic authors.

According to the Mahawansa, an ancient historical work in Pali, many of the ancient monarchs of Ceylon practiced medicine and built several large hospitals, then called "medicine houses."

Budha Dasa, who reigned in A.D. 339, was the author of the celebrated Sirartha Saygrabaya in which he related many wonderful cures performed by him.

He built hospitals in every 10 villages, endowing them with 1/40th of the revenue from fields.

He had medical men for his troops, cattle, and elephants. He used to move about with surgical instruments in his waist.

King Ago, 782 A.D. and Dappula II, 795 A.D. built hospitals and asylums for blind and lame, gave paddy crops to cattle and rice, mixed with honey and sugar for use of children. He had a Medical College.

Parakrama Bahu, 1163 A.D., built largest hospital with an attendant, male or female, for each patient; divested of Royal robes he inspected his hospitals four times a month, correcting the treatment when necessary. He cured a crow of a tumor.

King Pandukabhaye, 437 B.C., employed 150 men to carry corpses to Cemetery, 100 Cemetery-keepers and Sextons, 200 night soil-men, day and night guards and an army of sweepers. (See Burrow's "Buried Cities,")

Portuguese 1505-1656.

From History by Juan Rebeyro, 1685.

Priests and Captains of the Army were in charge of Colombo, Kalutara, Negombo, Batticaloa, Trincomalee, Jaffna and Manaar. They attended to the sick, Surgeons were in charge of the Colombo hospitals. The Portuguese preserved health by adopting native habit of bathing twice daily.

Rebeyro describes Beri Beri, recommended pork, biscuits and toddy. He mentions "Parangi" and called it Neapolitan disease; the natives called it parangieleda or Portuguese sickness. Fever is briefly mentioned, the remedy being the ordinary

domestic infusion of spices, "Coangtru." He says the vedaralas used always simple "domestic remedies and were good bone settlers.

Small-pox prevailed as an epidemic, Families perished in great numbers. It was called "Deviyankaria," or affair with God. The Sinhalese desertep the affected villages. Dead were left unburied, cheetahs carried away living as well as the dead

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DUTCH PERIOD 1656-1795.

The Leper Asylum, the only monument has inscription on stone, A.D. 1708, and monogram of a Dutch Governor. Governor Van Imhoff 1740 recommended institution to his successor. Accommodation for 400 now.

No record of medical practice among the Army Surgeons. Dutch authors were Stahl, Boerhave and Hoffman. Dutch physicians were no doubt pupils of the above, and noted for knowledge of Botany. Flora of Ceylon described by Linnæus, but the Herbarium was collected by Herman and Hartog in 1671. First European writer on tropical disease was Bontius and Daalmans 1687. In 1739 Doctor Danielsz and apprentice were sent to Kandy to cure King Sri Vijaya Raj Sinha of an ulcer on his leg, In 1659 Knox and his son were captives of the King of Kandy for 20 years; father died, son escaped 1775. First surgical operation by Kandyan medical man, viz., amputation of leg by red hot knife was in 1775

BRITISH PERIOD FROM 1796.

Henry Marshall, Surgeon to the forces served 1808 to 1821. His "Medical Topography of Ceylon" and "Health of the Troops in the Kandyan Provinces from 1815 to 1820" are in the Colonial Medical Library. Troops: Europeans, Kaffirs. Malays, and Sepoys suffered terribly from malaria, with complication of abscess of liver and dysentery.

Africans or Kaffirs, of Mozambique and Indian Sepoys were in 2nd Ceylon Regiment also Lascars and Pioneers. Kaffirs suffered from consumption besides fever and pocky itch.

In 1812, 1813 and 1814 Famine prevailed; Troops also suffered from want of rice at Minnery; 53 men of 19th Regiment got fever, 33 died, of 33 Artillery men 11 died; the convalescents were unfit for duty,

In 1820 there were 32 Military stations, Cordiner relates that 13 miles from Kurunegala, of 70 men of 65th Regiment, one officer and only two men remained after fever.

Small-pox frequently prevailed as an epedemic among natives. Lymph was first introduced from Bombay on threads, and Vaccination was commenced by Army Surgeons in 1802. Mr. Percival, an officer of the 19th Regiment, suggested compulsory Vaccination in 1803, but it was not made legal until 1863, when Sir C. J. MaCarthy was Governor. Dr. Kinnis. Army Surgeon, wrote letters on Small-pox to natives. It is in book form, and was circulated in the Medical Department.

In 1812 the first Botanic Garden was opened in Colombo, and afterwards transferred to Kalutara, being finally established in Paradeniya in 1821. Moon, first Superintendent, published a valuable catalogue now in Library.

In 1817, a great act of humanity was performed in the release of the slaves in the domestic service of Dutch families. It was in consequence of a Petition to the British Government signed by a large number of residents. The writer may be excused for saying that he feels proud to know that the first signatory was his grandfather who died as Registrar of the Supreme Court, and was accorded a State funeral in 1845.

The following notes are in chronological order and as brief as possible;—

1835.—First Medical class established in Military Hospital by Dr. Kevett, Army Surgeon. First pupils were F. W. Ferdinands, P. H. VanCuylenberg, M. B. Misso, Trask, Cleveland, Ebert and E. F. Kelaart. Latter graduated in Europe, became Army Surgeon, serving for years in Ceylon, was first Ceylonese to obtain a British qualification, and was author of the "Prodromus Faunæ Zeylanica."

1839.—First suggestion of the Lunatic Asylum by Governor Sir Steuart Mackenzie. The old Small Pox Hospital, Borella, was converted into a Lunatic Asylum, and used till 1879, when the palatial one at Jawatta was built. Opened in 1847. Dr. Davy was appointed and resigned in 1849. Since then the following officers of C.M.D. had charge:—Ebert, Wambeck, Krickenbeek, VanDort, Vanderstraaten (the writer). Dr. Plaxton came from England in 1878 and resigned in 1886. Dr. Keith acted till Dr. Spence arrived in 1887. Dr. Oorloff acted when the latter was on long leave.

1843.—The following graduates of the Bengal Medical College who were sent to Calcutta by Government returned and entered the Medical Department, viz., Drs. Anthonisz, Loos, Dickman, Kriekenbeek, On, daatjie, Andree, Wambeek. Drs. Markus, Margenout, and Bruchman came afterwards.

1843.—Colonial Medical Library started.

1847.—Dr. J. B. Misso appointed Portuguese Consul.

1848.—Ice imported; and Ice machines first introduced 1863.

1845 to 1878.—Fearful epidemics of cholera in the Northern Province. In 44 years, 1841 to 1885, cholera caused 73,400 deaths.

1857.—Select Committee of Legislative Council separating Civil and Military Medical Departments.

1858.—Dr. Elliott first P.C.M.O. died in 1859, Dr. Charsley succeeded. Elliott thought of Medical School then.

1864.—Outbreak of fever in Colombo due to low margins of Colombo Lake during drought.

1865.—Mahara Railway accident: 36 natives and one European killed by collision of ballast train with trolley.

1866.—Municipalities established in Colombo, Kandy and Galle.

1867.—Depopulation of Vanni. Enquiry by Sir R. Robinson entrusted to Dr. Loos.

1867.—Cholera Commission sent to Jaffna, and again in 1877.

1869.—Demolishing of Fort walls and filling up years after of fort ditch. New Hospitals built in many Stations. Palatial barracks for troops and new hospital built on Galle Face.

1870.—Medical School opened; raised to College 1889.

1872.—Welikada Commission into sanitary condition of that prison.

1873.—The Estate Coolies' Medical Wants Bill was introduced—since amended.

1877 Seaside line to Moratuwa opened; due to constant agitation, and to whom is also due the extension to Matara by Dr. Anthonisz.

1877.—Dr. Koch, Principal of Medical School, and Dr. J. C. Evarts died of a dissecting wound.

1880.—Clock Tower erected to memory of the late Dr. Koch.

1880.—Two wards built in Colombo Hospital and Clock Tower erected in Galle in honor of Dr. P. D. Anthonisz, who got his C.M.G., and was for 5 years M.L.C. afterwards.

1880.—Polytechnic Exhibition by Dr. Vanderstraaten at the Medical College, Dr. Loos, acting P.C.M.O. Bearer Co. C.V. organized by Dr. Vanderstraaten who retired as Surgeon-Major, 1899.

1884.—Paulusz Hall built at Medical College in memory of R. C. Paulusz, L.C.M.C.

1884.—Silver Casket presented to Sir W. Gregory by Medical Department.

1887.—Parangi Hospital, Sir A. Gordon's, at Metugama W. P., and Balangoda Sab. P.

Ceylon Branch B.M.A., Dr. Anthonisz, President,

1892.—Lady students and doctor appointed.

1895.—Malarial fever Galle and Matara Railway line.

1895.—Foundation of Havelock Hospital by Sir A. Havelock and in

1896.—Opened by Lady Havelock.

1897.—Sir W. Kynsey, Kt., retired. Banquet by Department.

1898.—Dr. Perry assumed duties as P.C.M.O.

CEYLONESE ABROAD.

P. Ohlmus, J. Margenout, G. Andriezen, A. Joseph, J. Garvin, O. Morgan, A. Austin, F. RoosemaleCocq, C. Meerwald, Vanderwert, Ferdinands. *Surgeons in Britain.* W. Fretz, G. Perez, F. Keyt, V. Koch and J. Gabriel. *West Indies*: Surgeon-Col. A. Anthonisz, Cape; C. Loos, Natal; J. Keith temporarily S. Africa; C. Beling, Licensed Practitioner of New York; Surgeon-Col. Bartholomeuz, Surgeon-Major Van-Geyzel, and Surgeon-Lieut. Weinman, Indian Army; M. Wright, Perak; and Sidney Gomes, Borneo; Hugh Keith, Fiji; H. Garvin, W. Australia; C. McIntyre, Handy, Francis and Keegel, also several Medical Assistants at Singapore and Perak.

DIED ABROAD.

Dr. J. Vanderstraaten, St. Helena, fall from a horse; Dr. Evered Schrader, Congo, fever; L. Joseph, Newfoundland; W. Kelaart, Demerara; Surgeon-Major W. Morgan, at sea; Dr. H. Prins, at Christchurch, New Zealand; Dr. James Anthonisz, at sea.

PROGRESS OF MEDICINE IN CEYLON.

From Earliest Times, 900 B.C., to date.

By J. L. VANDERSTRAATEN, Retired Colonial Surgeon, W.P., and Principal Ceylon Medical College.

1900.

SINHALESE SYSTEM OF MEDICINE.—In the early par of the third century B.C. Asoka was the great Buddhist Sovereign of India. He propagated the new doctrines of Buddha by erecting columns or pillars on which were engraved those memorials or edicts, which he was desirous of making generally known; these inscriptions are remarkable monuments of the sagacity and benevolence of that great sovereign, who erected viharas, monasteries, and hospitals thus giving effect to whatever there is of beneficence in Buddhism. From an early period, the priests charged themselves with the duty of educating children and relieving the sick. It is in Ceylon that the Buddist doctrines were first reduced to writing. Theso doctrines recommended the prosperous and wealthy to found refuges for the blind, the destitute, the cripple, the sick and wounded both of man and beast. This was taught to be the surest method of attaining to the highest degree of perfection and holiness on earth by means of which the future reward of the Buddhist faith might be attained viz. "Nirvana, or an easy departure and utter annihilation." These motives actuate some of the Buddhists to this day and I have learned from reliable authority that the Buddhist contractor of the Planters' and Anthonisz' Wards has actually built these hospitals simply at the cost price of the materials in the hope of obtaining merits here, and Nirvana hereafter. King Asoka also recognized the sanctity which attaches to human life, and directed that the life of no living being was to be taken; and that wells were to be dug, trees planted, and "caravansaries" erected in public highways for travellers. The medical houses, or hospitals. of that period, were to be provided with all sorts of instruments and medicines consisting of mineral and vegetable drugs, and food; and skilful physicians were appointed to administer them at the expense of the State. Those physicians, or "vedaralas," who had gained a knowledge of Sanskrit committed to memory stanzas and recited them by the bedside of the patient. These stanzas were from the "Ayur-veda,"a religious treatise on the science of life and medicine. There are no doubt several very intelligent and trustworthy vedaralas who are Sanskrit scholars and study manuscripts on talipot "olas," or leaves, but there are also a larger number of ignorant impostors in the villages, to whom the words of Job are applicable, "But ye are forgers of lies; ye are all physicians of no value." The TAMIL books of medicine derived for the same source are published in the Tamil and other Dravidian languages. The Tamil practitioners are styled Vrana Vydian and Parikari. The Moors or Mohamedans of Ceylon have their own native practitioners, who blend the Arabic with the Hindu systems of medicine. The recognized physician is called "Hakim." There were many kings of Ceylon who built hospitals and practised medicine themselves, and by their noble example made it an honorable profession. According to the "Mahawansa," Buddha Dasa, who reigned 29 years, from A. D. 339, was the author of a medical work called the "Sarrtha Sangraha." Many wonderful cures are attributed to him. He built hospitals for every ten villages, and placed medical men in charge of them. They were to receive 1-40th of the revenue derived from fields for their maintenance. He also appointed medical men to attend on his infantry, and veterinary surgeons to attend on cattle and elephants. Along the roads he built halls for the lame and blind. It is said that, "when he went out of the palace" his surgical instruments were always in his waist, and he operated upon all sick persons whom he met." King Agho, who reigned six years from A.D. 782, caused medicines to be distributed among the sick; and Dappula II, who commenced his reign in A. D 795, is most highly spoken of in this respect, in the following words:—"That most gracious Prince built a hospital at Polonnaruwa. He also in like manner built a hospital at Pandaviya and endowed it with villages which yielded the necessaries of life. He also built in several places halls for the cripples and the blind. In short, he did not leave anything undone which was called meritorious; he even gave growing paddy crops to cattle; and rice mixed with honey and sugar to children."

PORTUGUESR PERIOD.—In the history written by a Portuguese author, Juan Ribeyro in 1685, there is only a very brief description given of the diseases which prevailed in Ceylon at that period, and I can find no allusion to the methods of treatment adopted by medical men of his own nation. The Portuguese priests, and captains of companies appear to have been in medical charge of the garrisons of Colombo, Kalutara, Negombo, Batticaloa, Trincomalee. Jaffna and Mannar. Ribeyro states that most of the Portuguese on their first arrival were subject to bowel complaints, fevers and other diseases to which the natives are not liable. He thought that the Sinhalese retained their health by frequent baths, and states that when he first came out to Ceylon he had two illnesses in the first two years. He then adopted the native habit of bathing twice daily, and during the sixteen subsequent years he lived here, he never became ill. Frequent bathing is acknowledged to be one of the best means of preserving health, and is practised by the natives to this day; but it is in strange contradiction to the experience of an old Colonist of 70 years, an Italian, now dead, who attributed his immunity from disease to his never bathing! Ribeyro describes "beri-beri,," as a disease to which Europeans were very liable. He recommended as the best remedy pork and biscuit, with palm wine (toddy?) and smoking, to be persevered in for three months. As a prophylactic against this disease the Captain General, Antoniode Mascarembo, issued an order for everyone in the camp to smoke. Ribeyro states, what we can bear testimony to even now, that no people understand the use of simples better than the Sinhalese, so that with a few herbs or roots, they cure wounds, ulcers, and swellings, but it is extravagantly stated that "they set broken arms and fractured legs and put those matters to right in a very few days." He also noted the good effects of herbs as antidotes against the bites of snakes and venemous insects. We must admit that many "vedaralas" are good bone-setters although they have no proper appliances for preventing shortening of broken limbs. Their method of stuffing a wound and keeping it dilated, when it is connected with a compound fracture (although aromatic, antiseptic and astringent herbs are used to check bleeding and prevent putrefaction,) cannot be approved except as a temporary measure until proper surgical aid is obtained. The historian must have been deluded when he was induced to believe that cancers which are considered

incurable in Europe, were cured in a week in Ceylon. Ribeyro also alludes to the prevalence of smallpox which the natives called "ankaria," or an affair with God, because it appears as if only a miracle can cure it. Ribeyro speaks of the habit of betel chewing among the natives Portuguese and Dutch, and thinks it a wholesome practice which purifies the breath, strengthens the gums and cleanses the bowels. The Sinhalese at that time attributed their long and healthy lives to its use, and he confirms it by saying that men and women are seen in Ceylon who have not lost a single tooth. We unfortunately know that the practice of betel chewing has another side to the picture, it produces "betel-chewer's cancer."

Dutch Period.—The Leper Asylum at Hendala is perhaps the only monument of the medical history of Ceylon during the Dutch period which is left to us. There is no authentic record of its foundation beyond an inscription on a stone, "Anno 1708," and a monogram, scarcely decipherable, indicative perhaps of date of building and of the original owner of the property on which the institution stands. It is generally believed, on traditional authority that it owes its origin* to a philanthropic Dutch lady daughter of a Dutch Governor who unfortunately was herself a leper, and at her death left the property to the Governments, in trust for the pauper lepers of the Colony. In a memorandum made by Governor Van Imhoff in 1740 he commends this institution to the care of his successor.* Although frequent search was made among the archives of the Government Record office for documents, or information relating to the transfer, none has been discovered as to how the Government became possessed of a property 16 acres in extent and occupying one of the most beautiful sites in the neighbourhood of Colombo at the month of the Kelani river, admirably adapted, from its situation, isolation, and distance from town, for the segregation and treatment of lepers. This hospital is certainly the first in the Colony founded by private benevolence, since paralleled by the foundation of other charitable institutions, especially by the De Soyza family.

There is no certain information available with regard to the state of medical practice in this island during the Dutch period extending from 1656 to 1795. It is reasonable to suppose that there were Army Surgeons among the Dutch, as under the British, and that some of these were probably regularly qualified men from the Colleges of Amsterdam, Utrecht, and Leyden,—with the latter of which the name of the great Boerhaave, will ever be connected. It is also interesting to note that the first European writer on tropical diseases was a Dutchman named Bontius. There are no records extant to show that any effort was made by the Dutch to teach the science of medicine systematically to the natives but it appears that the Kings of Kandy often requested through the Government, the medical aid of Dutch doctors, which the Dutch Governor of Colombo complied with. The mission of Dr. Danielsz and his apprentice to the court of Kandy in 1739, to cure the King Raja Singha of a bad leg, as recounted in his journal, is replete with interest. The late Dr. Koch, in his introductory lecture delivered at the opening of the session of the medical School in 1872, thus recounts the particulars of that memorable visit: "Dr. Danielsz went, accompanied by his apprentice, but all he could see of his Royal patient was the ailing limb. Under such circumstances it was impossible he could adopt any other course of treatment but what consisted of outward dressings. These he tried without any satisfactory results, and alarmed at the consequences of failure, he insisted on his Majesty taking a course of tonics. The decoction was prepared, but the King found it so bitter that he emptied the cup into the royal spittoon, suggesting that the Doctor should employ the more agreeable article of arrack for the conveying of the nauseous potion. Dr. Danielsz hereupon brewed two bottles of bitters, but he prescribed so small a dose of it at a time, (he calls it a small beer-glassful), that His Majesty demanded either a double-dose or to be allowed extra liquor over the bitters. After a good deal of resistance the Doctor was at last compelled to yield, and as he said, he himself was in the habit of taking a "schnap" before meals, his patient also might, but positively not beyond the third day. In the meantime the leg was not improving, and the regimen was becoming intolerable, and so Dr. Danielsz was bid prepare to leave Kandy; and if he could not congratulate himself on his professional success, we may yet suppose he was glad enough to escape the attentions of his patient, which now began to assume a form slightly more imperative than was altogether pleasant, and so Dr. Danielsz and his apprentice returned to Colombo, and continued, no doubt, to adorn the profession till the natural close of his not uneventful life."

British Period.—Mr. Henry Marshall, Surgeon to the Forces, who served here from 1808 to 1821 has given us a valuable work on the "Medical Topography of Ceylon, and on the health of the troops employed in the Kandyan Provinces from 1815 to 1820, with brief remarks on the prevailing diseases." From this work I have gathered some interesting passages. The troops employed during the early British occupation consisted of Europeans, Kaffirs, Malays, and Natives of India. Marshall says that the individuals of each class preserved a strong physical and moral resemblance, using the same food, having similar wants, undergoing the same labor, and suffering the same privations. Each class had particular prevailing diseases according to the effect of the climate, exposure to malarious influence and variations in their food supply. The Europeans suffered from the endemic intermittent and remittent fevers, abscess of the liver, and dysentery, but they were greatly exempted from many diseases to which they are liable in their own country. It was deplorable, says Bertalocci, to see the numerous children of the Ceylonese families reduced and emaciated for want of food, and depending upon parents who were in no way able to provide for their large families. No substitute could be found for the staple article of diet for the native troops, and consequently privation and exposure led to much suffering. At Minery, between Kandy and Trincomalee, 53 men of the 19th Regiment were attacked with fever 33 died and 20 recovered, but several of them had their constitutions much impaired Of 33 artillerymen, 11 died. In December 1820 there were 32 military stations in the interior, the chief posts being Kandy, Badulla, Allipoot (15 miles east of Badulla), Ratnapura, Fort King (Attapitiya) and Kurunegala, all of which were hospital-stations. The Rev Mr Cordiner records that a small outpost in 1803, Kottadeniya (13 miles from Kurunegala), was so unhealthy, that of 70 men of the 65th Regiment who marched to it, every one was seized with fever, and within a month Lieutenant Hutchings and two privates were the only persons of the party who remained alive.

The number vaccinated between 1802 and 1812 was 221,082 and it is stated that the efforts of the British Government, to eradicate small-pox by means of vaccination, were so successful that for eleven years the disease did not occur in Ceylon. The lowcountry Sinhalese when they found by experience the protective benefits of vaccination crowded in the British settlements to derive its benefits, but the Kandians, or natives of the hillcountry, who had been at enmity with the Portuguese, Dutch and British still kept aloof from communication with the maritime districts; but, though they did not, nor would not, derive the direct benefits of vaccination they were free from the disease when it had been eradicated by the prophlactic in the lowcountry. They used to drive their small-pox patient into the jungles of the lowcountry.

The administration of the Rt. Hon. Stewart Mackenzie, and the year 1839, was marked in Medical Annals, by the first mention in His Excellency's speech to Council of a Medical School for Ceylon, and of certain measures to be adopted by Government which

afterwards contributed in a very great measure to the efficiency of the Civil Medical Department.

Dr. Kevett, in 1835, was the first who attempted to organize a Medical class. His pupils were the late Mr. Ferdinands of Kandy, E F Kelaart, P H Van-Cuylenburg, M B Misso, Trask, Cleveland, and Ebert of our service. Of this number, Kelaart having obtained the opportunity of a free passage to England as Surgeon's Assistant, accompanied the 78th Highlanders, and returned with a commission as Staff Assistant Surgeon, in 1840. Dr. Kelaart may, therefore be considered as the first Ceylonese who acquired a British medical degree, and his career as a physician and naturalist, was distinguished. His work (contributions to the Zoology of Ceylon) is a monument of his talent and industry.

In 1857 a Select Committee was appointed by the Legislative council to report upon the fixed establishments of the Colony and one of the recommendations made was that the Civil Medical Department should be separated from the Military Medical Department and placed under the control of a Civil Medical Officer, as the existing Civil Department was insufficient for the requirements of the island, and the Military heads of the Department were shifted too often for opportunities to acquire local experience.

A Civil Medical Establishment was proposed, consisting, of a Principal Civil Medical Officer, two Colonial Surgeons, eight Assistant Colonial Surgeons, and twenty-eight Medical Assistants, all with salaries adapted to secure efficiency and ability. Dr Elliott eminent in Ceylon as a public man and well-known for his ability and philanthrophy, was in England when the report was published and he lost no time in applying to the Secretary of State for the Colonies for the new office of Principal Civil Medical Officer, and Mr Labouchere recognized in him the individual suited for the appointment. Although best known as the editor of the leading newspaper in the Island the *Ceylon Observer*, Dr Elliott was known far and wide for his medical skill and was resorted to by rich and poor in their hours of difficulty and trial.

The year 1870 marked a new epoch in the medical history of Ceylon. To Sir Hercules Robinson belongs the credit of sanctioning the inauguration of the Medical School which was raised to the dignity of "College" in 1880, when the late Sir John Douglas K. C. M. G., was Lieutenant-Governor.

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES."

[Under this heading, in future, we mean to give a four or eight page "Supplement" with our *Tropical Agriculturist*, from quarter to quarter, according as there is matter of sufficient value so to be preserved.]

MARCH, 1901.

EARLY SINHALESE LITERATURE.

"ENCYCLOPEDIA OF INDO-ARYAN RESEARCH."

We have been favoured with a copy of Part 10, Vol. 1., of this learned German publication, containing an article on the Literature and Language of the Sinhalese by Wm. Geiger. The introduction is worth translating from the German and quoting, as showing who are our chief learned writers of note :—"The first and last great effort to describe Sinhalese Literature connectedly was undertaken by J. d'Alwis (Grammar of the Sinhalese Language translated . . . Colombo, 1852.) Of publications before that there need only be mentioned Spence Hardy's 'The Language and Literature of the Sinhalese' ; also his 'List of Books in the Pali and Sinhalese Languages' Mr. d'Alwis's work, very valuable for that time, is now in many respects antiquated. Even now we are far from being able to give a complete account of the Literature. I can therefore give little more than a list of titles and authors. And even this I could not have done but for the assistance in Ceylon itself of the Mudaliyar Simon de Silva and, after my return, of my indefatigable friend, the Mudaliyar A. Mendis Gunesekara, who, in numerous letters, was ever willing to answer my inquiries. Also, of value to me was Louis de Zoysa's 'Catalogue of Pali, Sinhalese and Sanskrit Manuscripts in the Temple Libraries of Ceylon, Colombo, 1885.' I would also mention a small work in Sinhalese by Rhys Davids, 'Handbook of the Yogâvacara.'"—The author, Mr. Geiger, describes his work very modestly, but really we find nearly 100 quarto pages devoted to the literature, inscriptions and grammar of Ceylon, which must be most interesting to those who have any previous knowledge of the subject. A translation of the whole might be worthy of embodiment in the records of our local Royal Asiatic Society.

PROF. W. GEIGER ON THE LITERATURE AND LANGUAGE OF THE SINHALESE.

On previous occasions we noticed in our columns works by Dr. Wilhelm Geiger, one on his visit to Ceylon, and two others on the dialect of the Rodiyas and on Sinhalese etymology. Now, as further fruit of his mission to our island in 1895-96 we are glad to welcome from the pen of the learned Erlangen professor another valuable work, viz., *Litteratur und Sprache der Singhalesen.* This forms part 10 of vol i. of the *Grundriss der Indo-Arischen Philologie und Altertumskunde* founded by the late lamented Prof. Buhler and continued by Prof. F. Kielhorn with the co-operation of a number of eminent scholars. Dr. Geiger's book consists of nearly 100 pages, in the first 25 of which he treats of the Sinhalese inscriptions and literature in an exceedingly interesting and able manner; though, unfortunately, in dealing with the former he has been hampered by the paucity of material, and for the latter has had to depend largely on the late James Alwis's valuable but not quite reliable Introduction to his translation of the *Sidat Sañgarā.* Mr D. M. de Z. Wickremasinghe's admirable *Catalogue of Sinhalese Manuscripts of the British Museum* (noticed by us recently) reached Dr. Geiger too late (as he mentions at the end of his book) to be utilised by him: otherwise some errors with regard to authorship of works and dates of authors would not have appeared here. In the second part the author deals with the grammar of the Sinhalese language in a masterly fashion, the portion treating of phonology being especially valuable. In the third and final chapter Prof. Geiger shows what is the linguistic character of Sinhalese, the conclusions he arrives at being as follows:—"1. That Sinhalese is an Aryan language. —2. Historical relations declare that the

first Aryan colonists came from the north-west of India.—3. Linguistic grounds also prove that Sinhalese has a prākrit dialect of north-west India as an antecedent : (*a*) Sinhalese is closely allied to Pali. (*b*) It does not however go back to the Pali of the Buddhist books, but to a popular dialect closely connected therewith. (*c*) Sinhalese is allied to the Māhārāstrī prākrit, even more closely than to Pali. (*d*) Its basis however shows itself in many points more ancient than Māhārāstrī. (*e*) Moreover the comparison with the modern Indo-Aryan popular languages indicates for Sinhalese its place in the western group of dialects, and exhibits Sindhī Gujaratī and especially Marāthi as the most nearly allied languages." An English translation of this valuable work would be welcomed by scholars in Ceylon. We are glad to notice that Prof. Geiger promises us two further works, —one on the Maldive language and the other on the Veddah dialect. We shall await these with much interest.

TROUT FISHING IN CEYLON.

An early morning start and an hour's ride in the train, through some of the most beautiful scenery in the world, brought us to Ohiya station. From there the path leads one through jungle for the first two miles, an ascent of about two thousand feet to the Horton Plains. Another half hour and we catch first sight of the stream, for here it cannot be called more, bounded in as it is by high grass and ferns, and in places unfishable where the rhododendrons overhang. They are in flower just now, a lovely crimson, but although lovely to look at, from a fisherman's point of view they are the curse of the place. Get your cast fairly fixed in one, then you realise for the first time how tough a rhododendron leaf can be. Half an hour's smoke on the bank while your faithful coolie is undoing the tangle is about the only remedy. We are soon at work however, and about one hundred yards lower down I see my friend V—— has hooked the first fish of the day. It has given him excellent sport, but has to be returned to the water, being just under eleven inches, which is the regulation size. We rise several more in this top water, but they are insecurely hooked owing to the difficulty in striking. Rhododendrons again ! As we get lower down the water becomes more open, and we each get a nice fish of about one pound.

After two hour's fishing we meet and have a look at our respective catches. V—— has got three, from one pound to one and three quarters, and has returned as many more, while I also have three averaging one and a half pound, and have returned one. Things are looking well for us and we look forward with the keenness of the fisherman to the rest of the day. The water is as clear as gin, the sky a most lovely blue with occasional fleecy clouds blown across from the north-east, and the air has a freshness that recalls Scotland. We are only a few degrees north of the Equator, but our elevation is 7,200 feet above the sea, and that accounts for it.

While we are having our rest and sandwiches we take a look round at the scenery. The plains stretch away to right and left, dotted all over with rhododendrons ; this is the only tree that grows in this black Patna soil. Yet here flowers grow in profusion, orchids, ground orchids, and most lovely of all, gentian of the deepest royal blue and golden centre. Here also grows a bamboo, the smallest in the world. It only reaches a height of from one to two feet. There are many more specimens of plant life of interest to those of a more botanical bent. The waving grass of the Patna gives place to stretches of thick jungle.

Our meal over, we set to work again. The next mile of water is, perhaps, the best bit on the river. V—— starts at the Black Bridge, while I go down lower. He begins at once and soon has a nice trout of three quarters of a pound on the bank. Two or three casts later, in almost the same place, a rise and a rush sees him into another. This time a big fish from the way in which he sails slowly up and down the pool, pulling hard, but never showing himself. He begins to feel the strain, however, and is being slowly drawn to the bank, carefully netted and grassed—a perfect beauty in splendid condition, turning the scale at two pounds ten ounces. While V—— has been doing so well I have not been idle, one of two pounds and one of one and three quarters, the latter has given splendid sport, repeated rushes, and at the end of each leaps in the air two feet out of water. He reminds one more of a sea trout than a brown, but out here the smaller fish generally give the better sport. Large fish, as a rule, content themselves with a feeble rush or two or sulking at the bottom, and are soon beguiled into the net. There are exceptions, however, as not unfrequently a trout more wary than the rest succeeds in making good his escape by twining your cast round some sunken root or snag. From this all your gentle persuasion fails to dislodge him and results in loss of cast and fly.

We are now at the Red Bridge, below the Rest House, and here the river which has gradually been gathering in size, begins to assume a different aspect. A long, deep stretch, terminating in a series of water-falls and rocky pools brings us to Chimney and Atherton's Pool, a huge piece of water nearly half a mile long and in places one hundred yards across. That the smaller stream two miles above should have reached such large dimensions here, seems incredible, there being no tributaries, but such is the case. This piece of lake-like water teems with good fish, but they are very hard to move and after having fished it carefully, we have to confess to neither of us having had a rise. Another small waterfall takes us to the Round Pool; this also contains big fish, one having been seen sporting himself of between seven and eight pounds. I rise and hook a fish here, which after an exciting time, owing to the weeds being so thick, I manage to creel : a pretty trout of just one pound. The river here takes a turn at right angles, and for the next mile or so we have a fine stretch of water consisting of long deep pools and still runs. Yet for some reason or another we fail to make any addition to our catch ; the few we do rise coming short, and in a half-hearted way that is most annoying.

We decide to wait and see what the evening may do for us. The sun is getting low and nearly off the water, the hills here rising somewhat abruptly. We are resting beside a big pool, and have not long to wait before we see a rise, and another, and then another, and soon it becomes general. But they are too far out for our light ten-foot rods, and appear to be small, so we leave them to their enjoyment and come to an ideal piece of water, a steep bank covered with ferns and bushes on the far side. First cast V—— has hooked his fish at the top of the run and tries to keep him out of the pool, but he is too lusty, and makes the reel scream as he dashes away taking out some twenty yards of line. From his fighting powers he must be a heavy fish ; but no, he has shown himself, and will not be more than one and half pound. He is not tired yet, however, and takes one or two leaps, and a few more rushes which get shorter and shorter and he is safely landed nearly two pounds, a real fighter, the capture of which lingers long in the memory. Meanwhile, I have been fishing over a rapid rush of water with a stony and rock-strewn bed, whence out rush two fishes at my fly. I strike some-

what wildly at this unexpected assault and find that I have hooked one of them. The other hesitates a second or two in bewilderment, and then on seeing the antics of its companion goes out of sight at its best speed. I land my fish after some excellent fun in the heavy waters, and find it to weigh one and a quarter pound. As it is now getting dark and we are about two miles from the Rest House, we hand out rods over to our coolies and set out. On our arrival, fairly tired and contented with the day's fun we count our catch and find that V—— has acconnted for six, weighing nine pounds six ounces, and I for seven weighing ten pounds four ounces.

I awoke V—— in the morning, and we start off. To reach the water we intend fishing this morning we have to walk three miles down stream to below "Baker's Falls." This water is open for the first time this year, having been stocked with fry three years before, so we expect great things and know all fish caught will be above the average size. In Tiger Pool I hook my first and have him safely landed before V—— even had as much as a rise. Luck seems to have deserted him this morning for he fishes steadily without result for nearly an hour, during which time I have landed another weighing three pounds ten ounces, and measuring twenty inches in length. This proves eventually to be the best fish of the outing. V—— owned afterwards to having had a fair number of rises, but had missed striking at the right moment; but the story of one fish he did get might be told. He raised him at the tail of a pool in shallowish water. He appeared to be hooked all right, but to our dismay, for I had just come up, the hook came back and the fish remained where he was. I shall never forget V——'s face as I saw him staring up at his fly. He cast again almost immediately, and re-hooked his fish with the same result. I won't attempt to repeat his language after this fresh misfortune, but think it best to clear out as he looks at me as if I were responsible. As we came back a couple of hours later to breakfast at the Rest House before going to the train we repass the same pool; V—— insists on casting again. Strange as it may seem the same fish rose again, and this time after a good fight was safely landed. He bore the marks in his mouths where he had been previously hooked. There is some satisfaction in catching a fish of this sort. As time is now short we make for the Rest House and find our morning catch to be five in all, none under two pounds. My luck stopped after catching my big fish so that my contribution is two, while V—— secure the remaining three. A fair morning's sport on the whole.

On our way to the station we have a look at the Stew Ponds which are some little way from the stream. The top pond contains brown trout and the lower rainbow. They appear to be thriving well and there are some little fellows already five inches long. Our streams have to be stocked annually with fry in this way, the ova being got out from home. Unfortunately our trout have not been known to breed as yet naturally, they are probably not acclimatised. Experiments are to be made this year, however, and let us hope with good results. We have to tear ourselves away and have a tremendous rush to the station.

G. G. Ross Clarke.

—Land and Water, Nov. 17.

CEYLON AND TEA IN 1819.

From a copy sent us of *The Morning Post*, Monday, January 4th, 1819, we quote as follows:—

The London Tea Company, 83, Newgate-street, respectfully inform the public that the East India Company's sale has just closed; and they are happy to add that they have supplied themselves with a large assortment of the finest and strongest-flavoured TEAS, selected with more than ordinary care, and, they flatter themselves, with their usual discrimination. They now, therefore, with the utmost degree of confidence, offer them to the public, on the same moderate terms for which the business of their house has always been distinguished, satisfied that a single trial will convince the most sceptical that they cannot be supplied with tea so good, at their respective prices, by any other house in the trade, old or new. Orders, with remittances, instantly attended to, and forwarded to every part of the United Kingdom.

CAUTION TO TEA-DEALERS.

A case of an important nature to the public, and to all tea-dealers in general, was investigated last week at the Hatton-garden Police Office. It was an information brought by the Excise against a grocer in Somers Town, for exposing for sale a quantity of imitation tea. The case, which was heard before Mr Sergeant Sellon and another Magistrate, occupied the attention of the Court for three hours. Mr Bolland appeared as Counsel for the Excise, and Mr Adolphus for the defendant. After the examination of a number of witnesses, it turned out that the parties who gave the information to the Excise had employed a person to go from the shop of one grocer to another where, under pretence of transacting business, parcels of imitation tea were deposited. It further appeared, that a fellow named Bachelor was employed by the informers to prepare the imitation tea! These facts being fully established, the information was of course quashed, and we understand that it is the intention of the defendant in this infamous case to prosecute the informing parties for a conspiracy.

CEYLON.

(FROM THE CEYLON "GAZETTE" OF AUGUST 8.)

Yesterday evening on the Parade in Slave Island a very handsome pair of colours was presented by Lady Brownrigg to the Native Militia lately raised for service in the Interior. The following spirited address was given by her Ladyship in writing to Don Alvis Mudaliyar of the Governor's Gate, who interpreted it in Sinhalese to the troops:—

"In presenting this standard to the Militia of Ceylon, I have great pleasure in expressing how much gratified I have been by the favourable reports of your attention to the necessary exercise to enable you to take the field with effect.

"Every well-disposed man, who wishes for the happiness of his country and the safety of his family, must feel anxious to rally round this standard, and while their Governor is devoting every moment and thought of his life to put down the rebellion, and unite this island under one government, the caste of fighting men will all step forward, and show the utmost diligence and zeal to support his measures and obtain the grand object of his unceasing endeavours—that of restoring peace and prosperity to Ceylon.

"I present this standard to you with every wish for your health and success, never doubting that the motto, which I have chosen, will be your guide during your service."

The motto to which her Ladyship alluded was "Duty and Honour," embroidered on the colours; Captain De Bussche received the colours from Lady Brownrigg, and presented them to the Muhandiram of the 1st company, who spoke in Sinhalese the following reply to her Ladyship's address:—

"We are always ready to serve the King of England, and particularly under a Governor who has been always so kind to us. If the Kandyans knew how good the Governor was, they would not make war upon him, but we are willing to serve him with our lives against them. We beg to offer our best and humble thanks to her Ladyship and his Excellency for these very beautiful colours."

The Commandant and all the Officers of the Garrison, with most of the Civilians, were upon the ground, and almost all the ladies of Colombo graced the ceremony with their presence.

It is several months since a corps of 100 Natives were embodied, trained, and sent into the interior; Lieutenant-Colonel Cother, Lieutenant Colonel Hook, and some other officers, spoke so favourably of their behaviour, that His Excellency the Governor was induced to order a similar levy upon a more extensive scale. Six native officers, muhandirams, 22 sergeants, aratjes; 38 corporals, canganis; 545 privates, ascoryns, have been in training for fourteen days, and their progress has been so rapid, that two muhandirams eight aratjes, fourteen canganis, and 200 lascoryns marched this morning for the interior.

The whole of this corps consists of volunteers raised with great expedition by Deane, whose official duties as Collector of Colombo have been much increased by the Kandyan Rebellion, and who in this and every other extraordinary service incidental to the war, has exerted himself with a zeal and energy that deserve the warmest acknowledgments from Government.—*Morning Post*, January 8th, 1819.

[This seems to show that the Sinhalese made good soldiers.—Ed. *L.R.*]

CEYLON.

"CEYLON GOVERNMENT GAZETTE'—JULY 4.

From Badulla accounts have been received to the 23rd ultimo, and we are sorry to learn that some more casualties have occurred in that neigbourhood. On the 16th ultimo, while the Hon. Company's 18th Native Infantry were halting at Passara for refreshment, Lieut Wilkinson sent into Badulla a small party to announce their arrival. This party consisted of six Europeans, six Malays and esix Caffres. They had not been used to go quite to Badulla, but to meet the escort half-way, and so were not aware of there being, within two miles of Badulla, a patch of jungle, which was a favourite lurking-place of the rebels. When they approached this spot a heavy fire was opened upon them by the Kandians from their ambuscade close by, and two fine soldiers of the 73rd Regiment, James Sutherland and William Chandler, were unfortunately killed upon the spot. The gallant conduct of the rest of the party well deserves public notice and approbation. They were resolved not to abandon their comrades even in death, nor to suffer their bodies to be insulted by a barbarous enemy. Lance-corporal M'Laughan, with another European, and four native soldiers, volunteered to fight their way to Badulla, where they might procure assistance. The remaining two Europeans and eight natives formed themselves into a circle round the dead bodies, which they had previously removed to a spot of open ground; while the corporal and his companions made their way good to Badulla, followed and constantly fired at by numerous rebels. The determined band posted round the bodies was assailed for upwards of two hours by strong parties of Kandians, who urged on by their chiefs from the hills, for they always keep at a distance themselves, advanced within 150 or 200 yards, and poured in volleys of musketry. The cool intrepidity of the soldiers was shown in the judicious reserve of their fire, for they never returned more than two shots at a time, which were sufficient to keep off the dastardly enemy, until Lieut Burns, with a detachment drove them all into the jungle, and the bodies were brought off and interred in Badulla.

A Kandian servant of one of the headmen, with the Pretender, came in lately to Badulla and gave, on the 22nd ultimo, some curious information respecting the movements and situations of the Pretender, and Keppitipola, and their chief followers, whom he left on the 16th ultimo, between Donattokappola and Materratta, probably in the very place observed a week after by Colonel Kelly. He confirms the account of Keppitipola's suffering from dysentery; and adds that little hope was entertained of his recovery; he was so weak as to be unable to walk. He states that the Pretender is not a Malabar, or any relation to the Royal Family, but as many others have asserted, a Sinhalese of the Seven Korles who had been a priest.

Nothing of any consequence has occurred lately in Saffragam, or the Seven Korles. The last accounts from Lieutenant-Colonel Hook were dated the 30th ultimo. He had taken two rebels, who were immediately to be tried before a Court-Martial.

July 11th.—By this morning's post we hear from Kandy that a numerous meeting of the rebels took place at Hanguranketty on the 5th instant, when it was resolved to make a grand attack on the post of Godamoone. On the 7th and 8th this design was put into execution in a true Kandian style. The Pretender, Keppitipola, and several other chieftains, took their position on a hill about two miles off, and about 5,000 rebels made the assault premeditated. They began each day about noon and continued till near midnight, but their fire was at such a distance that not a single man in Godamoone was hurt, nor is it thought that many of the assailants suffered in their dastardly attempt.

We are sorry to announce an accident which has befallen Leiutenant Emslie, of the 83rd Regiment. On the morning of the 2nd instant, when this officer was returning with a party to his post at Gampola, information was brought to him by a Kandian that the path in front was obstructed by elephants. Having halted his party, with a soldier's firelock in his hand he advanced alone, and on turning an angle of the road, he suddenly came in contact with four elephants, at the largest of which he fired. In an instant Mr Emslie was knocked down, and under the enraged animal. In this terrible situation he only recollected the appearance of the brute's preparing, as it were, to destroy him, and hearing the report of a musket, which was fortunately fired by a man who had followed him. Mr Emslie was found by his party lying among some ferns by the road side, almost insensible, extremely bruised, and unable to move, having received severe contusions on the face, chest, and left thigh. Without loss of time he was carried to Kandy, and we are happy to say sanguine hopes are entertained of his recovery.

PRODUCTION AND CONSUMPTION OF INDIAN AND CEYLON TEA.

13, Rood Lane,
London, E.C.

Dear Sirs,

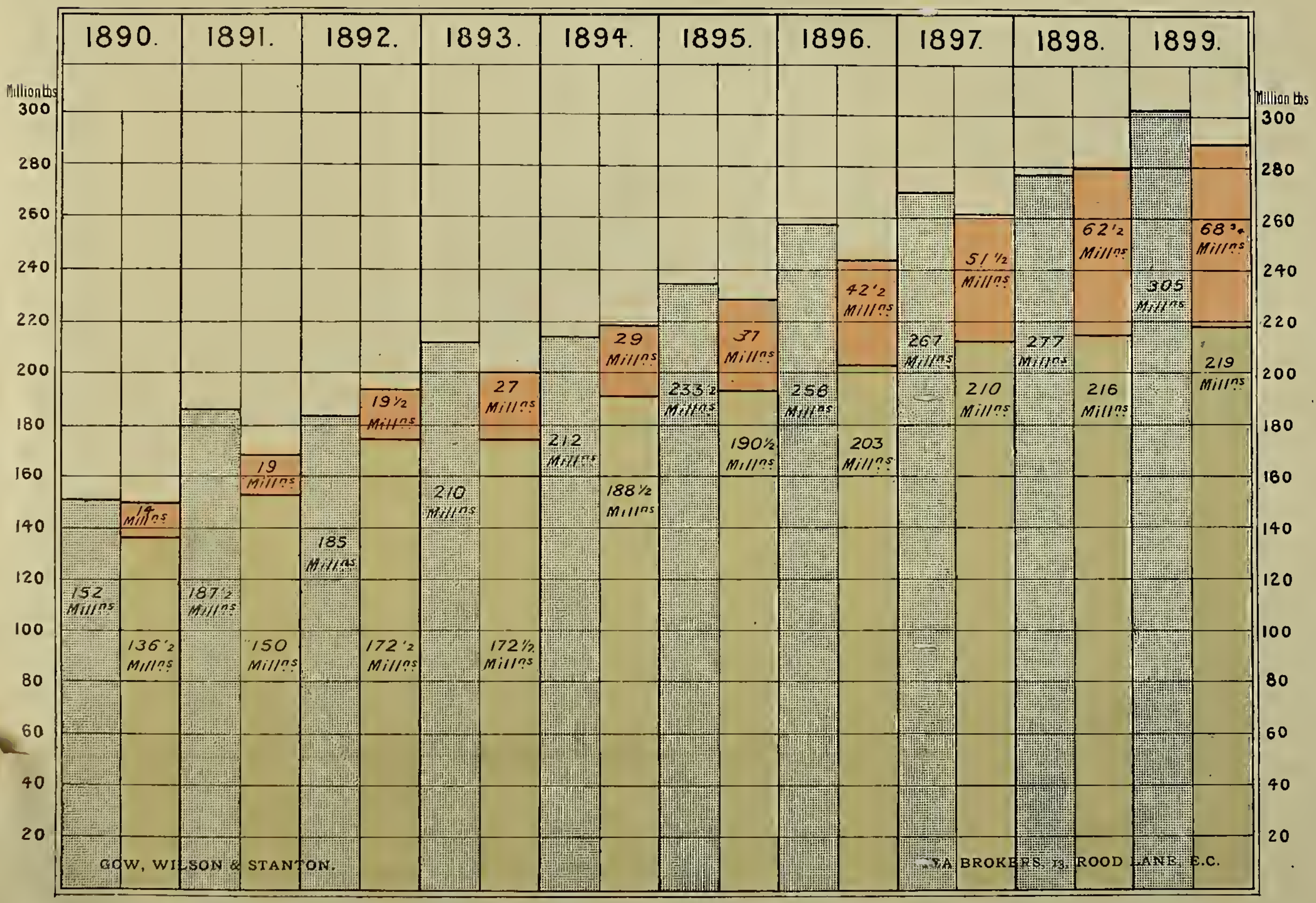
The increase in the output of Tea from India and Ceylon last year was so heavy that we venture to offer a few remarks upon the necessity of making strenuous efforts for the further development of new outlets, in order to effectually cope with the anticipated surplus of this year's crop.

We are, Dear Sirs, Yours faithfully,

GOW, WILSON & STANTON,

June, 1900.

Diagram showing the quantity of TEA exported from INDIA and CEYLON in each of the past ten years; also the quantity consumed in the United Kingdom and taken by other countries.



The grey columns show the Indian and Ceylon crops in each year.
The blue columns show the Home consumption.
The red columns show the quantities taken by countries outside Great Britain.

The diagram illustrates the expansion in production and consumption of British grown Tea. Through the development of new outlets demand fairly kept pace with supply until 1899, when the output exceeded consumption by fully 17 million lbs., a condition which does not augur well for prospects in the immediate future.

In 1899 the production of Indian and Ceylon Tea exceeded that of 1898 by 28 million lbs., the total produced being 305 million lbs.

The world's consumption of Indian and Ceylon Tea last year increased only 9 million lbs., the total consumed being 288 million lbs.

Large areas of land in India were placed under Tea cultivation a few years ago when Exchange was very low. This land is now commencing to bear leaf, and has been the chief cause of the increase in the 1899 crop from India. This is likely to continue during the next few years.

The 1899 crop from Ceylon was the heaviest on record, and during the first four months of this year the increase had already amounted to 11 million lbs. This excessive increase is probably due in great measure to the extensive use of manure. The use of artificial means to still further enlarge the output is very questionable policy, especially under existing circumstances.

Again; have producers asked themselves the question, whether manuring will develop in the bushes, permanent strength and vigour sufficient to withstand the strain of continual plucking, specially in the event of over-production reducing prices so low that artificial manure can no longer be afforded?

Another question naturally arises: Who is to buy the Tea and at what price? No producer wishes a lower level of prices, and yet this is the sure way to obtain it. Production is increasing too fast. Consumption is unable to keep pace with it, in spite of all the efforts to capture new markets and to develop those already acquired.

True, a fall in price may develop Foreign markets with greater rapidity, but no relief through increased consumption at Home can be expected from this cause, because the retail price has already been advanced *Twopence per lb.* through the additional duty.

For years past, over-supply has been promptly dealt with by a fractional drop in price, such a decline invariably stimulating consumption. Now, however, increased supply cannot be dealt with in this manner, because, were the price to fall even as much as the duty has been increased the *retail price* would then be only what it was before the duty was raised.

How absolutely necessary then to raise all possible funds for exploiting new markets and to redouble our efforts in those already using British grown tea.

INDIAN TEA TAKEN OUTSIDE THE UNITED KINGDOM.

	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.
Australasia	5,118,714	5,203,995	3,908,087	6,239,538	4,871,919	6,113,365	5,864,558	7,093,948	6,257,281	8,772,050
N. America	1,403,914	1,517,114	1,608,150	2,152,333	2,356,954	4,071,731	5,258,773	5,663,244	5,971,701	8,487,443
Turkey with Persia..	1,681,157	4,112,037	2,284,271	3,627,623	5,150,722	4,098,085	4,650,585	3,548,156	7,455,095	6,387,919
Germany with Russia	201,282	353,935	468,047	469,493	632,398	1,208,682	1,405,257	2,790,962	3,545,184	3,315,173
South America ..	105,460	103,610	246,504	215,338	174,500	21,511	20,617	319,927	360,464	497,336
Holland	323,122	423,241	510,906	281,038	297,065	341,435	415,593	522,110	474,509	486,103
South Africa.. ..	73,117	65,222	91,982	120,613	180,880	241,344	380,297	565,693	593,416	470,281
Denmark	*Not stated.*	*Not stated.*	*Not stated.*	*Not stated.*	*Not stated.*	*Not stated.*	91,230	91,111	238,670	197,646
France	50,311	51,199	59,218	48,743	52,892	61,844	62,294	59,954	81,258	68,296
Other Places.. ..	473,865	539,991	852,163	872,408	867,250	678,837	1,077,585	1,785,582	915,407	969,686
Total lbs.	9,430,942	12,320,344	10,029,328	14,077,129	14,584,580	16,836,834	19,226,789	22,440,687	25,892,985	29,651,933

CEYLON TEA TAKEN OUTSIDE THE UNITED KINGDOM.

	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.
Australasia	2,559,901	3,210,598	5,002,386	6,968,956	7,446,782	9,379,561	11,062,822	13,258,456	15,126,891	15,606,833
N. America	829,408	1,155,116	1,489,174	1,870,589	2,295,147	3,744,736	4,364,510	5,698,596	7,636,995	8,289,376
Turkey with Persia..	151,226	638,363	563,945	985,064	900,993	1,165,334	1,325,351	1,246,594	1,439,473	824,385
Germany with Russia	486,195	710,551	1,193,538	1,708,233	2,059,131	3,400,944	3,824,083	5,749,558	8,249,482	9,958,673
South America ..	52,559	83,583	200,113	183,285	181,123	43,615	30,671	390,477	435,231	594,579
Holland	131,575	156,275	202,856	190,832	215,298	232,255	254,912	281,821	281,536	309,149
South Africa.. ..	61,446	111,346	155,131	259,036	275,276	450,641	588,115	806,585	1,109,474	778,761
Denmark	*Not stated.*	*Not stated*	*Not stated*	*Not stated.*	*Not stated.*	*Not stated.*	285,279	169,619	286,361	315,065
France	30,269	64,591	60,911	87,639	100,085	134,432	147,485	166,490	189,208	182,819
Other Places.. ..	267,611	538,498	714,931	884,890	1,081,427	1,335,734	1,339,206	1,306,302	1,598,992	1,918,955
Total lbs.	4,570,190	6,668,921	9,583,285	13,138,544	14,555,262	19,887,252	23,222,434	29,074,498	36,353,643	38,778,595

The foreign outlet which for many years has received the greatest attention and energy from India and Ceylon, as well as by far the most pecuniary assistance is North America, and as a result, the Black Tea Market in this continent has been practically

captured; but out of a total consumption of 111 million lbs., about 75 million lbs. consist of Green and uncolored Tea. Should not India and Ceylon be able to supply this enormous demand?

Suitable Tea can be made, and if we want the North American market, let us supply it with the kind of Tea most appreciated, similar to the Oolongs, Japans, and Greens which form nearly three-fourths of its consumption.

It is unlikely that the Green Tea drinkers of North America will be converted into Black Tea drinkers; why then not supply them with the Green and unfermented Tea which they want and are ready to buy?

Even if no better price could be obtained for such Tea than for Black, it appears advisable to cultivate this trade, because for every pound made the production of Black Tea is reduced by an equal quantity. This would minimise the danger of over supply of such Teas as are sold in the United Kingdom, and consequently increase competition.

The Ceylon Fund has been allowing planters over 1½d. per lb. as a bonus to produce this class of Tea, and both Mr. Mackenzie, the Ceylon Commissioner, and Mr. Blechynden, the late Indian Commissioner, appointed to exploit North America, believe that the great outlet in the United States will be for Tea of this description.

This bonus will go far to obviate any loss which might be entailed in selling, while the "Thirty Committee" would doubtless continue to foster its manufacture if prospects continued favourable for its ultimate success. At the same time it must not be forgotten that if once a commencement were made in this direction, great possibilities exist for a profitable trade in other markets, such as South America, where Green Tea is largely used as well as Maté or Paraguay Tea, besides North Africa, Persia and the neighbouring parts of Asia.

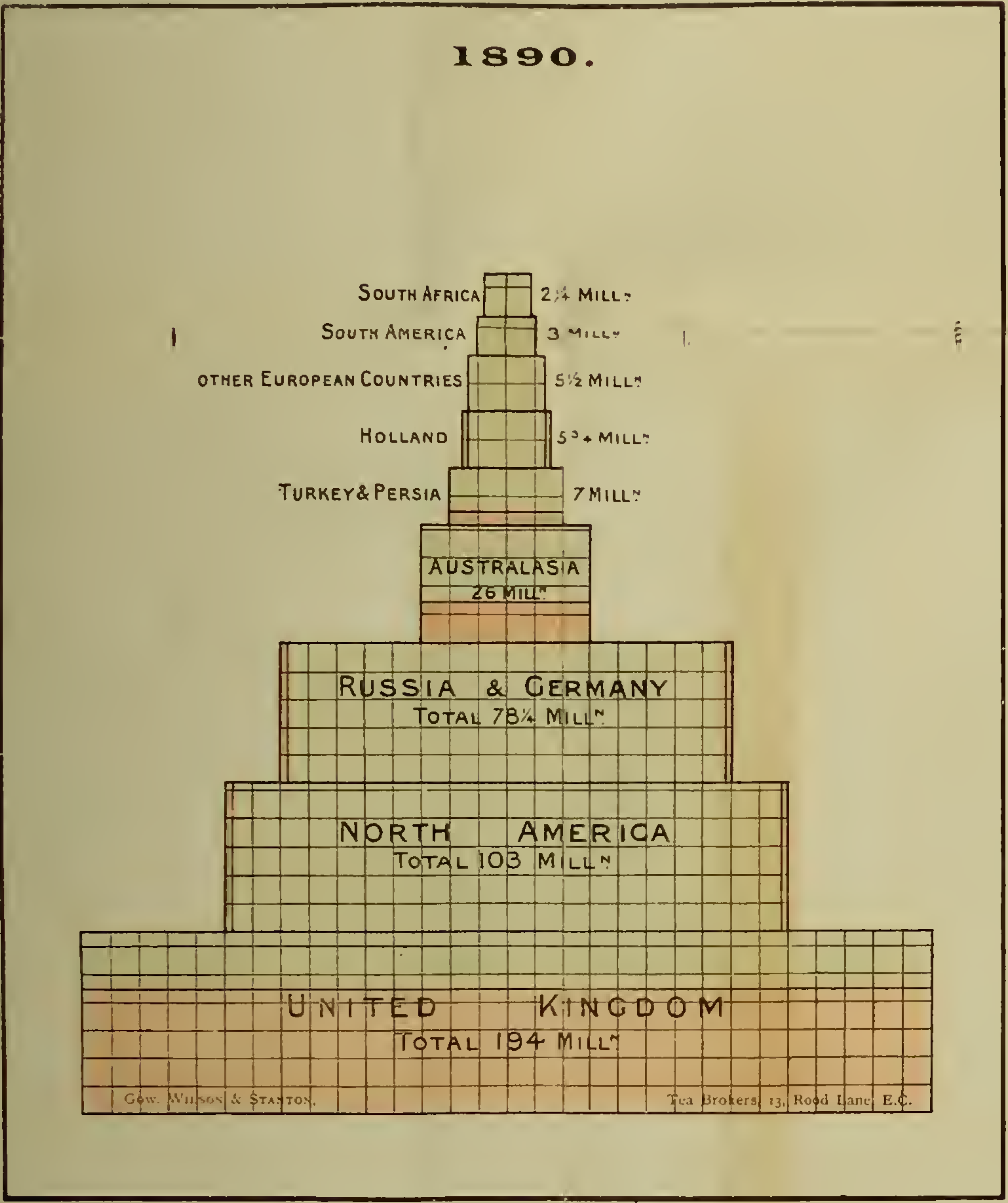
The fact that British grown Tea is so largely displacing black China Tea in almost every market hitherto attacked, is sufficient argument to warrant the belief that the Green Tea monopolies of China and Japan can be assailed with equal success, and that by this means an enormous outlet may be opened for the surplus produce of India and Ceylon.

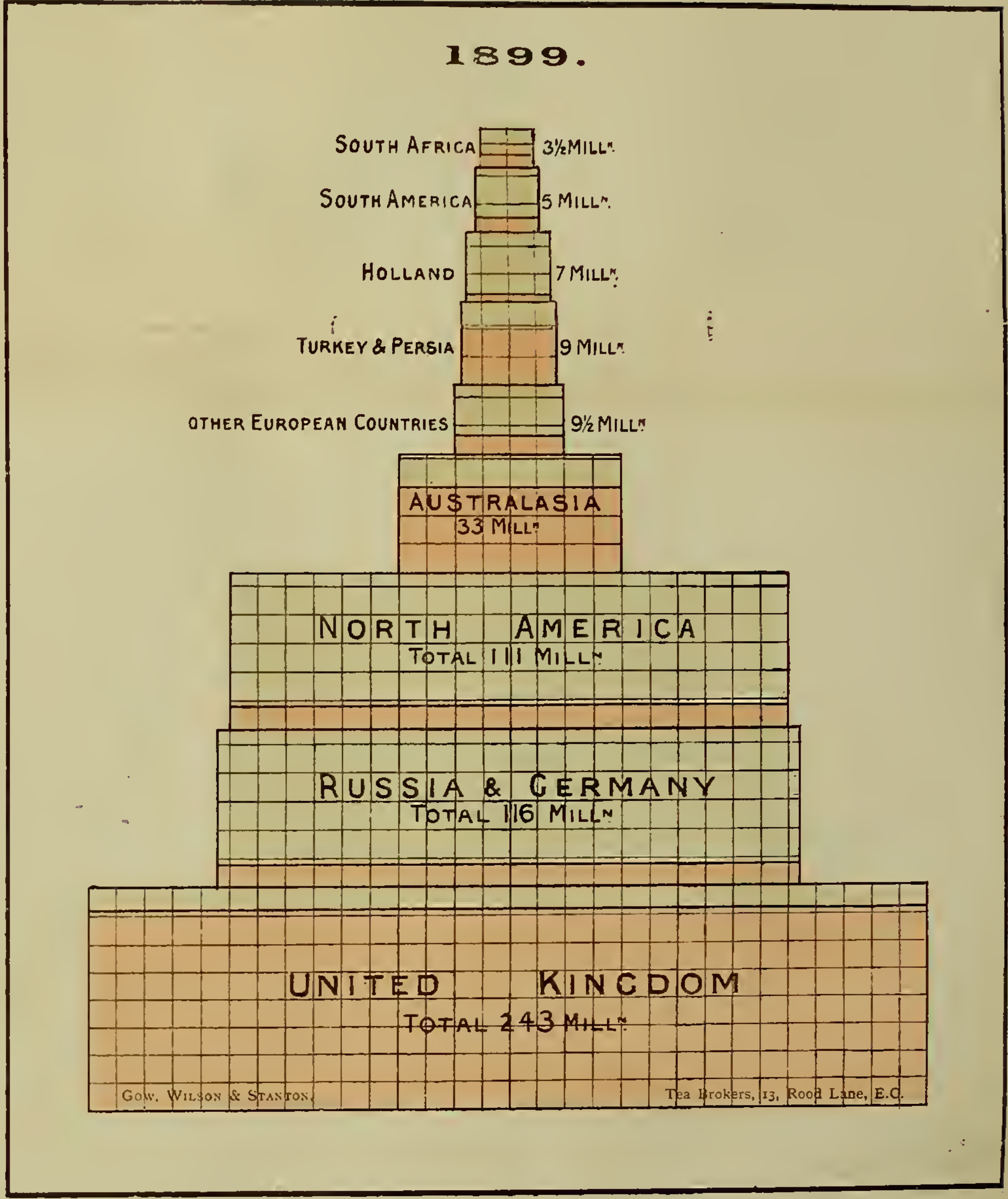
Surely British energy and resource are capable of suiting their superabundant produce to the requirements of Foreign markets, when by some change in manufacture they can not only attack such important outlets with every probability of success, but by the act of so doing immediately relieve that very pressure which is proving so injurious to their own interests, and a cause of much anxiety as to the very existence of not a few Tea properties.

The diagram on the last page gives a history of the consumption of Tea in the most important consuming countries of the world in the years 1890 and 1899, showing the rapid way in which British grown Tea has displaced other growths in many important markets. The United Kingdom has naturally led the way, and has been closely followed by her Colonies, as shown by the increase in Australasia, while the taste for Indian and Ceylon Tea has developed considerably in North America as well as Russia.

It is important to remember that a very large proportion of China Tea which was formerly used in the Australian Colonies has now been displaced, so that it is doubtful whether the same rapid increase can take place in these Colonies as has been the case in the past. The only large field for the displacement of Black China Tea appears now to be Russia, which is gradually increasing its taste for the produce of India and Ceylon; while the world's markets for Green and uncolored Tea still remain to be exploited.

The displacement of China Tea by Indian and Ceylon and the development of the taste for British grown Tea during recent years.





Each square represents One Million pounds of Tea consumed, China, etc., being shewn in blue and British grown Tea in red.

J. W. Parkins, Printer & Stationer, 5, Bury Street, St. Mary Ax., E.C.

COFFEE AND PEPPER EXPORTS FROM WESTERN INDIA.

To the Editor "Ceylon Observer," Colombo. Tellicherry, 24th Sept. 1900.

DEAR SIR,—I have the pleasure to furnish you with my Annual Statement of Exports of Coffee and Pepper for the year ending 30th June, 1900, the total figures of which approximately represent what the crops of these products in India, for the year in question, amounted to. As usual, I further show the distribution of shipments to various ports, and have added the figures relating to exports for the three previous years for the purpose of comparison.

COFFEE.—The crop for the past year was a disappointing one, being some 47 per cent less than that of 1898-99 and almost half of this was shipped from the port of Mangalore alone. Of the total quantity shipped cwts 1,27,331 may be regarded as plantation, and the balance cwts 81,013 as native coffee. The prices fluctuated to such an extent that I find it impossible to arrive at an average value of the coffee exported, and a large quantity was being held over in London at 30th June in hopes of it obtaining a better price, which has to some degree been realized.

I am glad to be able to add, that the reports that are being received from the planting districts, give promise of good crops for the coming season, and I trust that the quantity of coffee exported the season before last may be reached if not surpassed: and in view of better prices at home our planting friends have a right to look forward for brighter prospects in the immediate future.

PEPPER.—The total exports of this spice amounted to cwts 1,68,001 or some 29 per cent less than was shipped last year, the value of which at an average of R37-8-0 per cwt. being an increase of R5 per cwt on last year's value, amounts to R63,00,037-8-0. Tellicherry still continues to be the chief port of export for this spice, which is now being planted up to a considerable extent in the coffee districts as a bye-product.—I am, dear sir, Yours faithfully,

RALPH TATHAM, Agent, Arbuthnot & Co.

MESSRS. ARBUTHNOT & COMPANY'S ANNUAL STATEMENT OF EXPORTS OF COFFEE AND PEPPER FROM SOUTHERN INDIA DURING THE SEASON ENDING 30TH JUNE 1900.

From / To	Mangalore. Coffee. Plant.	Mangalore. Coffee. Nat.	Mangalore. Coffee. Total	Mangalore. Pepper.	Cannanore. Coffee	Cannanore. Pepper	Tellicherry. Coffee. Plant.	Tellicherry. Coffee. Nat.	Tellicherry. Coffee. Total.	Tellicherry. Pepper.	Badagara. Coffee	Badagara. Pepper.
London Cwt.	44,261	48	44,309	38	...	...	15,946	.	15,946	0,061	70	58
Liverpool ,,	..	...	...	...	...	...	...	...	...	2,000	..	..
Glasgow ,,	193	...	193	...	..	...	..	..	...	..	..	..
Marseilles ,,	31	8,930	8,981	...	...	...	10	2,820	2,830	1,105	...	..
Havre ,,	...	35,069	35,069	..	...	..	3,324	18,025	21,349	5,200	...	
Roterdam ,,	...	...	...	..	...	..	...	..	..	...	...	..
Trieste ,,	125	374	499	100	...	..	1,152	6	1,158	5,553	101	100
Genoa ,,	...	...	...	..		...	...	...	..	4,026	..	..
Leghorn ,,	...	...	...	...	...	...	..	..	...	575	..	..
Ancona ,,	...	...	...	..	...	...	...	..	...	700	...	..
New York ,,	...	...	...	...	..	..	...	...	...	..	...	..
Naples ,,	...	...	...	...	...	...	...	...	...	100	..	..
Venice ,,	...	...	...	...	...	..	201	..	201	838	..	...
Hamburg ,,	25	243	268	..	...	...	1,522	...	1,522	9,338	..	200
Geneva ,,	...	...	...	...	...	...	...	...	..	...	..	..
Antwerp ,,	...	1,962	1,962	...	...	...	104	2,008	2,112	525	...	...
Australian Ports ,,	...	117	117	...	...	...	752	...	752	20	..	..
Rangoon ,,	...	...	...	...	...	...	..	...	..	29	..	..
Suez ,,	...	...	...	...	..	...	..	..	..	835	..	500
Turkish African, Arabn. and Persian Gulf Ports ,,	...	831	831	45		325	...	...		502	..	..
Bombay & other Indian Ports ,,	2,294	7,588	9,882	785	9	21,622	500	2,018	2,518	31,926	..	4,047
Ceylon ,,	198	1,430	1,628	..	..	.	..	655	655	...	...	...
Totals Cwt.	47,127	56,592	103,719	968	9	21,947	23,511	25,532	49,043	69,933	171	4,905
Less Imports	..	..	..	...	...	..	12,198	6,120	18,318	16,135	..	...
1899-00	47,127	50,592	103,719	968	9	21,947	11,313	19,412	30,725	53,798	171	4,905
1898-99	79,416	68,292	147,708	1776	..	31,606	22,391	26,063	48,454	67,149	..	5,571
1897-98	32,926	46,759	79,685	2807	...	27,223	14,072	20,705	34,777	41,632	...	6,355
1896-97	26,939	56,411	83,350	2287	3	52,178	13,795	24,149	37,944	69,518	...	20,623

From / To	Calicut. Coffee. Plant.	Calicut. Coffee. Nat.	Calicut. Coffee. Total.	Calicut. Pepper.	Beypore. Coffee. Plan.	Beypore. Coffee. Nat.	Beypore. Coffee. Total	Beypore. Pepper.	Cochin. Coffee. Plan.	Cochin. Coffee. Nat.	Cochin. Coffee. Total	Cochin. Pepper.
London Cwt.	10,853	58	10,911	3,109	12,010	..	12,010	...	1,006	..	1,006	5,636
Liverpool ,,	..	..	..	...	...	...	...	...	...	...	...	...
Glasgow ,,	..	..	...	..	...	...	...	...	..	...	...	..
Marseilles ,,	340	...	340	..	..	...	...	...	...	...	...	200
Havre ,,	5,659	371	6,030	53	1,630	..	1,630	...	7	...	7	100
Roterdam ,,	.	..	..	...	..	..	...	...	...	...	...	500
Trieste ,,	..	..	...	800	97	...	97	...	...	...	..	050
Genoa ,,	..	...	...	800	..	..	...	...	...	...	..	200
Leghorn ,,	..	..	..	200	..	..	...	...	...	..	..	...
Ancona ,,	..	...	..	200	..	..	..	...	...	...	..	400
New York ,,	...	...	..	..	..	...	..	..	...	..	..	3,270
Naples ,,	..	...	..	100	..	...	...	..	...	...	..	..
Venice ,,	...	..	..	100	..	...	...	..	...	...	...	100
Hamburg ,,	704	...	704	925	113	...	113	..	...	..	...	4,528
Geneva ,,	10	..	10	6	..	...	...	..	...	..	..	..
Antwerp ,,	..	..	..	100	..	...	..	..	...	..	..	..
Australian Ports ,,	1,289	.	1,289	20	..	...	..	..	...	..	..	..
Rangoon ,,	...	..	..	219	..	...	..	..	...	33	33	1,315
Suez ,,	...	...	..	..	...	...	...	..	..	..	..	...
Turkish African, Arabn. and Persian Gulf Ports ,,	...	71	71	454	...	..	...	...	...	..	..	...
Bombay & other Indian Ports ,,	10,799	784	11,583	8,118	...	..	..	...	...	108	108	13,689
Ceylon ,,	2	1,670	1,072	...	..	..	...	...	..	52	52	...
Totals Cwt.	29,656	2,954	32,610	15,204	13,850	...	13,850	..	1,013	193	1,206	30,594
Less Imports	..	..	...	...	..	..	...	..	..	..	..	...
1899-00	29,656	2,954	32,610	15,204	13,850	...	13,850	..	1,013	103	1,206	30,594
1898-99	88,287	23,786	112023	23,133	24,038	26,517	50,555	..	543	383	926	41,664
1897-98	33,641	7,612	41,253	13,644	24,181	860	25,041	...	780	43	823	8,469
1896-97	31,643	4,851	36,494	19,026	25,644	1,905	27,549	20	708	266	974	22,715

From / To	Alleppey. Coffee	Alleppey. Pepper.	Quilon. Coffee	Quilon. Pepper.	Tuticorin. Coffee	Tuticorin. Pepper.	Madras. Coffee	Madras. Pepper.	TOTALS. Coffee	TOTALS. Pepper.
London Cwt.	..	939	...	...	380	4	18,073	4	102,705	16,449
Liverpool ,,	..	...	...	...	...	...	..	..	...	2,000
Glasgow ,,	...	...	...	...	...	...	...	..	193	..
Marseilles ,,	...	...	..	...	..	..	565	..	12,696	1,305
Havre ,,	...	18	..	...	149	...	..	..	84,234	5,371
Roterdam ,,	...	...	..	...	..	...	...	..	...	500
Trieste ,,	...	...	..	...	..	..	...	...	1,855	7,203
Genoa ,,	...	...	..	...	..	...	..	...	...	5,026
Leghorn ,,	...	..	..	...	..	...	..	...	...	775
Ancona ,,	...	...	..	...	..	..	..	...	...	1,300
New York ,,	5	...	..	...	..	..	..	...	5	3,276
Naples ,,	...	..	..	...	..	...	..	..	...	200
Venice ,,	..	..	...	...	..	...	..	...	201	1,038
Hamburg ,,	...	59	..	...	..	..	1	...	2,808	15,050
Geneva ,,	..	..	..	..	..	...	...	...	10	6
Antwerp ,,	..	..	..	...	..	...	58	...	4,132	825
Australian Ports ,,	..	..	..	..	..	...	...	...	2,158	40
Rangoon ,,	...	24	..	..	..	...	...	...	33	1,687
Suez ,,	..	..	..	..	..	...	...	..	..	1,335
Turkish African, Arabn. and Persian Gulf Ports ,,	...	..	..	...	..	...	...	..	902	1,828
Bombay & other Indian Ports ,,	76	39,248	...	80	954	...	...	..	25,130	119,513
Ceylon ,,	..	..	..	..	5,793	211	..	..	9,800	211
Totals Cwt.	81	40,286	...	80	7,276	215	18,697	4	226,662	184,136
Less Imports	...	..	...	..	..	...	..	..	18,318	16,135
1899-00	81	40,286	...	80	7,276	215	18,097	4	208,344	188,001
1898-99	85	63,775	217	33	9,151	807	24,972	77	394,091	237,041
1897-98	...	23,571	93	232	4,807	843	10,696	455	203,175	125,23[illegible]
1896-97	62	35,580	45	101	6,458	285	18,883	47	211,760	222,888

(From the Chamber of Commerce Price Current.)

Exports of Ceylon Produce from Colombo and Galle during the Past Ten Years.

COMPILED AS FROM 1ST JANUARY TO 31ST DECEMBER IN EACH YEAR.

		Coffee, Cwt.			Cinchona.				Cinnamon.		Wild Cinnamon.								Coir Cwt.									
		Plantation.	Native.	Total.	Branch & Trunk. lb.	Tea. lb.	Cocoa. Cwt.	Cardamoms. lb.	Bales lb.	Chips lb.	Bales. lb.	Chips. lb.	Coconut Oil Cwt.	Copra. Cwt.	Desiccated Coconut. lb.	Coconut Poonac. Cwt.	Coconuts. No.	Plumbago. Cwt.	Rope.	Yarn.	Fibre.	Ebony. Cwt.	Deer Horns Cwt.	Sapanwood. Cwt.	Palmyra Fibre. Cwt.	Kitul Fibre. Cwt.	Citronella Oil. lb.	Cinnamon Oil. oz.
Total Exports from 1st Jan. to 31st Dec.,	1900	10,773	4	10,777	510,462	148,431,639	33,476	53 7,455	2,678,111	1,863,406	43,339	05,914	443,959	362,467	13,604,913	165,992	14,995,909	383,350	12,572	87,415	115,090	8,149	...	14,399	21,585	3,478	1,409,056	72,904
Do. do. do.	1899	18,542	..	18,542	018,921	129,894,156	42,745	499,959	2,515,031	1,829,127	195,008	628,418	400,079	325,401	13,571,084	174,786	11,723,392	610,385	12,090	75,525	91,588	11,688	..	5,560	10,838	2,030	1,478,756	116,776
Do. do. do.	1698	13,173	140	13,313	975,784	110,769,071	36,982	531,473	2,534,050	1,414,185	..	...	435,933	506,277	13,040,534	216,620	12,027,714	473,075	12,333	75,819	95,779	3,875	..	5,258	41,522	3,704	1,305,9 17	163,312
Do. do. do.	1807	19,012	371	19,383	053,346	116,054,507	34,503	532,830	2,674,537	1,067,051	..	..	409,600	106,801	12,054,452	192,479	13,610,508	357,257	11,732	91,460	74,470	3,360	...	5,742	18,793	1,981	1,182,887	181,538
Do. do. do.	1896	21,882	865	22,747	1,309,560	108,141,412	31,366	452,595	2,223,865	808,502	..	...	343,797	50,049	10,803,598	138,356	13,858,681	340,491	10,143	68,328	56,516	6,664	...	9,500	18,757	2,071	1,182,141	132,057
Do. do. do.	1695	60,029	3,991	63,920	921,085	97,939,871	27,420	374,635	2,169,527	920,136	..	...	384,140	60,765	8,551,073	1 74, 176	10,800,712	334,921	12,082	90,112	77,226	7,240	..	8,327	26,565	3,530	1,182,255	78,587
Do. do. do.	1894	31,553	652	32,205	2,497,616	84,591,714	21,110	306,317	1,969,905	657,726	..	...	487,571	30,642	5,722,202	165,156	8,292,699	339,521	14,416	91,746	67,738	8,393	457	5,191	22,257	2,277	038,471	[illegible]8,150
Do. do. do.	1893	52,539	2,651	55,190	3,571,325	84,406,064	30,658	428,210	1,995,257	667,115	..	...	389,712	44,923	6,414,908	188,538	11,079,028	337,605	7,819	84,831	56,401	6,381	349	6,676	35,004	2,417	868,580	140,334
Do. do. do.	1892	40,604	2,539	43,143	6,793,320	71,153,657	17,327	372,510	1,947,538	615,125	..	...	550,977	134,590	3,849,724	204,186	9,717,386	426,761	7,895	101,375	43,445	5,934	720	10,704	*	2,491	844 502	108,303
Do. do. do.	1891	81,225	5,467	86,692	5,679,339	68,274,420	20,532	422,109	2,309,774	588,204	..	...	409,521	45,660	1,416,330	192,210	6,699,403	400,263	10,576	90,869	37,697	3,539	1,735	2,577	...	1,899	703,974	122,835

* No records previous to 1892.

DISTRIBUTION FOR 1899 AND 1900.

COUNTRIES	Tea, 1900 lbs.	Tea, 1899 lbs.	Coffee—cwt. Plantation	Coffee—cwt. N'tive	Coffee—cwt. Total.	Cinchona Branch & Trunk lb. 1900. lbs.	Cinchona Branch & Trunk lb. 1899. lbs.	Cocoa cwts.	Cardamoms lbs.	Cinnamon Bales lbs.	Cinnamon Chips. lbs.	Wild Cinnamon Bales. lbs.	Wild Cinnamon Chips. lbs.	Coconut Oil. 1900 cwt	Coconut Oil. 1899 cwts	Copra cwts.
To U K.	113760193	103946124	7130	..	7130	498168	486704	28155	333996	897367	360363	32715	78668	257655	185205	22354
,, Austria	24633	8231	..	..	..	..	..	..	..	4000	47600	...	..	9383	6173	33770
,, Belgium	22954	14424	97	..	07	..	..	884	...	99569	170284	...	..	2940	2287	77988
,, France	326800	98952	68	...	68	...	33	78	3407	102510	47386	...	..	...	...	35114
,, Germany	402717	846959	383	..	363	..	1830	583	65529	783320	673288	4624	23581	12588	9248	65599
,, Holland	2000	30211	..	..	..	..	..	...	...	18756	124824	...	—	..	..	..
,, Italy	8332	13521	..	..	..	2286	..	...	519	160100	165780	..	...	367	404	22617
,, Russia	8917185	3949740	128	..	128	...	..	..	--	...	...	..	...	..	..	99620
,, Spain	17730	18700	..	...	..	..	...	...	..	222344	70000	..	..	..	..	496
,, Sweden	71300	78088	9	..	9	..	..	...	5171	2400	..	..	..	...	200	4403
,, Turkey	47009	18733	..	..	...	..	...	..	2120	1020	10	..	...	...	..	1
,, India	1144012	567816	195	4	199	..	..	5	117290	500	..	..	..	88148	06728	485
,, Australia	17806912	15606833	2594	..	2594	..	...	100	336	13900	31063	..	..	667	742	..
,, America	3930680	3080002	135	..	135	...	94005	821	2641	259425	170400	..	..	65043	102767	..
,, Africa	280599	288239	19	..	19	...	...	..	3306	10500	2408	...	865	82	..	..
,, China	1282463	1384490	34	...	34	9408	36549	82	1800	102400	...	..	2800	1034	3883	20
,, Singapore	119176	83613	1	..	1	600	–	2758	1340	..	..	6000	..	6052	23336	..
,, Mauritius	17323	100248	..	..	..	..	..	..	...	...	..	..	...	..	..	...
,, Malta	419518	257232	..	...	..	...	..	..	..	..	..	...	..	...	...	...
Total export from 1st Jan. to 31st Dec. 1900	148431639	129894158	10773	4	10777	510482	018921	33478	537455	2878111	1883408	43330	105914	443950	400979	362467

COUNTRIES	Desiccated Coconut lb.	Poonac cwts.	Coconuts. No.	Plumbago. 1900 cwts.	Plumbago. 1699 cwts.	Coir-cw Rope.	Coir-cw Yarn	Coir-cw Fibre.	Ebony cwts.	Sapanwood. cwts.	P'myr Fibre. cwts.	Kitool Fibre. cwts.	Citronella Oil. lbs.	Cinnamon Oil ozs.
To U K.	8880373	2101	10453749	129516	185925	205	70472	83134	340	9901	15633	8478	848001	53909
,, Austria	120310	...	7900	2	14	...	99	...	..	1423	...	...	607	..
,, Belgium	519519	87196	152215	32084	39522	..	422	18940	...	..	1291	...	..	..
,, France	42548	201	..	304	1014	375	2701	838	542	...	185	..	2098	967
,, Germany	1149471	96452	749820	52962	76152	102	883	18474	7174	3052	4332	...	41854	...
,, Holland	137730	..	25050	912	9492	...	330	590	...	...	..	..	..	..
,, Italy	..	..	9002	...	15	..	1817	..	45	...	-	...	..	...
,, Russia	..	...	1790	1203	1188	..	...	6	..	..	-	...	..	...
,, Spain	...	...	...	20	...	...	...	..	..	...	*	..	–	...
,, Sweden	...	..	..	803	409	...	...	300	...	...	...	..	..	...
,, Turkey	...	..	2000	...	–	...	...	..	...	...	...	...	..	...
,, India	...	..	1044050	1090	499	308	8165	135	..	23	..	..	17447	972
,, Australia	764324	42	...	2191	1599	..	643	4784	27	..	144	...	18982	..
,, America	1829280	...	..	182449	300552	..	2672	7274	..	..	...	..	488732	15840
,, Africa	40625	...	2543830	..	..	...	..	2307	..	...	..	...	..	...
,, China	111753	...	1503	314	234	..	308	...	..	...	..	...	18842	1216
,, Singapore	...	..	..	...	..	11584	796	308	...	..	–	...	..	...
,, Mauritius	...	..	–	..	...	..	67	..	–	...	...	..	..	...
,, Malta	..	..	...	..	..	...	..	..	21	...	..	..	..	...
Total export from 1st Jan. to 31st Dec. 1900	13804913	185092	14995009	383350	610385	12572	87415	115090	8149	14399	21585	8478	1409058	72904

Monthly Shipment of Ceylon Tea to All Ports—1899 and 1900.

	United Kingdom.		Australia.		America.		Monthly Total for All Ports.	
	1899 lb.	1900 lb.	1899 lb.	1900 lb.	1899 lb.	1900 lb.	1899 lb.	1900 lb.
January	6860166	10477132	825457	855517	139232	955009	8116146	13183477
February	7816449	8490967	1758979	1236109	365431	350135	10479566	11032323
March	8589706	10578085	923463	1325980	108736	419998	10010691	13541935
April	8284687	8924218	1316923	1822052	252539	262878	10175261	11495417
May	8662028	10570686	1244661	1644160	206990	288333	10913290	13810271
June	13595938	12151886	1421146	1319595	368272	419083	16415216	15411207
July	8598703	11993600	1586503	1330027	156591	305014	10885026	14576909
August	6255363	7568667	1647043	1681886	597686	288458	9348112	10742539
September	8693857	4978006	1497831	1853649	148994	213378	10925675	7906656
October	8812133	7316968	1355097	1546342	486257	142431	10964434	10000585
November	6602252	9468060	983365	1995887	190554	62757	8696819	13074534
December	11076842	11241918	1046365	995708	58690	273206	12963920	13655786
Total ...	103,948,124	113,760,193	15,606,833	17,606,912	3,080,002	3,980,680	129,894,156	148,431,639

No. 21 — COLOMBO, JUNE 11, 1900. — PRICE :—12½ cents each 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[20,604 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	21	26 ch	pek sou	2080	33
2	Halloowella	24	12 ch	bro or pek	1200	25
3		27	14 do	pek	1008	25
4		30	15 do	pek sou	1096	21
6		36	7 do	dust	1015	25
7	Hornsey	39	31 hf ch	bro or pek	1705	46
8	Hapugastenne	42	31 ch	bro or pek	3162	29
9		45	17 do	bro pek	1445	26
10		48	31 do	pek	2480	26
11		51	31 do	pek sou	2325	24
13		57	23 hf-ch	fans	1449	28

Messrs. Forbes & Walker.

[548,378 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	P S P	2065	7 ch	bro pek	700	24
5		2074	21 do	bro pek fan	1435	25
6		2077	31 do	dust	2778	24
9	Wewalkanda	2086	15 hf ch	bro pek	873	27
12	Galkanda	2095	25 ch	bro pek	2500	25
13		2098	10 do	pek	950	23
19	Glencorse	2116	34 ch	bro pek	3060	28
20		2119	22 do	bro or pek	1980	30
21		2122	29 do	pek	2320	26
22		2125	20 do	pek sou	1500	23
29	Sirikandura	2146	12 ch	bro pek	1162	27
30		2149	12 do	pek	1050	29
31		2152	12 do	pek sou	1020	23
34	Cooroondoowatte	2161	8 ch	pek	800	31
35		2164	8 do	pek sou	800	28
40	Barrington	2179	10 ch	pek sou	800	13 bid
41	Attampettia	2182	7 ch	bro pek	700	40
42		2185	11 do	pek	990	34
45	Huanuco	2194	70 hf-ch	pek	3150	20 bid
46		2197	37 do	pek sou	1591	20 bid
48	Glengariffe	2203	46 do	bro or pek	2576	37
49		2206	38 do	or pek	1743	35
50		2209	34 ch	pek	3128	32
51		2212	17 do	pek sou	1326	27
52	Tembiligalla	2215	27 ch	bro or pek	2700	33
53		2218	28 do	pek	2520	27 bid
57	B M A	2230	33 ch	bro pek sou	2640	22
58	Ingrogalla	2233	13 ch	bro pek	1300	40
59		2236	22 do	pek	1870	33
60	Dunbar	2239	34 hf ch	bro or pek	1700	59 bid
61		2242	29 do	or pek	1334	45 bid
62		2245	19 ch	pek	1529	40
63	Kosgalla	2248	46 hf ch	bro pek	2300	24 bid
64		2251	15 do	or pek	750	26 bid
65		2254	40 do	pek	1800	24
66		2257	20 do	pek sou	1000	21 bid
69	Beaumont	2266	15 ch	bro pek	1545	28 bid
70		2269	28 do	or pek	2632	25 bid
71	L B K	2272	16 ch	dust	1230	21
72	Naseby	2275	25 hf-ch	bro or pek	1500	60
73		2278	25 do	or pek	1200	53
74		2281	25 do	pek	1200	44
75	High Forest	2284	44 hf ch	or pek No. 1	2728	73
76		2287	32 do	or pek	1824	56
77		2290	31 do	pek	1643	45
78	Polatagama	2293	27 ch	bro pek	2700	28
79		2296	24 do	or pek	2040	24 bid
80		2299	45 do	pek	3825	21 bid
81		2302	37 do	pek sou	3145	19 bid
82		2305	15 do	fans	1500	21
83		2308	6 do	dust	900	2[illegible]
84	Pallagodde	2311	38 ch	bro or pek	3800	2[illegible]
85		2314	54 do	bro pek	5400	32 bid
86		2317	35 do	or pek	2975	33
87		2320	39 do	pek	3120	29
88		2323	39 do	pek sou	3315	26
89		2326	17 do	or pek No. 2	1530	20
90	Bloomfield	2329	22 ch	bro or pek	2420	47
91		2332	25 do	bro pek	2730	38
92		2335	37 do	pek	3700	33
93		2338	24 do	pek sou	2160	33
94		2341	10 do	pek fans	860	28
95	Clunes	2344	19 ch	bro or pek	1900	29
96		2347	15 do	bro pek	1425	27
97		2350	16 do	or pek	1280	26
98		2353	56 do	pek	4480	26
99		2356	14 do	pek sou	1330	21
101	Massena	2362	35 hf-ch	or pek	1750	47
102		2365	48 do	bro pek	2400	30
103		2368	40 do	pek	2000	26 bid
104		2371	26 do	pek sou	1300	24
108	Ganapalla	2383	10 ch	or pek	860	30
109		2386	28 do	bro or pek	2520	29
110		2389	27 do	bro pek	2430	26
111		2392	39 do	pek	3120	25 bid
113		2398	11 do	bro pek fans	1210	26
115	Letchmey	2404	11 hf-ch	bro pek fans	880	27
118	Killarney	2413	50 hf ch	bro or pek	2750	47
120	Dunkeld	2419	66 do	bro or pek	3960	43
121		2422	18 ch	or pek	1710	36
122		2425	30 do	pek	2700	35
123	Deaculla	2428	50 hf-ch	bro pek	2750	37 bid
124		2431	48 ch	pek	3360	32
125		2434	27 do	pek sou	1890	26 bid
128	Gonapatiya	2443	55 hf ch	bro or pek	2695	48
129		2446	29 do	or pek	1247	44
130		2449	50 do	pek	2200	39
131	Rowley	2452	41 hf ch	bro pek	2050	36
132		2455	18 do	pek sou	900	25 bid
134	Kincora	2461	45 ch	pek	3150	32
135		2464	35 do	pek No. 2	2275	26
136	Haputalawella	2467	27 ch	bro pek	1620	44
137		2470	22 hf ch	pek	1160	37
139	Queensland	2476	16 hf-ch	bro or pek	800	64
140		2479	20 ch	pek	1800	35 bid
141		2482	8 do	pek sou	720	31
144	Patiagama	2491	26 ch	bro or pek	1430	39
145		2494	22 do	or pek	1870	34
146		2497	44 do	pek	3520	28
147		2500	19 do	pek sou	1520	25
148		2503	22 do	fans	1210	29
149	Aberfoyle	2506	15 hf-ch	bro pek	825	31
150		2509	16 do	or pek	800	28
151		1512	8 ch	pek	720	26
152		2515	14 do	pek sou	1330	23
154	Digdola	2521	16 ch	bro pek	1440	32
155		2524	26 do	pek	1950	27
157	Amblakande	2530	14 ch	bro pek	1400	29
158		2533	19 do	pek	1615	27
159		2536	10 do	pek sou	800	25
160	Mansfield	2539	64 hf ch	bro pek	3840	49
161		2542	22 ch	pek	1980	39
162		2545	10 do	pek sou	850	33
169	St. Paul's	2566	91 hf ch	bro pek	5005	43
170		2569	200 do	pek	11000	37
171		2572	160 do	pek sou	6400	29
172		2575	50 do	bro pek fans	3650	33
173	Castlereagh	2578	32 ch	bro pek	3040	45
174		2581	37 do	or pek	3145	34
175		2584	29 do	pek	2320	29
176		2587	12 do	pek sou	960	25 bid
177		2590	13 hf ch	fans	1260	28
179	Weyungawatte	2596	28 ch	bro pek	2660	27 bid
180		2599	30 do	pek	2550	27
181		2602	22 do	pek sou	1760	24 bid
184	W H R	2611	27 hf ch	dust	2295	27
187	Marlborough	2620	14 ch	pek fans	1800	25
189		2626	10 do	dust	1600	24
193	Blairgowrie	2638	18 ch	sou	1176	17
194		2641	16 do	fans	1520	8
196	St. Heliers	2647	33 hf ch	bro or pek	1848	43 bid
197		2650	22 do	pek	1980	36
199	Old Meddegama	2800	29 ch	bro or pek	2027	33
200		2659	25 do	pek	2000	29
201		2662	13 do	pek sou	1040	26
203	O B E C, in est. mark, Forest Creek	2668	17 ch	bro or pek	1697	54
204		2671	10 do	sou	900	30
205		2674	22 do	fans	2200	31
208	Richmond	2683	8 ch	or pek	800	48
209		2686	8 do	bro pek	920	54
212	Shrubs Hill	2695	30 ch	pek	2547	29
213	Polatagama	2698	23 do	or pek	2064	30
214	Kelburne	2701	16 hf-ch	pk fans	730	27
216	Ragalla	2707	11 do	dust	990	24
218	Palmerston	2713	15 do	bro or pek	777	71
219		2716	17 do	bro or pek	851	69

Lot.		Box.	Pkgs.		Name.	lb.	c.
220	A	2719	10	ch	bro pek	1000	25 bid
224	Ireby	2731	25	hf-ch	bro pek	1500	56
225		2734	10	ch	pek	900	43
226	Matale	2737	51	hf-ch	bro tea	2802	29 bid
227	Sark	2740	23	ch	bro pek	2070	27 bid
228		2743	39	do	pek	3120	24 bid
232	Dewalakande	2755	13	do	bro tea	910	18
234	Glaceland	2761	16	hf-ch	bro pek	880	25
245	Woodend	2794	55	ch	bro pek	5497	28
247	K D M in est. mark	2699	18	hf-ch	pek	900	21
248		2803	20	do	pek sou	1000	20
251	Woodend	2812	39	ch	bro pek	3900	28
252		2815	60	do	pek	5400	26
253		2818	16	do	pek sou	1280	23
256	Augusta	2827	6	do	dust	840	20
258	Nilloomally	2833	19	do	bro pek	1900	32
259		2836	14	do	or pek	1204	36
260		2839	25	do	pek	2100	32
261		2842	19	do	pek sou	1520	23
266	Munukattia, Ceylon, in est. mark	2857	21	hf-ch	bro pek	1260	42
267		2860	20	ch	pek	1600	32
271	K P W	2872	57	hf-ch	bro pek	3135	29
272		2875	46	do	bro or pek	2760	31
273		2878	113	do	pek	6215	25 bid
274		2881	39	do	pek sou	1500	22
276	Nugagalla	2887	48	do	bro pek	2400	33
277		2890	121	do	pek	6050	26
278		2893	19	do	pek sou	950	23
279		2896	8	do	dust	720	25
280	Passara Group	2899	29	ch	or pek	2110	40
281		2902	25	do	bro or pek	2500	39
282		2905	31	do	pek	2790	34
283		2908	10	do	pek sou	1000	30
285	Battawatte	2914	53	do	pek	5035	30
286		2917	27	do	bro or pek	2970	32 bid
287		2920	19	do	pek sou	1520	26 bid
289	Hayes	2926	16	do	bro or pek	1600	40
290		2929	24	do	bro pek	2400	33
291		2932	25	do	or pek	2000	35
292		2935	50	do	pek	4000	28
293		2938	27	do	pek sou	2160	24
294	Maha Uva	2941	51	hf-ch	bro or pek	3060	35
295		2944	47	do	or pek	2632	43
296		2947	48	ch	pek	4320	37
297		2950	25	do	pek sou	2000	31
298	Battawatte	2953	25	do	bro or pek	2750	33
299		2956	25	do	pek	2375	31
300		2959	15	do	pek sou	1200	27
301	Tonacombe	2962	45	do	or pek	4050	34
302		2965	19	do	bro or pek	1900	44
303		2968	32	do	bro pek	3200	39
304		2971	44	do	pek	3960	32
305		2974	18	do	pek sou	1620	27
306		2977	8	do	dust	720	26
307	Warwick	2980	11	do	bro pek	1100	57
308		2983	18	do	pek	1620	46
309		2986	8	do	pek sou	760	40
312	Geragama	2995	28	hf-ch	bro or pek	1540	28
313		2998	17	ch	bro pek	1360	26
314		3001	16	do	pek	1440	24
315	St. Leonards-on-Sea	3004	15	do	bro pek	1500	26 bid
316		3007	12	do	pek	1140	23 bid
318	Monkswood	3013	19	do	bro pek	1140	66
319		3016	28	do	or pek	1540	66
320		3019	20	do	pek	2000	48
321		3022	17	do	pek sou	1530	40
322	Farnham	3025	40	do	bro pek	3000	29
323		3028	25	hf-ch	or pek	1625	30
325		3034	50	ch	pek	3750	27
326		3037	54	do	pek sou	3240	25
330	Ascot	3049	51	do	bro pek	4950	27 bid
331		3052	23	do	pek	2070	25 bid
332		3055	31	do	pek sou	2970	23 bid
333		3058	34	do	bro or pek	3060	26
334	Errollwood	3061	13	do	or pek	1235	40
335		3064	16	do	pek	1440	35
336	Monkswood	3067	14	hf-ch	fans	980	39
337	Putupaula	3070	8	ch	bro or pek	920	30
338		3073	62	do	br pek	5580	32
339		3076	47	do	bro pek	4224	30
340		3079	43	do	pek	3225	25
341		3082	22	do	pek sou	1540	23 bid
343	Telbedde	3088	55	hf-ch	bro or pek	3025	33
344		3091	49	ch	or pek	5145	34
345		3094	16	do	pek	1360	30
347	Geragama	3100	11	do	bro pek	990	28
348		3103	17	do	pek	1445	23 bid
358	Bambragalla	3133	13	hf-ch	bro or pek	780	36
364	Agra Elbedde	3151	72	ch	or pek	3906	45

[Messrs. Somerville & Co.—266,698 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
2	Benveula	532	9	ch	pek	720	19
4	Salawe	538	23	do	bro pek	2415	28
5		541	12	do	pek	1140	24
6		544	13	do	pek sou	1170	22
9	Monrovia	553	16	do	bro pek	1600	29
10		556	21	do	pek	1890	25
11		559	25	do	pek sou	2500	23
12		562	15	do	bro tea	1425	19
14	Rambodde	568	24	hf-ch	or pek	1320	44
15		571	31	do	pek	1550	35
19	Blinkbonnie	583	31	do	bro pek	1860	45 bid
20		586	39	ch	pek	3510	33 bid
22	Yarrow	592	52	hf ch	or pek	2340	36 bid
23		595	75	do	bro or pek	3750	32
24		598	98	do	pek	3920	27
26	Theberton	604	35	ch	bro or pek	3500	30 bid
29	Lower Dickoya	613	13	hf-ch	bro or pek	728	38
30		616	11	ch	bro pek	1100	29
31		619	9	do	pek	900	26
32	Glenesk	622	29	do	bro pek	2755	25 bid
33		625	15	do	pek	1125	27
34		628	18	do	pek sou	1080	20
36	Koladeniya	634	15	do	bro pek	1500	27 bid
37		637	17	do	pek	1360	23 bid
38		640	9	do	pek sou	765	22
44	Ferriby	658	28	do	bro pek	2660	out
45		661	50	do	pek	4250	25 bid
46		664	20	do	pek sou	1500	22 bid
48	Hanagama	670	12	do	bro pek	1200	29
49		673	38	do	pek	3610	24
50	F F, in estate mark	676	18	hf-ch	bro pek	900	22 bid
55	Avissawella	691	30	ch	bro pek	3000	26 bid
56		694	25	do	pek	2125	23 bid
57		697	34	do	pek sou	2550	23
58		700	5	do	dust	700	22
59	Kosgahahena	703	14	do	bro pek	1540	23 bid
60		706	17	do	pek	1700	22 bid
64	Warakamure	718	24	do	bro pek	2400	24 bid
65		721	12	do	pek	1140	22 bid
66		724	8	do	pek sou	720	20 bid
67	H	727	19	do	dust	1900	23
69	Ladysmith	733	50	do	bro pek	4600	28
70		736	22	do	pek	1584	21 bid
71	Nillicollaywatte	739	25	hf-ch	bro pek	1550	32
72		742	23	ch	pek	1863	28
73		745	16	do	pek sou	1120	25
76	Forest Hill	754	17	do	bro pek	1598	28 bid
77		757	19	do	pek	1539	26
81	Sangaly Toppe	769	8	do	pek	810	25
85	Nyanza	781	12	do	bro pek	1200	34
86		784	8	do	or pek	760	33 bid
87		787	24	do	pek	2040	32 bid
88		790	19	do	pek sou	1615	27 bid
89		793	7	do	dust	700	26
94	Yspa	808	26	do	pek sou	2080	28
95	Ingeriya	811	55	hf ch	bro pek	3250	28 bid
96		814	56	do	pek	2658	24 bid
97		817	42	do	pek sou	1932	22 bid
98		820	41	do	bro pek fans	2460	24 bid
100	Mousakande	826	13	do	bro or pek	754	28 bid
101		829	19	ch	bro pek	1558	28 bid
102		832	27	do	sou	2052	21
104		838	17	hf-ch	bro or pek	1003	28
105	Ambalawa	841	21	do	pek	903	25
106		844	30	do	pek sou	1170	23
107	San Cio	847	60	do	sou	1200	21
108	Hopewell	850	27	do	bro or pek	1728	47
109		853	18	do	bro pek	990	36
110		856	41	do	pek	2214	33
111		859	25	do	pek sou	1250	30
114	Agarsland	868	15	do	bro or pek	975	47
116		874	36	do	pek	1800	33
119		883	10	do	dust	840	26
120	Doragalla	886	10	ch	bro or pek	1000	42 bid
121		889	11	do	bro pek	1100	35
122		892	30	do	pek	2550	22
123		895	13	do	pek sou	1040	28
125	Harangalla	901	24	do	bro pek	2400	32 bid
126		904	26	do	pek	2210	28 bid
127		907	10	hf-ch	dust	800	26
128		910	8	ch	bro pek fans	800	28
129	Bollagalla	913	30	do	bro pek	3000	29 bid
130		916	21	do	pek	1680	27
131	Rayigam	919	25	do	bro pek	2500	32
132		922	20	do	or pek	1700	29 bid
133		925	22	do	pek	1870	28
134		928	12	do	pek sou	1080	26
135	Bloompark	931	15	do	bro pek	1575	29
136		934	10	do	pek	900	24
141	Tavalamtenne	949	19	hf-ch	or pek No. 3	855	31 bid
142		952	20	do	pek	900	28
146	Arduthie	964	20	do	bro pek	1100	31
147		967	25	do	pek	1250	26 bid
148		970	15	do	pek sou	750	25 bid

Lot		Box.	Pkgs.	Name.	lb.	c.
149	Attiville	973	10 ch	bro pek	1000	23 bid
150		976	21 do	pek	1995	20 bid
151		979	17 do	pek	1615	20
152		982	8 do	pek sou	840	19
154	Hangranoya	988	29 do	pek	2175	25 bid
155		991	86 do	pek sou	5590	24
161	Rookwella	10	10 do	bro pek	1060	25
162		13	8 do	pek	775	21
163		16	10 do	sou	915	14
165	Florida	22	16 do	bro pek	1600	26
166		25	13 do	pek	1248	23
172	Angalla	43	33 do	pek	2475	12 bid
173	Bogahagoda-watte	46	8 do	bro mix	800	10 bid
174	Nagatenna	49	50 do	bro pek	4600	28
175	Deniyaya	52	53 do	bro pek	5300	32
176		55	25 do	pek	2500	30
177		58	26 do	pek sou	2600	26
178		61	9 do	sou	900	21
179		64	6 do	dust	900	23
169	Monte Christo	67	43 do	bro pek	4300	35
182		73	9 do	fans	1080	26
183		76	11 hf-ch	dust	880	25
134	B R L, in estate mark	79	87 ch	bro pek	6434	25 bid
185	Doragalla	82	8 do	bro or pek	800	49
186		85	11 do	bro pek	1100	38
187		88	26 do	pek	2210	33
188		91	11 do	pek sou	888	29
190	Neuchatel	97	37 do	bro pek	3700	27 bid
191		100	32 do	pek	2720	24 bid
192		103	17 do	pek sou	1360	23 bid
193	Lonach	106	129 hf ch	bro pek	7095	32 bid
194		109	52 ch	pek	4120	29 bid
195		112	32 do	pek sou	2560	27
199	Pitaville	124	18 do	sou	1620	20
205	G A	142	12 do	sou	780	20
206		145	12 hf ch	dust	960	24

[Mr. E. John.—175,226 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Coslande	974	22 hf-ch	bro pek	1210	37
4		977	27 ch	pekoe	2430	28 bid
9	Templestowe	992	43 do	bro or pek	3440	51
10		995	27 do	or pek	1755	44
11		998	44 do	pekoe	3740	37
12		1	20 do	pek sou	1700	34
14		7	11 do	bro mix	935	21
15		10	11 hf-ch	dust	935	27
16	St. John's	13	29 do	bro or pek	1620	60
17		16	28 do	or pek	1400	64
18		19	32 do	pekoe	1728	45
19		22	12 do	pek fans	840	36
20	S J	25	27 do	bro pek	1566	45
21		28	20 do	pekoe	1120	38
22	Koslande	31	22 do	bro pek	1210	38
23		34	27 ch	pekoe	2430	29 bid
28	Perth	49	88 hf-ch	or pek	3765	33
31	Iona	58	36 do	bro or pek	2160	57
32		61	24 ch	or pek	2230	44
33		64	22 do	pekoe	1870	37
34	Glasgow	67	65 do	bro or pek	4030	52
35		70	16 do	bro pek	1472	52
36		73	17 do	pekoe	1496	45
37		76	12 do	pek sou	1200	39
38	Agra Ouvah	79	25 hf-ch	bro or pek	1650	63
39		82	70 do	bro pek	4550	49
40		85	24 ch	pekoe	2400	40
41	Lunugalla	88	10 do	bro pek	1000	26
42		91	13 do	pekoe	1040	25
43	Bellongalla	94	11 do	bro pek	1100	29
44		97	17 do	pekoe	1360	25
45		100	11 do	pek sou	770	21
46		103	6 do	dust	840	21
47		106	9 do	bro pek fans	900	20
48	Glassaugh	109	29 hf-ch	or pek	1537	72
49		112	22 do	bro or pek	1430	56
50		115	22 ch	pekoe	2090	48
52	Galella	121	12 do	bro pek	1200	38
53		124	13 do	pekoe	1105	33
59	Tempo	142	18 do	bro pek	1690	28
60		145	16 do	pekoe	1200	27
61		148	13 do	pek sou	845	24
62		151	10 do	sou	700	22
63	D R K	154	30 hf-ch	pek fans	2250	27 bid
65	Kandaloya	160	29 do	or pek	1160	30
66		163	43 do	pekoe	1720	29
68	Nahavilla	169	4 ch / 35 hf-ch	bro pek	2500	43
69		172	12 ch / 16 hf-ch	or pek	2000	39
70		175	22 ch	pekoe	2200	32
71	Ratwatte	178	26 do	bro pek	2600	26
72		181	29 do	pekoe	2610	24
73		184	13 do	pek sou	1040	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
74	Mahaailu	187	16 ch	or pek	1440	40
75		190	53 hf-ch	bro or pek	3021	42
76		193	14 ch	pekoe	1260	34
77		196	16 do	pek sou	1408	33
78		199	10 do	unass	920	21 bid
79	Kadienlena	202	15 hf-ch	bro or pk dt	1200	28
80		205	9 ch	congou	900	20
81	G L	211	11 hf-ch	dust	880	26
84	B K	217	22 ch	bro pek	2200	34 bid
85		220	18 do	sou	1530	23 bid
86		223	30 hf-ch	bro pk fans	1890	30 bid
88	Glentilt	229	52 do	bro pek	3120	50
89		232	25 ch	or pek	2375	40
90		235	17 do	pekoe	1530	37
92	Uda	241	26 do	pekoe	2080	29
93	Pitadeniya	244	24 hf-ch	pek sou	1030	25
95	Ferndale	250	17 ch	pekoe	1520	32
100	Murraythwaite	265	18 do	bro pek	1710	30
101		268	17 do	pekoe	1445	26
102	K P	271	25 hf-ch	bro pek fans	1555	30 bid
103		274	22 do	pek fans	1650	27 bid
104	Brownlow	277	33 do	bro or pek	1815	50 bid
105		280	10 ch	or pek	930	40
106		283	23 hf-ch	bro pek	1127	40
107		286	23 ch	pekoe	2548	35
108		289	21 do	pek sou	1827	34
110	Waragalande	295	20 do	bro pek	2000	28
111		298	12 do	pekoe	1200	25
112		301	8 do	pek sou	120	33
114	Troup	307	26 do	pek sou	2470	35
115	Little Valley	310	7 do	bro pek	700	39
116		313	54 do	pekoe	4590	28 bid
117		316	10 hf ch	dust	800	27
118		319	10 do	fans	950	28
119	G B	322	17 ch	dust	2890	25 bid
120	Ottery	325	24 do	bro or pek	2060	44
121		328	14 do	or pek	1190	43
122		331	36 do	pekoe	2600	32 bid
123		334	10 do	sou	900	27
125	Rookwood	340	20 hf-ch	or pek	1200	41
126		343	30 ch	sou	1440	25

SMALL LOTS.

E. Benham & Co.

Lot		Box.	Pkgs.	Name.	lb.	c.
5	Halloowella	33	5 ch	sou	400	20
12	Hapugastenne	54	8 do	sou	560	20
14		60	8 hf ch	dust	680	25

[Messrs. Forbes & Walker

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	P S P	2062	6 ch	bro or pek	615	27
3		2068	7 do	pek	630	22
4		2071	3 do	pek sou	255	20
7		2080	5 do	red leaf	413	16
8		2083	6 do	bro tea	535	16
10	Wewalkande	2089	10 hf ch	pek	520	23
11		2092	10 do	pek sou	500	23
14	Galkanda	2101	7 ch	pek sou	630	21
15		2104	1 do	dust	120	20
16	Allington	2107	10 hf ch	bro pek	550	25
17		2110	4 do	pek	200	24
18		2113	5 do	pek sou	250	21
23	Glencorse	2128	6 ch	bro tea	660	25
24		2131	2 do	dust	354	22
25	Kincora	2134	6 ch	bro pek	525	46
26		2137	9 ch	pek	630	30
27		2140	7 do	pek No. 2	455	26
28		2143	8 do	fans	520	29
32	Sirisandura	2155	6 ch	bro pek fans	600	26
33		2158	4 do	red leaf	340	16
36	Cooroondoo-watte	2167	5 ch	congou	500	24
37		2170	5 hf ch	pek dust	430	26
38	Barrington	2173	6 ch	bro pek	570	23 bid
39		2176	5 do	pek	425	19
43	Attempettia	2188	1 ch	pek sou	80	27
44		2191	1 hf ch	dust	80	24
47	Huanuco	2200	7 do	fans	560	22
54	Tembiligalla	2221	7 ch	pek sou	630	23
55		2224	1 do	or pek fans	130	25
56		1227	1 do	dust	130	24
67	Kosga	2260	10 do	unas	500	16
68		2263	2 ch	bro pek fans	140	22
100	Clunes	2359	5 ch	dust	450	24
105	Massena	2374	8 hf-ch	pek fans	480	26
106		2377	4 ch	fans	280	25
107		2380	2 hf ch	dust	160	18
112	Ganapalla	2395	5 ch	pek sou	375	23
114		2401	1 do	dust	125	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
116	Letchmey	2407	4 hf-ch	or pek	220	26
117		2410	2 ch	bro mix	180	23
119	Killarney	2416	4 hf ch	dust	320	26
126	Opalgalla	2437	5 ch	red leaf	305	15
127		2440	8 hf ch	dust	672	23
133	Rowley	2458	8 do	dust	400	26
138	Haputala-wella	2473	11 hf ch	pek sou	495	30
142	Queensland	2485	2 do	bro pek dust	150	26
143	N B D	2488	5 ch	bro mixed	500	14
153	Aberfoyle	2518	6 hf ch	fans	390	29
156	Digdola	2527	4 ch	pek sou	450	23
163	Uragalla	2548	4 ch	bro pek	360	26
164		2551	6 do	pek	510	22
165		2554	4 do	pek sou	329	16 bid
166		2557	2 do	bro pek fans	150	20
167		2560	1 do	dnst	135	17
168		2563	1 hf ch	bro pek	50	23
178	Castlereagh	2593	8 do	dust	640	27
182	Weyunga-watte	2605	8 ch	bro tea	640	22
183		2608	4 hf ch	dust	320	26
185	A G	2614	3 ch	or pek	309	30
186		2617	4 do	pek	360	27
188	Marlborough	2623	4 ch	fans	448	24
190	Ingurugalla	2629	4 ch	pek sou	360	24
191		2632	7 hf ch	bro tea	596	21
192		2635	2 ch	red leaf	180	17
195	Blairgowrie	2644	3 do	dust	465	20
198	Bloomfield	2653	1 hf ch	pek fans	80	16
202	Old Medde-gama	2665	5 ch	sou	400	20
206	S V	2677	4 hf ch	bro or pek	244	45
207		2680	2 ch	bro pek	120	38
210	Richmond	2689	7 do	pek	665	40
211		2692	3 do	pek sou	285	37
215	Kelburne	2704	6 hf-ch	dust	540	22
217	Katooloya	2710	1 ch	pek	90	26
221	A	2722	6 ch 1 hf-ch	pek	578	23
222		2725	1 ch	pek sou	60	20
223		2728	1 do	dust	100	24
229	Sark	2746	2 do	pek	160	24
230	Kabragalla	2749	9 hf-ch	bro tea	495	15
231		2752	5 do	dust	425	25
233	Dewalakande	2758	6 do	dust	480	21
235	Graceland	2764	13 do	pek	650	22
236		2767	5 do	pek sou	250	19
237		2770	1 do	congou	50	15
238		2773	2 do	dust	160	15
239	Mount Plea-sant	2776	1 box	golden tips	6¼	R1·60 bid
240		2779	5 hf-ch	br pek	275	26
241		2782	4 do	pek	200	23
242		2785	3 do	pek sou	150	19
243		2788	1 do	fans	55	18
244		2791	1 do	unas	50	20
246	K D M in est. mark	2797	12 do	bro pek	672	24
249		2806	2 do	sou	100	18
250		2809	8 do	fans	400	16
254	Woodend	2821	3 ch	dust	420	22
255	Augusta	2824	5 do	sou	475	23
257		2830	1 do	dust No. 2	170	15
262	Nillomally	2845	2 do	sou	150	26
263		2848	5 hf-ch	fans	350	23
264		2851	2 ch	dust	180	27
265	Munukattia, Ceylon in est. mark	2854	10 hf-ch	or pek	500	36
268		2863	7 ch	pek sou	665	28
269		2866	2 do	congou	200	24
270		2869	7 hf-ch	dust	595	27
275	K P W	2884	2 do	dust	170	24
284	PassaraGroup	2911	2 do	fans	140	28
288	Battawatte	2923	6 ch	dust	610	26
310	Warwick	2989	1 hf-ch	pek fans	75	36
311		2992	1 do	dust	90	26
317	St. Leonards-on-Sea	3010	5 ch	bro mixed	375	19
324	Farnham	3031	3 do	bro or pek	300	27
327		3040	5 do	pk fans	500	26
328		3043	1 do	sou	80	21
329		3046	3 do	dust	390	22
342	Putupaula	3085	3 hf-ch	dust	225	25
346	Telbedde	3097	5 ch	pek sou	270	22
349	M'Galla	3106	1 do	red leaf	95	14
350	Stellenberg	3109	1 do	br pek	125	33
351		3112	4 do	dust	580	26
352	Bagatoda	3115	5 do	bro pek	450	25
353		3118	4 do	pek	320	23
354		3121	3 do	pek sou	225	21
355		3124	2 do	pek dust	150	24
356	C M A	3127	7 hf-ch	fans	560	28
357	W in est. mark	3130	2 do	faus	112	25
359	Bambragalla	3136	7 ch	or pek	630	31
360		3139	11 hf-ch	pek	550	29

Lot,		Box.	Pks.	Name.	lb.	c.
361		3142	7 hf-ch	pek sou	359	27
362		3145	1 do	sou	50	25
363		3148	1 do	dust	80	26

[Messrs. Somerville & Co.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	Benveula	529	7 ch	bro pek	630	21
3		535	3 do	pek sou	300	18
7	Salawe	547	1 do	pek dust	175	24
8		550	1 do	dust	170	22
13	Monrovia	565	3 do	pek dust	435	24
16	Rambodde	574	8 hf-ch	pek sou	360	29
17		577	1 do	dust	90	25
18		580	3 do	fans	210	27
21	Blinkbonnie	589	8 ch	pek sou	656	31
25	Y, in est. mark	601	5 hf-ch	dust	400	25
27	Theberton	607	5 ch	pek	450	26
28		610	1 do	fans	100	25
35	Glenesk	631	2 do	bro tea	220	21
39	Koladeniya	643	4 do	sou	320	18
40		646	2 do	bro tea	200	24
41		649	4 do	dust	400	23
42	Blinkbonnie	652	7 hf ch	fans	455	31
43		655	8 do	dust	680	24
47	Ferriby	667	5 ch	fans	575	23
51	F F, in estate mark	679	13 hf ch	pek	650	20
52		682	9 do	pek sou	405	17
53		685	1 do	dust	95	18
54		688	1 do	bro pek fans	65	19
61	Kosgahahena	709	4 ch	pek sou	400	18
62		712	3 do	sou	300	15
63		715	2 do	pek dust	300	19
68	H	730	3 do	sou	285	18
74	Nilicollaywatte	748	1 hf-ch	dust	85	25
75		751	1 do	fans	75	25
78	D S	760	1 ch	pek dust	150	20
79		763	2 do	sou	180	22
80	Sangaly Toppe	766	7 hf-ch	bro pek	420	23
82		772	1 do	bro tea	75	22
83		775	3 do	pek dust	255	25
84		778	3 ch	red leaf	285	17
90	A F	796	1 do	bro pek	110	26
91		799	1 do 1 hf-ch	pekoe	128	24
92		802	1 ch	pek s u	85	22
93		805	1 hf-ch	dust	65	20
99	Ingeriya	823	3 hf ch	dust	252	22
103	Mousakande	835	9 do	fans	594	25
112	Hopewell	862	5 do	fans	325	30
113		865	4 do	dnst	340	26
115	Agarsland	871	12 do	bro pek	660	35
117		877	12 do	pek sou	600	30
118		880	8 do	fans	496	31
124	Doragalla	898	3 ch	bro mix	420	22
137	Bloompark	937	6 do	pek sou	660	18
138		940	3 do	congou	210	15
139	Tavalam-tenne	943	9 hf ch	bro or pek No. 3	540	33
140		946	10 do	or pek No. 1	500	34
143		955	10 do	pek sou	400	25
144		958	6 do	fans	390	27
145		961	1 do	dust	80	23
153	Attiville	985	5 ch	bro mix	450	10
156	D B R, in est. mark	994	1 ch	bro pek	83	27
157		997	1 do	pek	90	25
158		1	1 do	pek sou	66	23
159		4	1 hf ch	dust	83	21
160		7	1 do	red leaf	34	15
164	Rookwella	19	5 ch	pek fans	319	17
167	Florida	28	2 ch	pek sou	188	17
168		31	2 ch 1 hf ch	bro mix	230	13
169		34	8 do	fans	658	1
170		37	2 ch 1 hf ch	dust	325	21
171		40	1 do	congou	96	14
181	Monte Christo	70	4 ch	pek sou	340	23
189	Doragalla	94	5 ch	bro mix	625	26
196	Galatota	115	6 do	bro pek	600	24
197		118	2 do 2 hf ch	pek	305	20
198		121	1 ch	pek sou	100	17
200	W, in estate mark	127	2 hf ch	bro pek	120	28
201		130	2 do	pek	110	25
202		133	5 do	pek sou	250	22
203		136	1 ch	dust	130	22
204	G A	139	4 ch	pek sou	340	20
207	Bope	148	12 hf ch	bro pek	648	26
208		151	5 do	pek	260	23

[Mr. E. John.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	A G	968	5	ch	bro pek	429	24
2		971	3	do	sou	210	16
5	Coslande	980	2	do	pek sou	180	31
6		983	4	do	con	320	23
7		986	2	do	fans	220	29
8		989	3	do	dust	225	26
13	Templestowe	4	8	do	sou	680	23
24	Koslande	37	2	do	pek sou	180	26
25		40	4	do	con	320	23
26		43	2	do	fans	220	29
27		46	3	do	dust	255	26
29	Perth	52	8	do	pek sou	640	28
30		55	4	hf-ch	pekoe dust	300	27
51	Glassaugh	118	5	ch	pek sou	500	40
52	Galella	127	4	do	pek sou	340	31
55	M G	130	7	do	unass	630	17
56		133	7	hf-ch	fans	525	33
57	Chapelton	136	5	do	dust	450	25
58		139	8	ch	bro mix	640	19
64	Kandaloya	157	2	hf-ch	bro pek	90	32
67		166	10	do	pek sou	400	29
81	G L	208	4	ch	sou	360	20
83		214	6	do	bro pek fans	420	27
87	Loughton	226	10	hf-ch	bro or pek	500	31
91	Glentilt	238	11	do	bro mix	660	31
94	Marakona	247	2	ch	dust	300	19
96	Eladuwa	253	1	do	or pek	95	29
97		256	1	do	bro pek	110	25
98		259	5	do	pekoe	450	25
99		262	2	do	pek sou	180	23

Lot.		Box.	Pkgs.		Name.	lb.	c.
109	Brownlow	292	11	hf-ch	bro pek fans	649	38
113	Waragalande	304	1	ch	dust	120	24
124	Ottery	337	2	do	dust	180	27
127	M K	346	7	hf-ch	bro pek	350	25
128		349	6	ch	pekoe	540	21
129		352	2	hf-ch	pek fans	126	18
130		355	2	do	fans	100	14
13		358	2	ch	dust	260	19

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 18.

"Workman."—Mahakande F, 1 barrel sold at 100s; ditto 1, 1 barrel sold at 96s; ditto 2, 2 casks sold at 78s; ditto S, 1 barrel sold at 52s; ditto PB, 1 barrel sold at 67s 6d.

CEYLON COCOA SALES IN LONDON.

"Hitachi Maru."—Cocoa Hylton OO, 21 bags sold at 96s.

"Jumna."—North Matale, 54 bags out at 100s.

"Stentor."—Armagh A, 5 bags out at 75s.

No. 22 COLOMBO, JUNE 18, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[24,502 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	22	35 ch	or pek	3675	40
2		25	26 do	pek	2340	38
3	Hornsey	28	25 hf-ch	hro or pek No. 2	1625	35
4	Mandara Newera	31	65 hf-ch	bro pek	3575	39 bid
		34	30 do	pek	1500	37
6		37	17 do	pek sou	765	33
		40	17 do	dust	1360	25
9	Hapugastenne	46	31 ch	bro or pek	3162	31
0		49	17 do	bro pek	1445	27
11		52	31 do	pek	2480	26
12		55	31 do	pek sou	2325	24

Messrs. Forbes & Walker.

[527,993 lb.]

Lot.		Box.	Pks.	Name.	lb.	c.
1	Igalkande	3154	22 ch	pek	1980	24
2	G K	3157	27 ch	bro tea	2430	20
3	A & B	3160	16 ch	dust	2464	21
4		3163	26 do	fans	2550	20 bid
5	E D P	3166	25 ch	sou	1875	20
6		3169	14 hf-ch	dust	1120	24
7	Avoca	3172	16 ch	bro or pek	1728	64
8		3175	30 do	bro pek	3420	44
9		3178	37 do	pek	3219	38
12	Bickley	3187	45 ch	pek	2475	30
13		3190	16 hf ch	pek sou	800	26
14	Holton	3193	8 ch	bro pek	720	29
15		3196	14 do	pek	1260	26
17	Summer Hill	3202	27 ch	bro or pek	1728	70
18		3205	20 do	or pek	1800	50
19		3208	26 do	pek	2418	41
20		3211	29 do	pek sou	2204	36
26	Glencorse	3229	11 ch	bro or pek	990	32
27		3232	19 do	bro pek	1710	28
28		3235	13 do	pek	1040	25
29		3238	12 do	pek sou	960	23
38	St. Paul's	16	14 hf ch	bro pek	742	43
39	O B L C, in est. mark, Forest Creek	19	20 ch	bro or pek	2000	50 bid
40		22	22 do	bro pek	2200	43
41		25	21 do	or pek	2100	39
42		28	30 do	pek No. 1	2700	38
43		31	29 do	pek „ 2	2900	36
44	Kirklees	34	29 hf-ch	bro or pek	1740	39
45		37	33 ch	or pek	3135	36
46		40	33 do	pek	3135	34
47		43	37 do	pek sou	2960	28
49		49	14 hf-ch	dust	1200	27
50	High Forest	52	47 hf-ch	or pek No. 1	2961	71
51		55	31 do	or pek	1860	52
52		58	25 do	bro or pek	1975	41
53	Ruanwella	61	30 ch	or pek	2550	29
54		64	13 do	bro pek	1300	28
55		67	29 do	pek	2610	25
56		70	13 do	pek sou	1170	22
58	Clunes	76	18 ch	bro or pek	1800	27
59		79	14 do	bro pek	1260	27
60		82	15 do	or pek	1200	26
61		85	49 do	pek	3920	25
62		88	10 do	pek sou	950	20
64	Gampaha	94	24 ch	bro or pek	2640	39
65		97	34 do	pek	2890	37
66		100	23 do	pek sou	2070	32
67	Erracht	103	20 ch	bro or pek	2000	28
68		106	9 do	or pek	810	30
69		109	9 do	bro pek	720	26
70		112	33 do	pek	2805	25
71		115	10 do	pek sou	850	23
75	Inverness	127	54 hf ch	bro or pek	3240	45
76		130	25 ch	or pek	2500	44 bid
77		133	26 do	pek	2340	38 bid
78		136	15 do	bro pek	1350	35
81	Carfax	145	17 ch	or pek	1530	38 bid
82		148	17 do	sou	1615	19
83	Morankande	151	12 hf ch	bro or pek	720	31
84		154	17 ch	or pek	1445	30
85		157	2[illegible] ch	pek	1989	26
86		16[illegible]	1[illegible] do	pek sou	900	25
87	Binoya	16[illegible]	[illegible]1 do	pek sou	1080	25
88		166	1[illegible] do	dust	1360	23
89	Penrhos	16[illegible]	[illegible] hf-ch	bro or pek	1404	47
90		17[illegible]	20 do	or pek	900	38
91		175	[illegible] ch	pek	2752	32
92		178	[illegible] do	pek sou	1660	27
94	Waitalawa	184	[illegible] ch	bro pek	3900	31
95		187	1[illegible] do	pek	5300	30
96		190	[illegible] do	pek sou	1600	25
98	Stamford Hill	196	34 hf-ch	bro pek	2040	49
99		19[illegible]	[illegible] do	or pek	1035	58
100		20[illegible]	[illegible] do	pek	2250	39
101		205	[illegible]	pek sou	850	35
105	St. Edward's	217	[illegible]	pek	715	24
107	Glendon	223	[illegible]	bro pek	3 00	31
108		226	[illegible]	or pek	900	33
109		229	[illegible]	pek	2960	30
110		2[illegible]2	2[illegible]	pek sou	1920	27
111	G	235	1[illegible]	sou	1020	22
112	Allagalla	238	12 [illegible]	b o mix	900	22
113		241	19 hf-ch	dust	1615	24
114	B, in estate mark	244	21 [illegible]	sou	1890	22
115		247	11 [illegible]	dust	1650	22
117	H G M	253	17 hf-ch	bro or pek	1105	42
118		256	8 ch	or pek	760	37
119		259	31 do	bro pek	3100	33
120		262	4[illegible] do	pek	3780	33
121		265	17 do	pek sou	1530	28
122		268	1[illegible] do	bro pek fan	1260	27 bid
126	Dyaculla, No. 2	28[illegible]	31 hf-ch	bro pek	1705	34
127		283	36 ch	pek	2520	32
128		286	[illegible] do	pek sou	770	26
129		289	1[illegible] hf-ch	dust	800	25
130	Lyegrove	292	8 ch	bro pek	800	38
131		295	8 do	pek	720	31
133	Erlsmere	301	5[illegible] ch	bro pek	5085	39
134		304	4[illegible] do	pek	3520	34
135		307	11 do	pek sou	935	29
136	O'Bode	310	14 ch	bro pek	1512	34
137		313	13 do	or pek	1235	28
138		316	12 do	pek	1080	27
141	Devonford	325	28 hf-ch	bro or pek	1540	75
142		328	14 do	or pek	1260	58 bid
143		331	14 do	pek sou	1120	43
144	Ella Oya	334	[illegible] do	bro pek	765	35
145		337	14 do	bro pek	1400	44
146		340	1[illegible] do	pek	1520	29
147		343	1[illegible] do	pek sou	1280	26
150	Rowley	352	41 hf-ch	pek	2050	33
152	Cooroondoowatte	358	9 [illegible]	pek	900	32
154	P	364	12 ch	or pek	1080	26
156		370	11 do	bro mix	814	18
157	Strathspey	373	10 do	bro or pek	1050	61
158		376	15 do	or pek	1500	50
159		379	21 do	pek	2037	43
160		382	10 do	pek sou	950	37
163	Doranakande	391	12 ch	bro pek	1200	30
164		394	8 do	pek	760	26
166		400	9 do	pek sou	810	23
168	Castlereagh	406	19 ch	bro pek	1805	46
169		409	22 do	or pek	1870	34
170		412	17 do	pek	1360	30
174	Arapolakande	424	83 ch	bro pek	7470	34
175		427	90 do	pek,	7200	16
176		430	12 do	pek sou	1080	25
178	S V, in est. mark	436	12 hf-ch	dust	960	23
179		439	9 do	pek fans	1008	25
181	Mawiligangawatte	445	9 ch	bro or pek	900	32
182		448	48 do	bro pek	4800	27
183		451	48 do	pek sou	3840	24
187	Puspone	463	30 do	or pek	2700	23 bid
188		466	36 do	bro pek	3636	24
189		469	20 do	pek	1700	24 bid
190	Ettapolla	472	30 hf ch	bro pek	1680	25
194	O B E C, in est. mark, Summer Hill	484	24 ch	bro or pek	1536	71
195		487	20 do	or pek No. 1	1800	59
196		490	39 do	pek	2460	47
197		493	48 do	pek sou	3792	38
198	Gallawatte	496	14 do	bro pek	1260	32
199		499	12 do	pek	960	25 bid

Lot		Box.	Pkgs.		Name.	lb.	c.
200		502	13	ch	pek sou	1040	24
201		505	9	hf-ch	dust	765	22
202	Palmerston	508	14	do	bro or pek	742	65
203		511	14	ch	br pek	742	49
204		514	13	do	pek	1170	41
205	Ardlaw and Wishford	517	20	hf-ch	bro or pek	1060	46
206		520	24	ch	bro pek	2280	41
207		523	15	do	or pek	1350	39
208		526	15	do	pek	1245	37
210	Knavesmire	532	30	hf-ch	or pek	1500	31
211		535	58	ch	bro pek	5800	26 bid
212		538	42	do	pek	3570	25
213		541	30	do	pek sou	2100	23
214		544	36	do	pek	2700	24
216	Harrow	550	25	hf ch	bro or pek	1500	46
217		553	23	ch	pek	2300	38
220	Theydon Bois	562	22	do	bro or pek	1980	50
221		565	27	do	pek	2160	32
222		568	16	do	pek sou	1360	26
225	Palmerston	577	19	hf ch	bro or pek	988	68
226		580	14	ch	pek	1260	45
227	Roeberry	583	16	do	bro or pek	1600	55
228		586	27	do	bro pek	2700	44
229		589	21	do	pek	1932	39
230		592	23	do	pek sou	1978	33
231		595	9	do	fans	900	33
232	Killarney	598	12	do	or pek	960	41 bid
233		601	12	do	pek	960	40
234		604	26	do	pek sou	2340	37
235	Ingrogalla	607	13	do	bro pek	1300	38
236		610	16	do	pek	1360	35
237	Walpita	613	25	do	bro pek	2500	33
238		616	19	do	pek	1900	30
239		619	12	do	pek sou	960	26
247	Yatiyana	643	10	do	pek	910	23
253	Ireby	661	25	hf-ch	bro pek	1500	50 bid
254		664	10	ch	pek	900	40
255		667	8	do	pek sou	720	36
258	Huanuco	676	70	hf-ch	pek	3147	21
259	Macaldeniya	679	19	hf-ch	bro pek	1140	37
260		682	15	do	or pek	825	29
261		685	20	do	pek	1100	26
263		691	7	ch	unast	700	26
265	Chesterford	697	77	do	bro pek	7700	31
266		700	70	do	pek	7000	27
267		703	74	do	pek sou	7030	25
268	Geragama	706	13	do	bro pek	1105	26
269		709	31	do	pek	2635	25
270	Great Valley, Ceylon in est. mark	712	58	hf-ch	br or pek	3190	43
271		715	17	ch	bro pek	1530	37 bid
272		718	53	do	pek	4770	36
273		721	35	do	pek sou	2625	28
274		724	13	do	sou	975	17
275		727	15	do	dust	1125	24
276	Dunkeld	730	48	hf-ch	bro or pek	2880	46
277		733	21	do	or pek	1155	38
278		736	21	ch	pek	1890	37
279	Seenagolla	739	13	hf-ch	bro or pek	715	52
280		742	23	do	bro pek	1265	40
281		745	30	do	pek	1500	40
282		748	15	do	pek sou	750	38
287	Dammeria	763	7	ch	bro or pek	840	35
288		766	51	do	or pek	5100	36
289		769	56	do	bro pek	6160	35
290		772	37	do	pek	3330	32
291		775	15	do	pek sou	1350	28
293	D M	781	8	do	bro pek	960	28
295	Pallagodda	787	30	do	bro pek	3000	31
296		790	23	do	bro or pek	2800	26
297		793	20	do	or pek	1700	28
298		796	30	do	pek	2400	27
299		799	40	do	pek sou	3400	23
300		802	13	do	sou	1105	20
301		805	29	do	dust	2465	22
302	Polatagama	808	35	do	bro pek	3500	30
303		811	15	do	or pek	1350	26
304		814	76	do	pek	6840	25
305		817	15	do	pek sou	1275	23
306		820	8	do	fans	800	22
308	Nonpariel	826	30	hf-ch	bro pek	1680	37 bid
309		829	17	do	pek	826	33
310		832	16	do	pek sou	707	27 bid
313	Poengalla	841	12	ch	dust	960	21
314	Ugieside	844	11	do	dust	880	21
315		847	13	do	bro mix	1040	15 bid
316		850	8	do	fans	800	18
317	Sark	853	14	do	bro pek	1260	27
318		859	14	do	br pk fans	1400	24
321	Harrow	865	13	hf-ch	br or pk fans	780	46
322		868	20	ch	pek	2000	38
323		871	12	do	pek sou	1080	33
325	Vogan	877	57	do	bro pek	5700	32
326		880	70	do	pek	6300	26 bid
327		883	14	do	pek sou	1120	24
328		886	9	do	dust	765	21
329	Gomalia	889	22	ch	pek sou	1760	32
330		892	15	hf-ch	fans	1350	25
331	B D W P	895	17	ch	bro pek	1445	28
332		898	25	do	bro pek	2125	27
339	Deaculla	919	58	hf-ch	bro pek	3190	37
340		922	52	ch	pek	3640	32
341		925	15	do	pek sou	1050	27 bid
342	R C W in est. mark	928	13	do			
			1	hf-ch	pek	1160	42 bid
343		931	19	ch	bro pek fans	1710	23 bid
345	Kitulgalla	937	17	do	bro or pek	1190	24 bid
346	Middleton	940	19	do	bro pek	1900	55 bid
347		943	14	do	pek	1260	41 bid
348		946	13	do	pek sou	1170	35 bid
349	Harrington	949	19	hf-ch	bro or pek	950	59
350		952	22	ch	or pek	2090	42
351		955	22	do	pek A	2070	37
356	B M A	970	35	do	bro pek	2625	20 bid

[Messrs. Somerville & Co.—207,284 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
3	L	160	15	ch	bro mix	1500	11
4		163	25	hf ch	dust	2000	22
5	Kallebokka	166	25	ch	pek bulked	2250	37
9	H J S	178	13	hf ch	pek	780	24
10	Avissawella	181	21	ch	bro pek	2100	29
11		184	22	do	pek	1870	25
12		187	40	do	pek sou	3000	23
13		190	7	do	fans	700	23
14	Bidbury	193	11	do	or pek	990	42
15		196	10	do	bro or pek	1000	40
16		199	10	do	pek sou	850	29
17		202	14	do	dust	980	25
19	Ritni, in estate mark	208	21	hf ch	or pek	1050	36
21		214	29	do	bro pek	1265	34
23	Mahatenne	220	25	ch	bro pek	2500	30 bid
24		223	19	do	pek	1900	26 bid
27	Abbotsford	232	20	ch	pek	2100	30
29		238	13	hf ch	dust	1170	26
30	Killin	241	29	hf-ch	bro or pek	1450	32
31		244	21	ch	or pek	1785	27
32		247	11	do	pek	990	25
35	Neboda	256	20	ch	bro or pek	2000	28
36		259	66	do	bro pek	6600	26 bid
38	Neuchatel	265	52	ch	bro pek	5200	29
39		268	41	do	pek	3485	25 bid
40		271	6	do	bro or pek	750	26
41		274	13	do	pek sou	1040	23
42		277	6	do	dust	960	21
48	Fairfield	295	21	ch	bro pek	2310	45
51		304	21	ch	pek	1785	36
52		307	9	do	pek sou	810	32
53	Labugama	310	44	hf-ch	bro pek	2200	28
54		313	19	ch	pek	1805	25
55		316	23	do	pek sou	1955	23
56	Rahatungoda	319	94	hf ch	pek	4700	37
57	Hangranoya	322	40	hf-ch	bro pek	2000	26
59		328	11	ch	pek	825	23
60		331	30	do	pek sou	1950	20
61	Patulpana	334	13	hf-ch	bro pek	715	24
68	G watte	355	15	ch	pek	1425	out
69		358	11	hf-ch	dust	880	21
70		361	62	ch	bro mix	5580	out
71	Annandale	364	15	hf ch	bro or pek	870	69
72		367	18	do	or pek	1044	45
73		370	20	do	pek	1080	41
74		373	24	do	pek sou	1368	33
75	Rayigam	376	22	ch	bro pek	2200	32
76		379	18	do	or pek	1530	30
77		382	17	do	pek	1445	23
78		385	11	do	pek sou	990	26
79		388	20	hf-ch	dust	2000	24
80	Koladeniya	391	15	ch	bro pek	1500	out
81		394	20	do	pek	1600	22
82		397	10	do	pek sou	850	13 bid
87	Hurstpierpoint	412	11	ch	bro pek	1100	30
95	G B	436	19	hf ch	dust	950	23
96	I P	439	32	ch	pek sou	2816	23
97		442	18	hf ch	dust	1530	21 bid
103	Roseneath	460	35	ch	bro pek	3500	28
104		463	19	do	pek	1710	27
105		466	26	do	pek sou	2080	25
106	Harangalla	469	21	ch	bro pek	2100	35
107		472	23	do	pek	1955	31
108		475	16	do	sou	1280	25
109	Doragalla	478	21	hf ch	bro or pek	1155	46
110		481	28	do	bro pek	1400	40
111		484	16	ch	pek	1360	35
114	Horagoda	493	8	ch	bro or pek	800	32
115		496	8	do	or pek	720	30
116		499	11	do	pek	1045	28
120	Kosgama	511	65	ch	bro pek	6500	26

Lot.		Box.	Pkgs	Name.	lb	c.
121		514	22 ch	pek sou	1650	22
122	Nyanza	517	9 do	bro or pek	900	57
123		520	9 do	bro pek	900	36
124		523	8 do	or pek	720	35
125		526	17 do	pek	1445	35
128	Hatdowa	535	20 ch	bro pek	1900	26 bid
129		538	27 do	pek	2025	25
130		541	23 do	pek sou	1610	22
132		547	10 do	fans	950	21
133	Kelani	550	25 ch	bro pek	2125	31
134		553	15 do	bro or pek	1500	28
135		556	12 do	pek	1020	25
136		559	12 do	pek sou	1080	23
141	Charlie Hill	5 4	31 hf ch	bro pek	1705	22 bid
142		577	17 do	pek	935	21
145	Hanagama	586	17 ch	bro pek	1700	27
146		589	20 do	pek	1900	24
147		592	13 ch	pek sou	1170	20
151	Citrus	604	13 ch	bro pek	1274	28
152		607	25 do	pek	2250	22
153		610	18 do	pek sou	1800	18
154		613	9 do	fans	895	18
156	H A	619	8 ch	fans	763	10
157	Ellatenne	622	26 ch	pek	2080	19 bid
158	F F, in estate mark	625	18 hf ch	bro pek	990	22 bid
159	Marigold	628	98 hf ch	bro pek	5390	43
160		631	32 do	pek	1600	38
161		634	19 do	pek sou	950	37
163	Tavalamtenne	640	19 hf ch	or pek No. 3	855	31 bid
164	W	643	13 hf ch	bro pek	780	24
167	Warakamure	652	8 ch	pek sou	720	20
170	M T S	661	10 do	pek	900	22
173		670	22 do	pek fans No. 1	1439	22 bid
174		673	19 hf ch	dust No 1	171	21 bid
175		676	16 do	pek dust	14	bid
176	Hangranoya	679	29 ch	pek	21	

[Mr. E. John.—193,041 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	Sadamulla	361	11 ch	bro pek	1100	21
2		364	18 do	pekoe	1800	19 bid
7	Kuruwathai	379	10 do	bro or pek	800	35
8		382	18 do	pekoe	1530	29
11	D H K	391	24 do	bro pek	2280	14
12		394	22 do	pekoe	1980	10 bid
13	Rookwood	397	22 do	bro or pek (Venesta)	2552	40 bid
14		400	14 do	or pek (Venesta)	1540	37
15		403	27 do	pekoe (Venesta)	2862	32 bid
16		406	10 do	pek sou	720	26
17	Mossend	409	22 hf-ch	bro or pek	1320	41
18	Kandaloya	412	68 do	bro pek	3060	30
19		415	45 do	bro pek	2025	29
22	Kanangama	424	29 do	bro or pek	2900	25 bid
23		427	31 do	bro pek	2790	21 bid
24		430	33 do	pekoe	2640	22 bid
25		433	18 do	pek sou	1440	19 bid
26		436	18 do	pek fans	1620	23 bid
27		439	10 hf-ch	dust	800	27
28	Templestowe	442	25 ch	bro or pek	2000	49
29		445	16 do	or pek	1040	44
30		448	31 do	pekoe	2635	40
31		451	12 do	fans	1140	33
32	Gonavy	454	39 hf-ch	or pek	1755	36
33		457	23 do	bro pek	1150	41
34		460	28 ch	pekoe	2100	33
35		463	13 do	pek sou	1365	26
38	Mount Clare	472	8 do	bro or pek	800	36
39		475	10 do	or pek	870	30
40		478	9 do	pekoe	765	27
41		481	12 do	pek sou	960	25
42		484	12 do	sou	1080	17
43		487	11 do	sou	968	17
46	Glassaugh	496	22 hf-ch	or pek	1166	73
47		499	14 do	bro or pek	896	52
48		502	17 ch	pekoe	1615	46
51	Dickapittia	511	32 do	bro pek	3200	36
52		514	35 do	pekoe	3500	35
53		517	7 do	pek sou	700	25
54	G B	520	7 do	bro pek	700	22
57		529	14 hf-ch	fans	910	26
59	Galella	535	15 ch	bro pek	1500	40
60		538	21 do	pekoe	1785	33
64	Ohiya	550	67 hf-ch	pek sou	3417	26 bid
65		553	9 do	fans	765	25
68	Agra Ouvah	562	40 do	bro or pek	2640	60
69		565	58 do	bro pek	3596	50
70		568	24 ch	pekoe	2400	39
71		571	13 do	pek sou	1235	35
72		574	35 hf-ch	pek fans	2975	31
73	Glasg w	577	44 ch	bro or pek	3520	53
74		580	16 do	or pek	1120	51
75		583	15 do	pekoe	1260	44
76		586	13 ch	pek sou	1235	37
77		589	14 do	fans	1400	30
78	C	592	18 do	bro mix	1530	16
79	H	595	13 do	bro mix	1300	16
80	Iona	598	42 hf ch	bro or pek	2620	54 bid
81		601	27 ch	or pek	2430	42
82		604	20 do	pekoe	1700	32
84	Poilakande	610	25 do	or pek	1875	25
85		613	34 do, 1 hf-ch	bro pek	3060	26
86		616	37 ch	pekoe	3330	24
87		619	11 hf-ch	dust	990	21
88	Rookwood	622	24 ch	bro or pek	2976	40 bid
89		625	19 do	or pek	2090	37
90		628	24 do	pekoe	2544	33 bid
91		631	15 do	pek sou	1440	26
92	Thebuana	634	9 do	bro pek	760	21 bid
93	Y K	637	14 do	dust	2100	19
94	Maryland	640	7 do	bro pek	735	27
95		643	7 do	pekoe	700	25
96	Maskeliya	646	51 hf-ch	bro or pek	1550	52 bid
97		619	48 ch	or pek	4320	34
98		652	37 do	pekoe	2960	31
101	Ferndale	661	12 do	or pek	1080	36
102		664	20 do	pekoe	1800	35
103	Osborne	667	34 do	bro or pek No. 1	3740	56
104		670	15 do	bro or pek No. 2	1500	48
106		676	17 do	bro pek	1870	38 bid
109	Ottery	685	36 do	pekoe	3600	33
110	Brownlow	688	27 hf-ch	bro or pek	1458	50 bid
111		691	24 ch	bro pek	1176	41
112		694	8 do	or pek	784	39
113		697	46 do	pekoe	4232	39
114		700	12 do	pek sou	1093	31 bid
115		703	18 hf-ch	bro pek fans	1224	32
116	Little Valley	706	8 ch	bro pek No. 2	800	30
118	Riseland	712	14 do	bro pek	1260	80
119		715	13 do	pekoe	1170	24
120	Akkara Totum	718	16 do	pek sou	1280	20
123	Bellongalla	727	10 do	pek sou	800	21
125	Morahela	733	30 do	bro pek	2870	31
126		736	19 do	bro or pek	1900	28 bid
127		739	19 do	or pek	1786	26 bid
128		742	21 do	pekoe	1764	27

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Mandara Newera	43	5 hf ch	bro mix	250	13

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Sadamulla	367	3 ch	pek sou	300	18
4		370	1 do	congou	94	12
5		373	2 do	red leaf	180	10
6		376	2 do	unas	170	14
9	Kuruwathai	385	3 do	pek sou	210	28
10		388	1 do	bro tea	80	28
20	B K	418	5 hf-ch	dust	430	25
21		421	4 ch	bro tea	356	14
36	Gonavy	466	7 hf-ch	dust	525	23
37		469	3 ch	congou	240	25
44	Mount Clare	490	2 do	fans	176	23
45		493	2 do	pek dust	200	22
49	Glassaugh	505	6 hf-ch	dust	570	27
50		508	6 do	bro or pek fans	450	32
55	G B	523	7 ch	pekoe	560	25
56		526	5 hf-ch	dust	425	24
58		532	2 do	bro mix	160	14
61	Galella	541	8 ch	pek sou	680	30
62		544	8 hf-ch	dust	680	23
63		547	4 bags	red leaf	224	13
66	W H	556	13 hf-ch	pek sou	572	24
67	R L	559	1 ch	red leaf	95	12
83	Iona	607	7 hf-ch	dust	560	25
99	Maskeliya	655	4 do	pek fans	24	29
100		658	5 do	dust	450	25
107	Osborne	670	4 ch	pek sou	380	36
117	Riseland	709	2 do	bro or pek	20	20 bid
121	Akkara Totum	721	5 do	fans	450	17
122		724	1 do	congou	80	11
129	Morahela	745	5 hf-ch	dust	420	20

[Messrs. Somerville & Co.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	Mousa Eliya	154	5 ch	bro pek fans	675	22
2		157	2 do	dust	340	18
6	Kallebokka	169	3 ch	pek sou	330	28
7		172	4 do	pek fans	500	26
8		175	4 hf ch	dust	340	23
18	Ritui, in estate mark	205	7 hf-ch	bro or pek	385	37 bid
20		211	14 do	pek	630	31
22		217	8 do	pek sou	320	28
28	Abbotsford	23	12 hf ch	bro mix	672	23
33	Killin	2 0	4 ch	pek sou	360	16
34		25	4 hf-ch	dust	320	20
37	Neboda	262	4 hf-ch	dust	340	20
43	Handrookande	280	11 hf ch	bro pek	605	27
44		283	8 do	pek	400	24
45		283	3 do	pek sou	150	22
46		289	1 do	dust	68	20
47		292	1 do	unas	52	18
49	Fairfield	298	10 hf ch	bro or pek	550	74
50		301	7 ch	or pek	595	46
58	Hangranoya	325	7 ch	or pek	560	25
62	Patulpana	337	12 hf ch	pek	600	22
63		340	9 do	pek sou	450	20
64		343	3 do	sou	135	16
65	Welimaluwa	346	2 hf ch	bro mix	100	15
66	Katukitula	349	4 hf ch	bro pek	200	out
67		352	4 do	pek	200	out
83	Koladeniya	400	2 ch	sou	160	15
84		403	1 do	bro sou	80	12
85		406	1 do	bro tea	100	12
86		409	1 do	dust	100	21
88	Hurstpier-point	415	7 ch	pek	646	20
89		418	3 do	pek sou	230	18
90		421	2 do	bro pek dust	257	21
91		424	1 do	con	61	15
92		427	1 do	red leaf	74	12
93		430	[illegible] do	fans	191	16
94	G B	433	5 hf ch	bro tea	2 0	19
98	California	445	6 ch	bro pek	570	28
99		448	do	pek	475	24
100		4 1	5 do	pek sou	475	18
101		454	do	dust	135	18
102		457	do	red leaf	240	10
112	Doragalla	487	14 do	pek sou	630	28
113		490	do	bro mix	630	22
117	Horagoda	502	ch	pek sou	450	23
118		505	2 do	dust	200	21
119		508	1 do	con	95	13
126	Nyanza	529	6 ch	pek sou	540	25
127		532	2 do	dust	200	24
131	Hatdowa	544	3 ch	dust	420	24
137	Kahatagalla	562	5 ch	bro pek	425	28
138		565	2 do	bro or pek	200	28
139		568	4 do	pek	360	26
140		571	4 do	pek sou	360	33
143	Charlie Hill	580	1 hf ch	pek sou	50	15
144		583	4 do	pek fans	300	21
148	Hanagama	595	3 ch	sou	294	18
149		598	2 do	fans	230	18
150		601	2 do	dust	278	18
155	Citrus	616	3 ch	dust	450	19
162	Marigold	637	8 hf ch	pek fans	560	28
168	M T S, in estate mark	655	4 ch	bro or pek	420	24
169		658	6 do	bro pek	630	21
171		664	4 ch	pek sou	360	18
172		667	4 do	sou	320	15

[Messrs. Forbes & Walker

Lot,		Box.	Pks.	Name.	lb.	c.
10	Avoca	3181	7 ch	pek sou	630	31
11		3184	do	bro pek fans	532	27
16	Holton	3190	ch	pek sou	560	24
21	Kincora	32	hf-ch	bro pek	250	42
22		32	do	or pek	315	39
23		2	ch	pek	350	30
24		3	do	pek No. 2	210	27
25		3 2	4 hf ch	fans	260	29
30	Glencorse	3241	ch	bro tea	575	24
31	Kalupahana	3244	3 do	bro pek	330	32
32		3247	3 do	or pek	276	28
33		1	4 do	pek	560	26
34		4	3 do			
			1 hf ch	pek sou	316	24
35		7	1 do	dust	80	20
36	Tennehena	10	1 ch			
			1 hf-ch	bro pek	175	29
37		13	3 ch	pek	300	27
48	Kirklees	46	3 hf-ch	congou	195	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
57	Ruanwella	73	6 ch	dust	480	22
63	Clunes	91	4 hf ch	dust	360	22
72	Erracht	118	1 ch	pek fans	102	21
73		121	1 ch	fans	89	21
74		124	1 do	dust	166	21
79	U R	139	3 do	bro tea No. 1	315	22
80		142	5 do	do No. 2	425	20
93	Penrhos	181	5 hf ch	pek dust	425	23
97	Waitalawa	193	8 hf ch	dust	680	24
102	Stamford Hill	208	3 hf-ch	dust	255	23
103	St. Edwards	211	9 do	bro or pek	540	29
104		214	8 do	bro pek	440	29
106		220	5 do	pek sou	260	21
116	X X	250	5 ch	dust	425	22
123	H G M	271	5 hf ch	dust	450	22
124	D	274	2 do	dust	150	22
125		477	4 do	bro mix	220	16
132	Lyegrove	298	2 ch	pek sou	170	25
139	O'Bode	319	8 ch	pek sou	640	23
140	K W D, in estate mark	322	7 hf ch	bro or pek fans	420	33
148	Ella Oya	346	1 hf ch	dust	80	22
149		349	3 do	bro pek fans	180	26
151	Cooroondoo-watte	355	8 do	bro pek	480	41 bid
153		361	5 ch	pek sou	500	28
155	P	367	7 ch	pek sou	630	15 bid
161	Strathspey	385	3 ch	sou	282	30
162		388	3 do	dust	369	24
165	Doranakande	397	5 ch	pek No. 2	450	24
167		403	1 do	dust	112	22
171	Dromoland	415	3 hf ch	bro pek fans	195	26
172		418	2 do	dust	164	22
173	Arapolakan-de	421	6 ch	bro or pek	660	30
177		433	5 do	dust	550	22
180	V O A	442	5 ch	bro tea	550	20 bid
184	Mawiliganga-watte	454	3 ch	dust	360	21
185	A G	457	2 ch	bro tea	180	21
186		460	3 do	dust	423	22
191	Ettapolla	475	12 hf ch	pek	672	21
192		478	7 do	pek sou	392	20
193		481	2 do	dust	100	22
209	Ellamulla	529	5 bags	red leaf	280	12
215	Harrow	547	13 hf-ch	or pek	676	43
218		556	7 ch	pek sou	630	30
219		559	2 hf-ch	dust	170	24
223	T B in est. mark	571	4 do	dust	280	23
224		574	3 do	fans	180	25
240	Walpita	622	3 ch	sou	240	23
241		625	2 do	fans	220	24
242		628	2 do	dust	300	20
243	Fetteresso	631	6 hf-ch	bro pek	336	28 bid
244		634	3 ch	red leaf	285	20
245	Yatiyana	637	4 do	bro pek	388	29
246		640	5 do	or pek	450	27
248		646	4 do	pek sou	372	23
249		649	1 do	pk sou No. 2	80	16
250	D B R	652	4 hf-ch	br pk fans	292	29
251		655	1 ch	pek sou	90	23
252		658	1 hf-ch	dust	83	25
256	Ireby	670	2 do	fans	140	23
257		673	3 do	dust	255	25
262	Macaldeniya	688	6 ch			
			1 hf-ch	pek sou	660	23
264		694	2 do	dust	160	28
283	Seenagolla	751	5 do	dust	375	23
284		754	7 do	bro mixed	420	25
285	E M in est mark	757	3 ch	unast No. 2	252	21
286		760	4 do	unast No. 2	304	19
292	Dammeria	778	4 do	dust	360	24
294	D M	784	5 do	pek	500	24
307	Polatagama	823	3 do	dust	450	20
311	Nonpariel	835	8 hf-ch	bro pek fans	437	31
312		838	2 do	bro pek dust	112	24
318	Sark	856	8 ch	pek sou	640	23
320	Harrow	862	4 do	or pek	360	44
324		874	1 hf-ch	dust	90	24
333	B D W P	901	3 ch	bro pek No	1 270	16
334		904	3 do	pek No. 2	240	14
335		907	3 hf-ch	dust	255	24
336		910	1 do	pek s u	75	out
337		913	1 do	mixed	50	14
338		916	1 do	dust	80	19
344	C W C O D	934	5 ch			
			1 hf ch	unast	499	27
352	Harrington	958	4 ch	pek B	360	32
353		961	5 do	or pek fans	325	34
354		964	3 hf-ch	dust	270	26
355	D M	967	1 ch	pek	100	19

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent*)

MINCING LANE, May 25.

"Orestes."—1 OG, 1 tierce sold at 76s; 2 ditto, 1 cask sold at 67s; 3 ditto, 1 barrel sold at 40s; PB ditto, 1 barrel sold at 65s.

"Stentor."—M in estate mark SF, 1 barrel sold at 78s; ditto S 1 1 cask sold at 72s; ditto S 2 2 casks sold at 72; ditto SS 1 barrel sold at 65s.

"Orestes."—Avoca P, 1 barrel sold at 93s; Beauvais, 1 barrel sold at 70s; 1 cask and 1 barrel sold at 53s; 1 barrel sold at 70s; 1 barrel sold at 52s.

CEYLON COCOA SALES IN LONDON.

"Orestes."—M in estate mark, Mariawatte Plantation, 13 bags sold at 69s.

"Kanagawa Maru."—Beredewelle COC Ex. No. 1, 14 bags sold at 91s 6d; ditto T, 1 bag sold at 69s.

"Sado Maru."—Beredewelle COC Ex. No. 1 P, 9 bags sold at 65s.

"Orestes."—A lagalla 1, 20 bags out at 77s; 2 ditto, 1 bag sold at 68s. 1 Yattawatte, 22 bags sold at 93s; Broken, 2 bags sold at 67s 6d; Kepitigalla, 5 bags sold at 68s; 11 bags sold at 63s 6d; 5 bags sold at 57s 6d; 2 bags sold at 62s 6d; Coodugalla, 10 bags sold at 87s; CDG, 7 bags sold at 71s.

CEYLON CARDAMOMS SALES IN LONDON.

"China."—CCC in estate mark, 2 cases sold at 2s 4d; 1 case sold at 1s 10d.

"Orestes."—Vedehette Cardamoms Ex., 1 case out; ditto AA, 7 cases sold at 2s 5d; ditto B, 3 cases sold at 1s; ditto B, 1 case sold at 10d; ditto AA, 9 cases sold at 1s; ditto A, 1 case sold at 10d.

"Antenor."—Vedehette Cardamoms AA, 9 cases sold at 2s 4d; ditto A, 6 cases sold at 1s 5d.

"Orestes."—Gallantenne Cardamoms A, 3 cases sold at 3s; ditto B, 1 case sold at 2s 2d; ditto C, 3 cases sold at 2s 1d; ditto D, 6 cases sold at 1s 5d.

"Kanagawa Maru."—Gallantenne Cardamoms AA, 4 cases sold at 2s 11d; ditto B, 1 case sold at 2s 2d; ditto C, 3 cases sold at 2s; ditto D, 8 cases sold at 1s 5d; MLP London in estate mark, Esperanza Cardamoms OO, 2 cases sold at 2s 10d; ditto 1, 15 cases sold at 1s 4d; ditto 2, 7 cases sold at 1s 2d; ditto S & B, 1 case sold at 1s 1d.

"Sado Maru."—Mousakanda No. 1, 3 cases sold at 2s 4d; ditto No. 2, 4 cases sold at 1s 7d. Forest Hill No. 1, 1 case sold at 2s 3d; ditto No. 2, 2 cases sold at 1s 7d.

"Orestes."—Wariagalla Mysore A, 7 cases sold at 2s 3d; ditto B, 6 cases sold at 1s 8d; ditto C, 1 case sold at 1s 3d; ditto D, 5 cases sold at 1s 1d.

"Stentor."—Gavatenne Mysore O, 9 cases sold at 2s 2d; ditto 1, 1 case sold at 2s; ditto 1, 15 cases sold at 1s 6d; ditto B, 3 cases sold at 1s 2d.

"Orestes."—Delpotonoya, 4 cases sold at 2s 10s; 4, cases sold at 2s 5d, 1 case sold at 2s 6d; 6 cases sold at 1s 8d; 1 case sold at 1s 2d; 2 cases sold at 2s 7d; 2, cases sold at 2s 2d.

"Craig Oswald."—E C in estate mark, 1 case sold at 6d; 1 DBM, 8 cases sold at 1s 5d.

"Stentor."—EC in estate mark, C, 2 cases sold at 1s 1d; ditto D, 1 case sold at 1s 1d. Galgawatte bulked A, 1 case sold at 1s 8d; ditto C and D, 2 bags sold at 1s. Mattakelle No. 1, 2 cases sold at 1s 11d; Mattakelle, 2 cases sold at 2s; 2 cases sold at 2s 1d; ditto E, 1 case sold at 1s 8d; ditto No. 2, 4 cases sold at 1s 7d; No. 3, 1 case sold at 1s 1d; No. 4, 1 case sold at 1s 1d.

"Orestes."—Tonacombe Special, 3 cases sold at 3s 9d; ditto 1, 2 cases sold at 2s 10d; 5 cases sold at 2s 9d; ditto 2, 2 cases sold at 2s 1d; ditto 3, 2 cases sold at 2s 4d.

"Clan Macintosh."—Vareday Mallay, 1 bag sold at 2s 3d; 1 bag sold at 2s 5d; 1 bag sold at 1s 10d; 1 bag sold at 1s 4d.

"Lancaster."—Nawanagalla, 1 case sold at 3s 10d; ditto 2, 8 cases sold at 2s 4d; ditto 3, 1 case sold at 1s 2d; ditto 4, 2 cases sold at 1s 6d; ditto Seed, 1 case sold at 2s.

"Orestes."—DM in estate mark, Kobo Mysore O, 3 cases sold at 2s 6d; ditto 1, 9 cases sold at 2s; ditto 2, 2 cases sold at 1s 4d; ditto 3, 2 cases sold at 1s 1d; ditto B, 1 case sold at 1s 2d; ditto S, 3 cases sold at 1s 1d; ditto Seed, 2 cases sold at 1s 11d; DMA & Co.. in estate mark, Kobo Mysore O, 4 cases sold at 2s 6d; ditto 1, 4 cases sold at 2s 1d; ditto 1, 4 cases sold at 2s; ditto 2, 2 cases sold at 1s 5d; ditto 3, 2 cases sold at 1s 1d. DMA & Co., in estate mark, Kobo Mysore O, 3 cases sold at 1s 3d; ditto Seed, 1 case sold at 1s 10d.

OBSERVER PRINTING WORKS.

[illegible]

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 23 | COLOMBO, JUNE 25, 1900. | PRICE :—12½ cents each 3 copies, 30 cents ; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[26,385 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Mapitigama	23	12 ch	bro pek	1140	33
2		26	12 do	pek	1020	26
5	Hornsey	35	32 hf-ch	bro or pek	1769	48 bid
7	Craigie Park	41	16 ch	bro pek	1520	20
8		44	9 do	pek	720	15
10	Hornsey	50	35 do	or pek	3325	40
11		53	22 do	pek	1870	38
12	Halgolle	56	39 ch	bro pek	3900	30
13		59	40 do	or pek	3600	31
14		62	32 do	pek	2720	27
15		65	26 do	pek sou	2340	24

Messrs. Forbes & Walker.

[488,114 lb.]

Lot.		Box.	Pk s.	Name.	lb.	c.
3	New Peacock	979	22 hf ch	pek fans	1650	28
4	A M B	982	39 ch	fans	3900	20
5	Thedden	985	40 ch	bro pek	4000	33
6		988	13 do	pek	1170	28
9	Hatton	997	31 ch	bro pek	3255	50
10		1000	36 do	pek	3060	40
11		1003	10 do	pek sou	800	35
12	Jacobs Hill	1006	40 ch	bro pek	4000	31 bid
13		1009	38 do	bro pek	3610	30 bid
14		1012	31 do	pek	2635	29
15		1015	11 do	pek sou	880	24
16		1018	11 do	bro pek fans	836	22
17	Quilon	1021	10 ch	bro tea	780	15
18	B B B, in est. mark	1024	9 ch	dust	720	25
19	Alverne	1027	16 hf-ch	bro pek	1040	34
27	H F, in estate mark	1051	80 ch	bro pek	7200	26 bid
28			80 do	bro pek	7200	
29	Naseby	1054	25 hf ch	bro or pek	1450	59
30		1057	25 do	or pek	1125	53
31		1060	25 do	pek	1175	43
32		1063	10 do	dust	840	28
33	Aneimudi	1066	48 hf-ch	bro pek	2688	27 bid
34		1069	33 do	pek	1848	27 bid
35		1072	27 do	pek sou	1512	24 bid
38	Kincora	1081	44 ch	pek	3080	29
39		1084	16 hf ch	pek No. 2	1040	25
42	Drayton	1093	71 do	or pek	3550	42 bid
43		1096	65 ch	pek	5525	38
44		1099	20 do	pek sou	1700	34
46	Dunbar	1105	30 hf ch	bro or pek	1500	63
47		1108	28 ch	or pek	1344	43 bid
48		1111	15 do	pek	1200	38
49	Agra Elbedde	1114	32 ch	bro or pek	3200	57 bid
50		1117	70 hf ch	pek	3500	40 bid
51		1120	30 do	pek sou	1350	35 bid
52	B D W G	1123	79 do	bro pek	3950	36 bid
53		1126	50 do	pek	2500	34
55	Errolwood	1132	15 hf ch	bro or pek	750	61
56		1135	19 ch	or pek	1805	42 bid
57		1138	21 do	pek	1890	37
58		1141	8 do	pek sou	800	33
60	Deaculla	1147	27 ch	pek sou	1890	26 bid
61	St. Leonards-on-Sea	1150	15 ch	bro pek	1500	27
62		1153	12 do	pek	1140	23
63	Gallawatte	1156	18 ch	pek	1440	25 bid
64		1159	16 do	pek	1280	24 bid
65		1162	14 do	pek sou	1120	21 bid
66	Tonacombe	1163	33 ch	or pek	2970	34 bid
67		1168	17 do	bro or pek	1700	43
68		1171	24 do	bro pek	2400	43
69	Penrhos	1174	21 hf-ch	bro or pek	1176	47
70		1177	18 do	or pek	864	39
71		1180	13 ch	pek	2550	31
72		1183	19 do	bro pek	1520	25
75	Nugagalla	1192	19 hf ch	pek sou	950	23
77	Queensland	1198	14 do	bro or pek	700	61
78		1201	14 do	bro pek	700	45
79		1204	25 ch	pek	2250	34 bid
80		1207	8 do	pek sou	720	31 bid
84	St. Heliers	1219	13 hf ch	bro or pek No. 1	728	60
85		1222	24 do	bro or pek	1344	43
86		1225	16 ch	pek	1140	35
88	Patiagama	1231	22 do	bro or pek	1210	47
89		1234	11 ch	or pek	935	34 bid
90		1237	35 do	pek	2800	33 bid
91		1240	11 do	pek sou	880	28 bid
92	Roeberry	1243	15 ch	bro or pek	1500	58
93		1246	18 do	bro pek	1800	46
94		1249	28 do	pek	2576	38
95		1252	12 do	pek sou	1032	35
96	Clyde	1255	37 ch	bro pek	3330	37
97		1258	34 do	pek	3060	32
99		1264	10 do	bro or pek	1150	33
100	B M A	1267	26 ch	bro pek sou	2080	20 bid
101	Digdola	1270	15 ch	bro pek	1355	30 bid
102		1273	19 do	pek	1425	27
105	Passara Group	1282	13 ch	br or pek	1300	37 bid
106		1285	18 do	or pek	1620	34 bid
107		1288	18 do	pek	1620	31 bid
108		1291	7 do	pek sou	700	30
110	Passara Group	1297	15 ch	or pek	1350	38
111		1300	11 do	bro or pek	1100	37 bid
112		1303	23 do	pek	2070	34
113		1306	7 do	pek sou	700	31
115	Fairlawn	1312	29 hf-ch	bro pek	1595	49
116		1315	11 ch	or pek	880	38
117		1318	22 do	pek	1980	36
118		1321	10 do	pek sou	800	29
121	Weoya	1330	25 ch	bro pek	2300	28
122		1333	22 do	or pek	2090	31
123		1336	55 do	pek	4675	26
124		1339	41 do	pek sou	3280	23 bid
125		1342	7 do	dust	1050	23
126	Maha Uva	1345	38 hf-ch	bro or pek	2280	34
127		1348	15 do	or pek	840	42
128		1351	36 ch	pek	3240	37
129		1354	20 do	pek sou	1600	29
131		1360	12 hf ch	dust	1020	26
132	Glengariffe	1363	44 hf-ch	bro or pek	2552	40
133		1366	25 do	or pek	1200	35
134		1369	23 ch	pek	2116	33
135		1372	13 do	pek sou	1014	28
136		1375	16 hf ch	fans	1152	28
137	Maldeniya	1378	20 ch	bro or pek	2100	34 bid
138		1381	40 do	or pek	3600	31
139		1384	61 do	pek	5185	28
140		1387	35 do	pek sou	2975	24
141	Pine Hill	1390	60 hf ch	bro or pek	3600	41
142		1393	70 ch	or pek	6300	35
143		1396	83 do	pek	7470	32
144		1399	10 do	pek sou	850	27
147	Torwood	1408	54 ch	bro pek	4752	29 bid
148		1411	33 do	pek	2640	24
149	Beaumont	1414	20 ch	bro pek	2040	29
150		1417	38 do	or pek	3344	25
151		1420	12 hf ch	fans	984	26
152	Weyunga-watte	1423	25 ch	bro pek	2500	31
153		1426	24 do	pek	2160	27
154		1429	22 do	pek sou	1760	24 bid
158	C N	1441	9 ch	pek fans	1008	28
160	Cooroondoo-watte	1447	20 hf-ch	pek	1100	32
161		1450	8 ch	pek sou	800	28
162	D M V	1453	14 ch	bro pek	1316	27
163		1456	20 do	pek	1600	23
164		1459	9 do	pek sou	720	21
165	New Anga-mana	1462	12 ch	bro pek	1200	28
166		1465	12 do	pek	1080	25
167		1468	10 do	pek	900	23
168	Choisy	1471	45 do	bro pek	4725	40
169		1474	32 do	pek No. 1	3040	35
170		1477	18 do	pek ,, 2	1620	34
171		1480	25 do	pek sou	2125	27
172	Tymawr	1483	18 hf ch	bro or pek	990	86
173		1486	25 do	or pek	1375	45 bid
174		1489	28 do	or pek	1400	46 bid
175		1492	31 do	pek	1550	39 bid
176		1495	30 do	pek sou	1500	35
177	Tymawr	1498	28 do	pek	1400	36 bid
178		1501	38 do	pek sou	1400	31
179		1504	18 do	dust	1620	25
180		1507	22 do	fans	1540	29
181	Anningkande	1510	30 ch	bro pek	3000	30 bid
182		1513	15 do	pek	1425	26 bid

Lot.		Box.	Pkgs.		Name.	lb.	c.
183	Agraoya	1516	16	ch	pek	1440	28
184		1519	13	do	bro pek	1300	32
185		1522	12	do	or pek	1020	30
186	Cooroondoowatte	1525	12	hf ch	hro pek	720	47
187	Bickley	1528	34	do	pek	1870	28 bid
189	Mousakelle	1534	34	ch	bro or pek	3400	41
190		1537	26	do	or pek	2470	34
191		1540	23	do	pek	2070	32
194	E D P	1549	11	hf ch	dust	825	23
195		1552	11	ch	sou	825	21
196	Holton	1555	25	do	pek sou	2375	29
197		1558	19	do	pek	1615	26
198		1561	13	do	pek sou	1640	24
201	Kotagal Oya	1570	7	do	bro pek	770	42
202		1573	17	do	pek	1530	35
210	Ardlaw and Wishford	1597	15	hf-ch	bro or pek	795	55
211		1600	37	ch	bro pek	3404	43
212		1603	27	do	or pek	1296	40
213		1606	19	do	pek	1577	37
214	O K	1609	40	do	pek sou	3600	35 bid
215	Amblakande	1612	15	do	bro pek	1200	37 bid
216		1615	16	do	pek	1360	26
217		1618	10	do	pek sou	800	24
218	C reen	1621	21	hf-ch	bro or pek	1050	49
219		1624	12	ch	bro pek	1320	38
220		1627	25	do	or pek	2250	37 bid
221	Amhlangoda	1630	29	do	bro pek	2900	29 bid
222		1633	22	do	pek	1980	28
223		1636	9	do	pek sou	810	24
225	Geragama	1642	22	do	bro or pek	1320	32
226		1645	14	do	bro pek	1260	26
227		1648	24	do	pek	2160	24
228		1651	13	do	pek sou	1235	22
231		1660	31	do	bro or pek	1705	30
232		1663	15	do	bro pek	1275	25 bid
233		1666	19	do	pek	1615	23 bid
237	S H	1678	30	hf-ch	bro pk fans	1890	23 bid
238		1681	30	do	pk fans	2250	24 bid
239	A M B	1684	25	ch	fans	2547	20
240	Irex	1687	63	do	bro pek	6300	27 bid
241		1690	44	do	pek	3520	31
242		1693	20	do	pek sou	1600	23
243		1696	9	do	dust	900	23
245	Waitalawa	1702	63	hf-ch	bro pek	3105	29
246		1705	80	do	pek	4000	26
247		1708	26	do	pek sou	1300	23
249	Udapolla	1714	10	ch	bro pek	1000	27
250		1717	14	do	pek	1260	24
253	Ugieside	1726	13	do	bro mixed	1037	20
254	Castlereagh	1729	16	do	bro pek	1600	49
255		1732	17	do	or pek	1445	35
256		1735	14	do	pek	1120	34
260	P G A	1747	12	do	sou	840	21
264	Freds Ruhe	1759	52	do	bro pek	5200	29
265		1762	54	do	pek	4860	24
266		1765	31	do	pek sou	2790	22
269	C L in est. mark	1774	26	hf-ch	bro or pek	1685	51 bid
270		1777	24	ch	pek	2400	40 bid
274	Erracht	1789	22	do	bro or pek	2200	28
275		1792	15	do	bro pek	1200	30
276		1795	30	do	pek	2400	26
281	High Forest	1810	65	hf-ch	or pk No. 1	4030	76
282		1813	39	do	or pek	2262	48
283		1816	55	do	pek	2860	41 bid
284	Arapolakande	1819	83	ch	bro pek	7467	36
285		1822	90	do	pek	7197	29
287	Woodend	1828	21	do	bro pek	2100	28
288		1831	36	do	pek	3150	25
289		1834	11	do	pek sou	880	22
290	C N N	1837	12	hf-ch	dust	1140	26
291	Gallawatte	1840	20	ch	bro pek	1900	28
292	Ascot	1843	30	do	bro pk fans	3000	20
293		1846	21	hf-ch	dust	1680	21
294		1849	31	do	pek sou	2790	22
295	High Forest	1852	19	ch	pek dust	1710	23 bid
296	Killarney	1855	12	do	or pek	957	39 bid
297	Monkswood	1858	23	do	hro pek	1265	71
298		1861	34	do	or pek	1700	64
299		1864	23	do	pek	2300	46
300		1867	14	do	pek sou	1260	40
301		1870	11	do	fans	770	36
303	M K	1876	16	do	pek	1360	40 bid

[Messrs. Somerville & Co.—202,571 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Ellandhu	682	10	ch	hro pek	1000	32
2		685	10	do	pek	950	23
3	Monrovia	688	22	ch	bro pek	2200	28 bid
4		691	29	do	pek	2610	25 bid
5		694	18	do	pek sou	1800	22
7	Kurunegalla est. Company of Ceylon	700	15	hf ch	or pek	900	28 bid
8		703	22	do	bro pek	1320	28
9		706	20	ch	pek	2000	24 bid
13	Columbia	718	40	hf ch	or pek No. 1	2000	45
14		721	56	do	or pek No. 2	2576	40
16	Oaklands	727	14	ch	or pek	1330	28
17		730	19	do	pek	1710	25
18		733	9	do	pek sou	720	23
19	Yarrow	736	27	hf ch	or pek	1215	34
20		739	26	ch	bro or pek	1456	33
21		742	120	hf ch	pek	4800	25
22		745	26	do	pek sou	1170	24
23	Polgahakande	748	68	ch	bro pek	6800	23 bid
24		751	19	do	or pek	1615	24 bid
25		754	38	do	pek	3230	22 bid
26		757	26	do	pek sou	2080	20 bid
27		760	10	do	dust	1520	18
28	Rahatungoda	763	26	hf ch	bro or pek	1300	52
29		766	26	do	or pek	1300	40
30		769	19	do	bro pek	1140	42
31		772	25	do	pek	1250	38
32	Ambalawa	775	14	hf-ch	or pek	700	26
33		778	13	do	bro pek	715	26
39	Mora Ella	796	18	hf-ch	or pek	900	39
40		799	48	do	bro or pek	2880	36
41		802	41	¾ ch	pek	3075	34
42		805	16	ch	pek sou	1440	27
43	Hapugasmulla	808	18	ch	bro pek	1980	26
44		811	18	do	pek	1710	24
46	Galphele	817	25	ch	bro or pek	2500	30
47		820	30	do	hro pek	3000	27 bid
48		823	29	do	pek	2610	26
49	Do B	826	18	ch	pek	1620	25
51	Ladysmith	832	32	ch	bro pek	3136	28
52		835	23	do	pek	1725	25
53		838	23	do	pek sou	1610	23
54	Kurulugalla	841	33	ch	bro pek	3300	25 bid
55		844	33	do	pek	2970	24 bid
57		850	21	hf ch	hro or pek	1134	35
58		853	15	ch	or pek	1350	32
59		856	22	do	pek	1716	29
60		859	10	do	pek sou	720	24
63	Rambodde	868	23	hf ch	or pek	1265	42
64		871	30	do	pek	1350	36
67	Haraugalla	880	27	ch	bro pek	2700	37
68		883	21	do	pek	1785	31
69		886	10	do	sou	800	24
70		889	9	hf ch	dust	720	26
76	Valley	907	35	ch	bro or pek	3500	50
77		910	32	do	or pek	2880	39
78		913	28	do	pek	2800	37
79		916	26	do	pek sou	2210	34
80	N I T	919	8	ch	unas No 1	800	22
81		922	13	do	unas No 2	1040	20
82		925	18	do	unas No 2	1440	20
83	Rayigam	928	28	ch	hro pek	2800	30
84		931	20	do	or pek	1700	30
85		934	20	do	pek	1600	28
86		937	14	do	pek sou	1190	25
87	Paradise	940	24	hf ch	bro pek	1320	27
88		943	17	ch	pek	1700	25
89		946	16	do	pek sou	1520	23
90	Dalukoya	949	14	hf ch	bro or pek	840	44
91		952	19	do	or pek	1045	33
92		955	38	do	pek	2090	28
93	Woodthorpe	958	11	ch	bro pek	1100	35
94		961	21	do	pek	1848	26 bid
95		964	21	do	pek sou	1638	23
100	S K	979	8	ch	pek	791	22
			1	hf-ch			
103		988	20	hf ch	pek fans No 1	1300	22 bid
105		994	13	do	dust No 1	1105	19 bid
115	P T N, in estate mark	25	38	hf ch	pek sou	1900	19
118	Primrose Hill	34	7	ch	bro pek	700	33
119		37	15	do	pek	1320	26 bid
120		40	11	do	pek sou	858	23
124	Paragahakande	52	12	ch	pek	1080	23
128	F F D	64	25	hf-ch	bro pek fans	1575	30
129		67	22	do	pek fans	1650	26
130		70	17	ch	dust	2890	23
133	A D L, in estate mark	79	20	ch	bro pek	2000	26
135		85	10	do	pek sou	950	22
137	Depedene	91	79	hf-ch	bro pek	4740	29
138		94	73	do	pek	3650	26
139		97	65	do	pek sou	3250	23
141	Charlie Hill	103	31	hf ch	bro pek	1705	23 bid
142	Silverton	106	43	ch	bro pek	3913	25 bid
143		109	51	do	pek	3468	22 bid
144		112	26	do	pek sou	1638	20 bid
145	Mousakande	115	18	hf ch	hro or pek	1062	28 bid
146		118	14	ch	bro pek	1176	28 bid
147		121	11	do	pek sou	880	25
157	Carney	151	38	hf ch	hro pek	1900	23
158		154	101	do	pek	4545	26

Lot.		Box.	Pkgs.		Name.	lb.	c.
159		157	22	hf ch	pek sou	1100	22
162	Lower Dickoya	166	10	ch	bro pek	1000	31
163		169	7	do	pek	700	28

[Mr. E. John.—213,493 lb.]

Lot		Box.	Pkgs.		Name.	lb.	c.
5	Lunugalla	763	7	ch	bro pek	700	28
6		766	22	do	pekoe	1760	25
9	Pitadeniya	775	30	do	bro pek	3150	30
10		778	40	do	pekoe	3400	30
11		781	20	do	pek sou	1600	24 bid
12	Mount Everest	784	44	hf-ch	bro or pek	2420	68
13		787	55	do	or pek	2750	47
14		790	54	ch	pekoe	5400	38
15		793	35	do	pek sou	3150	35
16	Glasgow	796	37	do	bro or pek	3071	55
17		799	18	do	or pek	1314	52
18		802	15	do	pekoe	1320	46
19		805	12	do	pek sou	1200	37
20	Eila	808	23	do	bro or pek	2300	28
21		811	33	do	bro pek	2640	26 bid
22		814	15	do	pekoe	1200	25 bid
23		817	12	do	pek sou	900	22 bid
26	Uda	820	15	do	bro pek	1350	17
27		829	25	do	pekoe	2000	18
28	Cleveland	832	51	hf-ch	flowy or pek	2805	47 bid
29		835	53	do	pekoe	3074	39
32	Oonoogaloya	844	20	do	or pek	1800	38 bid
33		847	14	do	bro pek	1400	43
34		850	46	do	pekoe	4140	31
35		853	9	do	pek sou	765	26
36	Glassaugh	856	19	hf-ch	or pek	1007	81
37		859	15	do	bro or pek	975	52
38		862	16	ch	pekoe	1520	47
43	M R	877	9	hf-ch	dust	810	25
48	Dalhousie	892	14	do	bro pek	770	44 bid
49		895	14	do	or pek	700	35 bid
50		898	53	do	pek No. 1	2650	30
51		901	24	do	pek No. 2	1080	27 bid
52		904	10	do	fans	700	29
53	Ben Nevis	907	31	do	or. pek	1860	49
54		910	21	do	or pek	945	48 bid
55		913	20	ch	pekoe	1800	37
56		916	15	hf-ch	pek sou	705	22
58	Galloola	922	30	ch	bro pek	3000	40
59		925	49	do	pekoe	4410	36
60		928	40	do	pek sou	3600	27
63	Lameliere	937	47	do	bro pek	4935	39 bid
64		940	49	do	pekoe	4410	32 bid
65		943	31	do	pek sou	2325	28 bid
66		946	11	hf-ch	pek fans	880	27 bid
68	Osborne	952	25	ch	bro pek	3000	36 bid
69		955	17	do	bro pek	1870	33 bid
70		958	14	hf-ch	fans	1176	26
71	Brownlow	961	24	do	bro or pek	1320	53 bid
72		964	29	do	bro pek	1420	45
73		967	14	ch	or pek	1274	43
74		970	50	do	pekoe	4700	38
75		973	11	hf-ch	pek fans	891	26
76	Nahavilla	976	40	ch	bro pek	4000	40 bid
77		979	29	do	or pek	2900	34 bid
78		982	21	do	pekoe	2100	30 bid
79		985	10	hf-ch	pek fans	700	30
80	Galella	988	16	ch	bro pek	1600	36
81		991	17	do	pekoe	1445	29 bid
86	I—A	6	38	hf ch	bro pek fans	2394	29 bid
87		9	24	do	pek fans	1800	26 bid
88	Bittacy	12	24	ch	bro pek	2400	42 bid
89		15	21	do	pekoe	1680	40 bid
90	Nahavilla	18	14	do	bro pek	1400	38 bid
93		27	5	do	dust	700	22
94	H S, in est. mark	30	8	do	bro mix	880	16
95	Ferndale	33	12	do	bro or pek	1200	50
97		39	16	do	pekoe	1440	32
100	Murrathwaite	48	8	do	bro pek	760	31
107	St. John's	69	30	hf-ch	bro or pek	1800	67 bid
108		72	30	do	or pek	1500	64
109		75	50	do	pekoe	2600	42 bid
110	Agra Ouvah	78	28	do	bro or pek	1764	62
111		81	60	do	bro pek	3720	49
112		84	21	ch	pekoe	2100	40
115	Rookwood	93	22	do	bro or pek	2552	38 bid
117	Cnoughleigh	99	58	hf ch	bro or pek	3248	29 bid
118		102	27	do	or pek	1350	31
119	Maskeliya	105	31	do	bro or pek	1550	51 bid
120	Rookwood	108	24	ch	bro or pek	2976	36 bid
122	Morahela	114	20	do	bro pek	2000	28 bid
123		117	14	do	bro or pek	1400	25 bid
124		120	19	do	bro or pek	1900	26 bid
125		123	19	do	or pek	1786	27
126		126	18	do	pekoe	1512	24 bid
127		129	16	do	or pek	1504	27
130	Glentilt	138	53	hf-ch	bro pek	3180	50
131		141	25	ch	or pek	2375	40 bid
132		144	16	do	pekoe	1440	34

Lot.		Box.	Pkgs.		Name.	lb.	c.
133		147	13	hf-ch	fans	1040	25 bid
135	Myraganga	153	33	ch	pek sou	2640	23 bid
136	Harrisland	156	16	do	bro pek	1520	29
137		159	11	do	pekoe	746	27
138		162	10	do	pek sou	750	24
139		165	9	do	pek sou No. 2	792	22

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.		Name.	lb.	c.
3	Mapitigama	29	8	ch	pek sou	640	23
4		32	2	do	bro or pek fans	210	26
6	Craigie Park	38	3	ch	bro or pek	300	27
9		47	9	do	pek son	675	13
16	Halgolle	68	3	do	fans	345	25
17		71	2	do	dust	300	19

[Mr. E. John.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Theresia	751	3	hf-ch	bro pek fans	210	30
2		754	6	do	dust	480	25
3		757	1	ch	sou	70	28
4	P	760	10	hf-ch	pekoe	500	22 bid
7	Lunugalla	769	4	ch	pek sou	280	20
8		772	3	do	bro pk fans	300	23
24	Eila	820	2	do	fans	220	24
25		823	4	do	dust	320	25
30	Cleveland	838	13	hf ch	pek sou	650	36
31		841	5	do	fans	400	28
39	Glassaugh	865	8	do	bro pek	520	37
40	Kotuagedera	868	2	ch	pek sou	190	23
41		871	1	hf-ch	dust	90	21
42		874	6	do	bro pek fans	450	22
44	W K	880	1	ch	bro or pek	106	29
45		883	4	do			
			1	hf-ch	pekoe	395	24
46		886	2	ch	bro mix	230	15
47		889	1	do	pek fans	130	16
57	Ben Nevis	919	3	hf-ch	dust	249	27
61	Galloola	931	3	ch	dust	300	23
62	A A	934	2	do	dust	200	20
67	Bellongaila	949	1	do	pekoe	80	22
82	Galella	994	6	do	pek sou	510	25
83	A	997	1	do	bro pek	102	32
84		1000	1	do	pekoe	85	25
85	W	3	1	do	pekoe	100	22
91	Nahavilla	21	5	do	or pek	500	31 bid
92		24	6	do	pekoe	600	30
101	Murraythwaite	51	7	do	pekoe	595	25
102		54	7	do	pek sou	595	23
103		57	1	do	fans	120	24
104		60	1	do	dust	170	22
105	Anamallai	63	3	hf-ch	dust	255	22
106	Farm	66	5	ch	dust	650	21
113	Happy Valley	87	11	hf ch	bro or pek	660	24
114		90	2	do	sou	100	17
128	Morahela	132	6	ch	sou	492	23
129		135	3	hf-ch	dust	252	21

[Messrs. Somerville & Co.]

Lot		Box.	Pkgs.		Name.	lb.	c.
6	Monrovla	697	5	ch	bro tea	475	18
10	Kurunegalle est Company of Ceylon	709	4	ch	pek sou	400	23
11		712	3	do	bro mix	300	17
12		715	1	hf ch	dust	90	20
15	Columbia	724	12	do	pek sou	648	30
34	Hauwella	781	3	ch	bro pek	300	29
35		784	5	do	or pek	465	26
36		787	4	do	pek	360	23
37		790	1	do	pek sou	134	22
			1	hf ch			
38		793	6	hf ch	dust	420	20
45	Hapugasmulle	814	4	ch	sou	360	20
50	Galphele B	829	6	ch	pek sou	540	24
56	Kurulugalla	847	4	ch	pek sou	400	23
61	Dryburgh	862	7	hf ch	fans	469	27
62		865	1	ch	red leaf	46	15
65	Rambodde	874	6	hf-ch	pek sou	270	25
66		877	2	do	fans	140	26
71	Wevatenne	892	8	hf ch	bro pek	448	29
72		895	6	do	pek	300	23
73		898	12	do	pek sou	600	22
74		901	2	do	bro mix	100	16
75		904	1	do	con	50	14
96	Woodthorpe	967	5	ch	sou	380	21
97		970	1	hf-ch	dust	73	20

Lot.		Box.	Pkgs	Name.	lb	c.
98	S K	973	3 ch	hro or pek	315	26
99		976	5 do	hro pek	501	27
101		982	5 do	pek sou	475	21
102		985	6 do	sou	510	14 bid
104		991	8 hf ch	pek fans	480	17 bid
106	Alutkelle	997	10 hf-ch	hro pek	500	25
107		1	4 do	pek	200	22
108		3	8 do	sou	360	18
109		7	1 do	fans	55	13
110	Maligatenne	10	6 ch	bro pek	415	24
111		13	7 do	pek	632	21
112		16	8 do	pek sou	697	17
113		19	1 do	bro sou	90	16
114	P	22	6 ch	unas	601	16
115	P T N, in estate mark	28	2 hf ch	pek fans	124	17
117		31	1 do	pek dust	88	19
121	Primrose Hill	43	3 ch	sou	228	20
122		46	1 hf-ch	dust	42	20
123	Paragahakande	49	6 ch	bro pek	600	27
125		55	2 do	fans	180	16
126		58	1 do	dust	130	20
127		61	2 do	red leaf	183	13
131	Glenalla	73	1 ch	dust	145	20
132		76	1 do	fans	95	17
136	A D L, in estate mark	88	2 ch	dust	280	19
140	Depedene	100	5 hf ch	dust	425	25
148	Sangaly Toppe	124	7 hf ch	bro pek	490	30
149		127	5 ch 1 hf ch	pek	583	26
150		130	2 ch	pek dust	190	22
151		133	1 do	red leaf	60	16
152	Ahamad	136	4 ch	bro pek	400	28
153		139	5 do	pek	500	23
154		142	7 do	pek sou	630	20
155		145	2 do	fans	200	14
156		148	2 do	red leaf	180	14
160	Carney	160	5 hf ch	sou	250	18
161		163	2 do	dust	100	23
164	Lower Dickoya	172	4 ch	pek sou	400	13

[Messrs. Forbes & Walker

Lot.		Box.	Pks.	Name.	lb.	c.
1	New Peacock	973	7 ch	pek sou	630	30
2		976	9 hf-ch	hro mix	450	24
7	Thedden	991	6 ch	pek sou	480	23
8		994	2 do	dust	310	21
20	Alverne	1030	8 hf ch	pek	416	28
21	St. John's Wood	1033	12 hf-ch	bro pek	636	29 bid
22		1036	9 do	pek	450	28
23		1039	7 do	pek sou	350	24
24		1042	1 do	fans	69	27
25	B B, in estate mark	1045	4 hf-ch	or pek	240	28
26		1048	2 do	pek	200	25
36	Aneimudi	1075	10 do	pek fans	600	23
37		1078	6 do	congou	300	23
40	Kincora	1087	8 do	fans	520	30
41		1090	2 do	congou	90	15
45	Drayton	1102	3 ch	sou	255	23
54	B D W G	1129	13 hf ch	pek sou	650	25
59	B D W G	1144	3 do	dust	270	25
73	Penrhos	1186	3 do	fans	240	26
74		1189	3 ch	bro mix	270	18
76	H T	1195	3 hf ch	bro or pek fans	177	26
81	Queensland	1210	2 do	bro pek fans	120	31
82	N B D	1213	5 ch	bro mix	450	14
83		1216	4 do	unas	400	18
87	St. Heliers	1228	7 hf ch	dust	560	24
98	Clyde	1261	6 ch	pek sou	540	27
103	Digdola	1276	4 ch 1 hf-ch	pek sou	397	23
104		1279	3 ch	dust	456	23
109	Passara Group	1294	2 hf ch	fans	150	26
114	Passara Group	1309	2 do	dust	140	26
119	Fairlawn	1324	3 do	dust	255	26
120	F L, in estate mark	1327	2 ch	bro mix	200	20
130	Maha Uva	1357	3 hf-ch	pek fans	240	25
145	Pine Hill	1402	7 do	dust	595	23
146		1405	1 do	sou	70	20
155	Weyunga-watte	1432	8 ch	bro tea	640	24
156		1435	4 hf ch	dust	320	22
157	Kehelwatte	1438	1 do	dust	79	23
159	C N	1444	6 ch	bro tea	600	20
188	Bickley	1531	11 hf ch	pek sou	550	24 bid
192	Mousakellie	1543	4 ch	sou	360	24
193		1546	5 hf ch	dust	480	24
199	B A	1564	3 ch	red leaf	300	16

Lot.		Box.	Pkgs.	Name.	lb.	c.
200		1567	4 hf-ch	dust	320	21
203	Kotagal Oya	1576	6 ch	pek sou	510	26
204		1579	7 hf-ch	dust	560	23
205	Horagaskelle	1582	5 hf-ch	bro pek	312	32
206		1585	6 do	pek	326	24
207		1588	7 do	pek sou	412	23
208		1591	1 do	dust	72	21
209		1594	1 do	hro mixed	58	15
224	Amhlangoda	1639	4 do	dust	440	21
229	Geragama	1654	6 ch	fans	480	20
230		1657	5 do	dust	400	21
234		1669	8 do	pek sou	640	22
235		1672	4 do	fans	320	21
236		1675	7 do	dust	560	20
244	P	1699	7 do	pek sou	627	20
248	Udapolla	1711	6 do	or pek	540	30
251		1720	6 do	pek sou	510	22
252		1723	2 hf-ch	dust	160	21
257	P G A	1738	9 do	hr pek	495	30
258		1741	5 ch	pek	450	25
259		1744	5 do	pek sou	375	25
261		1750	1 hf-ch	dust	80	22
262		1753	9 do	unast	495	
263		1756	5 do	fans	400	
267	W A	1768	3 ch	bro mixed	300	
268		1771	2 do	dust	340	19
271	R in est.mark	1780	7 do	pek	680	23
272		1783	6 do	pek sou	595	22
273	D	1786	7 do 1 box	sou	613	14
277	Erracht	1798	6 ch	pek sou	510	21
278		1801	1 do	bro pek fans	133	23
279		1804	2 do	fans	164	18
280		1807	2 do	dust	358	21
286	A	1825	9 do	sou	855	21
302	Monkswood	1873	6 ch	dust	510	23

CEYLON CINNAMON SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, May 28.

"Menelaus."—VIB 1 in estate mark, Ekelle, 25 bales out at 1s.

"Jumna."—D B & Co., Ekelle Plantation, London, 20 bales out at 1s; 4 bales out at 9d.

"Clan MacAlister."—D B & Co., 405 in estate mark, Ekelle Plantation, 6 bales out at 1s; 2 bales out at 9d.

"Duke of Portland."—D B & Co., 406 in estate mark, Ekelle Plantation, London, 1899, 1 bale out at 1s; 1 bale out at 10d; 1 bale out at 9d; D B & Co., 408 in estate mark, 4 bales sold at 11d; 23 bales out at 10½d; 7 bales sold at 10d; ditto, 3 bales sold at 9½d; 2 bales out at 9d; 3 bales out at 9d; 1 bale sold at 8½d.

"Duke of Norfolk."—D B & Co., 409 in estate mark, 70 bales out at 9d; D B & Co., 408 in estate mark, 20 bales out at 1s; 50 bales out at 10¼d; D B & C Co., 408 in estate mark, 20 bales out at 1s; 50 bales out at 10¼d; 6 bales sold at 9½d; 20 bales out at 9½d; 4 bales out at 9d.

"Cowrie."—M in estate mark, A & Co., Ekelle Plantation, 3 bales sold at 1s 1d; 37 bales sold at 1s; 47 bales sold at 10½d; M in estate mark, A S D DD, Kaderane Plantation, 2 bales sold at 1s 1d; 18 bales sold at 1s; 14 bales sold at 10½d;

"Orestes."—N D P S in estate mark, Ekelle Plantation, 31 bales sold at 11d; 6 bales sold at 10d.

"Sado Maru."—Kallugalla 28 lb. nett, 1 bale sold at 5s; ditto 56 lb. nett, 16 bales sold at 3½d; ditto, 80 lb. nett, 4 bags sold at 1d.

"Kanagawa Maru."—C H De S, Salawa, 12 bales sold at 1s; 4 bales sold at 9d; ditto, Morotto, 4 bales sold at 11½d; 9 bales sold at 10½d; 8 bales sold at 10d; 3 bales sold at 8½d; ditto Kuru-witte, 7 bales sold at 1s; 6 bales sold at 10½d; 3 bales sold at 10d; 1 bale sold at 8½d.

"Stentor."—C H De S, Kandewatte, 4 bales sold at 11½d; 13 bales sold at 10½d; 12 bales sold at 9½d; 10 bales sold at 8½d; ditto Rustoom, 12 bales sold at 11d; 7 bales sold at 10d; 2 bales sold at 8½d; ditto Kaderane, 8 bales sold at 1s; 5 bales sold at 11d; 4 bales sold at 10d; 2 bales

sold at 8½d ; ditto Koottaruawatte, 6 bales sold at 11½d ; 7 bales sold at 10½d ; 3 bales sold at 9½d ; ditto Bagatelle, 5 bales sold at 11½d ; 4 bales sold at 10½d ; 1 bale sold at 9½d ; ditto Innegaltuduwe, 1 bale sold at 1s ; 1 bale sold at 10½d ; 1 bale sold at 8½d ; ditto Mattegodde, 1 bale sold at 10½d ; 1 bale sold at 9½d ; ditto Rustoom, 9 bales sold at 8d.

"Orestes."—C H De S Ratmalane, 3 bales sold at 11½d ; 4 bales sold at 10½d ; 3 bales sold at 9½d ; 2 bales sold at 8½d ; ditto TPW in estate mark, 1 bale sold at 11½d ; 1 bale sold at 10½d ; 2 bales sold at 9½d ; 1 bale sold at 8½d ; ditto Salawa, 8 bales sold at 8d ; C R SA in estate mark, 1 parcel sold at 10½d ; 10 bales sold at 9½d ; 6 bales sold at 8½d ; 1 parcel sold at 8d ; 1 bale sold at 8d.

"Duke of Norfolk."—H M S & Co., Ekelle Plantation 1, 1 bale sold at 9½d ; ditto 2, 6 bales sold at 9½d ; ditto 3, 12 bales sold at 8½d ; ditto 4, 7 bales sold at 7½d.

"Orestes."—ASGR in estate mark, Kaderane, 5 bales sold at 1s 8d ; 12 bales sold at 1s 7d ; 9 bales sold at 1s 6d ; 3 bales sold at 11d ; 9 bales sold at 10d ; 4 bales sold at 9½d ; 1 bales sold at 9d ; ASGP in estate mark, Kaderane, 1 box sold at 10½d ; 3 bags sold at 9½d ; FSWS in estate mark' North Kaderane, 2 bales sold at 1s 5d ; 4 bales sold at 1s 3d ; 5 baless sold at 1s 2d ; 1 bale sold at 11d ; 5 bales sold at 10d ; 1 bale sold at 8d ; 1 box sold at 10½d ; FSWS in estate mark, Kaderane, 2 bales sold at 1s 5d ; 3 bales sold at 1s 4d ; 2 bales sold at 1s 4d ; 1 bale sold at 10d ; 5 bales sold at 9½d ; 1 box sold at 10½d ; FSK, Kaderane, 3 bales sold at 1s 5d ; 3 bales sold at 1s 5d ; 3 boxes sold at 1s 4d ; 5 bales sold at 1s 3d ; 6 bales sold at 10d ; 2 boxes sold at 9½d ; 1 box sold at 10d ; FSWS in estate mark, North Kaderane, 1 bale sold at 10d ; 2 boxes sold at 9½d ; ditto Kaderane, 3 bags sold at 9d ; 3 bales sold at 9d.

CEYLON WILD CINNAMON SALES IN LONDON.

"Clan Macintyre."—MDJ in estate mark, 8 bales out at 3d ; 38 bales out at 2½d ; 168 bags out at 1¾d.

"Clan Menzies."—I K in estate mark, 34 bales out at 2¾d.

"Clan MacIntyre."—DSS in estate mark, 18 bales out at 2¾d ; 68 bales out at 2d.

"Kamakura Maru."—HMS & Co., in estate mark, 82 bales out at 2d.

"Clan MacLaren."—L in estate mark, Mahawatta Plantation, 11 bales out at 7d ; 1 ditto, 48 bales out at 2d ; ditto, 18 bags out at 2d.

"Tosa Maru."—DSS in estate mark, 5 bales out at 3½d. 12 bales out at 2¾d ; 50 bags out at 2d.

"Omrah."—HMS & Co., in estate mark, 44 bales out at 2d.

"Clan Sinclair."—KK in estate mark, 43 bales out at 2d.

"Wakasa Maru."—RS in estate mark, 27 bales out at 2d.

"Hitachi Maru."—DSS in estate mark, 1 bale out at 4d ; 2 bales out at 3d ; 32 bales out at 2½d.

"Clan Macalister."—DSS in estate mark, 4 bales out at 3½d ; 14 bales out at 3d ; 67 bales out at 2½d ; MAK in estate mark, 24 bales out at 2d; R in estate mark, 144 bales out at 2½d ; RS in estate mark, 18 bales out at 3d ; RN in estate mark, 31 bales out at 2½d.

"Kanagawa Maru."—CPL 124 in estate mark, 400 bags out at 3½d.

CEYLON COCOA SALES IN LONDON.

Mincing Lane, May 31.

"Orestes."—1 PBM, 11 bags sold at 62s 6d.

"Jumna."—Alloowharie A, 40 bags sold at 102s 6d.

"Sado Maru."—Benveula No. 1, 3 bags sold at 0s.

No. 24 COLOMBO, JULY 2, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[64,442 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Meddakande	24	24	ch	bro or pek	2400	35
2		27	30	do	or pek	3000	28 bid
3		30	41	do	pek	3690	30
4		33	39	do	pek sou	3510	26
5	New Rasagalla	36	13	do	bro or pek	1300	36
6		39	19	ch	bro pek	1900	28 bid
7		42	10	do	or pek	1000	28 bid
8		45	38	do	pek	3610	29
9		48	20	do	pek sou	1800	27
11	Halgolla	55	36	ch	bro pek	3600	31
12		57	38	do	or pek	2420	29
13		60	45	do	pek	3825	27
14		63	28	do	pek sou	2520	24
17	Mandara Newera	72	56	hf ch	bro pek	3360	41
18		75	21	do	pek	1155	37
20	Hapugastenne	81	23	do	bro or pek	2300	30
21		84	58	do	bro pek	3344	26 bid
22		87	31	do	pek	2418	26 bid
23		90	33	do	pek sou	2376	25
25		96	26	hf-ch	fans	1664	24
26		99	11	do	dust	935	20
30	Battalgalla	11	38	ch	pek sou	3040	30
31	Hornsey	14	30	ch	or pek	2850	39
32		17	23	do	pek	1955	37

[Mr. E. John.—247,526 lb.]

Lot		Box.	Pkgs.		Name.	lb.	c.
2	T L T	171	19	ch	bro pek	1805	12
3		174	17	do	pekoe	1360	11
10	Rookwood	195	12	do	bro pek	1488	29
11		198	16	do	pekoe	1680	28
12	G.navy	201	39	hf-ch	or pek	1755	37
13		204	24	do	bro pek	1200	44
14		207	24	ch	pekoe	1800	33
15		210	7	do	pek sou	735	27
16	Ferndale	213	12	do	or pek	1080	36
17		216	15	do	pekoe	1350	30 bid
18		219	18	do	pek sou	1620	25
19		222	8	do	dust	1000	22
20	Tempo	225	12	do	bro pek	1200	31
21		228	12	do	pekoe	900	27
22		231	17	do	pek sou	1190	25
23		234	13	do	sou	1040	23
24	Ottery	237	20	do	bro or pek	2000	43
25		240	18	do	or pek	1530	39
26		243	35	do	pekoe	3500	32
27		246	10	do	sou	1000	26
29	Mount Clare	252	8	do	bro or pek	800	35 bid
30		255	9	do	or pek	774	30 bid
31		258	9	do	pekoe	747	28
32		261	9	do	pek sou	720	25
33		264	11	do	sou	990	20
36	Rookwood	273	20	do	bro or pek	2480	36 bid
37		276	15	do	or pek	1650	33 bid
38		279	29	do	pekoe	3074	32 bid
39		282	12	do	pek sou	1080	25 bid
40	Mocha	285	25	do	bro or pek	2500	56 bid
41		288	14	do	or pek	1260	57
42		291	21	do	pekoe	1995	50
43		294	12	do	pek sou	960	40
44	Koslande	297	31	hf-ch	bro pek	1705	34 bid
45		300	27	ch	pekoe	2430	28 bid
50	S J	315	20	hf-ch	bro pek	1160	42
51		318	16	do	pekoe	896	37
52	N D	321	39	ch	bro or pek	3432	36 bid
63		324	8	do	or pek	720	42 bid
54		327	9	do	pekoe	810	37
55		330	7	do	pek sou	700	35
56	Agra Ouvah	333	36	hf ch	bro or pek	2268	56 bid
57		336	55	do	bro pek	3410	48
58		339	18	do	pekoe	1800	39
59	Rondura	342	55	ch	bro pek	5500	28
60		345	44	do	or pek	3960	32
61		348	46	do	pek sou	3680	24
62	Coslande	351	31	hf ch	bro pek	1705	37 bid
63		354	27	ch	pekoe	2430	28 bid
68	Templestowe	369	28	do	bro or pek	2240	49
69		372	25	do	or pek	1050	41 bid
70		375	33	ch	pekoe	2806	37
71		378	16	do	pek sou	1360	33
72	Mocha	381	22	do	bro or pek	2200	60
73		384	20	do	pekoe	1900	48
74		387	18	do	or pek	1620	59
75		390	12	hf-ch	fans	1020	29
76	Glasgow	393	49	ch	bro or pek	3920	51 bid
77		396	18	do	or pek	1260	48 bid
78		399	14	do	pekoe	1232	43
79		402	16	do	pek sou	1000	37
80	Gingranoya		19	hf-ch	bro or pek	1045	39
81		408	21	do	bro pek	1260	32 bid
82		411	20	ch	pekoe	1900	33
83		414	8	do	pek sou	720	25 bid
84	Poilakande	417	17	do	or pek	1360	26
85		420	30	do	bro pek	3000	28
86		423	39	do	pekoe	3510	25
87	Bellongalla	426	32	do	pekoe	2560	24
88		429	16	do	bro pek	1600	30
89		432	14	do	pek sou	1120	23
92	Choughleigh	441	10	do	or pek	950	29 bid
93		444	29	do	bro or pek	2900	32
94		447	44	do	pekoe	4180	27
99	Chapelton	462	10	do	bro mix	800	22
100	Alplakande	465	23	do	sou	1932	23
101	Whyddon	468	13	do	bro pek	1430	43
102		471	13	do	or pek	1235	38
103		474	9	do	pekoe	855	32 bid
108	Brownlow	489	24	hf-ch	bro or pek	1320	50 bid
109		492	22	ch	bro pek	2134	35 bid
110		495	12	do	pek sou	1092	29 bid
111	Gangawatte	498	35	do	or pek	3500	31 bid
112		501	37	do	bro or pek	4070	42 bid
113		504	23	do	bro pek	2415	36 bid
114		507	17	do	pekoe	1700	31 bid
115		510	13	hf-ch	dust	1170	28
117	Suduganga	516	16	ch	or pek	1440	32 bid
118		519	13	hf-ch	bro or pek	715	46
120		525	16	ch	pek sou	1280	26 bid
123	Mahanilu	534	14	do	or pek	1330	39
124		537	52	hf-ch	bro or pek	2880	39 bid
125		540	21	ch	pekoe	1806	32 bid
126		543	16	do	pek sou	1392	26 bid
127		546	19	hf-ch	fans	1330	25
128		549	19	ch	unas	1805	21
23	Brownlow	652	22	hf-ch	bro or pek	1166	45
130		555	18	ch	bro pek	864	38 bid
131		558	11	do	or pek	1023	34
132		561	38	do	pekoe	3534	33 bid
133		564	11	do	pek sou	1034	29 bid
134		567	13	hf-ch	bro pek fans	884	31
136	Birnam	573	37	ch	pek sou	3549	30 bid
137	Ohiya	576	34	do	sou	2754	24 bid
139	Morahella	682	14	do	bro or pek	1400	26
140		585	16	do	or pek	1504	26 bid
141		588	18	do	pekoe	1512	25
142		591	19	do	bro or pek	1900	26
143		694	20	do	bro pek	2000	28 bid
144	Glassaugh	597	35	hf-ch	or pek	1855	68 bid
145		600	27	do	bro or pek	1755	53
146		603	24	ch	pekoe	2280	41 bid
147	Glentilt	606	13	hf-ch	fans	1040	26
148	Orangefield, J M R	609	15	ch	bro pek	1500	25
149		612	14	do	pekoe	1330	22
151	Murrathwaite	618	15	do	bro pek	1425	33
152		621	13	do	pekoe	1105	27
153	Hiralouvah	624	32	hf-ch	or pek	1600	35
154		627	17	do	bro or pek	1020	32
155		630	24	ch	pekoe	2040	23
156		633	15	do	pek sou	1200	26
160	Keenagaha Ella	645	63	hf-ch	or pek	3465	32
161		648	39	ch	pekoe	3315	25
162		651	30	do	pek sou	2400	out
163		654	16	do	sou	1200	23
164		657	16	hf-ch	bro pek fans	1040	24
167	Gampai	666	57	do	or pek	2736	30 bid
168		669	40	do	bro or pek	2320	31 bid
169		672	30	ch	pekoe	2190	26 bid
170		675	33	do	pek sou	2640	25

essrs. Somerville & Co.—

245,411 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Kelani	175	1	ch	bro pek	1200	32
2		178	12	do	bro or pek	1200	26
3		181	12	do	or pek	1020	27 bid
4		184	14	do	pek	1190	25
5		187	12	do	pek sou	1020	22
6		190	7	do	fans	700	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
9	Columbia	199	41 hf ch	bro pek	2460	36
10		202	60 do	pek	2700	35
11	Lonach	205	115 hf-ch	bro pek	6325	33
12		208	47 ch	pek	3995	29
13		211	26 do	pek sou	2080	28
14	Ravenoya	214	37 hf ch	bro pek	2035	31 bid
15		217	35 do	pek	1710	27 bid
18	Tiddydale	226	17 hf-ch	bro pek	850	28
19		229	13 ch	pek	1170	24
20		232	10 do	pek sou	850	21
21	Mahatenne	235	25 ch	bro pek	2500	28 bid
22		238	19 do	pek	1900	26
25	Theberton	247	27 ch	bro or pek	2 00	32
26		250	11 do	pek	990	27
29	Ambalawa	259	22 hf ch	pek	990	27
30		262	20 do	pek sou	800	24
31	San Cio	265	22 hf ch	sou	880	22
34	Mahagoda	277	10 ch	pek	1000	21
36	O H S, in estate mark	280	7 ch	bro pek	770	25
37		283	10 do	pek	1000	21
40	Ranasinghapatna	292	25 ch	pek	1925	25 bid
41		295	20 do	pek sou	2430	23 bid
47	Mahalla	313	43 hf-ch	bro pek	2150	30 bid
48		316	14 ch	pek	1134	26
49		319	11 do	pek sou	836	24
52	Mahatenne	328	31 ch	bro pek	3100	28 bid
53		331	20 do	pek	2000	26
57	Hangranoya	343	47 hf ch	bro pek	2350	32
59		349	21 ch	pek	1785	27 bid
63	Salawe	361	27 ch	bro pek	2700	28
64		364	13 do	pek	1170	28
65		367	10 do	pek sou	900	24
67	Honiton	373	24 ch	bro pek	2400	30
68		376	22 do	pek	1870	26 bid
69		379	22 do	pek sou	1760	24
72	Siriniwasa	388	45 hf ch	bro pek	2250	33 bid
73		391	51 do	pek	2295	26 bid
74		394	4 do 16 ch	pek sou	1640	24
76	Elchico	400	39 hf ch	bro pek	2145	30 bid
77		403	40 do	pek	2000	27 bid
82	Ladysmith	418	101 hf ch	bro pek	5050	28
83		421	28 ch	pek	2100	25
84	S	424	10 hf ch	dust	800	23
85		427	23 do	bro tea	1150	21
88	Wewatenne	436	22 hf-ch	bro pek	1100	34
89		439	23 do	pek	1150	27
90		442	32 do	pek sou	1600	24
92	Tientsin	448	11 ch	pek sou bulked	935	31
94	Dikmukalana	454	22 hf ch	or pek	1100	28 bid
95		457	34 do	pek A	1700	24 bid
96		460	38 do	pek B	1900	25 bid
97		463	19 do	pek sou	912	23 bid
98		466	40 do	bro pek fans	2200	22 bid
99	Annadale	469	14 hf ch	bro or pek	812	65
100		472	20 do	or pek	1200	41
101		475	17 do	pek	901	38 bid
102		478	18 do	pek sou	1102	
107	Harangalla	492	14 ch	bro pek	1400	36
108		496	31 do	pek	2480	30
109		499	10 do	sou	800	21 bid
110	Yahalatenne	502	21 ch	pek sou	1995	26
113	Nyanza	511	10 ch	bro pek	1000	35 bid
114		514	10 do	or pek	900	35 bid
115		517	20 do	pek	1700	31
121	Havilland	535	23 ch	pek fans	2300	24
122		538	10 do	sou	950	15
124	Illukettia	544	26 ch	bro pek	2860	24 bid
125		547	27 do	pek	2700	21
126		550	10 do	pek sou	1000	17 bid
129	Citrus	559	12 ch	bro pek	1200	28
130		562	14 do	pek	1260	24
131		565	7 do	pek sou	700	21
133	Maddagedera	571	20 ch	bro pek	2000	31
134		574	31 do	or pek	2790	28
135		577	21 do	pek	1575	25
136		580	27 do	pek sou	1890	24
137		583	8 do	bro pek fans	960	25 bid
139	Doragalla	589	22 hf ch	bro or pek	1210	46
140		592	14 ch	bro pek	1330	40
141		595	19 do	pek	1615	34
144	Ukuwela	604	11 ch	bro tea	1045	11
145	Blankbonnie	607	24 hf ch	bro pek	1440	40 bid
146		610	14 do	or pek	742	40 bid
147		613	41 do	pek	3690	32 bid
148		616	10 ch	pek sou	820	29 bid
149	Mary Hill	616	23 hf ch	or pek	1495	32 bid
150		622	42 do	pek	2520	28
151		625	16 do	pek sou	960	26
155	Ambalawa	637	32 hf ch	bro pek	1600	27 bid
159	Rahatungoda	649	35 hf-ch	bro or pek	1750	50
160		652	22 do	or pek	1100	40
161		655	17 do	bro pek	1020	41
162		658	26 do	pek	1300	36
163		661	10 do	dust	1033	25

Lot.		Box.	Pkgs	Name.	lb	c.
165	S, in estate mark	667	32 hf ch	bro pek	1920	28 bid
166		670	11 do 1 hf-ch	pek	1920	24
170	F F D	682	28 hf ch	bro pek fans	1744	25 bid
171		685	22 do	pek fans	1650	24 bid
172		688	9 ch	dust	1530	18 bid
173	Neboda	691	30 hf ch	bro or pek	1500	28
174		694	96 do	bro pek	4800	27
175		697	44 do	pek	1980	25
176		700	82 do	pek sou	[illegible]280	23
178	Neuchatel	706	59 ch	bro pek	5605	29
179		709	10 do	pek	850	26
180		712	12 do	pek sou	1020	23
181	Ravenscraig	715	17 hf ch	bro pek	935	32 bid
182		718	53 ch	or pek	4505	26 bid
183		721	30 do	pek sou	2700	25 bid
186	Yspa	730	27 ch	pek sou	2160	26
187		733	10 do	pek dust	1400	20 bid
188	N V	736	40 hf ch	bro pek fans	2520	21 bid
189		739	24 do	pek fans	1800	23 bid
190		742	8 ch	dust	1366	19 bid
191	Narangoda	745	46 ch	bro pek	4600	27 bid
192		748	31 do	pek	2945	25 bid
193		751	18 do	pek sou	1620	22

Messrs. Forbes & Walker.

[644,960 lb.]

Lot.		Box.	Pks.	Name.	lb.	c.
1	L H O	1879	45 ch	sou	3375	20
7	Karawakettia	1897	15 ch	pek	1432	20
8	B, in estate mark	1900	14 ch	sou	1260	23
9		1903	7 do	dust	1050	20
10	Attampettia	1906	7 ch	bro pek	700	54
11		1909	13 do	pek	1235	35
13	Palm Garden	1915	10 ch	bro pek	1100	30
14		1918	11 do	pek	990	27
15		1921	10 do	bro pek	900	24
18	P, in estate mark	1930	51 ch	bro pek	3060	48
19		1933	32 do	pek	2560	38
20		1936	32 do	pek sou	2060	34
21		1939	14 do	fans	980	32
23	Carberry	1945	19 ch	bro pek	1710	31
24		1948	20 do	pek	1800	27
25		1951	10 do	pek sou	900	23
26	G K	1954	15 ch	bro tea	1350	21
27		1957	9 do	dust	1260	25
28	S P	1960	6 ch 1 hf ch	bro or pek	725	26
29		1963	8 ch	bro pek	800	24
32		1972	13 hf-ch	or pek fans	910	22
33		1975	10 do	pek fans	880	22
34		1978	8 ch	bro pek fans	960	22
35	O B E C in est. mark, Forest Creek	1981	21 ch	bro or pek	2100	52 bid
36		1984	24 do	bro pek	2400	42
37		1987	15 do	or pek	1500	39
38		1990	28 do	pek No. 1	2520	38
39		1993	26 do	pek ,, 2	2600	38
40	Denia	1996	49 ch	bro pek	4410	out
41		1999	92 do	pek	7360	22 bid
42		2002	78 do	pek sou	6240	20
43		2005	31 do	fans	3100	19 bid
44		2008	14 do	dust	1960	20
46	Maldeniya	2014	8 ch	sou	720	22
50	Ismalle	2026	19 ch	sou	1710	22
51		2029	9 do	congou	720	18
52		2032	19 do	fans	1425	20
53		2035	18 do	dust	1530	22
54	Ireby	2038	20 hf ch	bro pek	1200	53
55		2041	10 ch	pek	900	43
57	Wyamita	2047	8 ch	bro pek	800	27
58		2050	9 do	pek	810	25
62	Galapitakande	2062	18 ch	or pek	1440	36
63		2065	15 do	bro or pek	1545	36
64		2068	39 do	pek	3978	31
65		2071	8 do	pek sou	800	24
67	Banara Eliya	2077	67 hf ch	or pek	3080	33
68		2080	23 ch	pek	2185	32
69		2083	37 hf ch	pek sou	1480	27
71	Ambragalla	2089	48 do	bro or pek	2784	29
72		2092	39 ch	pek	2847	26
73		2095	48 do	pek sou	3744	23
74	Old Madegama	2098	13 ch	bro or pek	975	41
75		2101	28 do	bro pek	1960	32
76		2104	13 do	pek	1040	33

Lot.		Box.	Pkgs.	Name.	lb.	c.
77		2107	8 ch	dust	800	25
78		2110	13 do	pek fans	1105	29
80	D, in estate					
	mark	2116	31 hf-ch	fans	1860	19
81		2119	11 do	dust	1045	18
82		2122	14 do	fans	770	18
83	M T P, in est.					
	mark	2125	8 ch	sou	720	19
84		2128	20 do	dust	2000	21
86	I K V	2134	11 do	pek fans	1320	19
92	Grange					
	Garden	2152	42 ch	bro or pek	4200	43
93		2155	30 do	pek	3000	34
97	Tonacombe	2167	47 ch	pek	4230	34
98		2170	25 do	pek sou	2250	26
99	Galapitakan-					
	de	2173	25 ch	or pek	2000	36
100		2176	14 ch	bro or pek	1400	37
101		2179	49 do	pek	4900	30
104	Ardlaw and					
	Wishford	2183	39 ch	pek	3237	36
105	S W	2191	15 do	bro mix	1800	19
107	Cotswald	2197	17 ch	pro pek	1700	41
108		2200	24 do	pek	2160	30
109		2203	23 do	pek sou	1725	27
112	Gonapatiya	2212	48 hf ch	bro or pek	2496	51
113		2215	33 do	or pek	1575	40
114		2218	41 do	bro pek	2214	35 bid
115		2221	47 do	pek	2068	36
116	Devonford	2224	25 hf ch	bro or pek	1375	78
117		2227	16 do	pek	1360	53
120	Erlsmere	2236	50 hf-ch	bro or pek	2400	43
121		2239	27 ch	bro pek	2500	36
122		2242	29 do	pek	2320	33
123		2245	11 do	pek sou	880	26
124		2248	9 hf ch	dust	720	28
126	Ella oya	2254	10 ch	bro pek	1000	55
127		2257	21 do	pek	1680	31
128		2260	21 do	pek sou	1680	26
129	L B K	2263	30 ch	red leaf	2700	14
130	Stamford					
	Hill	2266	32 hf ch	bro pek	1920	43 bid
131		2269	22 do	or pek	990	48 bid
132		2272	38 do	pek	1900	35
133		2275	15 do	pek sou	705	31
135	Tembliligalla	2281	34 ch	bro or pek	3400	33
136		2284	27 do	pek	2430	28
140	Dammeria	2296	9 ch	bro or pek	1080	35
141		2299	37 do	or pek	3700	32 bid
142		2302	39 do	bro pek	4290	33
143		2305	20 do	pek	1800	31
144		2308	15 do	pek sou	1350	26
145	Pallagodda	2311	16 ch	bro or pek	1600	28
146		2314	19 do	bro pek	1900	35
147		2317	16 do	or pek	1440	29 bid
148		2320	17 do	pek	1360	28
149		2323	21 do	pek sou	1785	25
150	Hayes	2326	30 ch	bro or pek	3000	47
151		2329	26 do	bro pek	2600	35
152		2332	22 do	or pek	1760	33
153		2335	61 do	pek	4880	29
154	Polatagama	2338	26 ch	bro pek	2600	35
155		2341	14 do	or pek	1260	28
156		2344	62 do	pek	5580	27
157		2347	13 do	pek sou	1105	23
158		2350	11 do	fans	1045	21
160	Hayes	2356	19 ch	bro or pek	1900	47
161		2359	26 do	bro pek	2600	35
162		2362	60 do	pek	5100	28
163	Massena	2365	27 hf ch	bro pek	1350	32
164		2368	29 do	or pek	1450	51
165		2371	47 do	pek	2350	28
166		2374	35 do	pek sou	1750	25
174	Dunkeld	2398	78 hf ch	bro or pek	4680	46
175		2401	20 ch	or pek	1900	38
176		2404	33 do	pek	2970	39
178	Galkadua	2410	22 ch	bro pek	2200	28
179		2413	25 do	pek	2250	26
180		2416	20 ch	pek sou	2000	23
184	Nillomally					
	O B E C, in est.					
	mark	2428	19 ch	bro or pek	1900	47
185		2431	27 do	bro pek	2700	35
186		2434	14 do	or pek	1204	34
187		2437	17 do	pek	1423	32
188	K P W	2440	20 hf-ch	bro pek	1100	30
189		2443	31 do	bro or pek	1860	30
190		2446	63 do	pek	3465	27
191		2449	25 do	pek sou	1250	23
193	A M B	2455	11 ch	fans	1122	19
194		2458	11 do	dust	1650	20
196	Ingrogalla	2464	17 ch	bro pek	1700	31
197		2467	14 do	pek	1190	27
198	Torwood	2470	54 ch	bro pek	4749	29
199	Maragalla	2473	12 do	bro pek	1344	33 bid
200		2476	11 do	or pek	1090	32
201		2479	14 do	pek	1120	28 bid
203	Mawiliganga-					

Lot.		Box.	Pkgs.	Name.	lb.	c.
	watte	2485	7 ch	bro or pek	700	35
204		2488	48 do	bro pek	4800	28
205		2491	39 do	pek sou	3120	25
208	Maragalla	2500	16 ch	bro pek	1792	33 bid
209		2503	15 do	or pek	1350	32
210		2506	12 do	pek	1080	28 bid
213	Blairgowrie	2515	11 ch	sou	902	14
214		2518	7 do	pek fans	910	21
217	Gallawatte	2527	10 ch	bro pek	900	28
218		2530	27 do	bro pek	2430	29
219		2533	15 do	pek	1200	27
220		2536	10 do	sou	800	24
222	Kitulgalla	2542	46 hf ch	or pek	2760	29 bid
223		2545	22 do	bro or pek	1316	25 bid
224		2548	24 ch	pek	2160	25
228	Monkswood	2560	20 hf-ch	bro pek	1060	72
229		2563	27 do	or pek	1350	62 bid
230		2566	18 ch	pek	1800	46
231	Deaculla	2569	49 hf ch	bro pek	2695	46
232		2572	51 do	pek	3570	34
233		2575	16 do	pek sou	1050	27
234		2578	10 do	dust	800	24
236	Riviera	2584	14 ch	bro pek	1330	out
237		2587	26 do	pek	2340	out
241	Maligatenne	2599	10 ch	bro or pek	1000	27
242		2602	12 do	or pek	1200	25
243		2605	8 do	pek	760	21
253	N	2635	16 ch	bro tea	2080	19
254		2638	16 do	unas	1600	23
255	Theydon Bois	2641	25 ch	or pek	2125	38
256		2644	29 do	pek	2320	31
257		2647	11 do	pek sou	935	25
261	St. Heliers	2659	27 hf-ch	bro or pek	1512	42
262		2662	20 ch	pek	1800	33
263		2665	10 do	pek sou	950	27
264	Patiagama	2668	14 do	or pek	1190	36
265		2671	20 do	pek	1600	29 bid
266		2674	18 do	pek sou	1440	26
267	Queensland	2677	14 hf-ch	bro or pek	700	68
268		2680	14 do	bro pek	700	46
269		2683	30 ch	pek	2700	36
271		2689	8 do	pek sou	720	34
276	Knavesmire	2704	22 hf-ch	or pek	1100	36
277		2707	31 ch	bro pek	3100	29 bid
278		2710	33 do	pek	2805	26
279		2713	16 do	pek	1200	25
280	Stafford	2716	50 hf-ch	bro or pek	3000	51
281		2719	27 ch	or pek	2565	45
282		2722	34 do	pek	2720	41
283		2725	14 do	pek sou	1120	37
286	Kelvin	2734	10 do	dust	750	20
288	Doranakande	2740	7 do	bro pek	700	31
292	L G F in est.					
	mark	2752	20 do	sou	1660	22
293		2755	9 do	dust	1260	19 bid
294	Pambagama	2758	8 do	congou	760	23
295		2761	30 do	fans	2700	19 bid
297	Lindupatna	2767	19 do	bro or pek	2090	70
298		2770	40 do	br pek	4240	43 bid
299		2773	47 do	pek	4230	36
300		2776	12 do	pek sou	1080	32
302	C L in est.					
	mark	2782	26 hf-ch	bro or pek	1682	47 bid
303		2785	24 ch	pek	2397	37 bid
304	Munaar	2788	80 hf-ch	bro pek	4800	36
305		2791	167 do	or pek	8350	34
306		2794	168 do	pek	8400	29
307		2797	193 do	pek sou	8685	24
308		2800	79 do	pek fans	4977	25
309		2803	42 do	dust	3150	21
310	Memorakande	2806	35 ch	pek sou	3150	19
311		2809	8 do	dust	1200	19
313	Relugas	2815	6 do	dust	750	29
320	Cooroondoo-					
	watte	2836	17 hf-ch	pek	935	30
322	Mansfield	2842	61 do	bro pek	3660	46
323		2845	26 ch	pek	2340	33
324		2848	8 do	pek fans	720	32
325	S P	2851	12 do	bro pek	1080	19
326		2854	16 do	pek	1152	19
327		2857	19 do	pek du	1615	20
329	W V R A	2863	16 hf-ch	fans	1280	19
332	Agra Elbedde	2872	56 ch	bro or pek	5600	43 bid
333		2875	72 hf-ch	or pek	3960	40 bid
334		2878	24 do	pek	1200	36 bid
335		2881	30 do	pek sou	1350	33
336	Munaar	2884	29 hf-ch	bro pek	1595	36
337		2887	37 do	or pek	1924	34
338		2890	65 do	pek	3082	29 bid
339		2893	35 do	pek sou	1575	25
346	H G M	2914	18 do	bro or pek	1170	withd'n
347		2917	7 ch	or pek	700	37
348		2920	27 do	bro pek	2700	32
349		2923	34 do	pek	3230	33
350		2926	18 do	pek sou	1620	30
351		2929	11 do	bro pek fans	1100	26
353	Weoya	2935	31 do	bro pek	2930	26 bid
354	Kanangama	2938	18 do	pek sou	1527	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
355	Cureton	2941	10 ch	pek sou	800	18 bid
356	Digdola	2944	13 do	bro pek	1170	32
357		2947	15 do	pek	1125	26
359	Coreen	2953	15 hf-ch	bro or pek	750	48
360		2956	25 ch	or pek	2247	37
361		2959	30 do	pek	2700	36
364	Carfax	29.8	24 do	bro or pek	2400	49
365		2971	27 do	or pek	2430	40
366		2974	29 do	pek	2610	37
367	Killarney	2977	56 hf-ch	bro or pek	3080	45
368		2980	40 ch	pek sou	3600	34
369	Maha Uva	2983	43 hf-ch	bro or pek	2580	33 bid
370		2986	46 do	or pek	2576	38
371		2989	52 ch	pek	4680	37
372		2992	20 do	pek sou	1600	29
374	Putupaula	2998	13 do	bro or pek	1495	30
375		3001	64 do	bro pek	5760	30
376		3004	46 do	pek	3450	26
377		3007	25 do	pek sou	1750	24
380	Munaar	3016	60 hf-ch	bro pek	3300	36
381		3019	39 do	or pek	1872	35
382		3022	67 do	pek	3082	30
383		3025	75 do	pek sou	3375	25
384	Macaldenia	3028	23 do	bro pek	1380	36
386		3034	24 do	pek	1320	28
387		3037	15 do	pek sou	750	26
390	Palmersto	3046	17 do	or pek	884	70
392		3052	12 ch	pe	1080	46
394	Warwick	3058	28 do	bro pek	2800	51
395		3061	39 do	pek	3705	39
396		3064	21 do	pek sou	1995	36
399	Geragama	3073	13 hf ch	bro or pek	780	31
400		3076	14 ch	bro pek	1260	27
401		3079	17 do	pek	1530	25
402		3082	13 hf-ch	bro or pek	715	31
403		3085	9 ch	bro pek	810	28
404		3088	14 do	pek	1190	25
405	Vogan	3091	24 do	bro pek	2400	39
406		3094	27 do	or pek	2160	31
407		3097	40 do	pek	3200	30
408		3100	20 do	bro pek	2000	37
409		3103	23 do	pek	2070	29
410		3106	9 do	pek sou	720	26
411		3109	6 do	bro pek fans	750	24
412	Talgaswela	3112	40 do	bro pek	3800	30
413		3115	49 do	pek	4165	25
414		3118	22 do	pek sou	1760	24
415		3121	10 hf-ch	fans	750	18
417	Great Valley, Ceylon, in est. mark	3127	44 do	bro or pek	2425	45
418		3130	14 do	or pek	1260	42
419		3133	43 do	pek	3870	36
420		3136	22 do	pek sou	1650	31
421	B F B	3139	30 do	pek dust	2400	20
423		3142	12 do	fans	780	18
424	B F B O	3148	10 do	dust	700	17

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
10	New Rasagalla	51	4 ch	dust	500	20
15	Halgolle	66	2 do	fans	230	28
16		69	2 do	dust	300	18
19	Mandara Newera	78	11 hf-ch	pek sou	550	30
24	Hapugastenne	93	7 ch	sou	420	2
27	W	2	6 do	br or pek	570	27
28		5	4 do	pek	300	25
29		8	4 do	pek sou	275	23
33	M	20	1 do	bro pek	92	27
34		23	1 do	pek	80	25
35		26	2 do	pek son	153	28

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Happy Valley	168	1 ch	pekoe	50	22
28	Ottery	249	3 hf-ch	dust	270	23
34	Mount Clare	267	1 ch	fans	85	21
35		270	2 do	dust	200	20
46	Keslande	303	4 do	pek sou	380	25
47		306	3 do	congou	240	24
48		309	2 do	fans	220	25
49		312	2 do	dust	160	21
64	Coslande	357	4 do	pek sou	380	25
65		360	3 do	congou	240	24
66		363	2 do	fans	220	25
67		366	2 do	dust	160	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
90	Bellongalla	435	6 ch	bro pek fans	600	26
91		438	3 do	dust	420	18
95	Chougbleigh	450	3 do	pek sou	255	24
96		453	4 do	dust	520	20
97		456	5 do	fans	525	26
98	Chapelton	459	7 hf-ch	dust	630	25
104	Whyodon	477	3 ch	pek sou	255	26
105		480	2 do	fans	250	26
106		483	1 do	dust	143	20
107	Riseland	486	2 do	bro or pek	200	22
116	Gangawatte	513	3 hf ch	sou	165	25
119	Suduganga	522	2 do	pek fans	160	26
121		528	8 ch	sou	600	25
122	S G	531	2 hf-ch	unas	100	24
135	A R	570	5 ch	bro mix	500	16
138	A A	579	1 do	dust	100	18
150	Orangefield, J M R	615	1 do	pek sou	90	19
157	Hiralouvah	636	4 hf-ch	fans	260	26
158		639	1 do	dust	90	19
159	K T	642	1 ch	sou	95	15
165	Keenagaha Ella	660	2 do	dust	180	19
166		663	6 do	congou	480	16
171	Gampai	678	3 hf-ch	dust	255	21
172		681	1 do	red leaf	100	21

[Messrs. Somerville & Co.]

Lot		Box.	Pkgs.	Name.	lb.	c.
7	Kelani	193	2 ch	dust	300	18 bid
8		196	2 do	dust	240	17 bid
16	Ravenoya	220	5 hf ch	pek sou	275	24
17		223	1 ch	fans	150	23
23	Mahatenne	241	7 ch	pek sou	665	24
24		244	1 do	dust	100	20
27	Theberton	253	1 ch	fans	100	18
28	K G	256	2 ch	sou	130	10
32	A A	268	3 hf ch	bro tea	145	13
33	O	271	1 hf ch	dust	75	20
35	Mahagoda	277	9 ch	bro pek	500	25
38	O H S, in estate mark	286	3 ch	pek sou	285	17
39		289	1 do	dust	140	16
42	D W P	298	7 hf-ch	bro pek	350	
43		301	5 do	pek	250	20
44		304	7 do	pek sou	315	16
45		307	1 do	fans	50	16
46	S L G	310	3 ch	red leaf	225	12
50	Mahalla	322	4 ch	pek sou No 2	280	20
51		325	2 hf ch	dust	194	19
54	Mahatenne	334	6 ch	pek sou	570	24
55		337	3 do	dust	300	20
56		340	1 do	bro tea	100	13
58	Hangranoya	346	8 ch	or pek	600	35
60		352	9 do	pek sou	675	24
61	Bope	355	6 hf ch	pek sou	288	20
62		358	4 do	dust	280	21
66	Salawe	370	1 ch	pek dust	165	20
70	Honiton	382	2 ch	fans	200	21
71		385	2 do	dust	280	20
75	Siriniwasa	397	2 hf ch	bro tea	111	25
78	Elchico	406	5 hf-ch	fans	325	26
79		409	1 do	con	47	21
80		412	2 do	bro mix	100	14
81		415	5 do	dust	425	20
86	A	430	5 hf ch	dust	400	20
87		433	7 do	bro tea	350	20
91	Y, in estate mark	445	5 hf-ch	dust	400	27
93	Tientsin	451	3 ch	dust	420	26
93a		541a	2 do	dust a	280	24
105	F, in estate mark	487	8 ch	pek sou	584	7
106		490	8 hf ch	dust	632	
111	S T	505	hf ch	bro pek	150	24
118		508	2 do	pek	110	21
116	Nyanza	520	8 ch	pek sou	680	26
117		523	3 do	fans	300	26
118	St. Ley s	526	5 ch	pek sou	425	24
119		529	3 hf ch	red leaf	150	13
120		532	1 do	fans	88	20
123	Haviliand	541	7 hf ch	dust	630	18
127	Illukettia	553	2 ch	sou	190	14
128	E S	556	2 ch	bro mix	195	14
132	Citrus	568	1 ch	pek dust	150	18
138	Maddagedera	586	8 hf ch	dust	680	20
142	Doragalla	598	8 ch	pek sou	640	27
143		601	3 do	bro mix	375	22 il
152	Mary Hill	628	3 hf ch	bro pek fans	240	30
153		631	6 do	bro tea	360	21
154		634	1 do	dust	95	18
154a		634a	1 do	dust a	95	18
156	Bope	640	5 ch	bro pek	540	24
157		643	5 do	or pek	450	25
158		646	5 do	pek	440	22
164	S, in estate					

Lot.		Box.	Pkgs.	Name.	lb.	c.
	mark	664	6 ch	or pek	510	32 bid
167		673	1 do	sou	100	23
168		676	1 do	dust	150	19
169		679	3 do	red leaf	240	12
177	Neboda	703	5 hf ch	dust	425	20
184	Ravenscraig	724	5 ch	pek sou	450	23
185		727	8 hf ch	fans	640	25
194	Narangoda	754	2 ch	dust	300	18

[Messrs. Forbes & Walker

Lot.		Box.	Pks.	Name.	lb.	c.
2	K D A	1882	1 ch	bro pek	107	28
3		1885	1 do	pek	104	26
4		1888	1 do	pek sou	100	24
5		1891	1 hf ch	pek sou	56	23
6	Karawakettia	1894	6 ch	bro pek	665	31
12	Attampettia	1912	3 do	pek sou	240	28
16	Palm Garden	1924	1 ch	congou	100	18
17		1927	1 do	fans	110	18
22	Carberry	1942	4 do	bro or pek	440	29
30	S P	1966	4 do	pek	340	22
31		1969	2 do	congou	176	19
45	Denia	2011	7 ch	sou	525	17
47	Maldeniya	2217	2 do	congou	160	19
48		2020	3 do	fans	225	19
49		2023	3 do	dust	255	18
56	Sunny Croft	2044	4 ch	bro tea	400	14
59	Wyamita	2053	6 do	pek sou	480	23
60	Nahaveena	2056	1 bf-ch	congou	50	21
61		2059	1 do	bro mix	47	16
66	Galapitakan-de	2074	2 hf ch	dust	200	20
7	Bandara Eliya	2086	11 do	bro mix	649	26
79	D, in estate mark	2113	10 hf-ch	sou	500	18
85	I K V	2131	5 ch	bro mix	560	18
87	Frogmore	2137	6 hf ch	or pek	270	48
88		2140	7 do	bro pek	385	46
89		2143	5 do	bro or pek	275	57
90		2146	7 ch	pek	560	34
91		2149	4 do	pek No. 2	300	32
94	Grange Garden	2158	2 ch	pek sou	200	26
95		2161	1 do	fans	100	27
96		2164	4 bf-ch	dust	340	22
102	Galapita-kande	2182	6 ch	pek sou	600	23
103		2185	4 hf ch	dust	400	19
106	Frogmore	2194	1 ch	unas	83	20
110	Cotswald	2206	3 do	sou	225	22
111		2209	4 hf-ch	dust	300	21
118	Ookoowatte	2230	4 ch	pek fans	585	23
119		2233	1 hf ch	dust	100	18
125	Ella Oya	2251	8 ch	orpk	0 89	33
134	Stamford Hill	2278	3 hf-ch	dust	255	26
137	Tembiligalla	2287	7 ch	pek sou	630	24
138		2290	1 do	bro pek fans	150	24
139		2293	1 do	dust	155	20
159	Polatagama	2353	3 ch	dust	450	18
167	Massena	2377	7 hf-ch	pek fans	420	24
168		2380	3 do	fans	210	23
169		2383	2 do	dust	180	19
170	Ladbrake	2386	1 hf ch	pek	53	26
171		2389	3 ch	sou	270	25
172		2392	2 hf-ch	dust	170	18
173		2395	1 do	red leaf	34	13
177	Galkadua	2407	2 ch	bro or pek	200	30
181		2419	4 do	fans	440	22
182		2422	2 do	congou	200	18
183		2425	1 do	dust	180	19
192	K P W	2452	2 bf-ch	dust	170	19
195	A M B	2461	5 ch	red leaf	430	15

Lot.		Box.	Pkgs.	Name.	lb.	c.
203	Maragalla	2482	6 ch	unas	600	22
206	Mawiliganga-watte	2494	4 hf ch	dust	360	19
207		2497	1 ch	fans	107	18
211	Maragalla	2509	3 do	bro tea	260	23
212		2512	2 hf ch	dust	180	19
215	Blairgowrie	2521	1 ch	fans	102	20
216		2524	4 do	dust	660	16
221	Gallawatte	2539	9 do	pek fans	630	25
225	Kitulgalla	2551	5 do	pek sou	475	21
226		2554	4 do	dust	480	19
237		2557	1 do	congou	85	17
235	X	2581	2 hf-ch	red leaf	132	13
238	D B R	2590	4 do	pek fans	292	31
239		2593	1 ch	pek sou	71	31
240		2596	1 hf-ch	dust	81	24
244	Maligatenne	2608	4 ch	pek No. 2	380	18
245		2611	1 do	pek sou	80	14
246		2614	3 do	pek sou No. 2	270	15
247		2617	4 do	bro pek	420	22
248		2620	3 do	fans	345	17 bid
249		2623	1 do	dust	140	17
250		2626	1 do	red leaf	110	13
251		2629	1 do	do No. 2	120	13
252		2632	2 do	unas	130	17
258	T B in est. mark	2650	4 ch	dust	360	20
259		2653	1 do	fans	90	21
260		2656	3 do	congou	255	23
270	Queensland	2686	1 do	bro pek No 2	100	22
272		2692	3 hf-ch	bro pk dust	240	22
273		2695	3 do	bro pek fans	195	38
274	N B D	2698	3 ch	unast	300	18
275		2701	1 do	bro mixed	90	14
284	Stafford	2728	8 bf-ch	fans	560	31
285		2731	3 do	dust	270	24
287	Kelvin	2737	4 ch	pk fans	400	26
289	Doranakande	2743	4 do	pek	380	26
290		2746	7 do	pek No. 2	630	25
291		2749	7 do	pek sou	630	24
301	Lindupatna	2779	5 do	br pk fans	675	26
312	Relugas	2812	2 do	souchong	170	16
314	Peak Shadow	2818	3 do	bro pek	300	25
315		2821	2 do	pek	160	23
316		2824	2 do	souchong	170	24
317		2827	2 do	pek fans	200	26
318		2830	1 do	dust	180	20
319		2833	1 do	bro mix	100	20
321	Cooroondoo-watte	2839	10 hf-ch	pek sou	540	20
328		2860	10 do	bro pek	600	48
330	Nella Oolla	2866	6 ch	red leaf	450	10
331		2869	2 do	dust	300	18
340	Uragalla	2896	4 do	bro pek	352	29
341		2899	4 do	pek	340	25
342		2902	3 do	pek sou	240	23
343		2905	2 do	unast	170	21
344		2908	1 do	dust	125	18
345		2911	1 do	br pk fans	83	18
352	H G M	2932	4 hf ch	dust	360	19
358	Digdola	2950	3 ch	pek sou	255	23
362	Coreen	2962	6 do	pek sou	510	20
363		2965	6 hf-ch	dust	480	24
373	Maha Uva	2995	5 do	dust	425	23
376	Putupaula	3010	2 ch	souchong	170	16
379		3013	4 hf-ch	dust	300	19
385	Macaldeniya	3031	12 do	or pek	600	30
388		3040	5 do	unast	275	23
389		3043	2 do	dust	170	21
391	Palmerston	3049	8 ch	or pek	680	51
393	Stafford	3055	7 do	pek	560	35
397	Warwick	3067	3 bf-ch	pek fans	210	31
398		3070	3 do	dust	270	24
416	T	3124	1 ch	bro mixed	95	13
423	B F B	3145	6 do	unast	540	16

No. 25 COLOMBO, JULY 9, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[13,410 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	New Rasagalla	25	18 ch	bro or pek	1800	34
2		28	24 do	bro pek	2280	33
3		31	31 do	pek	2790	28 bid
4		34	27 do	pek sou	2430	25
5	Hornsey	37	24 hf ch	bro or pek	1320	50
6	Battalgalla	40	18 ch	pek sou	1440	34
8	Hornsey	46	14 do	pek sou	1120	33

Messrs. Forbes & Walker.

[511,697 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Rockside	3151	14 ch	sou	1120	25
3		3157	7 do	dust	945	23
4		3160	7 do	bro pek fans	840	27
5	Choisy	3163	35 do	pek No. 1	3325	36
6		3166	45 do	bro pek	4725	35 bid
7		3169	17 do	pek No. 2	1530	25
8		3172	33 do	pek sou	2805	29
9	Ketadola	3175	7 ch	bro pek	711	28
10		3178	8 do	pek	800	24
14	New Angamana	3190	13 ch	pek sou	1170	24
18	Kakiriskande	3202	14 do	pek	1260	26
20	St. H.	3208	30 ch	pek	1470	21
25	P C H Galle, in estate mark	3223	22 hf ch	pek	1100	25
26		3226	4 ch 15 hf ch	pek sou	1110	22
31	Ville Hena	3241	44 ch	bro pek	4400	32
32		3244	20 do	pek	2000	27
36	Sirikandura	3256	11 ch	bro pek	1100	31
37		3259	12 ch 1 hf-ch	pek	1156	27
38		3262	9 ch 1 hf ch	pek sou	837	24
41	Springwood	3271	21 ch	congou	1680	23
42	Dunbar	3274	32 hf-ch	bro or pek	1600	71
43		3277	26 do	or pek	1240	49
44		3280	13 ch	pek	1040	41
45	Harrington	3283	19 hf ch	bro or pek	950	64
46		3286	16 ch	or pek	1520	41
47		3289	19 do	pek	1710	38
49	Forest Creek, O B E C in est. mark	3295	19 ch	bro or pek	1900	57
50		3298	21 do	bro pek	2100	47
51		3301	14 do	or pek	1260	41
52		3304	20 do	pek No. 1	1800	39
53		3307	20 do	pek „ 2	1800	37
54	Elkadua	3310	21 ch	bro or pek	2100	30
55		3313	44 do	or pek	3520	30
56		3316	31 do	pek	2480	28
57		3319	20 do	pek sou	1600	25
58	Ella Oya	3322	12 ch	pek	960	28
59		3325	14 do	pek sou	1120	24
60	Naseby	3328	25 hf ch	bro or pek	1400	53
61		3331	25 do	or pek	1150	56
62		3334	25 do	pek sou	1175	41
63	W N	3337	18 ch	bro tea	1710	20
64		3340	10 do	fans	1100	18
66	Weweywatte	3346	25 hf ch 2 ch	bro pek	1616	27
67		3349	12 ch	pek	1050	25
70	Coreen	3358	20 ch	or pek	1800	41
71		3361	20 do	pek	1800	38
73	Pine Hill	3367	32 hf-ch	bro or pek	1920	46
74		3370	60 do	or pek	3508	39
75		3373	53 do	pek	4240	36
77	Ganapalla, Inv. No. 13	3379	27 ch	bro or pek	2430	32
78		3382	42 do	bro pek	3780	28
79		3385	13 do	or pek	1170	33
80		3388	61 do	pek	4880	26
81		3391	11 do	pek sou	825	23
82		3394	14 do	bro pek fans	1481	21
85	Seenagolla	3403	17 hf ch	bro or pek	935	46 bid
86		3406	18 do	pek	900	41
87	Inverness	3409	45 hf ch	bro or pek	2700	42 bid
88		3412	16 ch	or pek	1600	43
89		3415	29 do	pek	2610	38
90		3418	8 do	pek sou	720	35
92	Dunkeld	3424	18 hf ch	pek fans	1260	20
93		3427	10 do	dust	900	24
94	High Forest, Inv. No. 21	3430	68 hf ch	or pek	4216	66 bid
95		3433	38 do	or pek	2204	57
96		3436	22 do	pek	1166	45
97		3439	21 do	bro or pek	1680	36
98	Pallagodda, Inv. No. 11	3442	22 ch	bro or pek	2200	31
99		3445	22 do	bro pek	2200	35 bid
100		3448	22 ch	or pek	1870	32
101		3451	13 do	pek	975	28
102		3454	21 do	pek sou	1785	26
103	High Forest, Inv. No. 22	3457	64 hf-ch	or pek No. 1	3584	67
104		3460	34 do	or pek	1836	57
105		3463	25 do	pek	1200	45
106		3466	38 do	pek sou	1710	41
107	Clunes	3469	17 ch	bro or pek	1700	28 bid
108		3472	13 do	bro pek	1105	29
109		3475	21 do	or pek	1575	26 bid
110		3478	53 do	pek	3710	25
111		3481	16 do	pek sou	1360	22 bid
113	Battawatte	3487	35 ch	bro or pek	3850	34
114		3490	36 do	pek	3240	34
115		3493	14 do	pek sou	1120	27
117	Doorooma-della	3499	17 ch	sou	1326	22
119	Aberfoyle, Inv. No. 5	3505	23 hf ch	bro pek	1265	31 bid
120		3508	12 ch	or pek	1080	29
121		3511	11 do	pek	935	26
122		3514	11 do	pek sou	990	23
124	Aberfoyle, Inv. No. 6	3520	9 ch	bro pek	855	28
127	F, in estate mark	3529	35 ch	pek sou	3150	30
128	Arapolakande	3532	7 ch	bro or pek	770	82
129		3535	81 do	bro pek	7290	37
130		3538	60 do	pek	5440	29
131		3541	15 do	pek sou	1350	25
133	Sark	3547	18 ch	bro pek	1530	28
134		3550	24 do	pek	1920	25
135		3553	10 do	pek sou	800	22
136		3556	11 do	congou	825	20
138		3562	5 do	dust	760	19
139	Beaumont	3565	21 ch	bro pek	2016	28
140		3568	36 do	or pek	3096	26
141	Y	3571	10 ch	pek	820	22
142		3574	15 do	pek sou	1440	19
143		3577	14 do	bro tea	1008	17
144	C B	3580	12 ch	bro pek	1272	26
145		3583	21 do	pek	2100	21
146	Springwood	3586	16 ch	congou	1280	24
147	Kincora	3589	31 hf ch	bro pek	1550	42
148		3592	60 do	pek	2400	28
151	Holton	1	16 ch	bro pek	1520	31
152		4	11 do	pek	935	27
154	Drayton	10	39 hf-ch	or pek	1950	42
155		13	29 ch	pek	2465	40
156		16	12 do	pek sou	1020	36
163	Glendon	37	40 ch	bro pek	4000	36
164		40	38 do	pek	3040	30
165		43	18 do	pek sou	1530	28
166	G	46	15 ch	sou	1300	23
167		49	15 hf-ch	dust	1125	20
168		52	16 do	bro pek fans,	1120	24
169	Queensland	55	14 hf ch	bro or pek	700	70
170		58	14 ch	bro pek	700	51
171		61	30 do	pek	2700	40
173	Chesterford	67	80 ch	bro pek	8000	33
174		70	70 do	pek	7000	29
175		73	40 do	pek sou	4000	26
176	Geragama	76	13 hf-ch	bro or pek	715	38
177		79	15 ch	bro pek	1275	28
178		82	22 do	pek	1760	25
179	Nilloomally, O B C, in est. mark	85	15 ch	bro or pek	1500	42
180		88	18 do	or pek	1476	33
181		91	33 do	pro pek	2970	35
182		94	12 do	pek	960	29
183		97	22 do	pek sou	1760	25

Lot.		Box.	Pkgs	Name.	lb	c.
184	Matale	100	45 hf-ch	bro pek	2475	31
185		103	18 cb	pek	1620	28
186		106	12 do	pek sou	1020	26
188	Glengariffe	112	57 hf ch	bro pek	3135	34
189		115	23 do	or pek	1081	31
190		118	23 ch	pek	2070	28
192		124	9 hf-ch	dust	720	22
193	Penrhos	127	25 do	bro or pek	1375	47
194		130	20 do	or pek	960	42
195		133	39 ch	pek	3588	32
196		136	18 do	pek sou	1440	30
198	Corfu	142	29 hf-ch	bro pek	1[illegible]95	44
200		148	37 do	pek	1850	38
201		151	20 do	pek sou	900	29
203	Tembiligalla	157	29 hf-ch	bro or pek	1595	34
204		160	9 ch	pek	810	29
207	New Galway	169	17 hf-cb	bro pek	1020	56
208		172	21 do	pek	1155	45
210	W in est mark	178	17 ch	bro or pek	2040	37
211		181	9 do	or pek	900	34
215	Vogan	193	13 do	bro or pek	1365	41 bid
216		196	32 do	or pek	3040	40
217		199	62 do	pek	4960	30
218		202	26 do	pek sou	2080	27
219	Knavesmire	205	27 do	bro pek	2700	28
220		208	33 do	pek	2805	26
221		211	20 do	pek sou	1400	22 bid
222		214	12 hf-ch	dust	1020	23
223		217	20 cb	pek	1500	25
224		220	35 do	bro pek	3675	28 bid
225		223	24 do	pek	2040	26 bid
226		226	18 do	pek sou	1260	22 bid
227		229	19 do	pek	1425	25
228	Weyungawatte	232	42 do	bro pek	3990	30
229		235	38 do	pek	3230	28
230		238	40 do	pek sou	3000	26
231		241	13 do	bro tea	1105	23
236	L G F in est. mark	256	9 do	dust	1257	23
237	V in est. mark	259	22 do	pek sou	19[illegible]0	24
238		262	10 bf-ch	dust	800	23
239	Ascot	265	76 ch	bro pek	6460	30
240		268	15 do	bro or pek	1350	28 bid
241		271	17 do	pek	1530	26
242		274	9 do	pek sou	810	24
243		277	11 do	bro pk fans	1100	22
244	Middleton	280	20 do	pek sou	1800	43
245	C R D	283	14 do	dust	1400	21
246	Harrow	286	18 hf-ch	or pek	936	42
247		289	21 do	bro or pek	1260	54
248		292	30 ch	pek	3000	40
249		295	10 do	pek sou	900	35
251	St. Heliers	301	23 hf-ch	bro or pek	1196	44
252		304	12 ch	pek	1032	32
253	Patiagama	307	21 hf-ch	bro or pek	1155	48
254		310	11 ch	or pek	935	36
255		313	9 do	pk No. 1	720	33
256		316	11 do	pk No. 2	880	30
257	Lynsted	319	24 bf-ch	bro or pek	1440	74
258		322	57 ch	bro pek	6270	42 bid
259		325	18 do	pek	1890	43
260		328	8 do	pek sou	800	36
262	Geragama	334	15 hf-cb	bro or pek	825	32
263		337	15 ch	bro pek	1275	28
264		340	26 do	pek	2210	26
267	A S G	349	21 hf-ch	dust	1860	22
269	Callabeck	355	15 ch	pek sou	1425	38
271	Aniemudi	361	38 hf-ch	bro pek	2128	30
272		364	52 do	pek	2912	30
273		367	41 do	pek sou	2296	28
274		350	17 do	pk fans	1020	23
275	Ascot	373	30 ch	bro pk fans	3000	22
276	Shrubs Hill	376	82 do	bro pek	7626	35 bid
277	Ingrogalla	379	8 ch	br pek No. 2	800	32
281	I N G in est. mark	391	6 do	br pek dust	720	21
282	Gonapatiya	394	39 hf-ch	bro or pek	2301	47
283		397	38 do	pek	2052	37
284		400	39 do	pek sou	2067	33
285	Erlsmere	403	19 do	or pek	855	48
286		406	26 do	bro pek	2470	35 bid
287		409	30 do	pek	2250	34
288		412	13 do	pek sou	1040	26
290	Gallawatte	418	18 do	bro pek	1260	32
291		421	28 do	pek	2240	28
292	Mawaliganga-watte	424	7 ch	bro or pek	700	35
293		427	49 do	bro pek	4655	28
294		430	36 do	pek sou	2700	25
297	Munukattia, Ceylon, in est. mark	439	28 hf-ch	bro pek	1680	47
298		442	15 do	or pek	750	37
299		445	20 ch	pek	1600	33
300		448	7 do	pek sou	665	28
301	Agra Elbedde	451	56 do	bro or pek	5597	43 bid
303	Augusta	457	6 do	dust	840	20
304	Woodend	460	30 ch	bro pek	3000	31
305		463	36 do	pek	3[illegible]20	26
306	Erracht	466	24 do	bro or pek	2280	28 bid
307		469	21 do	bro pek	1680	30
308		472	27 do	pek	2160	26
309		475	13 do	pek sou	1[illegible]5	23 bid
312	Bloemfield	484	19 do	bro or pek	2090	46
313		487	[illegible]6 do	bro pek	2730	39
314		490	34 do	pek	3400	40
315		493	17 do	pek sou	1615	37
316	B in est. mark	496	34 do	unast	3400	25
317	Aberdeen	499	74 do	bro pek	7400	32
318		502	82 do	pek	6150	27
319		505	29 do	sou	2175	26
320	Ganapalla	508	10 do	or pek	900	33
321		511	21 do	bro or pek	1890	31
322		514	23 do	bro pek	2070	27
323		517	33 do	pek	2640	26
325		523	8 do	br pk fans	848	22
329	Cooroondoo-watte	535	15 hf-ch	pek.	750	33

Messrs. Somerville & Co.—253,317 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Nillicollay-watte	760	33 hf-ch	bro pek	2079	33
3		763	27 ch	pek (colin-dia chests)	2430	29
4		766	18 do	pek sou (col-india ch)	1350	25
8	Pallagodda	778	24 ch	bro or pek	2400	27 bid
9	S K K	781	19 ch	pek sou	1[illegible]05	28
11		787	7 ch	dust	1050	20
13	Hangranoya	793	45 bf ch	bro pek	2250	33
14		796	11 ch	or pek	770	31
15		799	23 do	pek	1840	28
18	Rothes	808	19 hf cb	bro or pek	1083	56 bid
19		811	15 do	or pek	720	38 bid
20		814	10 ch	pek	900	36
24	R, in estate mark	826	15 ch	pek sou	1200	21
34	Mukloway	856	16 bf ch	sou	736	21
37	Avisawe	865	23 ch	br pek	2185	28
38		868	27 do	pek	2160	26
39		871	30 do	pek sou	2400	23
40		874	7 do	dust	980	20
44	Ladysmith	886	37 ch	bro pek	33[illegible]0	27
45		889	40 do	pek	2800	25
46	Rayigam	892	41 hf-ch	bro pek	3198	31
47		895	31 do	or pek	1860	29
48		898	36 do	pek	2160	27
49		901	24 do	pek sou	1560	25
50	Oaklands	904	13 ch	or pek	1235	30
51		907	12 do	bro pek	1200	27
52		910	15 do	pek	13[illegible]0	27
56	Benveula	922	24 cb	bro mix	2400	13
57	Kurulugalla	925	28 ch	bro pek	2800	28
58		928	17 do	pek	1530	26 bid
59	G B	931	22 hf ch	dust	1100	20
60	Damblagolla	934	24 hf ch	bro pek	1440	28 bid
61		937	18 ch	pek	1530	27 bid
62		940	18 do	pek sou	1440	24 bid
63	Bogahagoda-watte	943	17 ch	bro pek	1700	28
64		946	12 do	pek	1140	25
67	Doragalla	955	21 ch	bro or pek	1995	39
68		958	17 do	bro pek	1445	34
69		961	26 do	pek	19[illegible]0	33
70		964	12 ch	pek sou	900	28
71		967	14 bf ch	bro mix	980	24
72	Abbotsford	970	20 ch	pek	2100	25 bid
73	Mossville	973	14 ch	bro pek fans	1400	22
74		976	16 bf ch	dust	1440	19
76	Bollagalla	982	29 ch	bro pek	2900	29
77		985	22 do	pek	1760	24 bid
82	Tavalamtenne	1000	26 hf cb	or pek	1430	31
83		1003	18 do	pek	900	27
85	Hatdowa	1009	23 ch	bro pek	2185	31
86		1012	22 do	pek	1650	27
87		1015	25 do	pek sou	1750	25
91	Gangwarily	1027	49 ch	bro pek	4655	28 bid
92		1030	38 do	pek	3040	24 bid
93		1033	34 do	pek sou	2250	22 bid
94	Bloompark	1036	8 cb	bro pek	840	29
95		1039	8 do	pek	720	24
98	Auburn	1048	25 ch	bro pek	2500	28
99		1051	20 do	pek	1720	27
100		1054	12 do	pek sou	960	24
101	Chetnole	1057	22 ch	bro or pek	2200	45
102		1060	19 do	or pek	1900	35
103		1063	36 do	pek	3240	32
104		1066	35 do	pek sou	3150	28

Lot.	Box.	Pkgs.	Name.	lb.	c.
105 Hopewell	1069	25 hf ch	bro or pek	1650	48
106	1072	20 hf ch	or pek	1120	37
107	107	30 do	pek	1620	33
108	1078	20 hf-ch	pek sou	920	29
110	1084	22 do	bro pek fans	1452	26
113 Doragalla	1093	11 ch	bro or pek	990	43
114	1096	14 do	bro pek	1120	33
115	1099	13 do	pek	975	32
117	1105	7 do	bro mix	840	24
118 Ladrum	1108	37 ch	or pek	4070	23 bid
120 Kerenvilla	1114	11 ch	bro pek	1100	30
121	1117	16 do	pek	1600	24
122	1120	7 do	pek sou	700	22
126 Avisawella	1132	24 ch	pek	1920	22
127	1135	18 do	pek sou	1350	22
128 Hayes	1138	16 ch	bro or pek	1600	33 bid
129 Ossington	1141	18 ch	bro pek	1800	29
130	1144	24 do	pek	2400	25 bid
131	1147	10 do	pek sou	1000	22
134 Dalukoya	1156	21 bf ch	or pek	1210	32
135	1159	35 do	pek	1925	26
136 Polgahakande	1162	34 ch	bro pek	3400	26
137	1165	13 do	or pek	1105	30
138	1168	25 do	pek	2000	25
139 Columbia	1171	45 hf ch	or pek	2475	45
140	1174	81 do	or pek No. 2	3726	40
141 Ambalawa	1177	19 bf ch	bro pek	950	27 bid
142	1180	20 do	pek	880	26
143	1183	19 do	pek sou	760	23 bid
144 Wavena	1186	27 ch	bro pek	2565	29 bid
145	1189	23 do	pek	1840	27
148 G E	1198	17 hf ch	or pek	1005	36 bid
149	1201	17 ch	pek sou	1678	24
150 Warakamure	1204	37 ch	bro pek	3700	27 bid
151	1207	17 do	pek	1615	24 bid
154 Newn Halla	1216	14 ch 1 bf ch	pek	1446	25
157 W	1225	7 ch 1 hf-ch	bro pek	758	24 bid
158 Kelani	1228	38 ch	bro pek	3230	27
159	1231	22 do	bro or pek	2200	26
160	1234	48 do	pek	4080	24
161	1237	39 do	pek sou	3315	22
162 Deniyaya	1240	44 ch	bro pek	4400	33
163	1243	32 do	pek	3200	28
164	1246	18 do	pek sou	1800	26
165	1249	12 do	sou	1200	23
166 Oonankande	1252	9 ch	bro pek	900	34
167	1255	9 do	pek	810	29
168	1258	10 do	pek sou	800	26
169	1261	15 do	sou	1050	23
171 Havilland	1267	24 ch	bro or pek	2160	27 bid
172	1270	28 do	or pek	2240	24 bid
173	1273	40 do	pek	3200	23 bid
174	1276	13 do	pek sou	910	21 bid
175 Monrovia	1279	26 ch	bro pek	2600	29
176	1282	27 do	pek	2565	26
177	1285	9 do	pek sou	900	23
178 Harangalla	1288	20 ch	bro pek	1900	34 bid
179	1291	36 do	pek	2700	31
180	1294	10 do	dust	8 0	21
185 Dikmukalana	1309	34 hf ch	pek a	1700	24 bid
186	1312	38 do	pek b	1900	26
187 D K	1315	37 ch	bro pek	3404	33 bid
188 J M D M	1318	13 ch	bro pek	1300	28
190	1324	18 do	pek	1620	25
192	1330	10 do	fans	1000	20

[Mr. E. John.—179,618lb.]

Lot	Box.	Pkgs.	Name.	lb.	c.
3 D N D, in est. mark	690	19 ch	bro pek fans	2470	26
4	693	20 hf-ch	dust	18 0	24
5	696	14 do	bro mix	700	15
6 Mel Villa	699	26 do	bro pek	1300	32
7	702	29 do	pekoe	1150	24
10 Vincit	711	21 ch	bro pek	1890	29
11	714	14 do	pekoe	1260	25
13	720	6 do	pek fans	720	21
16 Perth	729	19 do	bro pek	1615	38
17	732	43 do	bro or pek	4214	31 bid
18	735	30 do	pekoe	2250	30 bid
20 Glasgow	741	55 do	bro or pek	4400	52
21	744	18 do	or pek	1260	48 bid
22	747	19 do	pekoe	1520	44
23	750	10 do	pek sou	1000	38
24 Glentilt	753	49 hf-ch	bro or pek	2940	45 bid
25	756	21 ch	or pek	1995	35 bid
26	759	14 do	pekoe	1260	34
27	762	10 do	pek sou	950	31
28 Perth	765	26 do	bro or pek	2346	36
29	768	43 do	bro pek	3225	38
30	771	25 do	pekoe	1750	33
32 Osborne	777	16 do	bro or pek	1600	39 bid

Lot.	Box.	Pkgs.	Name.	lb.	c.
33	780	17 do	bro pek	1870	38
36 Wendura	789	16 do	bro pek	1520	26
37	792	11 do	pekoe	880	25
43 Doonhinde	810	18 do	br pek	1980	43
44	813	28 do	pekoe	2800	40
45	816	10 do	pek sou	950	28
49 Little Valley	828	9 hf-ch	br pek	9 0	40
50	831	32 do	pekoe	2560	33
51	834	18 do	pek sou	14 0	27
55 K P	846	10 do	fans	780	24
56 M G	849	10 do	unas	1000	22
57	852	17 hf-ch	fans	1292	24
58 Koslande	855	67 do	bro pek	3685	36
59	858	55 ch	pekoe	49 0	28 bid
64 Nabavilla	873	39 do	bro pek	3900	40 bid
65	876	22 do	or pek	2200	38
66	879	19 do	pekoe	19 0	36
68 Dickapittia	885	26 do	bro pek	2600	36
69	888	34 do	pekoe	3400	33
71 G	894	11 do	pekoe	1045	23
73	900	10 hf-ch	dust	950	20
76 G navy	909	48 do	or pek	2160	36
77	912	31 do	bro pek	1550	47
78	915	41 ch	pekoe	3075	32
79	918	12 do	pek sou	1260	26
80	921	12 hf ch	dust	900	22
82 Coslande	927	67 do	bro pek	3685	36
83	930	55 ch	pekoe	4950	28 bid
88 W H	945	8 hf ch	dust	704	15
89 Poilakande	948	38 ch	bro pek	3800	29
90	951	21 do	pekoe	2100	27
91 Glentilt	954	50 hf ch	bro pek	3000	49
92	957	25 ch	or pek	2375	38 bid
93	960	16 do	pekoe	1440	35
94 Brownlow	963	31 hf-ch	bro or pek	1519	45
95	966	27 do	bro pek	1215	36
96	969	10 ch	or pek	860	37
97	972	33 do	pekoe	2640	33
98	975	12 hf-ch	bro pek fans	720	27
99 Choughleigh	978	26 ch	bro pek	2470	32
100 Ferndale	981	15 do	pekoe	1350	31
101 Maskeliya	984	34 hf-ch	bro or pek	1700	48 bid
102	987	47 ch	or pek	4230	30 bid
103	990	33 do	pekoe	3040	29 bid
104	993	14 do	pek sou	1400	25
106 Oakwell	999	9 do	bro pek	1035	35
107	2	11 do	pekoe	1067	25
111 Eladuwa	14	17 do	pekoe	1530	25
112	17	8 do	pek sou	720	23
114 Hiralouvah	23	24 hf-ch	or pek	1200	31
115	26	17 do	bro or pek	1020	34
16	29	20 ch	pekoe	1700	31
121 Gampai	44	57 hf-ch	or pek	2736	30
122	47	40 do	bro or pek	2300	32
123	50	30 ch	pekoe	2190	25
124 Glasgow	53	43 do	bro or pek	3440	52
125	56	17 do	or pek	1105	50 bid
126	59	14 do	pekoe	11 0	44
127	62	10 do	pek sou	950	39
128	65	14 do	fans	1400	29

SMALL LOTS.

E. Benham & Co.

Lot.	Box.	Pkgs.	Name.	lb.	c.
7 B, in estate mark	43	1 hf-ch	dust	90	20
9 C W C	49	2 ch	bro mix	140	16

[Messrs. Forbes & Walker

Lot.	Box.	Pks.	Name.	lb.	c.
2 Rockside	3154	3 ch	bro mix	255	21
11 Ketadola	3181	4 ch	pek sou	380	21
12	3184	1 ch	fans	100	18
13	3187	1 hf ch	bro mix	65	13
15 New Angamana	3193	3 ch	sou	336	20
16	3196	2 do	dust	265	20
17 Kekiriskande	3199	3 ch	bro pek	285	36
19	3265	4 do	pek sou	340	23
21 Ardross	3211	5 hf-ch	dust	450	19
22 P C H Galle, in estate mark	3214	4 ch 3 hf ch	bro pek	550	27
23	3217	7 do	bro pek	385	31
24	3220	1 ch	pek	90	25
27	3229	2 ch 3 hf ch	congou	302	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
28	P	3232	5 ch	pek sou	450	26
29		3235	5 hf-ch	fans	350	23
30		3238	5 do	dust	400	20
33	Ville Hena	3247	4 ch	pek sou	360	24
34		3250	2 bf ch	sou	100	22
35		3253	2 do	dust	140	20
39	Sirikandura	3265	4 ch 1 bf ch	bro pek fans	494	24
40		3268	1 ch	dust	137	19
48	Harrington	3292	5 hf-ch	or pek fans	325	33
65	W N	3343	4 do	dust	336	18
68	Weweywatte	3352	1 do	bro mix	75	20
69		3355	1 do	dust	73	18
72	Coreen	3364	1 do	dust	80	22
76	Pine Hill	3376	6 ch	pek sou	510	26
83	Ganapalla, Inv. No. 13	3397	1 bf-ch	dust	93	19
84	S	3400	3 ch	sou	291	22
91	Inverness	3421	7 bf ch	dust	595	23
112	Clunes	3484	7 do	dust	630	20
116	Battawatte	3496	6 ch	dust	600	20
118	Dooroomadella	3502	8 ch	sou	656	21
123	Aberfoyle, Inv. No. 5	3517	6 bf ch	dust	420	25
125	Aberfoyle, Inv. No. 6	3523	7 ch	or pek	360	29
126		3526	7 do	pek	595	27
132	Arapolakande	3544	5 ch	dust	575	20
137	Sark	3559	5 do	bro pek fans	500	20
149	Kincora	3595	9 hf ch	fan	540	36
150		3598	1 ch	dust	104	19
153	Hollon	7	8 ch	pek sou	640	24
157	St. Edwards	19	9 hf-ch	bro or pek	540	29
158		22	7 do	bro pek	392	28
159		25	6 do	pek	336	25
160		28	4 do	pek son	180	23
161	D W	31	6 do	bro mix	324	17
162		34	2 do	dust	136	19
172	Queensland	64	2 do	bro pek dust	160	26
187	Matale	109	6 do	dust	480	20
191	Glengariffe	121	9 ch	pek sou	630	24
197	Penrhos	139	3 hf ch	fans	243	23
199	Corfu	145	10 do	or pek	500	37
204		154	7 do	bro pek fans	525	23
205	Tembiligalla	163	4 ch	pek sou	360	24
206		166	1 do	bro pek fans	125	21
209	New Galway	175	2 hf-ch	pek sou	100	34
212	W in est. mark	184	1 ch	dust	130	20
213	Venture	187	1 do	br pek	105	out
214	Ellengery	190	1 do	fans	140	out
232	Weyungawatte	244	5 hf-ch	dust	425	19
233	T T	247	2 ch	sou	180	19
234	W L	250	2 hf-ch	pek	101	23
235		253	9 do	sou	531	19
250	Harrow	298	1 ch	dust	155	23
261	Lynsted	331	6 hf-ch	dust	510	23
265	A S G	343	6 do	red leaf	360	14
266		346	12 do	unast	660	21
268		352	4 do	dust No. 2	440	19
270	Carlabeck	358	7 do	bro pek fans	560	25
278	I N G in est. mark	382	5 do	pek sou	425	24
279		385	4 do	sou	340	22
280		388	4 do	pek fans	400	22
289	Erlsmere	415	3 hf ch	dust	225	27
295	Mawaliganga-watte	433	4 do	dust	328	19
296		436	2 ch	fans	144	20
302	Augusta	454	3 do	sou	300	22
310	Erracht	478	4 do	bro pek fans	492	20
311		481	2 do	dust	336	19
324	Ganapalla	520	6 do	pek son	535	23
326		526	1 bf-ch	dust	86	19
327	K	529	1 ch	sou	100	23
328	Cooroondoo-watte	532	8 bf-ch	bro pek	480	45
330		538	6 ch	pek sou	564	27
331		541	4 hf-ch	pek dust	304	22

[Messrs. Somerville & Co.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	D	757	1 hf ch	bro mix	50	12
5	Nillicollay-watte	769	1 ch	pek sou (colinda chest)	70	29
6		772	2 hf ch	dust	168	18
7		775	2 do	fans	140	20
10	S R K	784	1 ch	sou	100	23
12		790	3 do	bro tea	300	15
16	Hangranoya	802	5 ch	pek son	350	24
17	Mahayaya	805	7 ch	bro or pek venesta ch	518	37 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
21	Rothes	817	8 ch	pek sou	680	28
22		820	3 hf ch	bro or pek fans	210	28
23		823	1 do	dust	95	20
25	R, in estate mark	829	6 ch	sou	450	20
26		832	1 hf ch	dust	80	19
26a		832a	1 ch	bro mix		
27	L F	835	5 hf ch	bro pek	250	18
28		838	5 do	pek	254	17
29		841	2 do	pek sou	96	12
30		844	1 do	red leaf	54	12
31		847	2 do	dust	134	15
32	Mukloway	850	8 bf-ch	bro pek	416	35
33		853	13 do	pek	624	24
35		859	4 do	fans	240	17
36	Nilloomallay	862	5 hf ch	fans	350	19
41	Avisawella	877	6 ch	fans	600	17
42	S F D	880	7 bf ch	sou	392	22
43		883	2 ch	red leaf	240	18 bid
53	Oaklands	913	6 hf ch	dust	450	18 bid
54		916	3 do	pek fans	195	19 bid
55		919	2 ch	red leaf	144	10
65	Bogahagoda-watte	949	7 ch	pek sou	630	20
66		952	2 do	bro pek fans	250	20
75	Mossville	979	3 ch	red leaf	270	11
79	Bollagalla	991	4 ch	bro tea	440	18
80		994	2 hf-ch	dust	180	19
81	Tavalamtenne	997	8 bf ch	bro or pe	480	34
84		1006	3 do	fans	210	24
88	Hatdowa	1018	3 ch	dust	420	21
89		1021	5 do	fans	500	21
90	H G L	1024	1 ch	pek sou	90	23
96	Bloompark	1042	5 ch	pek sou	525	21
97		1045	2 do	con	180	14
109	Hopewell	1081	4 bf ch	sou	240	24
111		1087	5 do	bro tea unbulk	450	14
112		1090	6 do	dust	470	19
116	Doragalla	1102	9 ch	sou	630	27
119	Ladrum	1111	3 ch	dust	350	19
123	Kerenvill	1123	5 ch	pek fans	500	16
124		1126	2 do	red leaf	200	14
125		1129	1 bf ch	pek dust	86	19
132	Ossington	1150	1 ch	bro tea	114	15
133		1153	1 do	dust	172	18
146	Wavena	1192	6 ch	pek sou	420	23
147		1196	4 bf ch	dust	320	19
152	Warakamure	1210	6 ch	pek sou	540	20
153	Newn Halla	1213	4 ch	bro pek	400	
155		1219	5 bf ch	pek fans	300	
156		1222	3 ch 1 bf ch	bro tea	353	12
170	Oonankande	1264	2 ch	dust	250	22
181	D W P	1297	7 hf ch	bro pek	350	23
182		1300	5 do	pek	250	20
183		1303	7 do	pek sou	315	18
184		1306	1 do	pek fans	50	17
189	J M D M	1321	6 ch	pek No. 1	570	24
191		1327	7 do	pek sou	630	23
193		1333	1 do	dust	140	18
194		1336	2 do	con	166	17
195	W, in estate mark	1339	2 hf-ch	bro pek	120	27
196		1342	2 do	pek	110	25
197		1345	3 ch	pek sou	255	23
198		1348	1 do	dust	100	19

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	D N D, in est. mark	681	5 ch	pekoe	450	29
2		687	10 bf-ch	pek sou	600	26
8	Mel Villa	705	13 do	pek sou	650	22
9		708	2 do	dust	150	19
12	Vincit	717	6 ch	pek sou	540	22
14		723	1 do	dust	130	19
15		726	2 do	red leaf	240	12
19	Perth	738	7 do	pek sou	525	28
31		774	4 do	pek dust	580	22 bid
34	Osborne	783	2 do	pek sou	190	31
35		786	6 hf-ch	fans	570	21
38	Wendura	795	7 ch	pek sou	560	24
39		798	7 do	pek sou No. 2	616	23
40		801	1 hf-ch	dust	87	20
41	Suriya	804	2 do	pekoe	88	23
42	Pitadeniya	807	1 ch	pekoe	105	28
46	Doonbinde	819	2 do	fans	220	22
47		822	2 do	dust	220	21
48	Little Valley	825	8 do	or pek	640	36
52		837	3 do	fans	300	24
53		840	10 do	bro or pek	550	39
54	K P	843	5 hf-ch	dust	460	19
60	Koslande	861	2 ch	pek sou	180	25
61		834	2 do	congou	160	23
62		867	2 do	fans	220	26

Lot.		Box.	Pkgs.	Name.	lb.	c.
63		870	2 hf-ch	dust	160	22
67	Nahavilla	882	7 do	pek fans	490	25
70	G T	891	4 ch	bro pek	400	30
72		897	7 do	sou	630	21
74	G K	903	2 do	bro pek	200	29
75		906	1 do	pek sou	85	26
81	Gonavy	924	8 do	congou	320	22
84	Coslande	933	2 do	pek sou	180	24
85		936	2 do	fans	220	26
86		939	2 do	dust	160	20
87		942	2 do	congou	160	22
105	Maskeliya	996	3 hf ch	dust	270	21
108	Oakwell	5	5 ch	pek sou	445	27
109	Eladuwa	8	5 do	or pek	475	31
110		11	6 do	bro pek	660	26
113		20	5 do	mixed	390	16
117	Hiralouvah	32	5 do	pek sou	400	24
118		35	3 hf-ch	fans	195	23
119		38	1 do	dust	90	20
120	K T	41	1 do	sou	55	16
129	O	68	4 ch	bro or pek No. 1	480	26
130		71	5 do 1 hf-ch	bro or pek No. 2	624	26
131		74	4 ch	bro pek	480	26
132		77	4 do	pekoe	400	24
133		80	1 do	pek sou	96	23
134		83	2 do	fans	168	20
135	P	86	10 hf-ch	pekoe	500	23

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, June 15.

"Duke of Norfolk."—Marakona I, 20 bags sold at 90s; 10 bags sold at 89s 6d; ditto II, 5 bags sold at 69s.

"Omrah."—Kepitigalla, 1 bag sold at 47s.

CEYLON COFFEE SALES IN LONDON.

"Glaucus."—OBEC in estate mark, Kondesalle 1 barrel sold at 42s.

No Cardamom sales this week.

OBSERVER PRINTING WORKS.

No. 26 — Colombo, July 16, 1900. — Price:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[13,819 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Hornsey	35	24 hf-ch	bro or pek	1200	52
5	Mapitigama	38	17 ch	bro or pek	1785	34
6		41	9 do	bro pek	855	33
7		44	13 do	pek	1105	27
11	Hornsey	56	42 ch	or pek	3780	41
12		59	20 do	pek	1700	36
13	Hornsey	62	29 hf ch	bro or pek No. 2	1740	32

Messrs. Forbes & Walker.

[521,530 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Pendle	547	30 ch	bro pek	3150	49
3		550	31 do	pek	2790	35
4		553	17 do	pek sou	1530	30
8	St. Pauls	565	212 hf-ch	pek	10176	36
15	S P	586	20 do	fans	1300	23
18		595	20 ch	dust dust	1800	19
20	Trewardene	601	7 ch	bro pek	700	28
21		604	10 do	pek	950	25
26	Kelaneiya and Braemar	619	36 ch	bro or pek	3600	47
27		622	31 do	or pek	3100	40
28		625	30 do	pek	3000	36
34	Dambagastalawa	643	23 ch	bro or pek	2346	61
35		646	35 do	bro pek	3500	42
36		649	37 do	pek	3182	36
37		652	10 do	pek sou	860	34
40	D G T	661	8 ch	pek	832	26
42	Mahayaya	667	14 ch	bro pek	828	29
43		670	21 do	pek	1134	29
44		673	21 do	pek sou	1092	24
47	O B C, in est. mark, Summer Hill	682	34 hf ch	bro or pek	2210	76
48		685	50 do	bro pek	3400	54
49		688	23 ch	pek	2185	50
50		691	30 do	fans	2670	32
51	E D P	694	12 do	sou	960	24
53	D H, in estate mark	700	9 ch	bro mix	720	26
57	Malvern	712	46 hf ch	bro pek	2200	47
58		715	30 ch	pek	2100	31 bid
59		718	10 do	dust	800	22
61	Kotagaloya	724	9 ch	pek	765	33
65	Walton	736	29 ch	bro pek	3190	37
66		739	16 do	or pek	1440	33
67		742	14 do	pek	1260	29
69	Irehy	748	25 hf ch	bro pek	1500	52 bid
70		751	12 ch	pek	1080	43
71		754	10 do	pek sou	900	37
73	D, in estate mark	760	18 hf ch	fans	990	25
77	Tonacombe	772	34 ch	or pek	3060	40
78		775	34 do	bro pek	3400	46
79		778	15 do	bro or pek	1500	54
80		781	11 hf ch	dust	990	24
81	Dooroomadella	784	26 ch	pek	2210	26
82		787	24 hf-ch	bro or pek	1320	29
83		790	15 ch	bro pek	1350	29
84		793	13 do	pek	1105	26
88	Loinorn	805	24 ch	or pek	2160	63 bid
89	L	808	8 ch	bro mix	760	25
92	S P	817	17 ch	pek sou	1275	23
93		820	21 do	pek sou	1470	22
96		829	27 do	red leaf	2160	16
97	Morankande	832	24 hf ch	bro or pek	1344	36
98		835	19 ch	or pek	1615	35
99		838	34 do	pek	3060	28
100		841	17 do	pek sou	1530	26
101		844	11 hf-ch	bro or pek fans	825	25
103	Fairlawn	850	32 do	bro pek	1760	52
104		853	11 ch	or pek	880	42
105		856	22 do	pek	1980	39
106		859	11 do	pek sou	880	34
108	Killarney	865	9 ch	pek	720	42
109		868	28 do	pek sou	2380	40
111	Battawatte	874	28 ch	bro or pek	3080	34
112		877	44 do	pek	3960	23
113		880	16 do	pek sou	1280	28
115	Gampaha	886	25 do	bro or pek	2750	45
116		889	51 do	or pek	4845	45
117		892	22 do	pek	1870	40
118		895	25 do	pek sou	2250	36
119	Pallagodda	898	14 do	bro or pek	1400	31
120		901	24 ch	bro pek	2200	39
121		904	22 do	or pek	1760	33
122		907	12 do	pek	900	30
123		910	12 do	pek sou	1020	26
124	Maha Uva	913	48 hf ch	bro or pek	2880	37
125		916	35 do	or pek	1960	44
126		919	54 ch	pek	4860	39
127		922	17 do	pek sou	1360	33
129	Roehersy	928	17 ch	bro or pek	1700	56
130		931	32 do	bro pek	3200	48
131		934	41 do	pek	3772	39
132		937	15 do	pek sou	1290	35
133		940	7 do	dust	700	22
134		943	8 do	fans	800	34
135	Palmerston	946	17 hf ch	bro or pek	884	73
136		949	12 ch	pek	1020	50
138	Theydon Bois	955	16 ch	bro or pek	1440	53
139		958	14 do	pek	1120	33
141	Ouvahkellie	964	27 do	pek sou	2430	39
142		967	12 do	dust	960	
149	Doranakande	988	7 ch	bro pek	900	31
151		994	12 do	pek sou	1080	24
157	Clarendon	1012	33 hf ch	bro pek	2079	45
158		1015	32 do	or pek	1728	41
159		1018	21 ch	pek	1995	39
160		1021	32 do	pek sou	3200	33
162		1027	21 hf ch	pek dust	1680	22
163	Waitalawa	1030	75 do	bro pek	3750	32
164		1033	98 do	pek	4900	28
165		1036	40 do	pek sou	2000	25
166		1039	15 do	dust	1350	22
167	K P W	1042	25 hf ch	bro or pek	1500	33
168		1545	25 do	bro pek	1375	32
169		1048	41 do	pek	2255	28
170		1051	20 do	pek sou	1000	26
173	B and D	1060	24 ch	unus	2352	26
177	Wemalla	1072	12 do	pek	1081	27
184	Torwood	1093	23 ch	bro pek	2070	34
185		1096	29 do	pek	2320	26
186		1099	46 do	pek sou	3496	25
187	Castlereagh	1102	29 ch	bro pek	2755	51
188		1105	13 do	or pek	1040	40
189		1108	14 do	pek	1120	36
190		1111	11 do	pek sou	880	29
191		1114	14 hf-ch	fans	980	29
193	Nugagal	1120	52 do	bro pek	2600	33
194		1123	143 do	pek	7150	25
195		1126	18 do	pek sou	900	23
197	Erroll wood	1132	19 hf ch	bro or pek	950	62
198		1135	12 ch	or pek	1140	44
199		1138	16 do	pek	1360	42
200		1141	15 hf-ch	or pek fans	900	32
201	Monkswood	1144	21 hf-ch	bro pek	1050	75
202		1147	27 do	or pek	1350	65
203		1150	18 ch	pek	1710	49
204		1153	12 do	pek sou	1020	43
205		1156	13 hf-ch	fans	728	33
206	Gonapatiya	1159	50 hf ch	or pek	2800	55
207		1162	54 do	pek	2970	44
208		1165	36 do	bro pek	2232	57
209	Ingrogalia	1168	13 ch	bro pek	1300	44
210		1171	9 do	pek	765	34
211	P, in estate mark	1174	81 hf-ch	bro or pek	4050	49 bid
212		1177	40 do	bro pek	2320	41 bid
213		1180	30 do	pek	2400	42
214		1183	53 do	pek sou	4240	37
216	Palmerston	1189	14 hf-ch	bro or pek	728	72
217		1192	11 ch	pek	935	50
220	Ardlaw and Wishford	1201	20 hf-ch	bro or pek	1020	63
221		1204	44 ch	bro pek	4048	47
222		1207	29 hf-ch	or pek	1363	44
223		1210	23 ch	pek	1794	40
224	S W	1213	8 do	bro mixed	824	28
225	Tonacombe	1216	39 do	pek	3510	35
226		1219	25 do	pek sou	2250	30
227	Cullen	1222	30 do	bro or pek	3210	49 bid
228		1225	29 do	or pek	2523	41
229		1228	21 do	pek	1995	36
231	Patiagama	1234	18 hf-ch	bro or pek	900	46
232		1237	9 ch	or pek	765	34

Lot		Box.	Pkgs.	Name.	lb.	c.
223		1240	11 ch	pek	880	31
234		1243	10 do	pek sou	800	27
236	Munnar	1249	47 hf-ch	bro pek	2585	38
237		1252	36 do	or pek	1728	35
239		1258	37 do	pek	1702	31
240		1261	32 do	pek sou	1344	27
242	Cooroondoo-watte	1267	14 do	pek	700	34
244	Summer Hill	1273	30 do	bro or pek	1860	81
245		1276	27 ch	or pek	2430	59
246		1279	18 do	pek	1656	52
247	Sirikandura	1282	7 do 1 hf-ch	bro pek	758	32
253	Munnar	1300	18 do	bro pek	972	40
254		1303	58 do	or pek	2610	37
255		1306	61 do	pek	2440	33
257	Agra Elbedde	1312	30 do	bro or pek	1800	44
258		1315	37 do	or pek	2035	47
259		1318	54 do	pek	2700	41
260		1321	26 do	pek sou	1170	38
262	Forest Greek	1327	18 ch	fans	1800	31
264		1333	25 do 8 do	pek dust	3300	32
265		1336	10 hf-ch	dust	850	23
266	Penrhos	1339	31 do	bro or pek	1705	47
267		1342	29 do	or pek	1421	42
268		1345	39 ch	pek	3354	35
269		1348	15 do	pek sou	1200	31
271	Tembiligalla	1354	36 do	bro or pek	3600	35
272		1357	21 do	pek	1890	30
276	Middleton	1369	15 hf-ch	bro or pek	840	R1·11
277		1372	35 ch	bro pek	3500	60
278		1375	23 do	pek	1955	50
279		1378	16 do	pek sou	1440	45
280		1381	11 hf-ch	dust	880	27
281	Elkadua	1384	16 ch	bro or pek	1600	31
282		1387	29 do	or pek	2610	29
283		1390	30 do	pek	2400	27 bid
284		1393	20 do	pek sou	1600	26
285	Farnham	1396	44 do	bro pek	3300	3
286		1399	28 do	or pek	1680	31 bid
287		1402	28 do	pek	2660	29
288		1405	38 do	pek sou	2470	27
291	Ascot	1414	91 do	bro pek	7735	30
292	A in est mark	1417	86 do	pek sou	7310	22
293	Ella Oya	1420	10 do	bro or pek	1000	45
294		1423	12 do	bro pek	1020	35
295	St. Martin	1426	36 hf-ch	bro pek	1440	34
296		1429	84 do	pek	3360	30
297		1432	19 do	pek sou	760	26
300	Dunkeld	1441	72 hf-ch	bro or pek	4320	49
301		1444	18 ch	or pek	1710	42
302		1447	26 do	pek	2340	40
305	Polatagama	1456	35 do	bro pek	3500	37
306		1459	17 do	or pek	1530	32
307		1462	52 do	pek	4420	30
308		1465	10 do	pek sou	850	25
309		1468	11 do	fans	1100	25
311	Clunes	1474	17 do	bro or pek	1700	30
312		1477	20 do	bro pek	1600	29
313		1480	15 do	or pek	1050	30
314		1483	37 do	pek	2590	27
315		1486	12 do	pek sou	1020	25
319	Robgil	1498	19 do	pek sou	1615	36 bid
320		1501	12 bf cb	dust	1020	28
321	P	1504	14 ch	sou	1330	25
322	Halwatura	1507	31 do	bro pek	3100	30
323		1510	39 do	or pek	3510	28
324		1513	32 do	pek	2560	26
325		1516	56 do	pek sou	4200	25
326		1519	21 hf-ch	bro pk fans	1365	22
328	Chesterford	1525	22 ch	fans	1980	26
331		1534	20 hf-ch	dust	1600	19 bid
332	Geragama	1537	16 ch	bro pek	1280	30
333		1540	19 do	pek	1520	26
334	G F D	1543	8 do 1 hf-ch	bro pek	821	28
335		1546	10 ch	pk No. 1	829	26
339	Pendle	1558	22 do	bro pek	2200	49
340		1561	20 do	pek	1700	42
341		1564	13 do	pek sou	1105	30
345	Halbarawe	1576	12 do	bro pek	1200	33
346		1579	11 do	pek	990	27
349	Tempo	1588	27 do	bro or pek	2700	35
350		1591	33 do	pek	2475	28
351		1594	13 do	pek sou	910	26
354		1603	7 hf-ch	dust	955	19
355	Digdola	1606	21 do	bro pek	1890	33
356		1609	25 do	pek	1875	27
364	St. H in est. mark	1633	14 hf-ch	pek	700	39
366	Woodend	1639	26 ch	bro pek	2600	30
367		1642	34 hf-ch	or pek	3060	26
368		1645	18 ch	pek sou	1430	25
369		1648	5 do	dust	700	18
370	Poengalla	1651	9 hf-ch	dust	720	18
372	Ugieside	1657	14 ch	fans	1330	2
374	Talgaswela	1663	32 ch	bro or pek	2880	23
375		1666	40 do	pek	3400	27
376		1669	15 do	pek sou	1200	25

[Mr. E. John.—234,262 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	Riseland	89	8 ch.	bro pek	720	3[illegible]
2		92	9 do	pekoe	810	[illegible]3
3		95	11 do	pek sou	850	21
8	Loughton	110	14 hf-ch	bro pek	700	36
9		113	40 do	pekoe	2000	32
10		116	37 do	pek sou	1850	27
13	Galloola	125	28 ch	bro pek	2800	47
14		128	34 do	pekoe	3060	39
15		131	23 do	pek sou	2070	34
19	W, in est. mark	143	8 do	pekoe	800	28
23	Rookwood	155	32 do	bro or pek (Venesta)	3840	44
24		158	45 do	or pek	4050	39
25		161	54 do	pekoe	4860	36
27		167	20 hf-ch	pek dust	1760	23
28	Sadamulla	170	8 ch	bro pek	800	27
29		173	18 do	pekoe	1800	26
33	Bellongalla	185	25 do	pekoe	2000	28
34	Galloola	188	37 do	bro pek	3700	45
35		191	49 do	pekoe	4410	37
36		194	32 do	pek sou	2880	32
38	Agra Ouvah	200	38 hf-ch	bro or pek	2394	63
39		203	65 do	bro pek	4030	46 bid
40		206	22 ch	pekoe	2200	40
41	Rondura	209	110 do	pekoe	8800	28 bid
42		212	9 do	dust	900	21
46	Agra Ouvab	224	21 hf-ch	bro or pek	1323	66
47		227	36 do	bro pek	2232	53
48		230	13 ch	pekoe	1300	45
50	Callander	236	27 bf-cb	or pek	1404	39 bid
51		239	19 do	pekoe	855	37
54	Mocba	248	25 ch	bro or pek	2500	66
55		217	12 do	or pek	1080	59
56		254	22 do	pekoe	1980	53
57		257	10 do	pek sou	800	44
58	St. John's	260	30 bf cb	bro or pek	1740	60
59		263	31 do	or pek	1550	64
60		266	55 do	pekoe	2860	42 bid
61		269	50 do	pekoe	2600	40 bid
62		272	15 do	pek sou	750	35
63		275	25 do	pek fans	1700	32 bid
64	Brownlow	278	23 do	bro or pek	1127	51
65		281	20 ch	bro pek	840	42
66		284	23 do	pekoe	2024	35
67		287	8 do	pek sou	712	27
68	Ohiya	290	37 do	or pek	3367	36 bid
69		293	49 hf ch	bro pek	2989	38 bid
70	Sumtravalle	296	9 ch	unas	906	24
72	Oonoogaloya	302	20 do	bro or pek	2000	48
73		305	18 do	or pek	1620	40
74		308	26 do	pekoe	2340	33
75	Elemane	311	45 do	bro pek	4363	37
76		314	37 do	pekoe	3330	34
77		317	20 do	pek sou	1800	28
79	Mocha	323	20 do	bro or pek	2000	71
70		326	20 do	or pek	1800	61
81		329	12 do	pekoe	1080	53
82		332	20 do	pek sou	1600	44
83	Syston	335	25 do	bro or pek	2500	35
84		338	44 do	bro pek	4180	32
85		341	33 do	pekoe	2805	28 bid
86		344	38 do	pek sou	3230	26 bid
87		347	6 do	fans	840	26
89	Gingranoya	353	25 do	pekoe	2375	37
60		356	11 do	pek sou	990	29
61	Poilakande	359	37 do	bro pek	3515	36
82		362	16 do	pekoe	1440	28
93		365	11 hf-ch	dust	935	21
96	Koslande	374	15 do	bro pek	825	35 bid
97		377	14 ch	pekoe	1260	30
902	Templestowe	392	52 hf-ch	bro or pek	2860	50
103		395	22 do	or pek	924	41
104		398	33 ch	pekoe	2805	36
105		401	10 hf-ch	dust	800	26
106	G navy	404	30 do	or pek	1350	41
107		407	19 do	bro pek	950	48
108		410	21 ch	pekoe	1595	34
110	Iona	416	44 hf-cb	bro or pek	2640	63
111		419	30 ch	or pek	2850	42 bid
112		422	24 do	pekoe	1920	42
114	Perth	428	43 do	bro or pek	4214	33 bid
115	Glassaugh	431	27 hf-ch	or pek	1404	63 bid
116		434	24 do	bro or pek	1560	56
117		437	27 ch	pekoe	2565	47
118		440	7 do	pek sou	700	39
119	Wbyddon	443	9 do	pekoe	835	35
120	Koslande	446	55 do	pekoe	4950	29 bid
121	Ottery	449	25 do	bro or pek	2500	48
122		452	19 do	or pek	1615	48
123		455	41 do	pekoe	4100	36

Lot.		Box.	Pkgs.	Name.	lb.	c.
125	Ferndale	462	14 ch	bro or pek	1400	37
126		465	15 do	or pek	1350	36
127	Coslande	471	55 do	pekoe	4950	29 bid
128	Y K	474	23 do	sou	1955	22
129		477	10 do	dust	1650	18
130	Mahanilu	480	11 do	or pek	1023	38
131		483	51 hf-ch	bro or pek	2754	36 bid
132		486	17 ch	pekoe	1479	36
133		489	15 do	pek sou	1200	30
134		492	12 hf-ch	fans	804	26
136	Rookwood	498	20 ch	bro or pek	2480	42
137		501	15 do	or pek	1650	39
138		504	29 do	pekoe	3074	36
139		507	12 do	pek sou	1080	26 bid
140	Coslande	510	15 hf-ch	bro pek	825	36 bid
141		513	14 ch	pekoe	1260	27 bid
146	Ohiya	528	30 do	pek sou	2730	23

Messrs. Somerville & Co.—251,001 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	St. Catherine	1354	14 ch	bro or pek	1470	35
3		1357	13 do	or pek	1040	30
8	Labugama	1372	44 hf ch	bro pek	2200	32
10		1378	24 ch	pek	2280	26
11		1381	17 do	pek sou	1445	25
20	Paradise	1408	17 hf ch	bro pek	935	31
21		1411	7 ch	pek	700	27
23		141·	14 hf-ch	pek dust	1050	20
32	Meddegodde	1444	20 ch	bro pek	2000	35
33		1447	35 do	pek	3150	28 bid
34		1450	20 do	pek sou	1600	25
37	Lyndhurs	1459	137 hf ch	bro pek	7535	27
38		1462	79 do	pek (unbulkd)	3950	24
39		1465	24 do	pek sou	1080	23
40	Ladysmith	1468	23 ch	bro pek	2530	29
41		1471	22 do	pek	1650	26
42		1474	64 do	bro pek	5760	29
43		1477	19 do	pek	1254	26
44	Blinkbonnie	1480	26 hf ch	bro pek	1508	44
45		1483	14 ch	or pek	1120	42
46		1486	16 do	pek	1408	38
47		1489	9 do	pek sou	720	33
48	Ingeri	1492	54 hf-ch	bro pek	2700	28
49		1495	22 do	bro or pek	1320	27
50		1498	47 do	pek	2256	25
51		1501	39 do	pek sou	1794	24
53	Hapugasmulla	1507	8 ch	bro pek	880	28
54		1510	13 do	pek	1235	25
58	Mahatenne	1522	23 do	bro pek	2300	31
59		1525	17 do	pek	1700	28
63	Elchcio	1537	39 hf ch	bro pek	2145	33
64		1540	40 do	pek	2000	29 bid
65	Rayigam	1543	37 hf ch	bro pek	2775	33
66		1546	28 do	or pek	1680	29
67		1549	19 do	pek	1740	27 bid
68		1552	18 do	pek sou	1116	25
69		1555	21 do	dust	2100	23
70	Annandale	1558	21 bf ch	bro or pek	1176	65
71		1561	25 do	or pek	1450	43
72		1564	21 do	pek	1050	39
73		1567	36 do	pek sou	1908	34 bid
75		1573	11 do	dust	880	25
76	Monte Christo	1576	53 ch	bro pek	5300	35
80	I P	1588	32 ch	pek sou	2680	25
81		1591	15 hf ch	dust	1275	19 bid
82	Beauvais	1594	7 ch	fans	70	
83		1597	15 do	bro mix	120	23
86	Gwernet	1606	18 ch	bro pek	180	36
87		1609	18 do	pek	171	31
88		1612	15 do	pek sou	13	
89	P T N, in estate mark	1615	38 hf-ch	sou	190	
90	Dartry	1618	45 ch	bro tea	378	
91		1621	17 hf ch	dust	1513	1
92		1624	49 do	fans	3528	21
93	Roseneath	1627	33 ch	bro pek	3300	33
94		1630	19 ch	pek	1710	31
95		1633	27 do	pek sou	2160	26
96	Charlie Hill	1636	15 hf ch	bro pek	825	29
101	R K P	1651	12 ch	bro pek	1020	28
103		1657	12 do	pek	1020	25
104		1660	12 do	pek sou	1020	24
106	Avisawella	1666	43 ch	bro pek	4085	30
107		1669	30 do	pek	2400	26
108		1672	35 do	pek sou	2625	24
112	Heragoda	1684	12 ch	pek	1140	28
114	Atherton	1690	33 hf ch	bro or pek	1848	34 bid
115		1693	31 do	or pek	1550	35 bid
116		1696	21 do	pek	1050	30 bid
119	H J S	1705	20 hf-ch	pek sou	1200	25
120	Tavalamtenne	1708	19 hf ch	bro or pek	1140	30
133	Tiddydale	1747	13 ch	pek	1170	25
134		1750	8 do	pek sou	720	23
138	Rathungoda	1762	24 hf ch	bro or pek	1200	57

Lot.		Box.	Pkgs.	Name.	lb.	c.
139		1765	36 hf-ch	or pek	1800	46
140		1768	40 do	pek	2000	38
141	Invery	1771	52 hf ch	bro pek	3224	54
142		1774	34 ch	pek	3264	38
143		1777	33 do	pek sou	2970	34
145	Bidbury	1783	18 hf ch	bro or pek No. 2	1260	29
146		1786	24 ch	pek	2160	34
147	Neboda	1789	33 hf ch	bro or pek	1650	30
148		1792	89 do	bro pek	4450	28
149		1795	33 do	pek	1485	26
150		1798	34 do	pek sou	1360	24
152	Selvawatte	1804	31 ch	bro pek	3100	2
153		1807	17 do	pek	1615	
156	Gangwarily	1816	40 hf-ch	sou	2800	21
158		1822	24 do	fans	1440	23
159		1825	12 ch	red leaf	840	14
161	Havilland	1831	9 hf ch	dust	855	19
162	Yarrow	1834	34 do	bro or pek	1904	35
163		1837	100 do	pek	4000	31
164		1840	17 do	pek sou	765	27
166	W, in estate mark	1846	7 ch 1 hf-ch	pek	748	25
167		1849	8 ch	pek sou	725	24
168	Nuawella	1852	129 hf ch	bro pek	7095	32
169		1855	153 do	pek	6732	29
170		1858	22 ch	pek sou	1760	25
171		1861	19 hf ch	dust	1520	19

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	B	26	1 ch 1 hf-ch	bro pek	145	29
2		29	3 ch	pek	265	27
3		32	1 do	dust	134	18
8	Mapitigama	47	4 do	pek sou	320	25
9		50	5 do	bro or pek fans	550	26
10		53	3 hf-ch	bro tea	240	18

[Messrs. Forbes & Walker

Lot.		Box.	Pks.	Name.	lb.	c.
1	E H	544	1 hf-ch	bro mix	48	13
5	Pendle	556	1 ch	pek sou No. 2	90	26
6		559	2 hf ch	bro mix	100	26
7		562	6 do	pek fans	450	21
9	S P	568	5 ch	bro pek	500	29
10		571	3 do	bro pek	315	29
11		574	5 do	bro or pek	525	28
12		577	3 do	or pek	315	28
13		580	5 do	pek fans	625	22
14		583	5 do	fans	600	22
16		589	6 do	pek	540	26
17		592	2 do	pek	200	27
19		598	4 do	sou	320	24
22	Trewardene	607	4 ch	pek sou	360	22
23		610	2 do	pek fans	180	1
24		613	2 do	bro mix	190	18
25		616	1 do	dust	140	21
29	Kelaniya and Braemar	628	5 ch	sou	500	28
30		631	6 hf ch	dust	480	23
31	Yatiyana	634	6 ch	bro pek No. 1	528	34
32		637	7 do	bro pek	581	28
33		640	3 do	pek	258	26
38	Dambagas-talawa	655	5 ch	bro pek fans	675	23
39	D G T	658	5 ch	pro pek	550	29
41	Mahayaya	664	8 ch	bro or pek	560	31
45		676	4 do	sou	224	27
46		679	1 do	dust	100	20
52	Maligatenne	697	4 ch	bro pek	417	23 bid
54	L N S, in est mark	703	3 ch	pek sou	302	23
55		706	1 hf-ch	bro pek	47	28
56		709	1 do	dust	58	20
60	Kotagaloya	721	4 ch	bro pek	400	40 bid
62		727	3 do	pek sou	255	28
63		730	2 do	sou	160	26
64		733	6 hf ch	dust	480	22
68	Walton	745	1 ch	bro tea	80	22
72	D, in estate mark	757	3 hf ch	sou	135	17
74		763	4 ch	dust	400	21
75	P S P	766	5 ch 1 hf-ch	bro or pek	615	28
76	D P W	769	1 hf ch	fans	50	18
85	Doorooma-della	796	5 ch	pek sou	440	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
86	D S	799	3 ch	pek dust	420	20
87	N B D	802	2 ch	hro mix	146	16
90	S P	811	3 ch	bro or pek	285	23
91		814	8 do	pek	680	28
94		823	1 do	pek sou	65	25
95		826	5 do	pek fans	575	22
102	Morankande	847	5 hf ch	dust	450	21
107	Fairlawn	862	4 do	dust	335	21
110	Killarney	871	7 hf-ch	fans	560	24
114	Battawatte	883	6 ch	dust	600	20
128	Maha Uva	925	8 hf ch	dust	677	21
137	Palmerston	952	3 ch	pek sou	240	44
140	Theydon Bois	961	6 ch	pek sou	510	25
143	B B, in estate mark	970	2 hf ch	bro pek	120	26
144		973	1 ch	pek	105	26
145		976	1 do	pek	105	26
146	Moneragalla	979	1 ch	bro mix	44	27
147	K O T	982	1 hf ch	bro or pek	66	32 bid
148		985	2 do	pek	96	27
150	Doranakande	991	4 ch	pek	380	28
152	W L	997	5 hf-ch	bro pek	299	30
153		1000	2 do	pek	118	26
154		1003	6 do	sou	348	25
155		1006	1 do	red leaf	51	15
156		1009	1 do	dust	71	19
161	Clarendon	1024	4 ch	sou	320	28
171	K P W	1054	2 hf ch	dust	170	20
172	B and D	1057	2 ch	sou	192	28
174	B D W P	1063	1 ch	pek sou	75	16
175	Weemalla	1066	6 do	bro or pek	600	38
176		1069	7 do	or pek	596	35
178		1075	2 do	pek sou	180	25
179		1078	2 do	bro tea	170	20
180	I G A	1081	3 ch	bro pek	300	30
181		1084	3 do	pek	270	27
182		1087	6 hf ch	bro tea	510	16
183		1090	3 ch	red leaf	270	15
192	Castlereagh	1117	8 hf ch	dust	640	20
196	Nugagalla	1129	6 hf ch	dust	540	20
215	P, in estate mark	1186	3 ch	unas	225	28
218	Palmerston	1195	5 hf-ch	dust No. 1	425	26
219		1198	1 ch	dust No. 2	95	24
230	Cullen	1231	5 hf-ch	pek dust	435	23
235	A R	1246	5 ch	bro mixed	500	16
238	Munnar	1255	2 hf-ch	or pek	50	out
241	Cooroodoo-watte	1264	6 do	br pek	360	46
243		1270	10 do	pek sou	500	32
248	Sirikandura	1285	7 ch 1 hf-ch	pek	695	30
249		1288	5 ch	pek sou	425	24
250		1291	4 do	red leaf	276	22
251		1294	4 do	bro pek fans	397	23
252		1297	1 do	dust	160	19
256	Munnar	1309	19 hf-ch	pek sou	684	27
261	Forest Creek	1324	6 ch	sou	540	30
263		1330	5 do	red leaf	450	23
270	Penrhos	1351	4 hf-ch	pek dust	340	19
273	Lembiligalla	1360	5 ch	pek sou	450	26
274		1363	1 do	bro pek fans	125	22
275		1366	1 do	dust	160	19
289	Farnham	1408	2 do	dust	300	19
290		1411	3 do	pek fans	330	20
298	St. Martin	1435	6 hf-ch	fans	360	22
299		1438	2 do	congou	80	19
303	F P W	1450	1 ch	bro mixed	100	16
304		1453	1 do	bro mixed	100	16
310	Pelatagama	1471	3 do	dust	450	19
316	O F in est. mark	1489	3 do	bro pek	249	29
317		1492	5 do	pek sou	490	24
318		1495	2 do	pek dust	251	19
327	Halwatura	1522	5 hf-ch	dust	450	19
329	Chesterford	1528	1 ch	congou	90	17
330		1531	6 do	bro tea	570	22
336	G F D	1549	7 do	pk No. 2	511	27
337		1552	5 do	pek sou	323	26
338		1555	1 do 1 hf-ch	red leaf	108	13
342	Pendle	1567	2 ch	pek sou No. 2	180	27
343		1570	2 hf-ch	bro mixed	150	26
344		1573	4 do	pk fans	300	25
347	Halbarawe	1582	4 ch	pek sou	320	25
348	H	1585	4 do	or pek	392	20
352	T. mpoe	1597	5 do	sou	400	26
353		1600	5 do	fans	425	25
357	Digdola	1612	6 do	pek sou	510	26
358	A G	1615	2 do	bro pek	156	26
359		1618	1 do	sou	58	23
360		1621	1 hf-ch	sou	40	22
361		1624	2 do	red leaf	170	15
362	Abergeldie	1627	1 ch	pek	89	31
363	St. H in est. mark	1630	5 hf-ch	bro or pek	260	36
366		1636	1 do	pk fans	60	25
371	Ugieside	1654	8 ch	hro mixed	640	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
373	S G	1660	1 ch	dust	118	19
377	Talgaswela	1672	1 do	bro mixed	95	16

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Riseland	98	2 ch	bro or pek	208	27
5	Akkara Totum	101	5 do	fans	450	21
6		104	1 do	dust	110	18
7	Loughton	107	8 hf-ch	bro or pek	400	40
11		119	6 do	dust	300	21
12		122	8 do	fans	400	26
16	Galloola	134	3 ch	dust	300	21
17		137	3 do	fans	300	26
18	P, in est. mark	140	1 do	bro mix	87	14
20	W in est. mark	146	2 do	pek sou	200	25
21		149	1 hf-ch	dust	90	20
22		152	1 ch	bro mix	95	18
26	Rook ood	164	6 do	pek sou (Venesta)	540	28
30		176	5 do	sou	500	20
31		179	4 do	red leaf	400	13
32		182	1 do	congou	83	13
37	Galloola	197	3 do	dust	300	21
43	Callander	215	4 hf-ch	pek sou	160	31
44		218	1 do	fans	70	26
45		221	1 do	dust	70	21
49		233	8 do	bro or pek	448	42 bid
52		242	4 do	pek sou	160	31
53		245	9 do	bro pek fans	630	26
71	W, in est. mark	299	5 ch	bro tea	420	21
78	Elemane	320	5 do	fans	500	21
88	Syston	350	3 do	dust	450	18
94	Poilakande	368	1 hf-ch	bro pek	70	30
95		371	1 do	pekoe	65	27
98	Koslande	380	1 ch	pek sou	90	27
99		383	1 do	congou	85	25
100		386	1 do	fans	110	22
101		389	2 do	dust	160	19
109	Gonavy	413	7 do	pek sou	665	29
113	Iona	425	4 hf-ch	dust	320	23
124	Ottery	458	3 do	dust	270	22
135	Mahanilu	495	8 ch	unas	640	18
142	Coslande	516	1 do	pek sou	90	26
143		519	1 do	congou	85	25
144		522	1 do	fans	110	23
145		525	2 do	dust	160	19

[Messrs. Somerville & Co.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	T C A, in estate malk	1351	1 ch	red leaf	95	13
4	St. Catherine	1360	6 ch	pek	462	28
5		1363	3 do	pek sou	228	26
6		1366	1 do	dust	120	20
7		1369	2 do	red leaf	106	14
9	Lubagama	1375	10 hf ch	bro or pek	600	25
12	Hanwella	1384	8 hf ch	bro pek	440	29
13		1387	8 do	or pek	400	26
14		1390	10 do	pek	480	24
15		1393	3 do	pek sou	135	18
16		1396	4 do	dust	280	18
17	Radage	1399	5 hf ch	bro pek	250	25
18		1402	5 do	pek	250	22
19		1405	5 do	pek sou	240	17
22	Paradise	1414	7 ch	pek sou	665	23
24		1420	2 do	fans	190	21
25		1423	2 do	bro mix	160	17
26		1426	2 ch	bro pek	190	27
27		1429	2 do	pek	170	24
28		1432	2 do	pek sou	180	20
29		1435	2 do	dust	300	19
30	Mousakande	1438	8 ch	sou	680	22
31	Forest Hill	1441	1 ch 1 hf ch	bro mix	131	15
35	Meddegodde	1453	4 hf-ch	fans	260	24
36		1456	2 do	dust	160	19
52	Ingeriya	1504	3 hf ch	dust	240	18
55	Hapugasmulle	1513	6 ch	unas	630	24
56		1516	1 do	fans	110	20
57		1519	1 do	dust	150	19
60	Mahatenne	1528	3 ch	pek sou	300	24
61		1531	2 do	dust	200	19
62		1534	1 do	bro tea	100	13
74	Annandale	1570	13 hf ch	sou	611	28
84	Beauvais	1600	8 ch	bro mix No 2	576	13
85		1603	1 hf ch	dust	77	18
97	Charlie Hill	1639	8 hf ch	pek	440	27
98		1642	4 do	pek fans	300	22
99	C,M	1645	9 hf ch	hro pek	495	27
100		1648	5 do	pek	275	24
102	R K P	1654	5 ch	bro or pek	500	26
105		1663	2 do	dust	260	18
109	Avisawella	1675	8 ch	sou	640	14

Lot.	Box.	Pkgs	Name.	lb.	c.
110 Horagoda	1678	6 ch	bro or pek	600	32
111	1681	7 do	or pek	630	32
113	1687	7 do	pek sou	595	26
117 Atherton	1699	5 hf ch	pek sou	225	29
118	1702	4 do	dust	320	20
121 Tavalamtenne	1711	8 hf-ch	pek	405	27
122	1714	11 do	pek sou	550	25
123	1717	2 do	dust	160	19
124 Roeberry	1720	1 ch	pek sou	82	27
125 Sirikandura	1723	1 ch	pek	95	25
126 Palm Garden	1726	1 ch	bro pek	115	33
127 H J S	1729	1 hf ch	pek sou	60	25
128 Bidbury	1732	1 ch	pek sou	85	23
129 Wewelkande	1735	2 hf ch	bro pek	116	31
130 Rondura	1738	1 ch	pek	90	27
131 Weweywatte	1741	1 hf ch	bro pek	55	30
132 Tiddydale	1744	11 hf ch	bro pek	550	29
135 S W J	1753	3 ch	sou	255	15
136	1756	2 do	fans	200	17
137	1759	2 do	pek dust	260	18
144 Invery	1780	4 hf ch	bro mix	352	19
151 Neboda	1801	5 hf ch	dust	425	18
154 Selvawatte	1810	2 hf ch	fans	160	18
155	1813	1 do	dust	75	13
157 Gangwarily	1819	8 hf ch	dust	640	18
160 Havilland	1828	4 ch	pek fans	440	2_ bid
165 W, in estate mark	1843	2 ch	bro pek	190	25
172 Nuawella	1864	4 ch	bro mix	340	11
173 L	1867	2 ch	dust	310	18 bid
174 Montago	1870	3 hf-ch	bro pek	150	25
175	1873	9 do	bro pek	450	25
176	1876	5 do	pek sou	225	16
177	1879	2 do	pek fans	95	16
178	1882	1 do	pek dust	60	18

CEYLON CARDAMOMS SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, June 22.

"Bingo Maru."—DMA & C in estate mark, Dehigolla Mysore A 1, 8c at 2s 7d; ditto No. 1, 18c at 2s 3d; 6c sold at 2s 3d; 7c sold at 2s 2d; ditto No. 3, 5c at 1s 3d; A DMA & C, in estate mark, Kobo Mysore O, 2c at 2s 9d; ditto No. 1, 4c sold at 2s; 4c sold at 2s 1d; ditto 2, 2c at 1s 5d; ditto 3, 1c at 1s 1d; ditto S 3c sold at 1s 3d; DM in estate mark, Kobo Mysore O, 3c sold at 2s 7d; ditto 1, 7c at 2s; ditto 2, 3c at 1s 5d; ditto 3, 1c sold at 1s 2d; ditto B, 8c sold at 1s 2d.

"Prometheus."—Vicarton B, 5c at 1s 9d; 1c at 1s 1d.

"Clan McIntyre."—DSS in estate mark, Malabar, 8c at 1s 6d.

"Tamba Maru."—MLM in estate mark, 2c at 1s 6d.

"Sado Maru."—MRM R, 8c at 1s 3d; 2c at 1s; 1c sold at 1s 1d; 2c sold at 1s 9d; MRM, 3c at 1s 2d; 3c at 1s 8d.

"Glaucus."—Nella Oola 1, 4c at 2s 5d.

"Kawachi Maru"—Mousakande, 3c at 2s 5d; ditto 2, 2c at 1s 9d.

"Clan Drummond."—AL Malabar, 11c at 1s 5d.

"Hector."—HL I, 11c at 1s 6d.

"Glaucus."—Gavatenne Mysore O, 2c at 2s 3d; 2c at 2s 4d; 2c sold at 2s 5d; ditto 1, 13c sold at 1s 7d to 1s 8d; ditto 2, 4c at 1s 5d; 1c at 1s 6d; ditto B, 2c sold at 1s 2d; ditto S, 1c sold at 1s 3d; ditto Seed, 1c at 1s 7d.

No. 27 | COLOMBO, JULY 23, 1900. | PRICE:—12½ cents each 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[19,695 lb.]

Lot.		Box.	Pkgs.	Name.	lb	c
1	Halgolla	27	27 ch	bro pek	2706	33
2		30	30 do	or pek	2556	30
3		33	22 do	pek	1870	29
4		36	20 do	pek sou	1800	26
7	Battalgalla	45	38 ch	pek sou	3040	36
9	Hornsey	51	10 ch	pek	850	38
10		54	26 do	pek sou	1950	35
11		57	20 hf-ch	fans	1600	25
12	C T C	60	25 ch	bro pek	2275	26 bid

Messrs. Forbes & Walker.

[665,100 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	M'Golla	1678	16 hf-ch	dust	1280	21
8	Haputale-wella	1696	26 do	bro pek	1560	51
9		1699	23 do	pek	1150	41
12	Strathspey	1708	10 ch	bro or pek	1030	72 bid
13		1711	16 do	or pek	1552	53 bid
14		1714	13 do	pek	1820	47
15		1717	10 do	pek sou	900	42
26	Naseby	1750	26 hf ch	or pek	1196	63
27		1753	25 do	pek	1175	50
28		1756	30 do	pek sou	1410	42
29		1759	9 do	fans	792	33
30	Ninfield	1762	22 ch	bro or pek	2200	33
31		1765	12 do	bro pek	1200	33
32		1768	10 do	or pek	990	35
33		1771	43 do	pek	2870	30
34		1774	9 do	pek sou	720	27
38	Putupaula	1786	60 cb	bro pek	5400	35
39		1789	50 do	pek	3500	31
40		1792	29 do	pek sou	2030	28
41	Devonford	1795	28 hf ch	bro or pek	1540	78 bid
42		1798	13 ch	or pek	1170	61 bid
43		1801	14 do	pek sou	1120	45
44	Cotswald	1804	11 ch	bro or pek	1100	49
45		1807	13 do	pek	1170	36
46		1810	17 do	pek sou	1275	30
49	Avoca	1816	9 ch	pek sou	774	36
53	Old Medegama	1831	16 ch	bor or pek	1120	50
54		1834	23 do	bro pek	1725	37
55		1837	24 do	pek	1920	36
56		1840	14 do	pek sou	1650	31
58		1846	8 hf ch	pek fans	720	29
60	Thedden	1852	44 ch	bro pek	4400	34
61		1855	48 do	pek	4320	32
62		1858	16 do	pek sou	1280	28
67	Beaumont	1873	14 ch	bro pek	1358	32
68		1876	29 do	or pek	2494	28
69		1879	9 hf ch	fans	774	23
71	Matale	1885	37 do	bro pek	2035	36
72		1888	20 ch	pek	1700	39
73		1889	11 do	pek sou	935	33
77	1 and 2, M T P, in est. mark	1903	23 ch	pek	2970	23
78		1906	15 do	pek dust	1800	22
79	St. Heliers	1909	18 hf ch	bro or pek No. 1	972	62
80		1912	9 ch	bro or pek	855	50
81		1915	12 do	pek	1056	38
89	Dunbar	1939	17 bf-ch	bro or pek	867	64 bid
90		1942	9 ch	or pek	738	50
91		1945	9 do	pek	720	43
92	W F, in estate mark	1948	16 ch	congou	1440	26
93	Hatton	1951	37 ch	bro pek	3700	66
94		1954	40 do	pek	3400	45
96		1960	6 do	dust	900	23
97	A M B	1963	11 ch	dust	1540	20
98		1966	31 do	fans	2945	17
99	D M V	1969	13 ch	bro pek	1222	29
100		1972	20 do	pek	1480	27
104	Battawatte	1984	36 ch	bro or pek	3960	37
105		1987	29 do	pek	2610	35
106		1990	16 do	pek sou	1280	30
107	High Forest	1993	70 hf-ch	or pek No. 1	3780	77
108		1996	41 hf-ch	or pek	2173	56 bid
109		1999	32 do	pek	1472	51
110	Gampaha	2002	24 ch	bro or pek	2640	45
111		2005	26 do	pek	2210	40
112		2008	22 do	pek sou	1930	35
113		2011	22 do	or pek	2090	47
114	Ruanwella	2014	32 ch	or pek	2720	33
115		2017	15 do	bro pek	1500	33
116		2020	30 do	pek	2700	29
117		2023	14 do	pek sou	1260	27
119	Battawatte	2029	39 ch	pek	3705	57
120	High Forest	2032	49 hf ch	or pek No. 1	2939	76 bid
121		2035	29 do	or pek	1682	58 bid
122		2038	18 do	pek	900	52
123		2041	14 do	bro or pek	1022	39
124	Weoya	2044	14 ch	bro or pek	1540	32
125		2047	16 do	bro pek	1520	32
126		2050	27 do	or pek	2565	33
127		2053	41 do	pek	3185	29
128		2056	30 do	pek sou	2400	27
129		2059	8 do	dust	1200	22
130	Dunkeld	2062	48 hf ch	bro or pek	2380	53
131		2065	11 ch	or pek	1045	42
132		2068	17 do	pek	1530	38
133		2071	14 do	pek sou	1260	34
134		2074	14 hf ch	pek fans	980	32
135		2077	9 do	dust	810	27
136	D B E	2080	7 ch	red leaf	700	22
139	Ganapalla	2089	10 ch	or pek	820	36
140		2092	35 do	bro or pek	3150	34
141		2095	28 do	bro pek	2520	30
142		2098	38 do	pek	3040	28
144		2104	9 do	bro pek fans	954	24
146	H G M	2110	32 ch	bro pek	2560	35
147		2113	45 do	pek	3150	34
148		2116	15 do	pek sou	1350	30
149		2119	12 do	bro pek fans	1200	28
152	New Peacock	2128	19 hf-ch	pek fans	1425	27
153	R L M	2131	35 ch	bro pek	3150	28 bid
154		2134	17 do	pek	1530	no bid
155		2137	24 do	sou	2400	no bid
156		2140	11 do	fans	1120	no bid
157	Erlsmere	2143	17 ch	or pek	1445	57
158		2146	34 ht ch	bro pek	1700	49
159		2149	23 ch	pek	1725	41
162	Agra Oya	2158	25 ch	pek	2250	32
163		2161	16 do	bro pek	1440	36
164		2164	27 do	pek sou	2430	28
165		2167	21 do	or pek	1575	34
166		2170	10 do	bro or pek	900	34
168		2176	10 hf-cb	dust	800	28
169	A O	2179	9 ch	bro mix	810	22
174	Opalgalla	2194	10 hf-ch	dust	830	20
177	St. Leonards	2203	15 ch	bro pek	1500	34
178		2206	12 do	do	1140	34
179		2209	8 do	or pek	760	28
180		2212	9 do	pek	855	27
181		2215	8 do	do	760	27
182		2218	14 hf ch	bro pek fans	770	26
187	B and D	2233	21 ch	unas	2100	30
188	Deaculla	2236	27 do	pek sou	1890	29
189	Errollwood	2239	19 ch	or pek	1805	42
191	Glengariffe	2245	42 hf-ch	bro or pek	2310	44
192		2248	20 do	or pek	900	38
193		2251	20 ch	pek	1720	30
194		2254	10 do	pek sou	700	28
195		2257	15 hf ch	bro pek fans	990	25
196	K P W	2260	23 do	bro or pek	2160	35
197		2263	56 do	bro pek	3080	35
198		2266	47 do	pek	2350	31
199		2269	22 do	pek sou	1100	27
201	Pusella	2275	11 ch	bro pek	1100	34
202		2278	31 do	or pek	2418	34
203		2281	19 do	pek	1425	29
206	Arapolakande	2290	12 ch	bro or pek	1260	32
207		2293	73 do	bro pek	6570	40
208		2296	63 do	pek	5040	33
209		2299	11 do	pek sou	990	29
211	Weyungawatte	2305	35 ch	bro pek	3325	33
212		2308	33 do	pek	2805	31
213		2311	36 do	pek sou	2880	29
216	Castlereagh	2320	40 ch	bro pek	3360	53
217		2323	16 do	or pek	1280	39
218		2326	24 do	pek	1920	36

Lot.		Box.	Pkgs.		Name.	lb.	c.
222	Amblakande	2338	21	ch	bro pek	2100	35
223		2341	26	do	pek	2080	30
224		2344	12	do	pek sou	900	28
215		2347	7	do	dust	700	22
227	Pungetty	2353	12	hf-ch	or pek	912	67
228		2356	0	ch	pek	1008	51
231	Vogan	2365	8	do	bro or pek	880	32
232		2368	22	do	or pek	1980	43
233		2371	41	do	pek	3280	32
234		2374	18	do	pek sou	1440	28
235	Holton	2377	12	ch	bro pek	1140	31
236		2380	11	do	pek	935	30
240	New Anga-mana	2392	13	ch	bro pek	1300	35
241		2395	17	do	pek	1530	35
242		2398	11	do	pek No. 2	990	30
243		2401	11	do	pek sou	990	30
245	Kincora	2407	10	ch	bro pek	1000	45
246		2410	30	do	pek	2700	32
247		2413	56	do	pek No. 2	3640	29
248		2416	7	do	fans	700	35
250	Shrubs Hill	2422	42	do	bro pek	4116	36 bid
251		2425	42	do	pek	3444	32
253		2431	17	hf-ch	bro pek fans	1326	20
255	Alverne	2437	10	hf-cb	bro pek fans	820	27
256	Tembiligalla	2440	19	ch	bro or pek	1900	35
257		2443	14	do	pek	1260	32
262	P'Kande	2458	7	do	bro pek	700	35
263		2461	16	do	pek	1360	28
264		2464	11	do	pek sou	880	26
265		2467	10	do	sou	800	24
266		2470	12	hf-ch	dust	1020	20
267	Halwatura	2473	38	ch	bro pek	3800	28
268		2476	41	do	or pek	3690	28
269		2479	44	do	pek	3520	27
270		2482	55	do	pek sou	4400	26
271		2485	26	hf ch	bro pek fans	1690	24
272		2486	8	do	dust	720	20
273	Warwick	2491	37	ch	br pek	3700	58 bid
274		2494	52	do	pek	4940	47
275		2497	26	do	pek sou	2470	40
278	Chesterford	2506	70	do	bro pek	7000	35
279		2509	50	do	pek	5000	30
280		2512	30	do	pek sou	3000	27
281	Geragama	2515	21	hf-ch	bro or pek	1155	34
282		2518	27	ch	bro pek	2295	31
283		2521	38	do	pek	3040	29
284		2524	11	do	pek sou	1045	27
285		2527	10	hf-ch	fans	750	24
287		2533	19	do	bro or pek	1045	34
288		2536	9	ch	bro pek	720	32
289		2539	15	do	pek	1275	28
290		2542	16	do	pek sou	1360	26
293	Halwatura	2551	39	do	or pek	3507	28
294	Mousakellie	2554	48	do	bro or pek	4800	37 bid
295		2557	31	do	or pek	2790	37 bid
296		2560	15	do	pek sou	1275	28
311	Harrington	2605	15	hf cb	bro or pek	750	73
312		2608	12	ch	or pek	1080	48
313		2611	15	do	pek A	1350	42
317	Freds Ruhe	2623	28	do	bro pek	3080	36
318		2626	27	do	pek	2700	33
319		2629	14	do	pek sou	1400	28
320	W A	2632	20	do	bro pek	2200	30
321		2635	15	do	pek	1500	29
322		2638	12	do	pek sou	1200	27
323	Mansfield	2641	60	hf-ch	bro pek	3600	55
324		2644	24	ch	pek	2160	45
325		2647	10	do	pek sou	900	40
326		2650	15	hf-ch	dust	1350	27
330	P	2662	5	ch	dust	725	19
331	Dammeria	2665	10	do	bro or pek	1200	3
332		2668	55	do	or pek	5500	36
333		2671	30	do	bro pek	3300	38
334		2674	41	do	pek	4100	35
335		2677	23	do	pek sou	2300	31
336		2680	9	hf-ch	br pk fans	720	29
337	MahaUva	2683	6	do	bro or pek	3780	43
338		2686	48	do	or pek	2688	46
339		2689	44	ch	pek	3960	42
340		2692	26	do	pek sou	2080	35
342		2698	11	hf-ch	dust	935	22
343	Erracht	2701	16	ch	bro or pek	1440	31
344		2704	17	do	bro pek	1360	31
345		2707	45	do	pek	3600	26
346		2710	16	do	pek sou	1360	24
347		2713	11	do	br pk fans	1100	25
351	Kaltura	2725	13	do	bro or pek	1300	31 bid
352		2728	47	do	bro pek	4700	30 bid
353		2731	62	do	pek	4960	29 bid
354		2734	76	do	pek sou	6810	27 bid
355		2737	18	do	br pk fans	1800	26 bid
356		2740	14	do	dust	1422	18 bid
357	Tonacombe	2743	44	do	or pek	3960	40
358		2746	42	do	bro pek	4200	48
359		2749	40	hf-ch	bro or pek	2000	59
361	Mawaliganga-watte	2755	38	ch	bro pek	3572	28
362		2758	31	do	pek sou	2325	25
364	Forest Creek	2764	15	do	or pek	1450	45
365		2767	13	do	bro pek	1900	47
366	Erlsmere	2770	44	hf ch	bro or pek	2112	49
367	Talgaswela	2773	32	ch	bro pek	2880	32 bid
368		2776	43	do	pek	3655	27 bid
369		2779	21	do	pek sou	1680	25
372	Clyde	2788	44	do	bro pek	3872	46
373		2791	31	do	pek	2790	37
376		2800	9	do	br or pek	1035	36 bid
377	Coreen	2803	20	hf-cb	bro or pek	1000	59
379		2809	9	ch	pek	810	39
382	Aneimudi	2818	40	hf-ch	bro pek	2120	30 bid
383		2821	30	do	pek	1350	30
384		2824	30	do	pek sou	1200	25
386	Kosgalla	2830	36	do	bro pek	1800	29
387		2833	28	do	pek	1260	26
389		2839	14	do	or pek	700	28
393	Walpita	2851	19	ch	bro pek	1900	36
394		2854	15	do	or pek	1500	37
395		2857	26	do	pek	2600	31
396		2860	19	do	pek sou	1520	28
398	Monkswood	2866	21	hf ch	bro pek	1050	75
399		2869	28	do	or pek	1400	66
400		2872	18	ch	pek	1800	52
401		2875	15	do	pek sou	1275	44
402		2878	13	hf-ch	fans	728	36
404	Gonapatiya	2884	35	hf-ch	pek fans	2660	35
405		2887	17	do	dust	1598	26
406	Deuculla	2890	64	do	bro pek	2970	49
407		2893	71	do	pek	4270	36
408	Harangalla	2896	38	ch	bro pek	3610	35
409	Ascot	2899	26	do	bro or pek	2470	28
410		2902	15	do	bro or pek	1350	31
411		2905	12	do	bro pek	1020	32
412		2908	13	do	pek	1170	29
413		2911	9	do	br pk fans	855	23
414	B D W	2914	29	do	br pek	2610	26
415		2917	37	hf-ch	pek sou	1595	23 bid
416	C in est. mark	2920	12	ch	pek sou	1080	27 bid
417	Claverton	2923	33	hf-ch	bro or pek	1650	53 bid
418		2926	11	ch	bro pek	1100	41 bid
419		2929	32	do	pek	3200	33 bid
420		2932	10	do	br or pk fans	1120	33
425	Tonacombe	2947	75	do	pek	6750	40
426		2950	42	do	pek sou	3780	35
427	Knavesmire	2953	30	hf-ch	or pek	1500	33
428		2956	65	ch	br pek	6175	32
429		2959	56	do	pek	4480	25
430		2962	20	do	pek sou	1400	26
431		2965	26	do	pek	1950	28
432	Pallagodde	2968	15	do	bro or pek	1500	31
433		2971	25	do	br pek	2500	40
434		2974	21	do	or pek	1680	34
435		2977	17	do	pek	1275	31
436		2980	21	do	pek sou	1785	29
437	Seenagolla	2983	52	hf-cb	bro or pek	2860	54
438		2986	21	do	pek	945	44
439		2989	26	do	pek sou	1170	40
440	Killarney	2992	62	do	bro or pek	3410	57
441		2995	10	ch	or pek	850	45
446	Ardlaw and Wishford	3010	9	hf-ch	bro or pek	855	66
447		3013	17	do	br pek	1547	48
448		3016	16	do	or pek	1360	43 bid
449		3019	24	do	pek	1903	41
452	S W	3028	6	ch			
			1	hf-ch	fans No. 1	751	35
454	Gampaha	3034	25	ch	pek sou	2247	34 b

Messrs. Somerville & Co.—317,900 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
8	Waverley	7	15	ch	pek sou	1575	26
9	W V Y	10	11	ch	pek	1243	30
10	Meetiyagoda	13	30	ch	unas	3000	15 bid
11	Walasmulla	16	8	ch	unas	800	27
13		22	9	do	pek fans	1150	23
15	Primrose Hill	28	9	ch	bro pek	900	39
16		31	16	do	pek	1408	31
17		34	15	do	pek sou	1170	26
19	Ladysmith	40	22	ch	bro pek	2200	30
20		43	18	do	pek	1440	29
21		46	18	do	pek sou	1350	26 bid
22	Carney	49	42	hf cb	bro pek	2100	34
23		52	49	do	pek	2205	29
24		55	24	do	pek sou	1200	27
27	Killin	64	27	hf ch	bro or pek	1350	39
28		67	22	ch	or pek	1870	31
29		70	8	cb	pek	720	29
32	Marigold	79	94	hf ch	bro pek	5170	46
33		82	31	do	pek	1550	42
34		85	19	do	pek sou	950	89

Lot.		Box.	Pkgs.	Name.	lb.	c.
37	Ferriby	94	53 ch	bro pek	5035	33
38		97	85 do	pek	7225	28
39		100	42 do	pek sou	3360	26
40		106	9 do	fans	1260	22
42	Avisawella	109	22 cb	bro pek	2090	31
43		112	39 do	pek	2400	28
44		115	32 do	pek sou	2400	26
45		118	11 do	fans	1320	23
46	Koladeniya	121	17 ch	bro pek	1615	29 bid
47		124	22 do	pek	1760	27
48		127	11 do	pek sou	935	24
51	Havilland	136	9 hf ch	dust	855	18 bid
55		148	8 ch	pek fans	800	20 bid
56	Forest Hill	151	15 ch	bro pek	1275	31 bid
57		154	16 do	pek	1218	27 bid
62	Blackburn	169	20 bf-ch	fans	1500	22
63	Waveena	172	16 ch	bro pek	1569	35
			1 hf ch			
64		157	14 cb	pek	1170	29 bid
			1 hf ch			
67	Kallebokka	184	19 ch	bro or pek	2090	47
68	St. Catnerine	187	14 ch	bro or pek	1260	36
74	Damblagolla	205	18 ch	or pek	1620	34
75		208	18 do	bro pek	1800	30
76		211	18 do	pek	1530	31
77		214	18 do	pek sou	1440	26
80	G B	223	15 hf ch	(dust un ulkd)	750	23
81	Harangalla	226	22 cb	bro pek	2090	41
82		229	56 do	pek	4200	32
83		23[illegible]	10 do	sou	750	26
84		235	8 do	bro pek fans	800	32
85	I N V	238	29 hf ch	pek fans	23[illegible]0	23 bid
86		241	29 do	pek fans	2320	23 bid
87	S, in estate mark	244	32 hf ch	bro pek	1920	32
88	S L G	247	43 hf ch	pek sou	3000	26
			10 cb			
89		250	8 ch	sou	720	53
92		259	12 hf ch	fans	840	33
93	Rambodde	262	40 hf-ch	or pek	2200	43
94		265	52 do	pek	2340	36
107	Monrovia	304	23 ch	bro pek	2300	32
108		307	2[illegible] do	pek	1900	28
110		313	9 do	pek sou	900	25
111		316	9 do	bro tea	855	22
113	Dryburgh	322	19 hf ch	bro or pek	1064	41
114		325	23 do	or pek	1150	40
115		328	23 cb	pek	1840	35
118	Marigold	337	124 hf-ch	bro pek	6820	48
119		340	39 do	pek	1950	42
120		343	29 do	pek sou	1450	39
122		349	10 do	pek dust	750	27
123	Doragalla	352	16 ch	bro or pek	1520	52
124		355	20 do	bro pek	1700	43
125		358	23 do	pek	1725	38
126		361	12 do	pek sou	900	34
127		364	7 do	bro mix	840	22
133	Venture	382	17 cb	pek sou No. 2	1360	36
134		385	8 do	red leaf	760	21
136	Batgodde A	391	7 ch	bro pek	798	48
142	Allagalla	409	11 ¾ ch	pek	747	30
			1 bf ch			
145	Mora Ella	418	15 hf cb	or pek	50	43
146		421	39 do	bro or pek	2262	38
147		424	24 ch	pek	2200	35
148		427	19 do	pek sou	1710	30
154	S	445	10 hf ch	pek	700	26
			2 ch			
157	Nyanza	454	15 ch	bro or pek	1500	60
158		457	12 do	b o pek	1200	3
159		460	12 do	or pek	1080	38
160		463	32 do	pek	2500	35
161		466	10 do	pek sou	900	30
164	Ambalawa	475	25 hf ch	bro pek	1250	29
165	San Cio	478	19 hf ch	sou	760	24
169	Oaklands	490	16 ch	or pek	1520	33
170		493	17 do	pek	1570	30
171		496	10 do	pek sou	800	27
172	Annandale	499	13 hf ch	bro or pek	741	67
173		502	14 do	or pek	784	46
174		505	13 do	pek	715	42
175		508	19 do	pek sou	1045	37
176	Orion	511	34 cb	bro pek	3400	33
177		514	27 ¾ ch	pek	2160	32
178		517	14 ch	bro mix	1680	21
179	Patulpana	420	13 hf-ch	bro pek	715	31
184	Ladrum	535	10 ch	or pek	1100	32
185	Woodthorpe	538	7 ch	bro pek	700	37
186		541	13 do	pek	1144	31
187		514	14 do	pek sou	1092	28
189	Warakamure	550	45 ch	bro pek	4500	31
190		553	23 do	pek	2185	2
191		556	10 do	pek sou	900	2
192	Lower Dickoya	559	13 hf ch	bro or pek	728	40
193		562	9 ch	bro pek	900	33
194		565	8 do	pek	800	29
196	Oolapane	571	16 hf-ch	dust	1280	22

Lot		Box.	Pkgs.	Name.	lb.	c.
198	Jak Tree Hill	577	27 hf ch	bro pek	1620	36
199		580	32 do	pek	1600	32
200		583	20 do	pek sou	1000	29
202	Bnoius	589	13 bf-cb	bro pek	715	27 bi
205		598	23 ch	sou	2185	18
202	W H B	607	8 bf-cb	dust	704	25
209	M D R, in estate mark	610	40 ch	bro pek	3640	31
211	Hangranoya	616	17 ch	bro pek	530	38
213		622	24 do	pek No 2	2040	31
214		625	10 do	pek sou	700	28
215	M & B	628	19 cb	pek fans	1900	21
216	Ravenoya	631	26 hf ch	bro pek	1430	34
217		634	22 do	pek	1100	30
222	California	649	8 cb	pek	760	26
225	Salawe	658	22 ch	bro pek	2200	33
226		661	18 do	pek	1710	30
227		664	9 do	pek sou	810	28
229	Holmsdale	670	31 ch	bro pek	2945	35
230		673	32 do	pek	2720	31
233	Mary Hill	682	28 hf ch	or pek	1400	8
234		685	35 do	pek	1750	34
239	Kurunegala est Co of Ceylon	700	12 hf ch	or pek	720	35
240		703	25 do	bro pek	1500	33
241		706	16 ch	pek	1600	30
244	Rayigam	715	32 ch	bro pek	3040	35
245		718	29 do	or pek	2320	32
246		721	25 do	pek	2000	31
247		724	32 do	pek sou	2560	28
250	Tavalamtenne	733	18 hf-ch	bro or pek	1080	38
253	Depedeue	742	62 hf-ch	bro pek	3410	34
254		745	55 do	pek	2450	30
255		748	48 do	pek sou	2400	28
258	T T	757	15 bf ch	sou	750	13
264	Hayes	775	16 ch	bro or pek	1600	47
265	Daluk Oya	778	17 bf ch	bro or pek	1020	47
266		781	19 do	or pek	1045	30
267		784	24 do	pek	1320	28
271	Yarrow	796	68 hf-cb	bro or pek	3808	35
272		799	76 do	or pek	3040	36
273		802	59 do	pek	2360	32
274		805	19 do	pek sou	855	28
275	Y, in estate mark	808	9 hf-ch	dust	720	22
277	A P G	814	50 hf-cb	or pek	2800	53 bid
278	Hatdowa	817	16 ch	bro or pek	1440	37
279		820	14 do	pek	1050	30
280		823	12 do	pek sou	900	29
283	Wewatenna	832	20 hf-ch	bro pek	1000	42
284		835	24 do	pek	1200	32
285		838	33 do	pek sou	1650	27
287	Yspa	844	24 cb	pek sou	1920	30
288		847	7 do	pek dust	980	22
289	Columbia	800	29 bf-cb	bro or pek	1450	50
290		853	31 do	or pek	1426	43
291		856	24 do	bro pek	1440	35
292		859	17 do	pek dust	1360	23
293	Mabatenne	882	18 ch	bro pek	1800	34
294		885	12 do	pek	1200	30
297	Attiville No 1	874	22 hf-ch	bro pek not hooped	1110	31
298		877	12 cb	pek	1200	25
299		880	7 do	pek sou	700	24
300	Do No 2	883	26 hf-ch	bro pek not hooped	1430	30
301		886	18 ch	pek	1710	25
302		889	10 do	pek sou	1000	24
307	Citrus	904	28 ch	bro pek	2800	33
208		907	31 do	pek	2770	28
309		910	10 do	pek sou	1000	26

[Mr. E. John.—214,430 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
2		534	35 ch	bro pek	3500	39 bid
3		537	35 do	pekoe	2975	36
4		540	11 do	pek sou	935	23
5		543	8 hf ch	dust	800	23
8	ndcu	552	32 do	or pek	1440	57
9		555	14 do	bro or pek	770	47
10		558	30 cb	pekoe	2700	36
11		561	21 do	pek sou	1680	52
14	rraythwaite	570	13 do	bro pek	1235	36
15		573	12 do	pekoe	1020	30
19	Ferndale	585	13 do	pek No. 1	1170	35
20		588	12 do	pek No. 2	1080	32 bid
24	Eladuwa	600	19 do	pekoe	17[illegible]0	29
25		603	8 do	pek sou	720	26
27	Lameliere	609	32 do	bro pek	3300	48
28		612	31 do	pekoe	2790	41
29		615	17 do	pek sou	1275	36
31	G W	621	9 do	pek sou	900	36
33		6[illegible]7	44 do	fans	3960	24 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
34	Kanangama	630	24 do	bro or pek	2100	32
35		633	32 do	bro pek	2880	34
36		636	34 do	pekoe	2720	29
37		639	18 do	pek sou	1440	26 bid
38		642	31 do	pek fans	2790	24
39		645	16 hf-ch	dust	1200	22
41	Cleveland	651	53 do	flowy or pek	2915	58
42		654	51 do	pekoe	2703	46
46	Glasgow	666	73 ch	bro or pek	5840	52 bid
47		669	27 do	or pek	1755	51 bid
48		672	18 do	pekoe	1440	46
49		675	22 do	pek sou	2200	42
50		678	15 do	fans	1500	30
51	Callander	681	17 hf-ch	bro or pek	952	55
52		684	22 do	or pek	1144	45 bid
53		687	21 do	pekoe	945	40
56	Bittacy	696	23 ch	bro pek	2300	54
57		699	20 do	pekoe	1600	43 bid
59		705	10 hf-ch	dust	800	27
61	Mount Clare	711	9 ch	bro or pek	855	39
62		714	9 do	or pek	774	33 bid
63		717	9 do	pekoe	720	29
66		723	18 do	sou	1620	18 bid
68	Rookwood	732	22 do	bro or pek	2723	41
70	Bellongalla	738	7 do	bro pek	700	32
71		741	9 do	pekoe	720	28 bid
72		744	16 do	pek sou	1280	26
72		747	9 do	bro pek fans	900	27
75	Mount Everest	753	39 hf-ch	bro or pek	2145	71
76		756	48 do	or pek	2400	51
77		759	55 ch	pekoe	5500	44
78		762	31 do	pek sou	2790	36
79		765	28 hf-ch	bro pek fans	1960	27 bid
82	Kolapatna	774	20 ch	bro or pek	2200	37 bid
83		777	34 do	bro pek	3230	35 bid
84		780	34 do	pekoe	2720	34
86	Suduganga	786	17 do	or pek	1445	34 bid
87		789	16 hf-ch	bro or pek	880	45
88		792	20 ch	pek sou	1400	30
90		798	11 do	sou	715	26
95	Brownlow	813	23 hf-ch	bro or pek	1219	54 bid
96		816	17 ch	or pek	1428	39 bid
97		819	26 do	pekoe	2210	36
99	West Hall	825	29 hf-ch	dust	2610	21 bid
100		828	9 ch	bro mix	900	20
104	C	840	14 do	bro mix	1330	18
105	W H R	843	7 do	dust	700	24
106	H	846	16 do	bro mix	1600	23
107	Glentilt	849	45 hf-ch	bro pek	2700	54
108		852	15 ch	or pek	1425	40
109		855	12 do	pekoe	1050	38
112		864	16 hf ch	fans	1280	29
113	Agra Ouvah	867	13 do	bro or pek	806	69
114		870	34 do	bro pek	2040	50
115		873	26 do	pekoe	1378	43
117		879	26 ch	pek fans	2132	28
123	Keenagaha Ella	897	34 hf-ch	or pek	1870	35
124		900	25 ch	pekoe	2295	32
125		903	15 do	pek sou	11.0	30
132	G F R, in est. mark	924	17 do	bro pek	1615	32 bid
133		927	23 do	pekoe	2070	29 bid
137	Nahavilla	939	23 do	or pek	2300	49
138		942	35 do	bro pek	3500	61
139		945	21 do	pekoe	2100	45
140		948	15 do	pek sou	1359	35
141		951	11 hf ch	pek fans	770	33
145	X Y Z	963	9 do	pek dust	855	23
147	Oya	969	20 ch	pekoe	1600	out
149	Pitadeniya	975	18 do	bro or pek	1800	34
150		978	18 do	bro pek	1890	32 bid
151		981	18 do	pekoe	1530	29
152	D S D	984	18 do	bro pek	1960	26
154	Whyddon	990	17 do	bro pek	1870	52
155		993	11 do	or pek	1045	43
156		996	11 do	pekoe	1045	38
160	G navy	8	17 hf-ch	or pek	765	39
162		14	15 ch	pekoe	1125	33
164	Dickapittia	20	23 do	bro pek	2300	28
165		23	27 do	pekoe	2700	35
167		29	10 hf-ch	dust	850	23
170	Birnam	38	28 ch 1 hf-ch	pek sou	2699	36
172	Chapelton	44	8 do	dust	730	24
173		47	11 ch	bro mix	880	23
174	M R	50	11 hf-ch	dust	990	22
175	Templestowe	53	44 do	bro or pek	2200	52
176		56	20 do	or pek	800	46
177		59	29 ch	pekoe	2320	35
178		62	13 do	pek sou	975	32
179		65	12 hf-ch	fans	1080	32
182	Pelpotnaoya		9 ch	dust	1380	18

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Halgalla	39	4 ch	fans	380	26
6		42	2 do	dust	240	21
8	Hornsey	45	5 do	or pek	410	42

[Messrs. Forbes & Walker

Lot.		Box.	Pks.	Name.	lb.	c.
1	M'Golla	1675	1 ch	pek sou	95	26
3		1681	2 do	red leaf fans	190	15
4	Wewalakande	1684	12 hf ch	bro pek	654	31
5		1687	7 do	pek	376	27
6		1690	10 do	pek sou	490	26
7		1693	1 do	red leaf	44	24
10	Haputalewella	1702	7 hf-ch	pek sou	315	36
11		1705	5 do	fans	425	37
16	Strathspey	1720	2 ch	sou	144	28
17		1723	2 do	dust	262	25
18		1726	3 do	red leaf	261	20
19	St. Edwards	1729	9 ch	bro or pek	540	33
20		1732	7 hf ch	bro pek	392	33
21		1735	8 do	pek	445	27
22		1738	5 do	pek sou	270	26
23		1741	1 do	bro pek fans	64	25
24	D W	1744	6 do	bro mix	318	19
25		1747	2 do	dust	140	18
35	Ninfield	1777	5 ch	sou	400	26
36		1780	4 do	fans	480	22
37		1783	1 do	fans	104	20
47	Cotswold	1813	2 ch	sou	150	27
48		1816	2 hf-ch	dust	170	23
50	Avoca	1822	4 ch	bro pek No. 2	420	34
51		1825	5 do	pek No. 2	500	28
52		1828	1 do	bro pek fans	135	23
57	Old Medegama	1843	8 ch	sou	560	26
59		1849	4 hf ch	dust	400	21
63	Thedden	1861	3 ch	dust	450	21
64	Kabragalla	1864	10 hf-ch	bro tea	550	16
65		1867	7 do	dust	595	20
66		1870	3 do	fans	150	21
70	Huanuco	1882	4 do	pek sou	176	25
74	Matale	1894	6 ch	sou	660	25
75		1897	3 hf ch	fans	210	26
76	Allerton	1900	2 ch	dust	240	18
82	St. Heliers	1918	5 ch	pek sou	475	30
83		1921	6 hf ch	dust	480	22
84		19 4	1 ch	bro tea	70	15
85	St. Johns Wood	1927	9 hf-ch	bro pek	495	34
86		1930	5 do	pek	350	31
87		1933	4 do	pek sou	260	29
88		1936	1 do	fans	76	23
95	Hatton	19.7	6 ch	pek sou	475	36
101	D & V	1975	9 ch	pek sou	540	22
102		1978	3 do	fans	300	21
103		1981	2 do	dust	160	18
118	Ruanwella	2026	6 hf ch	dust	480	21
137	K	2083	1 ch	sou	100	26
138	B W D	2086	8 hf ch	dust	560	26
143	Ganapalla	2101	9 ch	pek sou	675	22
145		2107	1 do	dust	89	18
150	New Peacock	2132	6 hf-ch	pek sou	540	32
151		2 25	12 do	bro mix	606	27
160	Erlsmere	2152	5 ch	pek sou	400	35
161		2155	3 hf ch	dust	210	28
167	Agra Oya	2173	8 do	fans	600	23
170	A O	2182	4 ch	bro pek	400	21
171	Kitulgalla	2185	3 ch	pek sou	285	24
172		2188	2 do	dust	240	19
173	Opalgalla	2191	5 ch	red leaf	305	15
183	St. Leonards	2221	4 hf ch	bro pek dust	280	23
184	K W D, in est. mark	2224	6 hf ch	bro or pek fans	360	34
185		2227	3 ch	dust	372	24
186		2230	2 do	bro tea	204	26
193	Monkswood	2242	6 hf-ch	dust	510	23
200	K P W	2272	3 do	dust	270	20
201	Pussella	2284	5 ch	dust	655	18
205		2287	7 do	red leaf	574	19
210	Arapolakande	2302	5 do	dust	575	21
214	Weyungawatte	2314	6 ch	bro tea	600	26
215		2317	3 hf ch	dust	240	21
219	Castlereagh	1329	8 ch	pek sou	640	32
220		2332	8 hf ch	fans	560	27
221		2335	4 do	dust	320	22
226	Pungetty	2350	5 do	bro or pek	400	62
229		2359	2 ch	pek sou	214	43

Lot.		Box.	Pkgs.	Name.	lb.	c.
230		2362	1 hf ch	dust	114	19
237	Holton	2383	7 ch	pek sou	560	26
238	B A	2386	3 ch	dust	240	18
239		2389	2 do	red leaf	200	14
244	Kincora	2404	6 ch	bro or pek	600	50
249		2419	3 do	congou	180	19
252	Shrubs Hill	2428	8 do	pek sou	680	30
254	Quilon	2434	8 ch	bro tea	640	16
258	Tembiligalla	2446	3 do	pek sou	270	27
259		2449	1 do	bro pk fans	115	21
260		2452	1 do	dust	150	18
261		2455	1 do	bro mixed	100	20
276	Warwick	2500	5 hf-ch	pek fans	350	33
277		2593	4 do	dust	360	23
286	Geragama	2530	3 do	dust	255	19
291		2545	7 do	fans	525	20
292		2548	5 do	dust	425	19
297	Monsakellie	2563	7 do	dust	560	21
298	W L	2566	11 do	bro pek	691	20
299		2569	7 do	pek	394	27
300		2572	9 do	pek sou	528	26
301		2575	5 do	sou	272	25
302		2578	2 do	congou	106	18
303		2581	1 do	dust	72	17
304		2584	1 do	fans	62	17
305	Yatiyana	2587	3 ch	or pek	294	27
306		2590	4 do	bro pek No 1	388	32
307		2593	6 do	bro pek	600	28
308		2596	5 do	pek	400	26
309		2599	1 do	pek sou	90	22
310		2602	1 do	unast	92	24
314	Harrington	2614	2 do	pek B	190	32
315		2617	3 hf-ch	or pek fans	210	33
316		2620	3 do	dust	270	25
327	W L	2653	2 ch	congou	98	16
328		2656	1 do	fans	54	18
329	P	2659	5 do	or pek	450	25
341	Maha Uva	2695	3 hf-ch	pek fans	240	27
348	Erracht	2716	2 ch	dust	370	18
349	Pittakande Group	2719	1 do	dust	100	20
350	D	2722	4 do	souchong	300	15
360	Mawliiganga-watte	2752	6 do	bro or pek	600	37
363		2761	2 do	dust	274	18
370	Talgaswela	2782	8 do	fans	600	18
371	T	2875	3 do	bro mixed	270	16
374	Clyde	2794	6 do	pek sou	540	31 bid
375		2797	2 do	dust	300	22
378	Coreen	2806	6 do	or pek	540	41
380		2812	5 do	pek sou	450	36
381		2815	2 hf-ch	dust	160	25
385	Munaar	2827	1 do	or pek	50	out
388	Kosgalla	2836	13 do	pek sou	650	23
390		2842	6 do	dust	420	19
391		2845	2 do	unast	100	25
392		2848	1 do	bro pk fans	70	19
397	Walpita	2863	6 ch	souchong	480	25
403	Monkswood	2881	6 hf-ch	dust	450	25
421	Claverton	2935	4 hf-ch	dust	320	22
422	Carlabeck	2938	5 ch	pek sou	460	34 bid
423		2941	7 h-fch	br pek fans	546	27
424	C B	2944	5 do	br pek fans	400	22
442	Killarney	2998	4 ch	bro mixed	400	26
443	Scenagolla	3001	13 hf-ch	bro mix	656	29
444		3004	3 do	dust	240	24
445	R in est. mark	3007	2 ch	bro mixed	188	27
450	S W	3022	1 do	bro pek	80	37
451		2025	3 do	br mixed	321	29
453		3031	4 do	fans No. 2	480	27

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Mousa Eliya	1885	3 ch	pek sou	285	24
2		1888	1 do	dust	165	18
3	Bope	1891	8 hf ch	bro pek	410	29
4		1894	4 do	or pek	200	26
5		1897	3 do	pek	144	24
6		1	2 do	pek sou	100	22
7		4	1 do	dust	68	17
12	Walasmulla	19	1 ch	sou	85	25
14		25	4 do	bro mix	380	22
18	Primrose Hill	37	2 ch	sou	152	23
25	Carney	58	2 hf ch	sou	100	23
26		61	2 do	dust	100	22
30	Killin	73	4 do	sou	360	21
31		76	4 hf-ch	dust	300	18
35	Marigold	88	5 hf ch	bro pok fans	330	30
36		91	9 do	pek dust	657	26
40	Ferriby	103	3 ch	bro tea	255	18
49	Koladadiya	130	2 ch	sou	160	18
50	Havilland	133	4 ch	pek fans	440	19
52		139	7 do	sou No. 1	490	24
53		142	3 do	sou No. 2	225	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
58	Forest Hill	157	1 hf-ch	pek	51	28
59		160	4 ch 1 hf-ch	bro sou	345	24
60		163	6 do	fans	414	21
61	Hanwella	166	12 hf ch	bro pek	590	28
65	Waveua	178	7 ch	pek sou	574	26
66		181	1 hf ch	dust	50	22
69	St Catherine	190	7 ch	bro or pek	504	33
70		193	4 do	pek	280	28
71		196	4 do	pek sou	272	26
72		199	1 hf ch	red leaf	61	19
73		202	2 ch	red leaf	120	14
78	B F	217	5 hf ch	dust	470	21
79	G B	220	6 hf ch	bro tea	300	21
90	S L G	253	4 ch	red leaf	310	[illegible]
91		256	3 hf ch	dust	240	23
95	Rambodde	268	10 hf ch	pek sou	450	29
96		271	1 do	dust	90	18
96a		271a	1 do	dust	90	20
97		274	2 do	bro pek fans	140	28
98		277	2 do	fans	140	26
99	Bope	280	4 hf ch	or pek	200	25
100		283	2 do	con	84	20
101		286	1 do	dust	62	18
102	Hanwella	289	7 hf ch	bro pek	350	31
103		292	5 do	pek	240	27
104		295	5 do	or pek	250	27
105		298	3 do	bro sou	120	21
106		301	3 do	dust	180	20
109	Monrovia	310	1 ch	pek No 1	100	28
112		319	2 do	dust	400	18
116	Dryburg	331	6 ch	pek sou	432	29
117		334	5 hf ch	fans	370	26
121	Marigold	346	6 hf-ch	bro pek fans	396	31
128	Venture	367	2 hf-ch	bro or pek	104	65
129		370	2 ch	or pek	200	46
130		373	2 do 1 hf ch	pek	240	43
131		376	2 ch	bro pek	230	38
132		379	2 do	pek sou No 1	168	33
135	Raxawa	388	2 ch	red leaf	170	21
137	Batgodde A	391	6 ch	pek	552	39
138		397	3 do	pek No 2	273	33
139		400	2 do	pek dust	190	22
140	Allagolla	403	5 ch	bro pek	405	38
141		406	1 do 1 ¾ ch	or pek	148	36
143		412	5 ch	pek sou	365	27
144		414	1 hf ch	fans	57	24
149	Mora Ella	430	4 ¾ ch	bro pek fans	400	25
150		433	2 do	dust	240	20
151		436	3 ch	red leaf	255	19
152		439	1 do	bro mix	87	19
153	S	442	11 hf ch	bro pek	550	27
155		448	2 do	pek sou	100	18
156		451	1 do	dust	62	18
162	Nyanza	469	3 ch	fans	270	26
163		472	2 do	dust	200	21
166	San Cio	481	4 hf ch	bro mix	180	15
167		484	5 do	dust	325	18
168	A P	487	6 ch	pek	480	21 bid
180	Patulpana	523	12 hf ch	pek	600	26
181		526	8 do	pek sou	400	24
182		529	2 do	sou	900	19
183		532	2 do	bro mix	100	14
188	Woodthorpe	557	2 hf ch	dust	101	19
195	Lower Dickoya	563	6 ch	bro sou	600	15
197	Oolapane	574	2 hf ch	bro mix	116	16
201	Jak Tree Hill	586	2 hf ch	fans	130	24
203	Bnoius	592	13 hf ch	pek	650	26
204		595	9 do	pek sou	405	24
206		601	2 do	dust	151	20
207		604	2 ch	red leaf	200	15
210	Hangranoya	613	10 hf ch	bro or pek	500	45
212		619	2 ch	pek No 1	160	33
218	Ravenoya	637	4 hf ch	pek sou	200	28
219		640	3 do	fans	240	20
220		643	1 ch	sou	70	24
221	California	646	7 ch	bro pek	665	31
223		652	5 do	pek sou	475	24
224		655	1 do	dust	138	17
228	Salawe	667	2 ch	pek dust	300	19
231	Holmsdale	676	2 ch	sou	170	25
232		679	5 do	pek fans	500	19
235	Mary Hill	688	13 hf ch	pek sou	650	28
236		691	3 do	bro pek fans	195	33
237		694	4 do	bro tea	220	23
238		697	2 do	dust	190	20
242	Kurunegalle	709	3 ch	pek sou	300	26
243		712	1 hf ch	dust	90	18
248	F A, in estate mark	727	2 ch	pek sou	142	31
249		730	1 hf ch	dust	84	23
251	Tavalamtenne	736	7 hf ch	pek	350	29
252		739	2 do	pek sou	100	27
256	Depedene	751	4 hf ch	bro mix	200	16

Lot		Box.	Pkgs.	Name.	lb.	c.
259	T T	760	2 ch	pek fans	250	18
260		763	2 do	fans	220	18
262	Munaar	769	1 hf ch	pek	50	25
263	Nilloomally	772	5 hf ch	fans	350	26 bid
268	Daluk Oya	787	6 hf ch	pek sou	500	26
269		790	8 do	dust	480	22
270		793	11 do	fans	660	25
276	Mahayaya	811	7 hf ch	bro or pek	518	31
281	Hatdowa	826	2 ch	dust	280	21
282		829	4 do	fans	400	24
286	Wewatenna	841	4 hf ch	pek dust	240	24
295	Mahat nnc	868	2 ch	pek sou	200	26
296		871	1 do	dust	100	20
303	Attivills No 2	892	4 ch	red leaf	400	13
304		895	3 do	bro mix	343	15
305	Do No 3	898	3 do	bro pek	300	23
306		901	9 do	pek	595	23
310	Citrus	913	6 do	fans	600	18
311		916	2 do	dust	449	18
312	H A	919	2 ch	fans	196	15

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	531	2 hf-ch	dust	164	25
6	Evalgolla	546	2 ch	fans	130	24
7		549	2 do	dust	160	20
12	Coundon	564	6 hf-ch	bro pek fans	390	37
13		567	8 do	fans	520	31
16	Murraythwaite	576	5 ch	pek sou	425	27
17		579	2 do	bro pek fans	240	24
18		582	2 do	dust	320	19
21	K T	591	1 do	sou	100	23
22	Eladuwa	594	6 do	bro pek	600	29
23		597	5 do	or pek	475	33
25		606	2 do	mixed	260	22
30	Lameliere	618	9 hf-ch	fans	684	28
32	G W	624	5 ch	red leaf	425	27
40	Kanangama	648	9 hf ch	congou	585	23
43	Cleveland	657	9 do	pek sou	450	40
44		660	4 do	fans	320	28
45	C L	663	5 do	bro mix	300	25
54	Callander	690	5 do	pek sou	200	33 bid
55		693	9 do	bro pek fans	630	33 bid
58	Bittacy	702	5 ch	pek sou	450	39
60		708	3 do	bro mix	270	30
64	Mount Clare	720	6 do	pek sou	480	26
66		726	2 do	fans	260	22
67		729	2 do	dust	260	18
69	Bello alla	735	4 do	or pek	320	34
74		750	1 do	dust	140	18
80	Mount Everest	768	3 hf-ch	dust	300	25
81		771	2 do	bro mix	200	21
85	Kolapatna	783	2 ch	pek sou	160	27
89	Sudugangs	795	4 hf ch	pek fans	320	23
91	S G	801	1 box	pek fans	27	16
92		804	1 hf-ch	unas	57	26
93		807	1 box	unas	25	20
94		810	1 hf-ch	sou	47	27
98	Brownlow	822	10 do	bro pek fans	670	32
101	West Hall	831	6 ch	bro mix	630	17
102	Nanuoya	834	1 hf-ch	sou	52	28
03		837	3 ch	sou	279	29
110	Glentilt	858	4 do	pek sou	380	33
111		861	11 hf-ch	bro mix	660	26
16	Agra Ouvah	876	7 ch	pek sou	630	39

Lot.		Box.	Pkgs.	Name.	lb.	c.
118	Rondura	883	3 ch	bro pek	300	28
119		885	5 do	pekoe	400	29
120		888	3 do	pek sou	240	26
121		891	1 do	sou	90	24
122	Keenagaha Ella	894	5 hf-ch	bro or pek	250	34
126		906	8 ch	sou	600	27
127		909	8 hf-ch	bro pek fans	520	24
128	Murraythwaite	912	1 ch	pekoe	85	28
129		915	1 do	pek sou	85	26
130	Kolapatna	918	1 do	pek fans	120	27
131		921	1 hf-ch	pek dust	85	21
134	G F R, in est. mark	930	5 ch	pek sou	425	26
135		933	2 do	dust	260	21
136		936	5 do	fans	515	25
142	X Y Z	954	1 hf-ch	or pek	64	45
143		957	3 do	pekoe	153	48
144		960	2 do	sou	162	34
146	Caledonia	966	1 ch	bro mix	90	23
148	M N D, in est mark	972	10 hf-ch	bro tea	500	12
153	S S	987	5 ch	bro tea	550	13
157	Whyddon	999	3 do	pek sou	285	33
158		2	1 do	fans	130	29
159		5	1 do	dust	150	23
161	Gonavy	11	13 hf-ch	bro pek	650	49
163		17	3 ch	pek sou	300	30
166	Dickapittia	26	6 do	pek sou	570	29
168		32	10 hf-ch	fans	650	27
169		35	6 ch	sou	570	25
171	Alylakande	41	8 do	sou	672	26
180	G, in est. mark	68	1 do			
			1 hf-ch	red leaf	84	13
181	Farm	71	4 ch	dust	320	22
183	Delpotnaeya	77	3 do	sou	150	24
184	A	80	8 hf ch	bro tea	316	12
185	B, in est. mark	83	4 do	bro tea	220	23
186	N	86	8 do	bro tea	310	12
187	A	89	3 do	bro tea	330	12
188	P, in est. mark	92	1 ch	bro mix	87	11
189	Lunugalla	95	3 do	bro pek	300	32
190		98	8 do	pekoe	640	29
191		101	4 do	pek sou	320	26
192		104	1 do	fans	100	24

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, June 29.

"Candia."—KAS & Co., Cocoa, 42 bags sold at 73s 6d.

"Australia."—Bx KAS & Co., Cocoa, 84 bags out at 85s, 77s 5d refused.

CEYLON COFFEE SALES IN LONDON.

"Candia."—B H O O, 1 barrel sold at 60s; ditto O, 10 casks sold at 60s; ditto PB, 1 barrel and 1 cask sold at 59s.

No Cardamom sales this week.

No. 28 COLOMBO, JULY 30, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[27,227 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Meddakande	28	24	ch	bro or pek	2400	46
		31	18	do	or pek	1800	42
3		34	40	do	pek	3600	39
4		37	30	do	pek sou	2700	33
5		40	24	hf-ch	dust	2040	23
6	Manikwatte	43	53	do	or pek	2544	36
7		46	41	do	bro or pek	2378	35
8		49	55	do	pek	2200	32
9		52	63	do	pek sou	2835	28
12	F and L	61	45	ch	bro pek	4275	29 bid

Messrs. Forbes & Walker

[527,951 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	M P	3937	33	ch	sou	2805	26
2		3040	14	do	dust	1960	22
3		3043	6	do	dust No. 2	1020	17
5	Maligatenne	3049	11	ch	bro pek	1155	32
6		3052	12	do	pek	1200	28
8	Ettapolla	3058	18	hf ch	bro pek	1008	32
12	Condia	3070	19	ch	sou	1596	40
18	O B E C, in est. mark Watawela	3083	8	ch	pek sou	720	31
21	Drayton	3097	39	hf ch	or pek	1950	49
22		3100	33	ch	pek	2805	42
23		3103	11	do	pek sou	935	37
26	Carberry	3112	28	ch	bro pek	2520	37
27		3115	25	do	pek	2250	33
33	Great Valley Ceylon, in est. mark	3133	29	hf-ch	bor or pek	1595	62
34		3136	9	ch	or pek	765	48
35		3139	27	do	pek	2295	41
36		3142	21	do	pek sou	1575	36
37		3145	9	hf-ch	dust	765	29
38	Glencorse	3148	29	ch	bro or pek	2610	33
39		3151	47	do	pek	4760	31
40		3154	24	do	bro pek	1920	31
42		3160	13	do	bro tea	1430	25
45	St. Pauls	3169	66	hf-ch	bro or pek	4356	47
46		3172	99	do	pek	5742	41
47		3175	79	do	pek sou	3792	36
48		3178	59	do	dust	3237	28
49	Ireby	3181	15	ch	bro pek	1500	56
50		3184	15	do	pek	1350	47
52	D, n estate mark	3190	15	hf ch	fans	825	17
54	Ismalle	3196	12	ch	sou	960	25
55		3199	16	hf ch	fans	1200	24
56		3202	27	do	dust	2295	22
58	L	3208	13	do	bro or pek	845	out
60		3214	11	ch	pek sou	990	out
62		3220	18	do	pek dust	1670	out
66	Palm Garden	3232	7	ch	bro pek	770	33
67		3235	8	do	pek	800	30
68		3238	9	do	pek sou	810	27
70	O B E C, in est. mark, Forest Creek	3244	25	ch	bro or pek	2500	78
		3247	33	do	bro pek	3360	6
72		3250	16	do	or pek	1440	49
73		3253	21	do	pek No. 1	1890	44
74		3250	23	do	pek ,, 2	2070	43
75	Roeberry	3356	38	ch	bro or pek	3800	57
76		3262	74	do	bro pek	7400	49
77		3265	83	do	pek	7636	42
78		3268	26	do	pek sou	2236	33
80		3274	11	do	fans	1100	35
81	K, in estate mark	3277	23	ch	red leaf	2300	19
85	Anningkande	3289	16	ch	bro pek	1600	37
86		3292	20	do	pek	1900	33
87		3295	17	do	pek sou	1530	23
88	Tymawr	3298	21	hf ch	or pek	1050	53
89		3301	24	do	bro or pek	1200	76
90		3304	30	do	pek	1350	45
91		3307	26	do	pek sou	1170	39
93	North Cove	3313	12	ch	sou	1260	22
94	Deaculla	3316	17	do	pek	1190	37
95		3319	41	ch	pek sou	2870	32
96		3322	19	hf-ch	dust	1520	25
97	Malvern	3325	32	do	bro pek	7 0	51
98		3328	30	ch	pek	2100	40
99		3331	28	do	pek	1960	35
104	Ella Oya	3343	24	ch	pek	1920	32
105		3349	29	do	pek sou	2320	30
107		3355	9	hf ch	dust	720	21
108	Kennington	3358	10	ch	bro pek fans	1098	24
109		3261	13	do	nnas	1170	25
114	P G A	3376	13	ch	sou	910	29
116	New Galway	3332	7	ch	bro pek	770	72
117		3385	8	do	pek	800	50
118	Kirklees	3388	42	hf ch	bro or pek	2520	46
119		3391	39	ch	or pek	3510	41
120		3394	51	do	pek	4590	38
121		3397	40	do	pek sou	3200	34
125	Pallagodda	3409	12	ch	bro or pek	1200	34
126		3412	16	do	bro pek	1600	44
127		3415	18	do	or pek	1530	37
128		3418	11	do	pek	880	36
129		3421	17	do	pek sou	1530	35
130		3424	11	do	sou	935	29
131		3427	25	hf ch	dust	2125	22
133	Galkadua	3433	19	ch	bro pek	1900	32
134		3436	26	do	pek	2340	30
135		3439	21	do	pek sou	1940	27
140	Rozelle	3454	27	hf ch	pek sou	1215	28
141		3457	11	do	dust	880	21
142	Queensland	3460	15	hf-ch	bro or pek	750	77
144		3466	41	ch	pek	3690	42
145		3469	8	do	pek sou	720	38
151	Patiagama	3487	28	do	pek	2240	36
152		3490	9	do	pek sou	720	32
153	Ouvahkellie	3493	20	ch	pek sou	1800	39
154		3496	9	hf-ch	dust	720	24
156	C L, in estate mark	3502	27	do	bro or pek	1670	40
162	T'Villa	3520	24	ch	bro or pek	2400	32
163		3523	16	do	or pek	1440	29
164		3526	39	do	pek	3120	28
165		3529	12	do	pek No. 2	960	26
166		3532	12	do	pek sou	960	24
169	St. H, in est. mark	3541	16	ch	pek sou	1440	35
173	Doranakande	3553	12	ch	pek sou	1080	28
175	Gallawatte	3559	17	ch	bro pek	1530	26
176		3562	18	do	bro pek	1620	35
177		3565	17	do	pek	1360	30
179		3571	17	do	pek sou	1360	27
183		3583	9	do	fans	720	20
185	Rowley	3589	58	hf ch	bro pek	2900	50
186		3592	62	do	pek	3100	38
187	O'Bodde	3595	12	ch	bro pek	1320	35
188		3598	9	do	or pek	900	31
189		1	10	do	pek	950	35
201	Passara Group	37	20	ch	or pek	1800	43
202		40	16	do	bro or pek	1600	47
203		43	20	do	pek	1800	40
205	Passara Group	49	20	ch	or pek	1800	43
206		52	11	do	bro or pek	1100	53
207		55	18	do	pek	1620	40
208		58	7	do	pek sou	700	35
210	Palmerston	64	14	hf-ch	bro or pek	728	75
211		67	14	do	bro pek	728	60
212		70	10	ch	pek	850	52
214	Culloden	76	20	hf ch	or pek	1040	37
215		79	7	ch	pek	700	32
216	Penrhos	82	32	hf-ch	bro or pek	1856	52
217		85	30	do	or pek	1470	46
218		88	38	ch	pek	3344	37
219		91	14	do	pek sou	1120	33
221	Parsloes	97	63	do	bro pek	6300	43
222		100	36	do	pek	3240	36
225	Vogan	109	16	ch	bro or pek	1760	33
226		112	32	do	or pek	3040	44
227		115	77	do	pek	6160	34
228		118	22	do	pek sou	1870	30
229	Dehiowita	121	68	ch	sou	5440	27
230		124	12	do	fans	1440	23
231	Penrhos	127	30	hf-ch	bro or pek	1710	55
232		130	17	do	or pek	884	47
233		133	25	ch	pek	2200	38
234		136	11	do	pek sou	880	33
236	Macaldenia	142	22	hf ch	bro pek	1210	47
238		148	33	do	pek	1650	33
244	Stamford						

Lot.		Box.	Pkgs.		Name.	lb.	c.
	Hill	166	42	hf-ch	bro pek	2520	55
245		169	30	do	or pek	1350	59
246		172	27	ch	pek	2430	43
247		175	11	do	pek sou	935	33
252	V, in estate mark	190	13	do	pek sou	1170	30
255	Karabusnawa	199	12	ch	bro pek	1200	39
260	Pallawatte	214	14	do	bro pek	1400	18
265	Kenmare	229	26	do	bro or pek	2626	48
266		232	31	do	bro or pek	3255	47
267		235	22	do	pek	1914	44
268		238	20	do	pek sou	1620	39
270	Udapolla	244	10	do	bro pek	1000	34
271		247	17	do	pek	1530	30
279	Elfindale	271	34	do	fans	3660	8 bid
280	O	274	10	do	fans	918	8 bid
281	Graceland	277	39	do	bro pek	2145	31
282		280	24	hf-ch	pek	1200	28
286	P N S in est. mark	292	25	ch	pek sou	2508	26
288	York	298	15	do	pek	1153	27
289		301	11	do	pek sou	1034	25
292		310	12	hf-ch	pk fans	780	16
293		313	11	do	pek dust	963	18
295	Monkswood	319	18	do	bro pek	900	77
296		322	20	do	or pek	1000	65 id
297		325	12	do	pek	1140	55
298	Gonapatiya	328	39	do	bro pek	2379	71
299		331	60	do	or pek	2760	57
300		334	75	do	pek	3450	49
301		337	36	do	pek sou	1620	44
302	Tillyrie	340	11	ch	pek fans	1320	28
303	Broadoak	343	26	do	sou	2210	24
304		346	12	do	pk fans	1500	23
305		349	9	do	fans	990	18
306		352	13	do	br pek dust	2015	16 bid
308	Marlborough	358	40	hf-ch	bro or pek	2000	60
309		361	9	ch	or pek	702	46
310		364	25	do	pek	2200	41
311		367	9	do	pek sou	765	35
314	Torwood	376	90	do	bro pek	7740	37
315		379	58	do	pek	4524	32
316		382	36	do	pek sou	2592	30
317		385	38	do	sou	2964	26
319		391	30	hf-ch	bro pek	1650	47
320		394	40	do	pek	2000	40
321		397	17	do	pek sou	765	35
323	Clyde	403	33	ch	bro pek	2904	47
324		406	26	do	pek	2184	37
325		409	9	do	pek sou	810	33
327		415	11	do	bro or pek	1265	37
328	S P	418	8	do	bro or pek	840	32
332		430	23	hf-ch	pk fans	1495	23
337		445	21	do	pek dust	1890	19
338	Queensland	448	18	do	bro pek	900	58
339		451	16	do	bro pek	800	57
341	Digdola	457	21	ch	pek	1470	29
344	Tembiligalla	466	29	hf-ch	bro or pek	1740	39
345		469	13	ch	pek	1170	33
348	Loinorn	478	24	do	or pek	2157	63 bid
349	Memorakande	481	18	do	dust	2700	16
352	Yaha Ella	490	8	do	bro pek	780	34
353		493	20	do	pek	1570	30
357	G navy	505	13	hf-ch	dust	975	22 bid
359	A F and R W	511	10	ch	sou	930	25
360	Geragama	514	14	do	bro pek	1400	36
361		517	15	do	pek	1350	32
362		520	12	do	pek sou	1020	28
364	Coltaganga	526	10	do	pek	900	27
365		529	13	hf-ch	dust	975	20
366	Harrow	532	7	ch	or pek	700	55
367		535	10	do	bro or pek	1050	63
368		538	32	do	pek	2080	43
369		541	9	do	pek sou	765	37
371	M'Kande	547	89	hf-ch	pek sou	4450	28
372	Inverness	550	54	do	bro or pek	3240	41 bid
373	Cullen	553	36	ch	bro or pek	3852	48 bid
374		556	40	do	or pek	3600	41
375		559	24	do	pek	2280	39
377	H G M	565	22	hf-ch	bro or pek	1320	48
379	•	571	21	ch	bro pek	1680	36 bid
380		574	20	do	pek	1400	34
381		577	13	do	pek sou	345	31
385	W N	589	26	do	bro tea	2430	23
386	Springwood	592	20	do	congou	1600	28
389	High Forest	601	43	hf-ch	or pk No. 1	2408	78
390		604	28	do	or pek	1484	63
391		607	28	do	bro or pek	1960	44
392	Polatagama	610	50	ch	bro pek	4500	37
393		613	30	do	or pek	2550	32
394		616	83	do	pek	7055	30
395		619	21	do	pek sou	1680	27
396		622	19	do	fans	1330	26
397		625	21	do	bro mixed	1890	22
398		628	5	do	dust	750	18
401	Bloomfield	637	7	do	unast	700	30
402	Erracht	640	13	do	bro or pek	1235	34
403		643	11	ch	bro pek	880	33
404		646	20	do	pek	1600	30
405		649	14	do	pek sou	1120	29
406		652	11	do	bro pk fans	1166	23
409	W in est mark	661	11	do	bro tea	990	19
410	Battawatte	664	41	do	bro or pek	4510	41
411		667	28	do	pek sou	2240	31
415	Fairlawn	679	24	hf-ch	bro pek	1200	68
417		685	16	ch	pek	1360	43
421	Carfax	697	14	do	bro or pek	1400	54
422		700	16	do	or pek	1440	44
423		703	14	do	bro pek	1540	41
424		706	16	do	pek	1440	43

Messrs. Somerville & Co.—259,350 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Ukuwela	922	8	ch	bro tea	720	11 bid
2	D	925	10	ch	bro pek	1000	30 bid
3		928	8	do	pek	760	29
17	Honiton	970	25	ch	bro pek	2375	34
18		973	29	do	pek	2320	31
19		976	29	do	pek sou	2175	29
30	Fairfield	1009	12	ch	pek sou	1140	41
32		1015	13	hf ch	fans	910	28
33	Nillicollay-watte	1018	33	ch	bro pek	1980	35
34		1021	22	do	pek	1760	35
35		1024	15	do	pek sou (venesta)	1050	31
39	Ladysmith	1036	25	ch	bro pek	2375	34
40		1039	20	do	pek	1560	31 bid
41	K G	1042	8	ch	sou	752	25
42	Tientsin	1045	12	ch	pek sou	1020	40
45	Merantenne	1054	15	hf ch	pek	750	32
48	Narangoda	1063	28	ch	bro pek	2600	37
49		1066	37	do	pek	2515	32
50		1069	21	do	pek sou	1890	29
52		1075	32	do	or pek	3	3
55	I P	1084	13	ch	pek sou	1530	28
64	New Valley	1111	9	ch	bro or pek	4500	56
			60	hf-ch			
65		1114	51	do	or pek	2805	46
66		1117	27	ch	pek	2565	41
67		1120	23	do	pek sou	2015	39
			1	hf ch			
70	N I T	1129	23	ch	unas No. 2	1955	25
73	Gwernet	1138	9	ch	pek sou	8 0	30
78	Lawrence	1153	11	ch	pek sou	825	34
81		1162	18	do	pek sou	1260	34
82	Lonach	1165	77	hf-ch	bro pek	4235	44
83		1168	32	ch	pek	2560	35
84		1171	16	do	pek sou	1280	32
85	Mahalla	1174	33	hf ch	bro pek	1650	36
86		1177	10	ch	pek	800	31
90	Nuawella	1189	43	hf ch	bro pek	2365	36
91		1192	57	do	pek	2508	33
92		1195	10	ch	pek sou	800	29
98	Pallagodda	1213	24	ch	bro or pek	2 00	31 b
99	Oonankande	1216	12	ch	bro pek	1140	58
100		1219	10	do	pek	850	36
101		1222	10	do	pek sou	800	32
102		1225	14	do	sou	930	29
104	Mousakande	1231	14	hf-ch	bro or pek	812	33
106		1237	10	ch	sou	800	29
110	ilpita	1249	31	ch	bro pek	3100	33
111		1252	24	do	pek	2280	31
112		1255	10	do	pek sou	950	28
117	Genap tiya	1270	48	hf-ch	or pek	2688	54 bid
118	Panmure	1273	12	ch	pek sou	1020	32
119		1276	21	hf-ch	bro or pek fans	1575	30
120		1279	10	do	dust	1000	24
121	H	1282	23	ch	bro or pek	2300	74 bid
122	Columbia	1285	47	hf ch	pek	2162	38
128	S F O A	1303	10	hf ch	pek fans	850	24
129		1306	23	ch	bro sou	2300	12 bid
130		1309	9	hf ch	dust	810	21
131	Rahatungoda	1312	23	do	bro or pek	1150	59
132		1315	17	do	bro pek	1029	50
133		1318	80	do	pek	4000	43
134		1321	26	do	dust	2080	29
135	B R L, in estate mark	1324	87	ch	bro pek	6431	26 bid
136	Keladeniya	1327	8	ch	pek	720	30
141	Galphele A	1342	21	ch	bro or pek	2100	34
142		1345	23	do	bro pek	2300	33
143		1348	18	do	pek	1620	31
144	Do B	1351	14	ch	pek	1260	29
147		1360	9	do	fans	1305	18
150	Wariatenne	1369	45	ch	bro pek	4275	31
151		1372	38	do	pek	3610	31
152		1375	50	do	pek sou	4000	28
153	A Y	1378	16	ch	bro pek	1600	25 bid
154	D M	1381	31	hf ch	bro pek	1705	27 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
155	Kosgahahena	1384	17 ch	bro pek	1870	28 bid
156		1387	21 do	pek	2100	27
161	B B	1402	20 ch	sou	1700	11 bid
162	Harangalla	1405	19 ch	bro pek	1710	41
163		1408	19 do	pek	1615	34
164		1411	12 do	sou	1020	28
165	Agra Elbedde	1414	31 hf ch	bro or pek	1860	60
166		1417	43 do	or pek	2150	50
167		1420	60 do	pek	2700	41 bid
168		1423	27 do	pek sou	1080	40
170	Amhalawa	1429	12 hf ch	pek fans	720	22
171		1432	17 do	pek	765	30
172		1435	19 do	pek sou	760	28
173	Panmure	1438	27 hf ch	bro or pek	1620	55
174		1441	42 do	or pek	2310	44
175		1444	58 do	pek	2900	38
176	Nehode	1447	15 ch	bro or pek	1500	33
177		1450	49 do	bro pek	4900	33
178		1453	13 do	pek	1170	29
179		1456	18 do	pek sou	1440	27
181	Lyndhurst	1462	62 hf ch	bro pek	3410	24
182		1465	60 do	pek	3000	27
183	Lahaduwa	1468	12hf-ch	bro pek	737	38
185		1474	16 do	pek sou	875	28
187	F, in estate mark	1480	17 ch	bro pek	1700	22 bid
188		1483	18 do	pek	1620	25 bid
189		1486	12 do	pek sou	1140	20 bid
190		1489	15 do	sou	1200	10 bid
191	Mossville	1 92	8 ch	bro pek fans	800	25
192		1495	17 do	sou	1360	26
193		1498	9 hf ch	dust	810	18
195	Hopewell	1504	35 hf-ch	bro or pek	2310	50
196		1507	35 do	or pek	2065	43
197		1510	38 ch	pek	3610	39
198		1513	21 do	pek sou	1785	36
200		1519	16 hf ch	bro pek fans	1072	32
203	Maddegedera	1528	18 ch	bro pek	1710	36
204		1531	29 do	or pek	2610	33
205		1534	28 do	pek	2240	31
206		15 7	52 do	pek sou	3640	29
207		1540	11 do	bro pek fans	1100	27
209	Wilford	1546	20 ch	pek	2000	28
210		1549	15 do	sou	1145	11
211	W H R	1552	19 hf-ch	dust	1330	21
212	Polgahakande	1555	26 ch	bro pek	2470	34
213		1558	21 do	pek	1890	30
214		1561	23 do	pek sou	1840	28
215		1564	6 do	dust	900	18
223	Munaar	1588	67 hf ch	pek	3082	34

[Mr. E. John.—177,512 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
4	Pitadeniya	116	10 ch	pek sou	800	30
5	P W	119	20 do	pek sou	1800	32 bid
6	L W Ceylon	122	50 hf ch	bro pek	2250	13
7		125	30 do	pekoe	1350	11
10	Eila	134	21 ch	bro or pek	1890	35
11		137	26 do	bro pek	2080	32
12		140	12 do	pekoe	1020	29
13		143	13 do	pek sou	975	27
16	Mocha	152	24 do	bro or pek	2400	78
17		155	12 do	or pek	1020	61
18		158	33 do	pekoe	2970	54
19		161	12 do	pek sou	960	46
20		164	14 hf ch	fans	1050	33
23	Perth	173	25 ch	bro or pek	2500	36 bid
24		176	41 do	bro pek	3485	31 bid
25		179	18 do	pekoe	1350	35
26		182	13 do	pek sou	975	33
28	Gingranoya	188	26 hf-ch	bro pek	1430	47
29		191	20 do	bro or pek	1000	40
30		194	12 ch	pekoe	1140	36
31		197	10 do	pek sou	900	34
38	Glasgow	218	31 do	bro or pek	2720	56
39		221	15 do	or pek	10 0	56
40		224	18 do	pekoe	1116	46
41		227	12 do	pek sou	960	44
42	Agra Ouvah	230	24 hf-ch	bro or pek	1488	75
43		233	49 do	bro pek	2940	54
44		236	30 do	pekoe	1590	47
45	Mahanilu	239	10 ch	or pek	900	50
46		242	47 hf-ch	bro or pek	2538	49
47		245	19 ch	pekoe	1672	41
48		248	22 do	pek sou	1870	37
49		251	8 hf-ch	dust	720	23
51	Kotuagedera	257	30 ch	bro pek	3000	34
52		260	18 do	pekoe	1710	31
53	Troup	263	29 do	pek sou	2610	38
54		266	12 do	bro mix	1200	28
55	G B	269	7 do	bro pek	700	32
56		272	9 do	pekoe	720	30
58		278	16 hf ch	fans	1120	24
60	Y	284	9 ch	red leaf	810	24
63	Gangawatte	293	17 do	fans	2040	20

Lot.		Box.	Pkgs.	Name.	lb.	c.
64	M G	296	16 hf-ch	fans	1152	29
63	Galella	302	11 ch	bro pek	1100	44
57		305	10 do	pekoe	850	40
69	Batwatte	311	43 do	bro pek	4300	36
70		314	44 do	pekoe	3960	31
71		317	9 do	pek sou	720	28
72	N	320	7 hf-ch 1 ch	dust	702	27
74	West Hall	326	8 do	bro mix	840	17
78	Ovoca	338	30 hf-ch	bro or pek	1500	71
79		341	22 do	or pek	990	62
80		344	33 do	pekoe	1485	43
81		347	30 do	pek sou	1350	39
82	Anchor, in est mark	350	17 do	bro or pek	1020	66
83		353	20 do	or pek	900	58
84		356	23 ch	pekoe	1035	44
85		359	33 hf-ch	pek sou	1650	41
86	Warleigh	362	12 do	or pek	720	65
94	S J	386	20 ch	bro pek	1100	59
95		389	17 do	pekoe	918	45
96	Vincit	392	18 do	bro pek	1620	34
97		395	13 do	pekoe	1170	30
99		401	10 do	pek fans	1100	27
102	Poilakande	410	31 do	bro pek	3100	35
103		413	17 do	pekoe	1530	33
104	Glassaugh	416	15 hf-ch	or pek	750	77 bid
105		419	16 do	bro or pek	1040	60
106		422	14 ch	pekoe	1260	53
111	W H R	437	7 do	dust	700	22
118	X Y Z	458	35 do	pek sou	2800	29
119	Rookwood	461	19 do	bro or pek	2204	42 bid
129	Galloola	491	27 do	bro pek	2700	53
130		494	48 do	pekoe	4320	41
131		497	37 do	pek sou	2960	37
133		503	9 do	fans	900	36
138	Little Valley	518	13 do	bro pek	1300	42
142	Dalhousie	530	16 hf-ch	bro pek	880	62
143		533	25 do	pek No. 1	1125	40
144		536	18 do	pek No. 2	810	36
147	Little Valley	545	14 ch	bro pek	1400	41
148		548	20 do	pekoe	1700	39
152	Rookwood	560	82 hf ch	bro or pek	4510	46 bid
154	Oakwell	566	11 ch	bro pek	1287	43
155		569	10 do	pekoe	1010	41
159	K G E	581	23 hf-ch	or pek	1150	43
160		584	13 ch	bro pek	975	39
161		587	11 do	pekoe	970	38
162		590	18 do	pek sou	910	35
163		593	9 do	sou	705	31
168	Maryland	608	10 do	bro pek	1050	33
169		611	10 do	pekoe	1000	30
170	Maskeliya	614	29 hf-ch	bro or pek	1450	62
171		617	65 do	or pek	3250	40
172		620	27 ch	pekoe	2160	36
173		623	10 do	pek souNo.1	1000	34
174		626	7 do	pek sou No.2	700	32
179	Bellongalla	641	20 do	pekoe	1600	31
180		644	9 do	fans	900	33
181		647	10 do	pek sou	800	27

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
10	Manikwatte	55	3 hf ch	dust	255	21
		58	2 ch	red leaf	200	19

[Messrs. Forbes & Walker

Lot.		Box.	Pks.	Name.	lb.	c.
4	Maligatenne	3046	1 ch	bro or pek	95	35
7		3055	6 do	pek sou	570	27
9	Ettapolla	3061	8 hf ch	pek	448	30
10		3064	3 do	pek sou	168	28
11		3067	1 do	dust	60	20
13	Condia	3073	4 ch	bro mix	336	24
14	Cooroondoowatte	3076	7 hf-ch	bro pek	420	49
15		3079	13 do	pek	650	40
16		3082	12 do	pek sou	660	34
17		3085	4 do	congou	240	26
19	O B E C, in estate mark Watawella	3091	6 hf ch	fans	450	28
20		3 94	5 do	dust	475	22
24	Drayton	3106	2 ch	fans	160	27
25	Carberry	3109	2 ch	bro or pek	220	32
28		3 18	3 do	pek sou	270	28
29		3121	2 do	bro tea	180	26
30		3124	4 do	dust	560	18
31	G K	3127	3 ch	bro tea	270	26
32		3130	2 do	dust	280	25

Lot		Box.	Pkgs.	Name.	lb.	c.
41	Glencorse	3157	4 ch	bro pek	360	33
43		3163	4 do	dust	660	18
44	M P,	3166	1 ch	dust No. 2	170	18
51	D, in estate mark	3187	6 hf-ch	sou	270	20
53		3193	6 do	dust	480	19
57	Ismalle	3205	8 ch	congou	610	24
59	L	3211	2 do			
			4 hf ch	pek	420	out
61		3217	9 do	pek fans	550	out
63	S K M	3223	1 ch	bro pek	90	31
64		3226	2 do	pek	170	29
65		3229	1 do	pek sou	100	26
69	Palm Garden	3241	1 do	congou	100	24
79	Roeberry	3271	5 do	dust	500	21
82	B B, in estate mark	3280	2 ch	bro pek	220	29
83		3283	2 do	pek	200	29
84		3286	2 do	dust	240	21
92	M	3310	2 ch	bro mix	212	22
100	Malvern	3331	7 hf-ch	dust	560	23
101	B F B	3337	3 ch	unas	261	28
102	Ella Oya	3340	6 do	bro or pek	600	51
103		3343	6 do	bro pek	510	40
106		3352	9 hf-ch	bro or pek fans	585	31
110	Kennington	3364	4 ch	dust	660	22
111	P G A	3367	3 hf ch	bro pek	162	40
112		3370	3 do	pek	135	32
113		3373	2 do	pek sou	86	31
115		3379	4 do	fans	312	22
122	K, in estate mark	3400	6 ch	bro pek	630	27
123		3403	2 do	pek	200	25
124		3406	3 do	dust	360	16
132	Galkadua	3430	3 ch	bro or pek	315	34
136		3442	4 do	bro mix	400	17
137		3445	2 do	congou	200	24
138		3448	1 do	dust	205	17
139		3451	3 do	fans	330	24
146	Queensland	3472	2 hf ch	bro pek dust	160	26
148	Patiagama	3478	11 do	bro or pek No. 1	605	54
149		3481	4 do	bro or pek No. 2	220	45
150		3484	8 ch	or pek	680	38
155	Ellamullie	3499	10 bag	red leaf	513	16
157	Uragalla	4505	6 ch	bro pek	450	33
58		3508	6 do	pek	510	29
159		3511	3 do	pek sou	240	27
160		3514	2 do	bro pek fans	130	24
161		3517	1 do	dust	120	22
167	T'Villa	3535	3 ch	fans	360	20
168		3538	1 do	fans	118	19
170	St. H, in est. mark	3544	5 ch	fans	435	24 bid
171	Doranakande	3547	6 ch	bro pek	600	35
172		3550	6 do	pek No. 2	540	29
174		3556	1 do	dust	115	18
178	Gallawatte	3568	7 do	pek	560	30
180		3574	3 do	sou	240	26
181		3577	9 hf ch	pek fans	630	33
182		3580	5 do	dust	425	19
184		3586	2 ch	red leaf	160	26
190	O'Bodde	4	4 ch	pek sou	340	27
191	Kabragalla	7	12 hf ch	bro tea	660	17
192		10	8 do	dust	680	21
193		13	1 do	bro or pek	40	44
194	Dromoland	16	4 do	or pek	220	38
195		19	1 ch	red leaf	75	12
196		22	3 do	red leaf	255	14
197		25	1 hf-ch	red leaf	60	15
198	K W	28	2 ch	dust	300	21
199	C N	31	5 do	fans	560	19
200		34	5 do	bro tea	500	21
204	Passara Group	46	1 h ch	fans	75	24
09	Passara Group	61	1 do	fans	70	23
213	Culloden	73	9 hf ch	bro or pek	490	49
220	Penrhos	94	5 do	fans	390	25
223	Parsloes	103	8 ch	pek sou	640	31
224		106	3 do	dust	270	21
235	Penrhos	139	3 hf-ch	fans	234	23
237	Macaldenia	145	11 hf ch	or pek	550	41
239		151	11 do	pek sou	550	33
240		154	9 do	fans	495	30
241		157	4 do	unas	200	30
242		160	6 do	bro tea	330	24
243		163	3 do	dust	255	20
248	Stamford Hill	178	5 hf ch	dust	425	26
249	V, in estate mark	181	6 ch	bro or pek	600	41
250		184	4 do	or pek	340	36
251		187	7 do	pek	560	35
53		193	8 ch	dust	640	20
254		196	1 do	bro tea	105	23
256	Karabusnawa	202	5 ch	pek	500	30
257		205	3 do	pek sou	270	27
258		208	2 do	sou	100	26
259		211	1 do	dust	80	21
261	Pallawatte	217	6 do	pek	600	30
262		220	4 do	pek sou	360	28
263		223	2 do	souchong	100	26
264		226	2 do	dust	160	20
269	Udapolla	241	7 do	or pek	630	33
272		250	5 do	pek sou	450	28
273		253	2 hf-ch	dust	160	20
274	Maligatenne	256	4 ch	bro pek	400	27
275		259	5 do	pek	475	26
276		262	3 do	pek sou	270	24
277		265	5 do	fans	550	24
278		268	1 do	dust	130	16
283	Graceland	283	13 hf-ch	pek sou	650	26
284		286	1 do	congou	45	23
285		289	3 do	dust	225	18
287	York	295	3 do	bro pek	165	28
291		307	7 do	br tea	350	8 bid
294		316	8 do	dust	680	16
307	Broadoak	355	2 ch	dust	312	18 bid.
312	Marlborough	370	5 do	pek fans	550	27
313		373	1 do	br pek dust	166	18
318	Corfu	383	10 hf-ch	or pek	500	45
322		400	7 do	bro pek fans	525	26
326	Clyde	412	2 ch	dust	300	23
329	S P	421	5 ch	br pek	500	31
330		424	6 do	pek	540	28
331		427	1 hf-ch	pek	50	27
333		433	6 ch	pek sou	510	25
334		436	1 hf-ch	pek sou	40	24
335		439	6 ch	fans	600	12
336		442	2 hf-ch	fans	55	11
340	Tigdola	454	8 ch	br pek	676	34
342		460	5 do	pek sou	411	26
343		463	2 do	dust	280	20
346	Tembiligalla	472	2 do	pek sou	180	31
347		475	1 do	br pk fans	130	23
350	Memorakande	484	1 do	bro mixed	94	11
351	Yaha Ella	487	3 do	bro or pek	330	36
354		496	6 do	pek son	540	28
355		99	1 do	dust	100	17
356		502	1 do	pek fans	85	22
358	N F	508	1 do	sou	67	24
363	Cottaganga	523	4 do	br pek	400	27
370	Harrow	544	2 do	fans	290	25
376	Cullen	562	5 hf-ch	pek dust	435	22
378	H G M	568	7 hf-ch	or pek	490	41
382		580	5 ch	br pk fans	500	28
383		583	6 hf-ch	dust	540	19
384		506	2 do	bro tea	200	17
387	K H L	595	3 ch	bro mixed	195	16
388	C C C	598	2 do	red leaf	170	16
399	Bloomfield	6 1	6 do	pek sou	570	39
400		634	4 do	pek fans	320	23
407	Erracht	655	2 do	br mixed	140	18
408		658	2 do	dust	207	16
412	S V	670	1 hf-ch	bro or pek	65	40
413		673	1 ch	pek	97	32
414		676	3 do	bro mixed	300	26
416	Fairlawn	682	8 do	or pek	640	43
418		688	9 do	pek sou	675	37
419	F L in est. mark	691	3 do	bro mixed	300	19
420		694	2 do	dust	170	23

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	P P P	107	3 ch	bro pek	292	33
2		110	4 do	pekoe	331	31
3		113	4 do	pek sou	321	26
8	L W Ceylon	128	12 hf-ch	sou	480	10
9		131	6 do	dust	330	10
14	Eila	146	4 ch	fans	400	27
15		149	2 do	dust	220	21
21	Mocha	167	3 hf-ch	dust	270	22
22		170	4 ch	pek sou No.2	340	34
27	Perth	185	3 do	pek dust	435	22
32	G E	200	1 hf-ch	or pek	55	42
33		203	10 do	pekoe	500	36
34		206	2 do	pek fans	120	36
50	Mahanilu	254	10 do	fans	680	32
57	G B	275	5 do	dust	450	22
59		281	3 ch	bro mix	270	15
61	Elston	287	4 do	congou	420	18
62	S	290	4 do	bro mix	360	18
65	M G	299	2 do	bro mix	146	10
68	Galella	303	6 do	pek sou	510	34
73	N	323	1 do	pekoe	100	28
75	Galella	320	2 do	dust	200	23
76		332	2 do	sou	170	30

Lot.		Box.	Pkgs.	Name.	lb.	c.
77		335	3 bags	red leaf	147	17
87	Danwella	365	1 ch	or pek	84	31
88		368	1 do			
			1 hf-ch	pek fans	165	24
89	D	371	1 ch	bro pek	91	30
90		374	3 do	pekoe	254	28
91		377	1 hf-ch			
			1 ch	pek fans	154	24
92		380	1 do			
			1 hf-ch	dust	118	18
93		383	2 do	red leaf	1 3	16
95	Vincit	398	5 ch	pek sou	450	25
100		404	2 do	dust	300	16
101		407	3 do	red leaf	330	12
107	Glassaugh	425	6 hf-ch	dust	570	28
108	W H	428	11 do	bro pek	660	32
109		431	4 do	pekoe	200	29
110		434	4 do	dust	360	26
112	W H R	440	3 ch	fans	270	12
113	W P	443	1 hf ch	unas	43	26
114		446	1 do	sou	45	26
115	Nel Villa	449	10 do	bro pek	500	32
116		452	10 do	pek e	500	25
117		455	4 do	pek sou	66	22
120		464	8 do	bro pek	400	33
121		467	8 do	pekoe	400	25
122		470	4 do	pek sou	200	22
123		473	1 do	bro pek dust	70	21
124	Mahagaliatenne	476	5 ch	bro pek	500	28
125		479	2 do	pekoe	200	27
126		482	2 do	pek sou	200	25
127		485	2 do	fans	200	18
128		488	1 hf-ch	dust	100	14
132	Calloola	500	3 ch	dust	300	27
134	Ravenswood	506	1 hf-ch	or pek	61	52
135		509	1 ch	bro pek	93	41
136		512	1 hf-ch	pekoe	63	37
137		515	1 ch	pek sou	81	33
139	Little Valley	521	2 do	pekoe	180	31
140		524	1 do	sou	70	29
141	Dalhousie	527	11 hf-ch	or pek	495	50
145		539	7 do	fans	420	33
146	BT, in est. mark	542	11 do	bro mix	550	16 bid
149	Little Valley	551	2 ch	pek sou	150	31
150		554	4 hf-ch	dust	340	21
151		557	4 ch	fans	400	26
153	Anamallai	563	3 hf-ch	dust	255	18
156	Oakwell	572	4 ch	pek sou	372	35
157		575	1 do	fans	72	23
158		578	1 do	dust	87	22
161	K G E	596	7 hf-ch	bro pek fans	420	39
165		599	1 do	dust	90	19
166	Marakona	602	2 ch	dust	300	16
167		605	1 do	red leaf	100	15
175	Maskeliya	629	7 hf-ch	bro pek fans	420	37
176		632	3 do	dust	270	23
177		635	1 do	pek fans	70	24
178	Bellongalla	638	5 ch	bro pek	500	36

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	D	931	5 ch	pek seu	450	27
5		934	1 do	bro pek dust	80	18
6		937	1 do	con	60	25
7	Glenalla	940	2 ch	dust	280	16
8		943	1 do	fans	95	16
9	Hanwelle	946	7 hf ch	bro pek	350	29
10		949	7 do	or pek	385	28
11		952	2 do	dust	120	18
12	Bope	955	6 hf ch	bro pek	300	29
13		958	3 do	or pek	165	29
14	Galatotta	961	5 ch	bro pek	500	28
15		964	2 do	pek	200	27
16		967	1 do	pek sou	90	26
20	Honiton	979	5 ch	fans	550	22
21	F F, in estate mark	982	10 hf-ch	bro pek	550	31
22		985	5 do	pek	250	28
23		988	4 do	pek sou	180	26
24		991	1 do	bro pek fans	65	20
25		994	7 do	bro pek	385	30
26		997	4 do	pek	200	27
27		1000	6 do	pek sou	270	26
28		1003	1 do	bro pek fans	65	18
29		1006	3 do	bro mix	150	24
31	Fairfield	1012	3 hf-ch	dust	285	24
36	Nillicollay-watte	1027	1 hf ch	sou	42	20
37		1030	2 do	dust	170	22
38		1033	1 do	fans	60	
43	Tientsin	1048	4 ch	dust	560	22
44	Morant nne	1051	12 hf ch	bro pek	660	35
46		1057	1 do	sou	60	25
47		1060	2 do	dust	160	20
51	Narangoda	1072	5 hf ch	dust	425	19

Lot.		Box.	Pkgs.	Name.	lb.	c.
53		1078	2 ch	sou	180	22
54		1081	4 hf ch	unas	191	21
56	I P	1087	5 hf ch	dust	430	20
57	Sargaly Tuppe	1090	1 ch	pek dust	180	23
			1 hf ch			
58		1093	1 do	red leaf	40	17
59	F, in estate mark	1096	6 ch	sou	408	32
60		1099	4 hf ch	dust	296	20
61	Batgodde B	1102	4 ch	bro pek	456	55
62		1105	4 do	pek	368	41
63		1108	2 do	pek No. 2	182	37
68	N I T	1123	2 ch	dust	260	19
			1 hf ch			
69		1126	4 ch	unas No. 1	400	26
71	Gwernet	1132	6 ch	bro pek	600	27
72		1135	5 do	pek	475	3
74		1141	4 do	dust	400	20
75	Lawrence	1144	2 ch	bro or pek	164	50
76		1147	2 do	or pek	200	41
77		1150	2 do	pek sou	160	37
79		1156	3 hf ch	or pek	150	41
80		1159	7 ch	pek	525	37
87	Mahalla	1180	9 ch	pek sou	675	29
88		1183	5 do	pek sou No. 2	350	26
89		1186	2 do	dust	222	20
93	Nugawelia	1198	5 hf ch	dust	400	19
94		1201	4 ch	bro mix	320	10
95	L E, in estate mark	1204	2 ch	bro pek	190	25
96		1207	1 do	pek	90	27
97		1210	2 hf ch	dust	150	20
103	Oonankande	1228	4 hf ch	dust	240	22
105	Mousakande	1234	6 hf ch	bro pek	312	33
107	Glenalla	1240	4 ch	dust	560	19
108		1243	3 do	fans	270	19
109		1246	1 do	bro mix	100	15
113	Wilpita	1258	1 ch	con	95	23
114		1261	6 do	fans	600	23
115		1264	2 do	dust	300	18
116		1267	3 do	red leaf	240	16
123	S	1288	5 hf ch	dust	400	20
124		1291	13 do	bro tea	650	27
125	A	1294	3 hf ch	dust	240	21
126		1297	6 do	bro tea	300	27
127	S F O A	1300	4 ch	unas	440	26
137	Koladeniya	1330	2 ch	bro tea	200	25
138		1333	4 do	dust	400	20
139		1336	1 do	sou	90	18
140		1339	3 do	pek sou	255	26
145	Galphele B	1354	4 ch	pek sou	360	26
146		1357	2 do	sou	186	26
157	Kosgahahena	1390	3 ch	pek sou	300	23
158		1393	4 do	sou	400	20
159		1396	2 do	fans	154	18
160		1399	2 do	pek dust	230	18
169	Y X	1426	6 hf ch	dust	480	21 bid
180	Neboda	1459	3 hf ch	dust	225	19
184	Labaduwa	1471	4 hf ch	pek	226	30
186		1477	1 do	bro mix	37	18
194	Mossville	1501	4 ch	red leaf	300	18
199	Hopewell	1516	3 ch	sou	225	28
201		1522	5 do	bro tea	450	18
202		1525	4 hf ch	dust	376	21
208	Maddagedera	1543	8 hf ch	dust	680	18
216	W, in estate mark	1567	7 hf ch	sou	294	10
217	Hanwella	1570	11 hf ch	bro pek	550	33
218		1573	10 do	or pek	500	28
219		1576	4 do	pek	200	27
220		1579	4 do	dust	280	18
221		1582	1 do	pek sou	41	25
222	S	1585	1 hf-ch	pek sou	50	23
221	L	1594	2 ch	dust	300	18
224	Arnicuduva	1594	2 hf ch	bro pek	100	out
226		1597	1 do	or pek	50	out
227		1600	6 do	pek	240	out
228		1603	3 do	pek sou	120	out
229	Blinkbonnie	1606	6 ch	fans	600	32
230		1609	6 hf ch	dust	510	28

CEYLON CARDAMOMS SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, July 6.

"Tamba Maru."—Delpotonoya, 1 case sold at 2s 11d; 4 cases sold at 3s; 1 case sold at 2s 7d; 2 cases sold at 2s 8d; 2 cases sold at 2s 9d; 5 cases sold at 2s; 2 cases sold at 2s 1d; 1 case sold at 1s 6d; 1 case sold at 1s 11d; 1 case sold at 2s 1d; 2 cases sold at 1s 8d; 1 case sold at 1s 5d.

"Prometheus."—Katooloya Ex., 1 case sold at 3s 6d; ditto A, 4 cases sold at 1s 11d; ditto AA, 6 cases sold at 1s 10d; 8 cases sold at 2s 8d; ditto A, 4 cases sold at 1s 11d; ditto B, 11 cases sold at 1s 5d; ditto C, 1 case sold at 2s 2d.

"Bingo Maru."—Elkadua O, 2 cases sold at 2s 10d; ditto 1, 4 cases sold at 2s 1d; ditto 2, 1 case sold at 1s 5d; ditto Seed, 1 case sold at 1s 11d; ditto B & S, 1 case sold at 9d; Midlands O, 2 cases sold at 3s 11d; 5 cases sold at 2s 11d; ditto 1, 6 cases sold at 2s 3d; ditto 2, 1 case sold at 1s 6d; ditto B & S, 1 case sold at 1s 5d; ditto Seed, 1 case sold at 2s 1d.

"Machaon."—Elkadua O, 3 cases sold at 3s; ditto 1, 4 bags sold at 2s 1d; ditto 2, 1 case sold at 1s 6d; ditto B & S, 1 case sold at 9d; 1 bag seed sold at 2s; Duckwari A 1, 2 cases sold at 4s 2d; ditto C 1, 4 cases sold at 2s 8d; ditto D 1, 4 cases sold at 1s 8d; ditto A, Splits, 1 case sold at 3s 6d; ditto B, Splits, 2 cases sold at 2s 8d; ditto C, Splits, 4 cases sold at 2s 5d; ditto D, Splits, 1 case sold at 1s 8d; 1 case sold at 1s 7d; ditto Seed, 1 case sold at 2s 1d.

"Candia."—MLD, in estate mark, London Experanza Cardamoms O, 5 cases sold at 2s 4d; ditto 1, 9 cases sold at 1s 10d.

"Kanagawa Maru."—MLD in estate mark, London Experanza Cardamoms 2, 5 cases sold at 1s 4d; ditto Seed, 1 case sold at 2s 2d; Forest Hill, Mysore, No. 1, 5 cases sold at 2s 11d; ditto No. 2, 5 cases sold at 1s 11d; ditto S M B, 1 case sold at 1s 4d.

CEYLON COCOA SALES IN LONDON.

"Bingo Maru."—Kepitigalla, 11 bags sold at 75s; 1 bag sold at 59s; Bandarapola 1, 6 bags sold at 80s; T, 1 bag sold at 59s.

"Prometheus."—Ukuwelle A, 12 bags sold at 85s 6d.

"Bingo Maru."—MAK in estate mark, 20 bags sold at 67s 6d; Ardathie A, 24 bags sold at 82s 6d; B, 6 bags sold at 51s 6d; C, 5 bags sold at 46s.

"Jumna."—Alloowiharie A, 33 bags out at 105s.

"Prometheus."—L in estate mark, Estate Cocoa, 66 bags sold at 69s.

"Bingo Maru."—DMA & Co., in estate mark, 56 bags sold at 71s 6d; S in estate mark, Mahawatte Plantation, 20 bags sold at 71s 6d.

"Candia."—L in estate mark, Mahawatte Plantation, 18 bags sold at 71s 6d.

"Orestes."—M in estate mark, Estate Cocoa, 57 bags sold at 68s.

"Mazagon."—B HMS & Co., in estate mark, Estate Cocoa, 2 bags sold at 67s 6d.

No. 29 COLOMBO, AUGUST 6, 1900.

PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[42,244 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
7	Bogahagodewatte	47	15 ch	bro pek	1500	34
		50	10 do	pek	950	31
		53	8 do	pek sou	760	28
11	Battalgalla	59	19 ch	pek sou	1520	39
12	C	62	35 do	pek	3500	30
13	Mandara Newera	65	93 hf-ch	bro pek	5580	48
14		68	61 do	pek	3355	43
15		71	23 do	pek sou	1150	39
16		74	14 do	dust	1120	29
17	Hapugastenne	77	38 ch	bro or pek	3800	38
18		80	22 do	bro pek	1870	37
19		83	36 do	pek	2880	36
21		89	14 hf ch	fans	840	29
23	Terrington	95	34 do	bro pek	1530	32 bid
		98	68 do	bro or pek	3400	31 bid
		1	54 do	pek	2160	33
		4	96 do	pek sou	3840	29 bid

Messrs. Forbes & Walker

[437,216 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Alverne	715	16 hf ch	bro pek	997	47
6	Bickley	724	23 hf ch	or pek	1035	48 bid
7		627	16 do	pek	880	40
8		730	38 do	pek sou	1900	34
9		733	11 do	dust	770	28
20	Lindupatna	766	17 ch	bro or pek	1785	79
21		769	21 do	bro pek	2100	50
22		772	26 do	pek	2236	40
25	Carandon	781	29 ch	bro pek	3190	36
26		784	22 do	pek	2200	35
		787	17 do	pek sou	1700	31
28	Glencorse	790	81 ch	bro pek	7695	33
29		793	54 do	bro or pek	4860	38
30		796	33 do	pek	2650	32
31		799	55 do	pek sou	4400	27
35	Kincora	811	19 ch	pek	1330	34 bid
36		814	12 do	pek No. 2	780	30 bid
	Springwood	820	30 ch	congou	2400	27
44	Theydon Bois	838	16 ch	or pek	1360	48
45		841	19 do	pek	1520	36
49	Pine Hill	853	65 hf-ch	bro or pek	4095	57
50		856	70 do	or pek	5250	43
51		859	60 do	pek	4800	38
55	Killarney	871	32 hf-ch	bro or pek	1760	54
56		874	32 do	pek sou	2880	41
57	Dammeria	877	96 ch	bro pek	9600	44
58		880	34 do	pek	3400	38
59	Hayes	883	21 ch	bro or pek	1995	57
60		886	28 do	bro pek	2800	46
61		889	18 do	or pek	1440	37
62		892	59 do	pek	5015	32
63		895	17 do	pek sou	1445	30
64		898	6 do	dust	720	22
65	Maha Uva	901	46 hf-ch	bro or pek	2760	54
66		904	20 do	or pek	1120	57
67		907	55 ch	pek	49 0	49
68		910	20 do	pek sou	1600	41
70	E D P	916	12 ch	sou	900	28
71		919	15 hf-ch	dust	1125	22
75	Haputalewella	931	24 hf ch	bro pek	1440	59
76		934	21 do	pek	1050	46
80	Nillomally					
	O B E C, in est. mark	946	32 ch	bro or pek	3072	46
81		949	28 do	bro pek	2408	40
82		952	14 do	or pek	1092	39
83		955	19 do	pek	1406	36
84		958	16 ch	pek sou	1152	38
86		964	14 hf ch	fans	910	26
88	Irex	970	48 ch	bro pek	4800	39
89		973	36 do	pek	2400	34
90		976	17 do	pek sou	1360	32
92	Putupaula	982	16 ch	bro or pek	1760	46
93		985	55 do	bro pek	4950	41
94		988	38 do	pek	2850	36
95		991	14 do	pek	1050	36
96		994	21 hf ch	pek sou	1470	31

Lot.		Box.	Pkgs.	Name.	lb.	c.
99	Harrington	1003	16 do	bro or pek	800	82
100		1006	10 ch	or pek	900	54
101		1009	14 do	pek	1260	42
102	Weemalle	1012	8 do	bro or pek	800	37
104		1018	14 do	pek	1260	35
108	Ascot	1030	40 ch	bro pek	3400	34 bid
111		1039	15 do	pek sou	1350	29
114	R C W, in estate mark	1048	23 ch	bro pek	2070	33 bid
115		1051	20 hf-ch	bro pek fans	1540	21
116	Errollwood	1054	16 hf ch	bro or pek	720	76
117		1057	9 ch	or pek	810	51
118		1060	13 do	pek	1105	44
119		1063	8 do	pek sou	760	39
120		1066	11 hf ch	dust	880	27
121	C R D	1069	10 ch	dust	1000	20
123	W'Bedde	1075	32 hf-ch	bro pek	27[illegible]	38
124		1078	24 ch	do	[illegible]00	25
125	Anningkande	1081	15 ch	bro pek	500	37 bid
126		1084	10 do	dust	750	22
127	B D W	1087	35 ch	bro pek	3[illegible]50	24 bid
128		1090	17 do	pek	1530	23 bid
129		1093	31 do	bro pek fans	3100	20 bid
130	A, in estate mark	1096	23 ch	bro pek	2185	33 bid
131		1099	33 do	pek	2970	25 bid
132	B D W G	1102	58 hf ch	bro pek	2900	43 bid
133	St. Pauls	1105	80 do	bro pek	4640	53
134		1108	25 do	pek sou	1200	39
135	Palmerston	1111	14 hf-ch	bro or pek	728	82
136		1114	10 ch	pek	850	52
140	Galapitakande	1126	23 ch	or pek	1840	41
141		1129	18 do	bro or pek	1800	55
142		1132	64 do	pek	6400	38
143		1135	11 do	pek sou	1100	35
145	Passara Group	1141	38 ch	or pek	3420	44
146		1144	25 do	bro or pek	2500	52 bid
147		1147	35 do	pek	3150	40
148		1150	9 do	pek sou	900	35
150	Chesterford	1156	71 ch	bro pek	7100	36
151		1159	58 do	pek	5800	32
152		1162	48 do	pek sou	4560	30
153		1165	10 do	fans	900	27
155		1171	13 do	bro tea	1235	25
156		1174	18 do	dust	1530	23
157	Geragama, Invoice No. 37	1177	9 ch	bro pek	900	38
158		1180	10 do	pek	850	35
159		1183	8 do	pek sou	720	30
162	Dyakulla, No. 2	1192	27 ch	bro pek	1485	59
163		1195	30 do	pek	2100	38
164		1198	12 do	pek sou	840	34
166	Munaar, No. 2	1204	22 hf-ch	pek fans	1299	33
167		1207	19 do	dust	1425	23
169	C L C, in estate mark	1213	45 ch	bro or pek	4725	32 bid
173	Ugieside	1225	13 ch	pek fans	1300	23
176	St. H, in estate mark	1234	23 ch	bro pek	2300	48
180	Drayton	1246	32 hf-ch	or pek	1600	51
181		1249	24 ch	pek	2040	41
182		1252	30 do	pek	2550	40
183		1255	21 do	pek sou	1785	38
185	Attampittia	1261	8 ch	bro pek	800	50 bid
186		1264	19 do	pek	1805	41
188	Munukattia Ceylon, in est. mark	1270	18 hf ch	or pek	900	60
189		1273	28 do	bro pek	1680	55
190		1276	19 do	pek	1520	39
191		1279	11 do	pek sou	990	36
194	Great Valley, Ceylon, in est. mark	1288	24 hf-ch	bro or pek	1320	67
195		1291	22 ch	pek	1870	41
196		1294	14 hf-ch	peksou	1050	34
193		1297	16 do	sou	1200	26
197	Cooroondoowatte	1300	8 ch	pek	736	43
203	Glengariffe	1315	21 hf-ch	bro or pek	1113	38
204		1318	22 do	or pek	946	34
205		1321	20 ch	pek	1800	32
206		1324	11 do	pek sou	792	30
208	Ireby	1330	25 hf ch	bro pek	1375	67
209		1333	10 ch	pek	850	49
210		1336	9 do	pek sou	765	42

Lot.		Box.	Pkgs.	Name.	lb.	c.
213	Nugagalla	1345	38 hf-ch	bro pek	1900	43
214		1348	96 do	pek	4800	34
215		1351	14 do	pek s u	700	29
217	A M B	1357	45 ch	br pk sou	3510	20 bid
220	Kitulgalla	1366	12 do	pek	1080	31
224	C H T E	1378	38 do	bro pek	3800	25 bid
225		1381	14 do	pek	1470	26 bid
226		1384	25 hf-ch	pek fans	1875	24 bid
227		1387	16 do	dust	1280	20 bid
228	St. Leonards	1390	8 ch	bro pek	800	34 bid
230		1396	17 do	pek	1615	29
239	Middleton	1423	18 do	pek sou	1530	46
242	Seaton	1432	23 hf-ch	bro or pek	1265	65
243		1435	53 do	or pek	2650	52 bid
244		1438	48 do	pek	1920	45
245		1441	33 do	pek sou	1650	41
247	C B	1447	8 ch	bro pek	848	35
248		1450	13 do	pek	1300	29 bid
252	Castlereagh	1462	29 do	bro pek	2755	55
253		1465	10 do	or pek	800	42
254		1468	16 do	dust	1280	38
255	Aberdeen	1471	65 do	bro pek	5590	38
256		1474	57 do	pek	3876	34
257		1477	15 hf-ch	bro pek fans	1050	29
258	Dea Ella	1480	48 do	bro or pek	2610	44
259		1483	66 do	or pek	3300	36
260		1486	71 do	pek	3550	36
261		1489	28 do	pek sou	1344	33
264	High Forest	1498	48 do	or pk No. 1	2544	85
265		1501	33 do	or pek	1716	67
266		1504	37 do	pek	1739	57
267	Dammeria	1507	55 ch	pek	5500	38
268		1510	40 do	or pek	3600	41
269		1513	18 do	bro or pek	2160	40
270		1516	22 do	bro pek	2200	48
271		1519	35 do	pek sou	3150	35
272		1522	25 do	or pek	2250	41
273	Bandara Eliya	1525	65 hf-ch	or pek	3120	38
274		1528	59 do	bro or pek	3422	44
275		1531	54 do	pek	2160	36
276		1534	42 do	pek sou	1890	33
277	Panilkande	1537	23 ch	bro pek	2300	39
278		1540	17 do	pek	1615	32
280	Amblangoda	1546	36 do	br pek	3600	38
281		1549	26 do	pek	2340	35
282		1552	12 do	pek sou	1080	32
284	Geragama	1558	9 do	bro pek	960	39
285		1561	13 do	pek	1235	35
286		1564	11 do	pek sou	1045	29 bid
287	Old Madde-gama	1567	10 do	bro or pek	750	57
288		1570	10 do	or pek	700	43
289		1573	17 do	pek	1360	40
295	Talgaswela	1591	22 do	bro or pek	1980	37
296		1594	38 do	pek	3230	33
297		1597	17 do	pek sou	1360	29
299	Cottaganga	1693	10 do	pek	900	26 bid

Messrs. Somerville & Co.—228,033 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Hangranoya	1618	34 hf ch	fans	2380	25
4		1621	12 ch	sou	900	29
5	Ferriby	1624	24 ch	bro pek	2280	35
6		1627	21 do	pek	1785	32
9		1636	8 do	fans	1000	24
11	Siriniwasa	1642	23 ch	bro pek	2300	43
12		1645	29 do	pek	2755	34
13		1648	27 do	pek sou	2430	30
15		1654	10 do	bro pek fans	1050	31
16		1657	5 do	dust	750	20
18	R C T F, in estate mark	1663	15 ch	bro pek	1500	out
19		1666	22 do	pek	1870	23
20		1669	33 do	pek sou	2640	23
23	Neuchatel	1678	37 ch	bro pek	3700	37
24		1681	11 do	pek	935	34
28	R C T F, in estate mark	1693	7 ch	bro pek	700	20 bid
29		1696	19 do	pek	1615	23
30		1699	28 do	pek sou	2240	20
31		1702	13 do	bro pek fans	1235	20
33	Neuchatel	1708	82 ch	bro pek	8200	37
34		1711	26 do	pek	2210	33
35		1714	21 do	pek sou	1680	30
36		1717	14 do	bro or pek	1750	29
37		1720	6 do	dust	800	19
38	A D L, in estate mark	1723	20 ch	bro pek	2000	27 bid
39		1726	8 do	bro mix	720	23
40		1729	6 do	dust	840	18
42	Elchico	1735	78 hf ch	bro pek	4015	39
43		1738	45 do	pek	2250	36
47	H J S	1750	15 hf ch	bro pek	900	33

Lot		Box.	Pkgs.	Name.	lb.	c.
48	Kurulugalla	1753	19 cb	bro pek	1600	34
49		1756	12 do	pek	1080	33
55	Raglan	1774	8 cb 1 hf ch	pek	760	28 bid
59	Maligatenne	1786	9 cb	pek sou	797	23
60		1789	10 do	bro tea	897	15
69	Maplecroft	1816	27 hf ch	bro or pek	1512	37 bid
70		1819	19 do	or pek	950	35
71		1822	19 do	pek	950	30 bid
75	Lyndhurst	1834	107 bf cb	bro pek	5885	34
76		1837	72 do	pek	3600	31
77		1840	50 do	pek sou	2250	27
78		1843	16 do	dust No. 1	1360	18
81	Horagoda	1852	15 ch	bro pek	1500	35
82		1855	22 do	pek	1980	33
83		1858	12 do	pek sou	1020	29
87	Bollagalla	1870	33 ch	bro pek	3300	38
88		1873	22 do	pek	1760	36
89		1876	15 do	pek sou	1200	30
93	Cantelawa	1888	17 ch	bro pek	1700	33 bid
94		1891	35 do	pek	3150	33 bid
95		1894	37 hf-ch	pek sou	1595	26
97	Kalawewa	1	16 ch	bro pek	1040	38
98		4	19 do	or pek	1900	35 bid
99		7	34 do	pek	2160	30 bid
100	O K	10	10 hf ch	dust	1000	22 bid
101	Glenalmond	13	21 ch	bro pek	2100	33
102		16	28 do	pek	2520	30 bid
103		19	13 do	pek sou	1040	28
111	Hapugasmule	43	14 cb	bro pek	1540	36
112		46	22 do	pek	2112	31
117	S R K	61	12 cb	pek sou	1140	36
127	Marigold	91	115 hf ch	bro pek	6210	49
128		94	43 do	pek	2150	43
129		97	31 do	pek sou	1550	41
130		100	16 do	bro pek fans	1056	35
133	Meddegodde	109	37 ch	bro pek	3700	35 bid
134		112	51 do	pek	4590	32 bid
135		115	29 do	pek sou	2320	27 bid
139	Gampola	127	21 ch	bro or pek	2520	32 bid
157	F	181	23 ch	bro pek	2300	21
158	Lonach	184	100 hf-ch	bro pek	5500	45
159		187	40 cb	pek	3200	36
160		190	20 do	pek sou	1600	31
161	Warakamure	193	47 ch	bro pek	4700	32
162		196	30 do	pek	2850	30
163		199	9 do	pek	810	27
164		202	8 hf-ch	dust	720	21
166	Cairn Hill	208	11 ch	bro pek	1100	34
167		211	17 do	pek	1530	34
168		214	13 do	pek sou	1170	29
174	Cairn Hill	232	12 ch	or pek	1080	37
175		235	16 do	bro pek	1600	35
176		238	22 do	pek	1980	34
177	Kuralana	241	17 hf-ch	bro pek	850	31 bid
178		244	26 ch	pek	2600	27 bid
179		247	16 do	pek A	1600	26 bid
180		250	18 do	pek sou	1710	out
181	C	353	34 ch	fans	3060	12 bid
182	H	256	10 ch	fans	912	11 bid
184	Morawatotum	262	44 ch	or pek	3520	31 bid
185		265	37 do	bro pek	3330	33 bid
186		268	22 do	pek	2046	32 bid
187		271	11 do	pek sou	990	26

[Mr. E. John.—198,056 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
5	D N D, in est.	662	15 hf ch	pekoe	825	36
6		665	8 ch	pek sou	800	35
7		668	9 do	bro pek fans	1125	31
8		671	10 hf-ch	dust	1000	23
11	Warleigh	680	21 ch	bro pek	1995	49 bid
12		683	20 do	pekoe	1700	42 bid
15	Harrisland	692	10 do	bro pek	950	36
20	Kuruwattbai	707	15 do	bro or pek	1200	46
21		710	17 do	pekoe	1445	36
24	Eila	719	19 do	bro pek	1615	33 bid
25		722	42 do	pekoe	3570	32
26		725	63 do	pek sou	5040	29
27		728	8 hf-ch	dust	680	22
28	Koslanda	731	23 do	bro pek	1265	43
29		734	23 ch	pekoe	2070	34
31	Mossend	740	14 do	pek sou	930	36
34	Eila	749	49 do	bro or pek	4655	35 bid
35		752	67 do	bro pek	5695	35
36		755	8 do	fans	800	24
37	Coslande	758	23 hf-ch	bro pek	1265	43
38		761	23 cb	pekoe	2070	34
40	C	767	10 do	bro pek	1000	27 bid
41		770	34 do	pekoe	3400	25 bid
42	St. John's	773	28 hf-ch	bro or pek	1624	76
43		776	25 do	or pek	1250	70 bid
44		779	44 do	pekoe	2200	48
45	Oonoogaloya	782	22 ch	or pek	1980	48

Lot.		Box.	Pkgs.		Name.	lb.	c.
46		785	13	ch	bro or pek	1300	62
47		788	18	do	pekoe	1620	39
48		791	10	do	pek sou	850	31
49		794	14	do	dust	1120	23
50	G P	797	9	do	bro pek	810	30 bid
51	Brownlow	800	20	hf-ch	bro or pek	1120	65
52		803	22	ch	bro pek	1870	53
53		806	23	do	pekoe	1932	40
54		809	8	do	pek sou	720	34
55	Gangawatte	812	19	do	or pek	1900	39 bid
56		815	36	do	bro or pek	3600	57
57		818	18	do	bro pek	1800	50
58		821	31	do	pekoe	2945	38
59		824	7	do	dust	910	23
61	HS, in est. mark	830	17	do	bro mix	1560	21
62	O S P	833	14	do	bro pek	1680	26 bid
63		836	21	do	pekoe	1470	26
64	Glentilt	839	29	do	bro pek	2900	58
65		842	21	do	or pek	1995	44 bid
66		845	15	do	pekoe	1350	40
67	Rockwood	848	27	do	bro or pek (H	1455	60
68		851	42	do	or pek (Venesta)	4620	41 bid
69		854	68	do	pekoe (do)	6148	36 bid
71	Richmond Hill	860	37	do	bro pek	3515	34
72		863	23	do	pekoe	1794	34
73		866	22	do	pek sou	1760	31
74		869	28	do	pek sou No. 2	1820	29
75		872	6	do	or pek fans	720	24
76	Orangefield	875	15	do	bro pek	1500	32 bid
77		878	19	do	pekoe	1805	26 bid
82	Y K	893	10	do	sou	750	24
83		896	8	do	dust	1200	17
84	Murraythwaite	899	9	do	bro pek	855	41
85		902	9	do	pekoe	765	36
86	Ottery	905	14	do	bro or pek	1260	45 bid
87		908	11	do	or pek	935	49
88		911	7	do	bro pek	770	33 bid
89		914	23	do	pekoe	2070	33 bid
90		917	41	do	pekoe	4160	40 bid
91		920	7	do	sou	770	30
93	Agra Ouvah	926	17	hf-ch	bro or pek	1054	77
94		929	40	do	bro pek	2400	55
95		932	22	do	pekoe	1166	47
96	Rondura	935	30	ch	bro pek	3000	33
97		938	19	do	or pek	1710	38
98		941	22	do	pekoe	1760	34
99		944	26	do	pek sou	2080	29
101	Glasgow	950	42	do	bro or pek	3276	60
102		953	13	do	or pek	845	56
103		956	14	do	pekoe	1120	49
104		959	10	do	pek sou	900	45
105	Gonav	962	30	hf-ch	or pek	1350	45
106		965	16	do	bro pek	800	57
107		968	19	ch	pekoe	1425	37
108		971	9	do	pek sou	810	34
109		974	10	hf-ch	dust	750	23
115	Anchor, in est mark	992	13	do	bro or pek	780	62 bid
117		998	19	do	pekoe	855	43 bid
118		1	27	do	pek sou	1355	44
119	Mcrahela	4	38	do	bro or pek	3800	37
120		7	20	do	bro pek	1720	37
121		10	18	do	or pek	1566	36
122		13	41	do	pekoe	3444	34
125	Ben Nevis	22	13	do	bro pek	1365	52
126		25	9	do	or pek	765	53
127		28	16	do	pekoe	1440	39
130	Brownlow	37	20	do	bro or pek	1020	65
131		40	15	do	or pek	1350	46 bid
132		43	21	do	pekoe	1743	39
134	Waragahalande	49	7	do	bro or pek	700	38
135		52	17	do	bro pek	1700	37
136		55	16	do	pekoe	1440	34
137		58	10	do	pek sou	900	39
139	HS, in est. mark	64	20	do	bro mix	2400	23
140	Kadienlena	67	30	do	bro pek	2700	35

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Halloowella	29	2	cb	bro or pek	210	32
2		32	1	do	pek	100	30
3		35	1	do	pek sou	90	27
4		38	3	do	sou	240	27
5		41	1	do	dust	150	26
6		44	1	do	red lea	420	16
10	Bogahagodewatte	56	2	do	bro pek fans	250	25
20	Hapugastenne	86	7	do	sou	434	29
22		92	7	hf ch	dust	595	20

[Messrs. Forbes & Walker

Lot.		Box.	Pks.		Name.	lb.	c.
1	Wewawatte	709	11	hf ch	bro pek	616	36
2		712	7	do	pek	350	33
4	Alverne	718	10	hf ch	pek	506	37
5	Bickley	721	11	do	bro or pek	550	62
23	Lindupatna	775	6	ch	pek sou	528	37
24		778	3	do	bro pek fans	405	28
32	Glencorse	802	5	ch	bro tea	575	26
33		805	1	do	dust	172	20
34	A	808	5	ch	sou	450	29
37	Kincora	817	3	ch	fans	300	47
40	B	826	2	ch	bro pek	186	30
41		829	1	do	pek	71	28
42		832	3	hf-cb	dust	240	23
43		835	1	do	dust	80	25
46	Theydon Bois	844	7	ch	pek sou	595	31
47	T B, in estate mark	847	2	ch	dust	180	25
48		850	1	do	fans	90	19
52	Pine Hill	862	5	ch	pek sou	425	30
53		865	7	bf-ch	dust	630	23
54		868	1	ch	sou	93	22
69	Maha Uva	913	5	hf ch	dust	425	23
72	C F, in estate mark	922	2	ch	pek sou	190	30
73		925	1	do	sou	90	26
74	T T	928	52	box	bro pek	260	37
77	Haputalewatte	937	10	hf-ch	pek sou	450	41
78		940	2	ch	unas	200	33
79		943	2	hf ch	fans	160	27
85	Nilloomally, O B E C, in est. mark	961	1	ch	sou	74	28
87		967	4	hf ch	dust	360	21
91	Irex	979	3	cb	dust	329	22
97	Putupaula	997	4	hf ch	sou	280	22
98		1000	3	ch	dust	614	19
103	Weemalle	1015	8	cb	or pek	680	43
105		1021	1	do	pek sou	90	28
106		1024	3	hf ch	bro tea	255	21
107	C, in estate mark	1027	6	ch	bro tea	505	25
109	Ascot	1033	3	ch	bro or pek	285	32
110		1036	7	do	pek	630	31
112		1042	4	do	bro pek fans	380	28
113		1045	9	hf-ch	dust	675	21
122	C R D	1072	4	ch	red leaf	360	13
137	Palmerston	1117	4	ch	pek sou	320	42
138		1120	3	hf-ch	bro or pek fans	210	41
139		1123	1	ch	unas	100	37
144	Galapitakande	1138	4	hf ch	dust	400	21
149	Passara Group	1153	1	h fch	fans	75	24
154	Chesterford	1168	2	ch	congou	163	25
160	Oškoowatte	1186	4	ch	pek fans	535	26
161		1189	3	hf-cb	dust	300	18
165	Dyakulla, No. 2	1201	2	hf ch	dust	160	20
168	Munaar, No. 2	1210	3	hf ch	bro mix	192	21
170	S P	1216	6	ch	bro pek	600	31
171	Kelugas	1219	2	do	sou	170	26
172		1222	4	do	dust	500	18
174	Ugieside	1228	6	ch	dust	480	20
175		1231	5	do	bro mix	400	26
177	St. H, in est. mark	1237	5	ch	pek No. 2	400	40
178		1240	5	hf ch	pek No. 2	250	33
179		1243	5	do	pek fans	350	25
184	Drayton	1258	1	ch	sou	80	41
187	Attampittia	1267	4	do	pek sou	320	39
192	Munukattia, Ceylon, in est mark	1282	1	hf-ch	sou	95	28
193		1285	7	do	dust	595	21
199	Sirikandura	1303	5	ch	bro pek	500	37
200		1306	6	do			
			1	hf-ch	pek	599	32 bid
201		1309	4	ch			
			1	hf-ch	pek sou	390	29
202		1312	2	cb	bro pk fans	200	28
207	Glengariffe	1327	8	hf-ch	dust	640	20
211	Ireby	1339	4	do	fans	280	36
212		1342	7	do	dust	595	28
216	Nugagalla	1354	3	do	dust	270	21
218	Kitulgalla	1360	6	ch	bro or pek	600	33
219		1363	6	do	or pek	540	30
221		1369	4	do	pek sou	380	28
222		1372	6	hf-ch	dust	360	21
223		1375	3	do	pek	270	30
229	St. Leonards	1393	4	ch	or pek	380	32
231		1399	4	hf-ch	pek dust	380	19
232		1402	10	do	bro pek fans	550	25

Lot		Box.	Pkgs.	Name.	lb.	c.
233	B D W P	1405	7 ch	bro pek	645	17
234		1408	4 do	pek	320	18
235		1411	2 do	pek sou	155	17
236		1414	3 do	dust	255	20
237		1417	1 do	dust No. 2	70	17
238		1420	2 do	mixed tea	200	16
240	D A	1426	4 do	pek sou	300	32
241	B D W G	1429	3 hf-ch	dust	270	25
246	Seaton	1444	6 do	fans	420	38
249	A G	1453	2 ch	or pek	200	44
250		1456	3 do	pek	270	38
251		1459	3 do	bro tea	270	32
262	Dea Ella	1492	7 hf-ch	fans	420	28
263		1495	6 do	dust	456	24
279	Panilkande	1543	7 ch	pek souchong	630	29
283	Amblangoda	1555	5 do	dust	550	22
290	Old Maddegama	1576	9 do	pek sou	630	37
291		1579	4 do	sou	280	30
292		1582	3 do	pk fans	255	33
293		1585	1 do	dust	100	23
294	L B	1588	2 do	bro tea	190	14
298	T	1600	1 do	br mixed	90	15

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hangranoya	1612	5 hf ch	bro pek fans	350	27
2		1615	1 do	pek fans	75	22
7	Ferriby	1630	2 ch	pek sou	160	28
8		1633	3 do	bro tea	255	28
10		1639	4 do	dust	620	20
14	Siriniwasa	1651	2 ch	bro tea	200	22
17		1660	4 do	con	340	23
21	R C T F, in estate mark	1672	5 ch	bro pek fans	500	17
22		1675	4 hf ch	dust	300	20
25	Neuchatel	1684	5 ch	pek sou	400	30
26		1687	5 do	bro or pek	625	29
27		1690	2 do	dust	320	20
32	R C T F, in estate mark	1705	7 hf cb	dust	560	20
41	A D L, in estate mark	1732	4 ch	red leaf	320	17
44	Elchico	1741	4 hf ch	fans	280	27
45		1744	2 do	dust	180	21
46		1747	1 do	con	50	26
50	Kurulugalla	1759	5 ch	pek sou (unbulked)	475	28
51	K G A, in estate mark	1762	5 ch	bro tea	500	19
52		1765	2 do	fans No. 1	280	24
52		1765a	3 do	fans a	420	23
53		1768	3 do	dust	420	19
54	Raglan	1771	3 ch	bro pek	285	31
56		1777	1 do	dust	160	18
57	Maligatenne	1780	4 ch	bro pek	403	27
58		1783	7 do	pek	631	2
61		1792	1 do	dust	137	18
62	P	1795	7 ch	unas	652	27
63	Bodaya	1798	10 hf ch	bro pek	529	40
64		1801	4 cb 1 hf ch	pek	355	35
65		1804	1 ch 1 hf ch	pek sou	124	3
66		1807	1 hf ch	dust	58	20
67		1810	1 do	red leaf	47	16
68		1813	1 Box	unas	9	19
72	Madlecroft	1825	5 hf ch	pek sou	225	28 bid
73		1828	2 do	dust	160	21
74	A A	1831	5 hf ch	bro tea	250	14
84	Horagoda	1861	2 hf eh	dust	180	20
85		1864	1 ch	con	85	26
86		1867	1 hf ch	bro mix	28	20
90	Bollagalla	1879	1 ch	bro tea	110	22
91		1882	1 hf ch	dust	90	20
92		1885	1 ch	red leaf	110	15
96	Cantelawa	1897	4 ch	pek fans	440	24
104	Glenalmond	22	2 hf ch	dust	140	22
105		25	1 do	fans	62	22
106		28	1 do	sou	55	25
107	R W	31	3 hf ch	bro pek	140	33
108		34	3 do	pek	140	30
109		37	3 ch	pek sou	300	28
110		40	1 do	dust	120	21
113	Hapugasmulle	49	6 ch	unas	570	27
114	W S K, Ceylon	52	4 ch	bro tea	400	23
115		55	1 do 1 hf ch	con	167	23
116	Kallebokke	58	5 hf ch	dust	400	22
118	S R K	64	3 ch	dust	450	23
119		67	3 do	bro tea	300	22
120	J K	70	4 ch	bro pek	400	34
121		73	6 do	pek	540	28
122		76	7 do	pek sou	560	26
123		79	1 do	pek fans	100	23
124		82	2 do	bro pek fans	190	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
125		85	1 hf ch	bro tea	50	17
126		88	2 ch	con	140	24
131	Marigold	103	9 hf-ch	pek dust	675	26
132	F F, in estate mark	106	5 hf ch	bro mix	250	18
136	Meddegodde	118	5 hf ch	fans	325	26
137		121	5 do	dust	320	21
138	L C	124	4 ch	bro pek	400	31
140	Dankande	130	1 ch	bro pek	110	43
141		133	2 do	pe	180	34
142		136	3 do	pek sou	285	31
143		139	1 do	dust	140	20 bid
144	P	142	2 ch	pek	100	30
145	A O	145	4 ch	bro pek	400	22
146		148	1 do	pek	73	27
147		151	6 ch	pek sou	510	20
148		154	5 do	fans	500	25
149	Hanwella	157	3 bf ch	bro pek	150	36
150		160	5 do	or pek	250	31
151		163	1 do	pek	50	30
152		166	2 do	dust	120	22
153		169	2 do	pek sou	92	28
154	Bope	172	2 hf ch	bro pek	100	35
155		175	4 do	or pek	200	31
156		178	1 do	dust	63	22
165	Cairn Hill	205	6 ch	or pek	540	36
183	C H	259	6 ch 1 hf ch	fans	655	16

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Theresia	650	2 ch	bro pek fans	200	35
2		653	6 hf-ch	dust	480	27
3		656	1 do	sou	50	36
4		659	2 ch	bro mix	200	36
9	D N D, in est. mark	674	8 hf-ch	bro mix	520	16
10	Warleigh	677	11 do	bro or pek	660	93
13		686	4 ch	pek sou	320	38
14		689	8 hf-ch	dust	680	35
16	Harrisland	695	8 ch	pekoe	600	34
17		698	6 do	pek sou	480	30
18		701	4 do	pek sou No. 2	360	28
19		704	2 hf-cb	dust	160	22
22	Kuruwatthai	713	2 ch	pek sou	160	30
23		716	2 do	bro tea	170	28
30	Koslanda	737	2 do	pek sou	180	32
32	Mossend	743	11 hf-ch	fans	660	36
33		746	8 do	dust	640	23
39	Coslande	764	2 ch	pek sou	180	32
60	Gangawatte	827	6 do	pek sou	540	33
70	T M	857	8 do	bro mix	600	29
78	Orangefield	881	4 do	pek sou	360	23
80		887	1 do	bro pek dust	130	21
81		890	1 do	bro mix	95	22
92	Ottery	923	3 hf-ch	dust	240	22
100	Rondura	947	3 ch	dust	330	21
110	Gonavy	977	3 hf-ch	congou	225	31
116	Anchor, in est. mark	995	13 do	or pek	585	56
128	Ben Nevis	31	6 ch	pek sou	510	34
129		34	3 hf-ch	dust	270	26
133	Brownlow	46	9 do	bro pek fans	594	34
138	Waragahalande	61	2 ch	dust	240	25
141	Kadienlana	70	8 do	pekoe	600	30

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, July 13.

"Logician."—Blackwood OO, 1 barrel sold a 110s; ditto O, 2 casks sold at 108s 6d; ditto 1, 1 tierce sold at 78s; ditto 2, 1 barrel sold at 52s; ditto PB, 1 barrel sold at 103s; BKW 1, 1 barrel sold at 42s.

CEYLON COCOA SALES IN LONDON.

"Tamba Maru."—Middlemarch, 6 bags sold at 83s; 4 bags sold at 70s 6d; 2 bags sold at 61s; Kepitigalla, 2 bags sold at 66s; 13 bags sold at 66s 6d; 1 bag sold at 40s.

"Bingo Maru."—1 MAK in estate mark, Estate Cocoa, 71 bags out at 71s.

No. 30 — COLOMBO, AUGUST 13, 1900. — PRICE :—12½ cents each 3 copies, 30 cents ; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[46,253 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Mapitigama	36	11 ch	pek sou	880	31
6		45	11 hf-ch	brotea	880	18
7	Hornsey	48	16 ch	pek sou	1280	36
8	Battalgalla	51	19 ch	pek sou	1520	36
12	Mapitigama	63	14 do	pek	1148	31
14	Halgolle	69	28 ch	bro pek	2800	36
15		72	25 do	or pek	2250	33
16		75	25 do	pek	2375	32
19	New Rasagalla	84	20 ch	bro or pek	2000	44
20		87	20 do	bro pek	2000	59
21		90	40 do	pek	3800	36
22		93	20 do	pek sou	1800	34
23		96	18 hf-ch	dust	1440	21
24	A E	99	25 ch	bro pek	2500	29 bid
25		2	88 do	pek	7920	27 bid
26		5	43 do	pek sou	3870	27 bid
27	Hornsey	8	25 do	or pek	2375	50
28		11	19 do	pek	1615	38

Messrs. Forbes & Walker.

[419,672 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	G, in estate mark	1606	24 ch	congou	1920	24
2	S P	1609	10 ch	bro or pek	1088	30
3		1612	12 do 1 hf ch	bro pek	1320	30
4		1615	8 ch	pek	720	
5		1618	11 do	bro pek fans	1320	18
7		1624	10 do	red leaf	750	13 bid
8		1627	41 hf-ch	dust	3485	16 bid
9		1630	12 ch	pek sou	1080	23
10	St. Pauls	1633	66 hf-ch	bro pek	3696	56
11		1636	23 do	pek	1288	43
12		1639	24 do	pek sou	1152	38
14	Quilon	1645	19 ch	bro tea	1444	16
16	Kakiriskande	1651	18 ch	pek	1710	30
17		1654	8 do	pek sou	720	27
19	Maragalla	1660	24 ch	bro pek	2640	41
20		1663	13 do	or pek	1170	38
21		1666	12 do	pek	1080	36
23	Erlsmere	1672	9 ch	or pek	765	55
24		1675	21 hf ch	bro pek	1050	58
25		1678	13 ch	pek	975	42
28	Devonford	1687	27 hf-ch	bro or pek	1485	84
29		1690	15 cb	or pek	1350	63 bid
30		1693	18 do	pek	1530	53
31		1696	17 do	pek sou	1445	45
32	B D W	1699	17 ch	pek sou	1275	23 bid
33		1702	20 hf ch	fans	1500	23
34	Silver Brook	1705	28 do	bro or pek	1680	53 bid
35	Cumbawella	1708	12 cb	bro or pek	1200	32
36		1711	12 do	bro pek	1080	29
37		1714	11 do	pek	935	28
41	N	1726	15 ch	bro tea	1950	18
42		1729	11 do	unas	1100	27
43	C S G	1732	109 hf ch	bro pek	5450	46
44		1735	102 ch	pek	8 60	37
45		1738	31 do	pek sou	2480	33
47		1744	13 hf-ch	dust	1040	24
54	Glendon	1765	55 ch	bro pek	5225	38
55		1768	47 do	pek	3760	34
56		1771	34 do	pek sou	27-0	30
57	G	1774	16 ch	sou	1520	27
60	St. Martin	1783	24 hf ch	bro pek	900	36
61		1786	63 do	pek	2520	33
65	Pine Hill	1798	40 hf ch	bro or pek	2400	55 bid
66		1801	33 ch	or pek	2970	44
67		1804	32 do	pek	2720	38 bid
70	Kincora	1813	7 do	bro or pek	700	49
74	Clarendon	1825	18 hf ch	bro pek	1134	63
75		1828	16 do	or pek	864	51
76		1831	23 ch	pek	2185	44
77		1834	15 do	pek sou	1500	38 bid
80	Gampaha	1843	27 cb	bro or pek	2970	44 bid
81		1846	30 do	pek	2550	44
82		1849	40 do	pek sou	3600	38
83	Weoya	1852	34 ch	or pek	3 30	36 bid
84		1855	48 do	pek	4 80	32 bid
85		1858	24 do	pek sou	1920	26 bid
86		1861	5 do	dust	750	21
87	Gampaha	1864	46 hf-ch	bro or pek	2760	50
88		1867	23 do	pek	2070	25
89	Gampaha	1870	31 ch	bro or pek	3410	48
90		1873	20 do	pek	1700	43
91		1876	20 do	pek sou	1800	38
92	Ruanwella	1879	22 cb	or pek	1870	36
93		1882	10 do	bro pek	1000	34 bid
49		1885	22 do	pek	1980	32
95		1888	8 do	pek sou	720	29
97	Pallagodde	1894	7 ch	bro or pek	700	36
98		1897	14 do	bro pek	1400	47
99		1900	11 do	or pek	990	42
100		1903	12 cb	pek	1020	30
101		1906	12 do	pek sou	1080	34
102	Massena	1909	25 hf cb	bro pek	1250	34
103		1912	23 do	or pek	1150	55
104		1915	50 do	pek	2500	35
105		1918	43 do	pek sou	2150	30
109	B W D	1930	13 do	dust	910	26
110	Dunkeld	1933	46 hf-ch	bro or pek	2760	55
111		1936	11 ch	or pek	1845	41
112		1939	17 do	pek	1530	39
114	Bambragalla	1945	8 ch	or pek	720	34
124	Queensland	1975	14 hf-ch	bro pek	700	59
125		1978	13 ch	pek	1170	44
126	Deaculla	1981	66 hf-ch	bro pek	3630	54
127		1984	37 ch	pek	2590	38
128		1987	21 do	pek sou	1470	36
129	Dunbar	1990	11 ch	bro or pek	990	74
130		1993	10 do	or pek	800	47
131		1996	9 do	pek	702	43
132	Dambagastalawa	1999	11 ch	bro or pek	1210	59
133		2002	11 do	bro pek	1056	50
134		2005	16 do	pek	4408	40
138	D G T	2017	8 ch	pek	800	31
141	Mawiligangawatte	2026	7 ch	bro or pek	700	45
142		2029	35 do	bro pek	3150	33
143		2032	20 do	pek sou	1500	30
147	C in estate mark	2044	9 ch	bro tea	729	24
156	Kitulgalla	2071	13 do	or pek	1235	32 bid
157		2074	7 do	bro or pek	700	31
158		2077	14 do	pek	1260	23 bid
162	Cotia	2089	4 hf ch	bro or pek	2880	34
163	Ascot	2092	36 ch	bro pek	3060	34
167		2104	12 do	fans	1140	22
169		2110	10 do	dust	750	20
170	D	2113	29 do	bro pek	2610	24 bid
171	L L A	2116	17 do	bro pek	1530	27 bid
172	Ingrogalla	2119	20 ch	bro pek	2000	49
173		2122	15 do	pek	1275	38 bid
176	Strathspey	2131	9 do	pek	828	47 bid
182	Doranakande	2149	8 ch	bro pek	800	38
183		2152	9 do	pek	855	32
184		2155	8 do	pek sou	720	28
185	A D K	2158	26 ch	sou	2210	22
186	G C E	2161	13 do	bro tea	1430	23 bid
187	Tonacomebe	2164	37 ch	or pek	3330	42
188		2167	8 do	bro or pek	800	60
189		2170	37 do	bro pek	3700	49
190		2173	59 do	pek	5310	39
191		2176	29 do	pek sou	2310	36
192		2179	13 hf ch	dust	1105	25
195	Knavesmire	2188	56 do	bro pek	5600	33
196		2191	43 do	pek	3655	31 bid
197		2194	16 do	pek sou	1120	27 bid
198		2197	27 do	dust	2295	21
199		2200	18 do	pek	1350	29
204	Vogan	2215	11 ch	bro or pek	1210	34
205		2218	27 do	or pek	2565	46
206		2221	50 do	pek	4250	35
207		2224	17 do	pek sou	1445	30
208	Waitalawa	2227	69 hf-ch	bro pek	3450	53
209		2230	83 do	pek	4150	36
211		2236	36 do	pek sou	1800	33
212		2239	10 do	dust	850	26
213		2242	24 do	red leaf	1080	25
214	K P W	2245	27 do	bro or pek	1485	34
215		2248	25 do	bro pek	1250	36
219	Talagalla	2260	1 box	golden tips	4	R8·00
221	Knavesmire	2266	35 ch	bro pek	3675	32 d
222	C S G	2269	72 hf-ch	bro pek	5600	45
223		2272	54 ch	pek	4320	35
224		2275	15 do	pek sou	1200	30
226		2281	9 hf-ch	dust	720	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
223	N E M	2287	8 ch	or pek	720	22 bid
229		2290	12 do	pek	1080	out
230		2293	22 do	pek sou	1980	out
231		2296	21 do	bro mixed	1785	12 bid
239	Pansalatenne	2320	34 do	bro pek	3230	38
240		2323	43 do	bro or pek	4300	35 bid
241		2326	45 do	pek	3825	30 bid
242		2329	40 do	pek sou	3400	29
243		2332	13 do	sou	1170	26
248	D in est. mark	2347	18 hf-ch	fans	990	14 bid
251	Bandara Eliya	2356	89 do	or pek	4049	49
252		2359	100 do	bro pek	5600	54
253		2362	35 do	pek	1575	43
254		2365	25 do	pek sou	1125	41
255	Arapolakande	2368	9 ch	bro or pek	990	33
256		2371	64 do	bro pek	5760	41
257		2374	72 do	pek	5760	35
258		2377	14 do	pek sou	1260	32
260	Ardlaw and Wishford	2383	12 do	bro or pek	1128	70
261		2386	31 do	bro pek	2759	50
262		2389	12 do	or pek	960	47
263		2392	18 hf-ch.	pek	1368	42
264	B A in estate mark	2395	18 ch	bro pk fans	1800	19 bid
267	Lyegrove	2404	37 do	bro pek	2805	44
268		2407	19 do	pek	1805	40
269		2410	10 do	pek sou	900	39
270	Kalupahana	2413	11 do	bro pek	1183	41
276	Rowley	2431	22 hf-ch	bro pek	1100	46
277		2434	21 do	pek	1050	37
278	Tembiligalla	2437	28 do	bro or pek	1680	38
279		2440	13 ch	pek	1170	34
285	Munaar	2458	21 hf-ch	fans	1260	28
287	Aneimudi	2464	83 do	bro pek	4648	31 bid
288		2467	57 do	pek	3192	34
889		2470	36 do	pek sou	2016	32
290		2473	32 do	pk fans	1920	30
291		2476	66 do	bro pek	3598	33
292		2479	34 do	pek	1530	32
293		2482	26 do	pek s u	1040	29
294		2485	43 do	fans	2408	29 bid
297	C P H Galle in est. mark	2494	16 do	pek sou	800	26
299	Vogan	2500	9 ch	pek sou	720	26 bid
300	B D W A	2503	25 do	bro pek	2125	37 bid
301	Gonapatiya	2506	32 hf-ch	bro pek	1632	74
302		2509	42 do	or pek	1932	55 bid
303		2512	42 do	pek	1890	45
304	Bloomfield	2515	16 do	bro or pek	960	49
305		2518	27 do	bro pek	1620	48
306		2521	23 ch	pek	2293	41
310	Letchemy	2533	18 hf-ch	dust	1530	24
312	Dunnottor	2539	13 ch	bro or pek	1300	50
313		2542	13 do	bro pek	1300	41
315	Memorakande	2548	9 do	dust	1350	18
317	Woodend	2554	20 do	br pek	2000	34 bid
318		2557	51 do	pek	4590	28 bid
319		2560	18 do	pek sou	1440	29
324	Knavesmire	2575	22 hf-ch	or pek	1100	37
325		2578	43 ch	br pek	4300	33 bid
326		2581	28 do	pek	2380	32 bid
327		2584	13 do	pek sou	910	27 bid
328		2587	11 hf-ch	dust	935	21
329		2590	17 ch	pek	1275	28 bid
330	Halwatura	2593	30 do	bro pek	3000	32
331		2596	35 do	or pek	3150	29 bid
332		2599	41 do	pek	3485	30
333		2602	40 do	pek sou	3200	28
334		2605	15 hf-ch	bro pek fans	900	23
335		2608	10 do	dust	850	19

Messrs. Somerville & Co.—247,861 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	P T N, in estate mark	283	30 hf ch	pek sou	1500	25
8	Welgampola	295	14 hf ch	pek	700	29
9		298	16 do	pek sou	800	27
12	Forest Hill	307	10 ch	bro pek	880	34
13		310	10 do	pek	830	29
16	Mousakande	319	8 ch	pek	720	30
20	Gangwarily	331	30 ch	sou	2100	22
28	Florida	355	12 ch	bro pek	1200	31
29		358	13 do	pek	1235	28
34	Labugama	373	37 hf-ch	bro pek	1850	36
35		376	14 do	bro or pek	840	30
36		379	17 ch	pek	1615	30
37		382	25 do	pek sou	2125	26
43	L	400	23 ch	bro mix	2185	16 bid
44		403	20 hf-ch	dust	1600	22
45	Glenamore	406	7 ch 1 hf ch	pek sou	720	40
51	Auburn	424	33 ch	bro pek	3300	33 bid
52		427	13 do	pek	1170	31 bid
54	Oakham	433	25 hf-ch	or pek	1125	40 bid
55		436	27 do	bro pek	1620	54
56		439	22 ch	pek	1980	34 bid
59	Attville	448	11 ch	bro pek	1100	31
60		451	14 do	pek	1330	28
63	Deniyaya	460	82 ch	bro pek	8200	37 bid
64		463	35 do	pek	3500	31 bid
65		466	24 do	pek sou unbulked	2400	30 bid
66		469	20 do	sou unbulked	2000	27 bid
67		472	5 do	dust	775	22
68	Dikmukalana	475	35 hf ch	bro pek	1750	35
69		478	59 do	bro pek fans	3245	25 bid
70		481	24 do	pek sou	1152	29 bid
72	Paragahakande	487	10 ch	pek	900	27
77	Hurstpierpoint	502	9 ch	bro pek	900	33
81	Avisawella	514	27 ch	bro pek	2565	33
82		517	34 do	pek	2720	29 bid
83		520	29 do	pek sou	3120	27
84	Hangranoya	523	21 hf ch	bro or pek	1050	55
85		526	16 ch	bro pek	1520	39
86		529	13 do	pek	1105	32 bid
88	Blinkbonnie	535	15 ch	bro pek	1500	60
89		538	19 do	or pek	1520	50
90		541	19 do	pek	1672	44
98	Monte Christo	565	13 hf ch	dust	1040	22
99	Wewatenne	568	16 hf-ch	bro pek	800	37
100		571	20 do	pek	1000	32
101		574	28 do	pek sou	1400	29
108	Hanagama	595	20 ch	bro pek	2000	33
109		598	37 do	pek	3330	27
110	Harangalla	601	16 ch	bro pek	1440	40 bid
111		604	25 do	pek	2000	36
112		607	13 hf-ch	dust	1040	22
114	M, in estate mark	613	9 ch	bro pek	810	32
118	Kosgama	625	56 ch	bro pek	5600	30
119		628	40 do	pek sou	2800	26
120	Hatdowa	631	23 ch	bro pek	1980	35 bid
121		634	13 do	pek	975	31
122		637	13 do	pek sou	910	29
125	Depedene	646	78 hf-ch	bro pek	4290	32 bid
126		649	50 do	pek	2500	30
127		652	42 do	pek sou	2100	26
129	Ladrum	658	10 ch	or pek	1100	30 bid
130	R yigam	661	37 ch	bro pek	3515	33 bid
131		664	28 do	or pek	2128	34
132		667	41 do	pek	3116	32
133		670	29 do	pek sou	2320	32
134		673	16 hf ch	dust	1600	22
139	Welgampola	688	18 hf ch	pek sou	900	28
146	G A	700	11 hf ch	dust	847	17
147	Eilandhu	712	17 ch	bro pek	1700	33
148		715	17 do	pek	1615	30
150	B P A	721	9 ch	bro pek	810	31 bid
151		724	34 do	or pek	3400	30 bid
152		727	21 do	pek sou	1596	out
153	M	730	23 hf ch	dust	1900	18 bid
155	Nanuoya	736	12 ch	or pek	1140	37
156		739	9 do	pek	847	30
160	W	751	18 hf ch	pek fans	1440	18 bid
162	Ambalawa	757	28 hf ch	bro pek	1400	33
163	R	760	7 ch	bro pek	840	23
165	S F, in estate mark	766	13 ch	pek sou	1300	22
166		769	7 do 1 hf-ch	pek fans	1020	21
168	Gwernet	775	9 ch	pek sou	810	30
170	M D R, in estate mark	781	49 hf ch	bro or pek	2940	27 bid
171		784	50 ch	bro pek	5000	31 bid
172		787	31 hf ch	pek No. 1	1395	36
173		790	23 ch	pek sou	1863	33
174	Meddegodde	793	79 hf ch	bro pek	3950	36
175		796	53 ch	pek	4770	30
176		799	24 do	pek sou	1920	28
180	Yahalatenne	811	17 ch	pek sou	1581	31
182	Balgany	817	26 hf ch	bro or pek	1560	57
183		820	33 do	or pek	1650	39 bid
184		823	23 ch	pek	1955	36
189	Glenalmond	838	23 ch	pek	2500	29 bid
190	Sudbury	841	74 ch	bro pek	6956	30 bid
191		844	59 do	pek	5015	27 bid
192		847	17 do	sou	1794	27 bid
193	A D L, in estate mark	850	20 ch	bro pek	2000	26 bid
194	Zantia	853	24 ch	bro or pek	2520	35 bid
195	L	856	18 ch	pek sou	1710	22 bid
196	Mahagoda	859	7 ch	bro pek	770	29
197		862	13 do	pek	1300	26 bid
198	E E	865	23 ch 1 hf ch	bro pek fans	2378	26 bid
199	Nilkande	868	26 hf ch	bro pek bulked	1430	30 bid
201	A U	874	8 ch	bro tea	720	15 bid
202	Tiddydale	877	9 ch	bro pek	900	31
203		880	13 do	pek	1170	2
204		883	8 do	pek sou	720	25

Lot.		Box.	Pkgs.		Name.	lb.	c.
205	A L	886	71	ch	bro or pek	6745	21 bid
206	Glenalmond	889	8	ch	bro pek	760	46
207		892	14	do	pek	1260	34
215	A I	916	16	ch	pek	1600	24 bid

[Mr. E. John.—165,942 lb.]

Lot		Box.	Pkgs.		Name.	lb.	c.
3	Maha Eliya	79	11	ch	bro mix	1320	21
5	Wendura	8?	11	do	bro pek	1045	36
10	Kandaloya	100	105	hf ch	bro pek	4725	41
11		103	30	do	or pek	1200	36
12		106	104	do	pekoe	4160	36
14		112	33	do	sou	1320	31
16		118	17	do	fans	8.0	21
18	Callander	124	18	do	bro or pek	1008	66
19		127	19	do	or pek	988	58
20		130	33	do	pekoe	1485	47
23	Agra Ouvah	139	20	do	bro or pek	1.40	74
24		112	40	do	bro pek	2400	16
25		145	11	ch	pekoe	1100	46
26	Mocha	148	24	do	bro or pek	2400	75
27		151	12	do	or pek	1030	58 bi
28		154	18	do	pekoe	1620	52
30	Gingran Oya	160	25	hf ch	bro pek	1375	47
32		166	9	ch	pekoe	855	36
34		172	12	hf-ch	bro pek fans	849	31
35		175	10	do	dust	800	24
38	Whyddon	184	11	ch	bro pek	1210	65
39		187	9	do.	or pek	855	45
40		190	8	do	pekoe	736	41
44	Gansarapolla	262	39	hf-ch	bro pek	2145	36 bid
45		205	22	ch	or pek	1950	32 bid
46		208	18	do	pekoe	1620	27
47		211	18	do	pek sou	1530	29 bid
48	N B	214	14	hf-ch	dust	1260	24
49		217	9	ch	sou	900	36
53	Kadien Lena	229	19	do	pekoe	1425	31 bid
54		232	24	do	pek sou	1800	24 bid
55	Ovoca	235	27	hf-ch	bro or pek	1350	63 bid
56		238	20	do	or pek	1000	53 bid
57		241	30	do	pekoe	1350	39 bid
58		244	21	do	pek sou	945	38 bid
59	Eila	247	48	ch	pekoe	3840	32
60		250	35	do	pek sou	2800	28
61	Arncliff	253	65	hf-ch	or pek	3250	39 bi
62		256	27	ch	pekoe	2 60	36 bid
63		259	10	do	pek sou	1000	29 bi
64	S P, in est. mark	262	6	do	pek dust	975	16
66	Mount Clare	268	9	do	or pek	774	30 bid
67	Ottery	271	19	do	bro or pek	1900	58
68		274	14	do	or pek	1190	51
69		277	32	do	pekoe	3040	41
71	Brownlow	283	18	hf ch	bro or pek	936	68
72		286	22	do	bro pek	1012	52
73		289	17	ch	pekoe	1360	38
75	Gangawatte	295	10	do	or pek	1000	39 bid
76		298	9	do	bro or pek	900	68
77		301	9	do	bro pek	945	45 bid
78		304	21	do	pekoe	2100	38
81	Glassaugh	313	15	hf-ch	or pek	780	71 bid
82		316	12	do	bro or pek	780	65
83		219	14	ch	pekoe	1260	49
85	Kotuagedera	325	46	do	bro pek	4600	38 bid
86		328	21	do	pekoe	1890	33
90	Richmond Hill	340	25	do	bro pek	2375	33 bid
91		343	50	do	pekoe	2310	31 bid
92	CC, in est. mark	346	25	hf-ch	bro pek fans	1500	25 bid
93	Hayes	349	61	ch	pekoe	4880	32 bid
94	Verellapatna	352	43	do	bro pek	47 0	50
95		355	74	do	pekoe	7400	43 bid
96		358	22	do	pek sou	2090	38
97	Rockwood	361	68	do	pekoe	6148	37 bid
98	Ferndale	364	8	do	bro or pek	809	65
99		367	13	do	or pek	1170	49
100		370	9	do	pek No. 1	810	41
102		376	11	do	pek sou	990	34
103	Maskeliya	379	24	hf-ch	bro or pek	1200	64
104		382	24	ch	or pek	2160	39 bid
105		385	21	do	pekoe	1680	33 bid
106	Coundon	388	19	hf ch	or pek	912	44
108		394	21	ch	pekoe (H)	1890	39
109		397	17	do	pek sou (H)	1360	33
116	Rookwood	418	40	hf-ch	bro or pek	2200	52
117		421	29	ch	pekoe	2610	38 bid
118		424	30	do	pek sou	2160	33 bid
119	Verellapatna	427	15	do	bro pek	1650	51
120		430	21	do	pekoe	2100	44
121		433	11	do	pek sou	1045	37
125	A	445	6	do	pek fans	895	14

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Mapitigama	39	2	ch	bro or pek No. 2	200	30
2		33	3	do	pek	255	30
4		39	3	do	pek fans	255	12
5		42	4	do	bro mix	300	20
9	Mapitigama	54	5	do	bro or pek	475	41
10		57	7	do	bro pek	665	39
11		60	9	do	pek sou	675	30
13		66	3	do	bro or pek fans	330	31
17	Halgolla	78	3	ch	fans	345	23
18		81	2	do	dust	300	19

[Messrs. Forbes & Walker.

Lot.		Box.	Pks.		Name.	lb.	c.
6	S P	1621	8	ch	sou	680	19
13	Sunnycroft	1642	4	do	bro tea	560	20
15	Kakiriskande	1648	4	ch	bro pek	400	37
18	Nahaveena	1657	1	hf ch	congo	57	26
22	Maragalla	1669	2	ch	bro tea	160	29
26	Erlsmere	1681	3	do	pek sou	240	40
27		1684	2	hf ch	dust	138	25
38	Cumbawella	1717	7	ch	pek sou	560	26
39		1720	3	do	fans	285	22
40		1723	1	do	dust	140	20
46	C S G	1741	3	ch	bro mi	300	25
48	Doorooma-della	1747	6	hf ch	bro or pek	330	34
49		1750	5	ch	bro pek	450	34
50		1753	4	do	pek	368	30
51		1756	2	do	pek sou	170	28
52		1759	2	do	sou	170	26
53		1762	1	do	sou	85	26
58	G	1777	6	hf-ch	dust	480	20
59		1780	1	ch	bro pek fans	110	25
62	St. Martin	1789	14	hf-ch	pek sou	560	28
63		1792	2	do	congou	80	25
64		1795	6	do	fans	360	21
68	Pine Hill	1807	5	ch	pek sou	425	34
69		1810	3	hf ch	dust	255	22
71	Kincora	1816	8	ch	bro pek	640	46
72		1819	9	do	pek	630	36
73		1822	6	do	pek No. 2	390	30
78	Clarendon	1837	2	ch	sou	160	32
79		1840	1	hf-ch	dust	80	21
96	Ruanwella	1891	4	ch	dust	480	21
106	Massena	1921	3	hf ch	pek fans	180	25
107		1924	2	do	fans	140	24
108		1927	1	do	dust	90	20
113	Bambragalla	1942	11	hf ch	bro or pek	660	45
115		1948	10	do	pek	500	34
116		1951	6	do	pek sou	300	32
117		1954	2	do	sou	100	30
118		1957	1	do	dust	80	22
119	M'Golla	1960	1	ch	red lea	95	13
120	N B	1963	9	ch	bro tea	675	18
121		1966	2	hf ch	dust	140	16
122	Cooroondoowatte	1969	8	do	bro pek	512	58
123		1972	6	ch	pek sou	582	36
135	Dambagastalawa	2008	6	ch	pek sou	528	35
136		2011	2	do	bro pek fans	270	3?
137	D G T	2014	4	ch	bro pek	440	35
139		1020	2	do	pek sou	168	23
140		2023	1	do	bro pek fans	140	21
144	Mawiligangawatte	2035	3	ch	dust	300	19
145	L, in estate mark	2038	9	ch	bro tea	585	21
146		2041	2	hf ch	dust	140	31
148	C, in estate mark	2047	2	ch	bro or pek	190	47
149		2050	3	hf-ch	pek	183	35
150	Kennington	2053	6	ch	bro pek fans	672	23
151		2056	7	do	unas	630	20
152		2059	2	do	dust	300	19
153	Ingurugalla	2062	3	ch	pek sou	270	29
154		2065	4	hf-ch	bro tea	310	24
155		2068	1	do	red leaf	90	18
159	Kitulgalla	2080	2	ch	pek sou	180	27
160		2083	1	do	congou	85	26
161		2086	2	hf ch	dust	220	21
164	Ascot	2095	4	ch	bro or pek	350	31
165		2098	6	do	pek	540	28 bid
166		2121	5	do	pek sou	450	25 bid
168		2107	1	do	fans	95	20
174	Strathspey	2125	4	ch	bro or pek	420	81
175		2128	6	do	or pek	570	55

Lot		Box.	Pkgs.	Name.	lb.	c.
177		2134	2 ch	pek sou	190	40
176		2137	1 do	red leaf	88	19
179		2140	1 do	dust	100	23
180	I K V	2143	4 ch	bro mix	448	10
181		2146	5 do	pek fans	600	20
193	W, in estate mark	2182	1 ch	or pek	108	31
194		2185	3 do	bro or pek	343	36
200	Derby	2203	10 ch	bro pek	600	37
201		2206	7 hf ch	pek	392	31
202		2209	5 do	pek sou	275	27
203		2212	1 do	dust	58	20
210	Waitalawa	2233	13 hf-ch	pek No. 2	650	32
216	K P W	2251	12 do	pek	600	33
217		2254	10 do	pek sou	460	28
218		2257	1 do	dust	85	19
225	C S G	2278	4 ch	bro mixed	400	20
227	N E M	2284	5 do	bro pek	500	28
232		2299	4 do	congou	320	18
233		2309	3 do	pek fans	300	16
234	A	2306	2 do			
			1 hf-ch	br pk fans	250	16
235		2308	2 do	bro or pek	94	33
236		2311	1 ch			
			1 hf-ch	or pek	150	
237		2314	2 do	br pek dust	170	28
238		2317	2 ch	pek sou	180	18
244	Panslatenne	2335	2 do	fans	260	23
245		2338	3 do	dust	450	20
246	Cottaganga	2341	4 hf-ch	bro pek	397	19
247	D in est. mark	2344	9 do	sou	405	28
249		2350	6 do	bro mixed	360	21
250		2353	8 do	dust	640	15
259	Arapolakande	2380	5 ch	dust	575	16
265	Galkande	2398	2 do	dust	240	21
266		2401	1 hf-ch	congou	50	17
271	Kalupahana	2416	4 ch			23
			2 hf-ch	or pek	474	32
272		2419	7 ch			
			2 hf-ch	pek	694	29
273		2422	5 ch			
			4 hf-ch	pek sou	595	26
274		2425	2 do	bro mixed	120	21
275		2428	1 do	dust	82	20
280	Tembiligalla	2443	1 ch	pek sou	90	28
281		2446	1 hf-ch	br pk fans	75	28
282		2449	1 do	dust	95	21
283	Allerton	2452	2 do	red leaf	190	14
284		2455	1 ch	dust	120	19
286	Munaar	2461	5 hf-ch	dust	350	out
295	H	2488	3 ch	bro pek fans	180	20
296		2491	1 hf-ch	pek sou	60	28
298	C P H Galle, in est. mark	2497	8 do	congou	360	26
307	Bloomfield	2524	4 ch			
			1 hf ch	pek sou	440	38
308		2527	1 do	pek fans	94	18
309	B in est. mark	2530	3 ch	unast	324	28
311	Letchemy	2536	5 hf-ch	pk fans	400	29
314	Poengalla	2545	7 ch	dust	630	22
316	S	2551	1 do	dust	192	18
320	Woodend	2563	3 do	dust	420	22
321	W	2566	2 do	bro pek	145	33
322		2569	3 do	pek	261	26
323		2572	1 do	pek sou	81	19

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Allakolla	274	6 ch	sou	540	25
2		277	4 do	red leaf	360	19
3		280	6 hf ch	dust	600	19
5	P T N, in estate mark	286	3 hf ch	pek fans	180	1
6		289	1 do	pek dust	86	17
7	Welgampola	292	8 hf ch	bro pek	448	37
10		301	2 do	sou	100	25
11		304	2 do	fans	100	22
14	Mousakande	313	4 hf ch	bro or pek	224	32
15		316	4 ch	bro pek	360	32
17		322	5 do	pek sou	475	28
18		325	4 do	sou	360	25
19		328	3 hf ch	dust	240	20
21	Gangwarily	334	3 hf ch	dust	240	18
22		337	6 do	fans	600	16
23		340	3 do	red leaf	225	18
24	Havilland	343	5 ch	pek fans	500	18
25		346	8 do	sou No. 1	600	26
26		349	1 hf ch	dust	100	23
27		352	7 ch	sou No. 2	595	17
30	Florida	361	4 ch	pek sou	400	26
31		364	4 do	fans	368	17
32		367	2 do	bro mix	184	16
33		370	1 do	dust	127	18
38	B, in estate mark	385	1 ch	bro or pek	105	30
39		388	4 do	pek	360	24
40		391	4 do	pek	325	21
41		394	2 do	pek sou	128	18
42	M G	397	7 hf ch	bro mix	350	15
46	Glenamore	409	10 hf ch	dust	550	23
47	Alfred	412	1 hf ch	bro pek	55	30
48		415	1 do	pek	54	28
49		418	1 ch	bro mix	80	18
50		421	1 hf ch	pek sou	41	24
53	Auburn	430	4 ch	pek sou	320	29
57	Oakham	442	7 ch	pek sou	665	31
58		445	4 hf ch	pek fans	320	26
61	Attiville	454	6 ch	pek sou	595	25
62		457	3 do	red leaf	303	18
71	Panagahakande	484	6 ch	bro pek	600	33
73		490	5 do	pek sou	450	25
74		493	3 do	fans	270	18
75		496	1 do	dust	137	18
76		499	1 do	red leaf	100	14
78	Hustpierpoint	505	7 ch	pek	641	28
79		508	3 do	pek sou	300	26
80		511	2 do	dust	192	17
81	Hangranoya	532	8 do	pek sou	600	28
91	Blinkbonnie	544	8 ch	pek sou	656	40
92	X X	547	6 hf-ch	bro pek	360	32
93		550	8 do	pek	400	33
94		553	7 do	pek sou	280	28
95	Scarborough	556	1 ch	con	57	19
96	Monte Christo	559	4 ch	pek sou	320	25 bid
97		562	6 hf ch	pek fans	540	22 bid
102	Wewatenne	577	6 hf ch	con	300	26
103	Avon	580	3 ch			
			1 hf ch	bro pek	393	37
104		583	3 ch	pek	273	32
105		586	2 do	pek sou	148	28
106		589	1 do	bro pek No 2	118	30
107		592	1 do	pek No. 2	73	28
113	M, in estate mark	610	4 hf ch	bro or pek	240	32
115		616	4 do	pek	360	27 bid
116		619	3 do	pek sou	270	26
117		622	2 hf ch	bro or pek fans	114	26
123	Hatdowa	640	4 ch	fans	400	25
124		643	6 do	sou	420	25
128	Depedene	655	5 hf ch	dust	400	21
135	L E, in estate mark	676	2 ch	bro pek	190	28
136		679	1 do	pek	90	27
137	Welgampola	682	9 hf ch	bro pek	504	35
138		685	12 do	pek	600	29
140		691	9 do	sou	450	26
141		694	4 do	fans	200	20
142		697	2 do	bro tea	120	18
143		700	5 do	dust	300	19
144	G A	703	5 ch	pek sou	375	25
145		706	9 do	dust	594	24
149	Eilandhu	718	2 ch	bro tea	180	23
154	Nanuoya	733	3 hf ch	or pekNo. 1	153	42
157		742	1 ch	or pek fans	73	31
158		745	3 ch	dust	240	21
159		748	2 do	bro mix	150	15
161	W	754	6 hf ch	dust	330	14
164	S F, in estate mark	763	3 ch	bro pek	309	30
167		772	1 do	dust	130	19
169	W H R	778	4 ch	dust	500	29
177	Meddegodde	802	6 hf ch	fans	390	23
178		805	3 do	dust	240	23
179	A B C	808	3 ch			
			1 hf ch	bro pek	356	27
181	Yahalatenne	814	4 ch	dust	620	19
185	Bargany	826	7 hf ch	fans	420	36
186	B G Y, in estate mork	829	1 hf ch	bro pek	67	34
187		832	6 do	fans	360	26
188		835	2 do	dust	180	20
200	Nilkande	871	5 ch	fans (hooped)	450	22
208	Glenalmond	895	7 ch	pek sou	560	23 bid
209		898	2 do	bro pek fans	240	31 bid
210		901	1 do	dust	101	20 bid
211	G A D	904	1 ch	bro pek	95	33
212		907	2 do	pek	180	28
213		910	2 do	pek sou	144	25
214		913	1 do	bro pek fans	110	24

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	St. Andrews	73	5 ch	bro tea	500	15
2		76	5 hf-ch	bro tea and dust	450	15
4	Ullandapitiya	82	6 do	pekoe	300	31 bid
6	Wendura	88	9 ch	pekoe	675	31
7		91	8 do	pek sou	640	28
8		94	6 do	pek sou No.2	540	26

Lot.		Box.	Pkgs.	Name.	lb.	c.
9		97	2 hf-ch	dust	170	22
13	Kandaloya	109	9 do	pek sou	360	32
15		115	14 do	bro tea	560	29
17		121	11 do	dust	550	21
21	Callander	133	7 do	pek sou	280	41
22		136	8 do	bro pek fans	560	36
29	Mocha	157	6 do	fans	420	36
31	Gingran Oya	163	8 do	or pek	400	40
33		169	3 ch	pek sou	270	33
36	L, in est. mark	178	3 hf-ch	bro pek	140	31
37		181	7 do	pekoe	350	27
41	Whyddon	193	2 ch	pek sou	190	36
42		196	1 do	fans	131	30
43		199	1 do	dust	150	22
50	N B	220	4 do	bro mix	392	19
51	W H	223	4 hf-ch	pek sou	200	36
52		223	2 do	dust	180	29
65	SP, in est. mark	265	2 ch	pek fans	215	18
70	Ottery	280	2 do	sou	202	32
74	Brownlow	292	8 hf-ch	bro pek fans	568	28
79	Gangawatte	307	3 ch	dust	330	21
80		310	5 do	pek sou	475	33
84	Glassaugh	322	2 do	bro mix	200	20
87	Kotuagedera	331	5 do	pek sou	450	25
88		334	2 hf-ch	dust	180	18
89		337	6 do	bro pek fans	450	23
101	Ferndale	373	4 ch	pek No. 2	360	38
107	Coundon	391	10 hf-ch	bro or pek	550	55
110		400	10 do	bro pek fans	650	37
111		403	5 do	fans	325	29
112	K T	406	2 do	sou	110	20
113	Evalgolla	409	5 do	fans	325	23
114		412	3 do	dust	240	20
115	Orangefield	415	4 do	pek fans	340	17
122	D	436	6 do	dust	510	15
123		439	2 ch	dust	210	15
124	A	442	2 do	dust	300	15
126	H, in est mark	448	2 do	dust	240	15
127	L	451	4 do	pek dust	390	14

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent)

MINCING LANE, July 20.

"Bingo Maru."—MAK in estate mark, 28 bags sold at 39s 6d ; 2 bags sold at 34s.

"Rome."—H in estate mark, 30 bags sold at 40s 6d ; 3 bags sold at 34s ; S H in estate mark, 22 bags sold at 39s.

"Antenor."—Olivers 1 in estate mark, 1 cask sold at 76s ; ditto 2, 1 barrel sold at 50s ; OL 1 in estate mark, 1 tierce sold at 76s ; WHC O in estate mark, 1 cask sold at 70s ; ditto 1, 1 tierce sold at 50s.

CEYLON COCOA SALES IN LONDON.

"Tamba Maru."—DMA & Co., in estate mark, 22 bags sold at 72s 6d.

"Sanuki Maru."—Kepitigalla, 26 bags sold at 86s 6d ; 30 bags sold at 76s 6d ; ditto, 3 bags sold at 69s ; Coodoogalla, 17 bags sold at 88s ; 1 bag sold at 71s.

"Java."—DM & Co., 15 bsgs sold at 73s.

"Tamba Maru."—B & B, 17 bags sold at 76s 6d.

"Sanuki Maru."—KAS & Co., 185 bags sold at 78s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Hitachi Maru."—Malabar, 1 case sold at 1s 4d.

"Kanagawa Maru."—Rookwela K in estate mark, 2 cases sold at 1s 5d.

"Staffordshire."—Hoolo Group 1, 3 cases sold at 2s 5d ; TFC in estate mark, 1 case sold at 1s 6d.

"Machon."—Nellaoola O, 4 cases sold at 2s 5d ; ditto 1, 1 case sold at 1s 9d ; 2 cases sold at 1s 10d ; ditto 2, 1 case sold at 1s ; ditto B & S, 1 case sold at 11d ; Wattakely No. 1, 4 cases sold at 2s 7d ; ditto No. 2, 4 cases sold at 2s 8d ; ditto No. 3, 1 bag sold at 1s 4d ; ditto No. 4, 1 case sold at 1s 4d ; ditto Seed, 1 case sold at 1s 7d.

"Bingo Maru."—DMA & Co., in estate mark, 22 cases sold at 1s 9d ; DM in estate mark, 3 cases sold at 1s 8d.

"Mallard."—MMB in estate mark, 1 case sold at 1s 5d ; 1 case sold at 1s 2d.

OBSERVER PRINTING WORKS.

No. 31 COLOMBO, AUGUST 20, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[5,467 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c
1	Hornsey	31	24 hf-ch	or pek	1200	65
2	·	34	21 do	bro or pek No. 2	1365	33
3	Hapugastenne	37	7 ch	bro or pek	700	39
5		43	9 do	pek	747	38
6		49	11 do	pek sou	770	32

Messrs. Forbes & Walker,

[450,441 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	B, in estate mark	2611	13 ch	sou	1170	27
2		2614	9 do	dust	1260	21
4	D	2620	10 ch	pek sou	1039	23
5	L G F, in estate mark	2623	21 ch	dust	2940	22
6		2626	28 do	sou	2800	25
12	P A N, in estate mark	2644	18 ch	bro pek	1944	31
13		2647	10 do	pek	950	28
17	Graceland	2659	17 hf ch	bro pek	935	36
22	St. Pauls	2674	19 hf ch	bro pek	988	61
23		2677	130 do	pek	6500	45
24		2680	105 do	pek sou	4515	37
26	Cooroondoo-watte	2686	8 ch	pek sou	752	41
29	Chesterford	2695	70 ch	bro pek	7000	34 bid
30		2698	64 do	pek	6400	31
31		2701	34 do	pek sou	3400	29
32	L D L	2704	22 ch	bro or pek	2200	29
33		2707	56 do	bro pek	5600	32
34		2710	35 do	pek	3325	30
35		2713	33 do	pek sou	3135	26 bid
36		2716	10 hf-ch	dust	700	19
37	Roeberry	2719	18 ch	bro or pek	1800	69
38		2722	40 do	bro pek	4000	53
39		2725	40 do	pek	3680	47
40		2728	10 do	pek sou	860	39
41		2731	7 do	dust	700	21
42		2734	10 do	fans	1000	33
43	Queensland	2737	14 hf-ch	bro or pek	700	92 bid
44		2740	12 ch	pek	1080	43 bid
53	Nahalma	2767	17 ch	sou	1700	26
54	Walpita	2770	11 ch	or pek	1100	39
55		2773	13 do	bro pek	1300	37 bid
56		2776	19 do	pek	1900	36
57		2779	14 do	pek sou	1120	30
61	Pendle	2791	14 ch	bro pek	1400	58
62		2794	12 do	pek	1020	42
67	Maligatenne	2809	7 ch	bro pek	735	30
68		2812	8 do	pek	800	27 bid
71	Maldeniya	2821	20 ch	bro or pek	2060	34
72		2824	37 do	or pek	3330	34
73		2827	47 do	pek	3901	32
74		2830	25 do	pek sou	2125	28
75	Cullen No. 3	2833	41 ch	bro or pek	4346	48
76		2836	40 do	or pek	3600	44
77		2839	19 do	pek	1710	39
83	Farnham	2857	28 ch	bro pek	2660	38
84		2860	7 do	bro or pek	875	33
85		2863	18 do	or pek	1440	35
86		2866	29 do	pek	2610	34
87		2869	27 do	pek sou	2295	27
89	Rowley	2875	29 hf ch	bro pek	1450	49
90		2878	30 do	pek	1500	37
93	Hayes	2887	8 ch	bro or pek	800	62
94		2890	13 do	bro pek	1300	46
95		2893	27 do	or pek	2160	33 bid
96		2896	85 do	pek	7225	31
97		2899	28 do	pek sou	2240	29
99	High Forest	2905	29 hf ch	or pek No. 1	1740	95
100		2908	13 do	or pek	728	62
101		2911	15 do	pek	750	51
102	Maha Uva	2914	31 hf-ch	bro or pek	1860	44 bid
103		2917	22 do	or pek	1232	53
104		2920	31 ch	pek	2790	42
105		2923	12 do	pek sou	960	36

Lot.		Box.	Pkgs.	Name.	lb.	c.
108	Erracht	2932	29 ch	bro or pek	2755	34
109		2935	20 do	bro pek	1600	37
110		2938	31 do	pek	2325	29
114	Non Pariel	2950	29 hf ch	bro pek	1622	48 bid
115		2953	16 do	pek	800	42
116		2956	18 do	pek sou	807	38
120	Morankande	2965	14 hf-ch	bro or pek	784	42
121		2968	19 do	or pek	1615	36
122		2971	28 do	pek	2520	31
123		2974	16 ch	pek sou	1440	28
124	Inverness	2977	34 hf ch	bro or pek	2040	50
125		2980	12 ch	or pek	1200	50 bid
126		2983	26 do	pek	2340	40
127	Beausejour	2986	19 ch	bro pek	1710	33
128		2989	30 do	pek	2400	29
129	Mousakellie	2995	21 ch	bro or pek	1995	41
130		2998	14 do	or pek	1260	32
133	Beaumont	3007	22 ch	bro or pek	2090	34 bid
134		3010	37 do	or pek	3145	31
135		3013	8 hf-ch	fans	712	23
136	Kumaradola	3016	12 ch	bro or pek	1320	35 bid
137		3019	8 do	or pek	720	36
147	Wallaha	3049	18 ch	bro or pek (Venesta chests)	1980	46 bid
148		3052	17 hf-ch	bro pek	1020	53
149		3055	12 ch	pek No. 1	1104	43
150		3058	9 do	pek ,, 2	864	39
154	Weyunga-watte	3070	34 ch	bro pek	3230	36 bid
155		3073	34 do	pek	3060	33
156		3076	37 do	pek sou	2960	32
159	P'Kande	3085	22 ch	bro pek	2209	39
160		3088	29 do	pek	2465	32
161		3091	9 do	pek sou	720	29
162	Passara Group	3094	40 ch	or pek	3600	47
163		3097	34 ch	bro or pek	3400	53
164		3100	55 do	pek	4959	43
165		3103	25 do	pek sou	2500	39
168	Vogan	3112	9 ch	bro or pek	990	35
169		3115	21 do	or pek	1995	43
170		3118	36 do	pek	2880	35
171		3121	9 do	pek sou	720	30
172	Stamford Hill	3124	27 hf-ch	bro or pek	1674	58
173		3127	17 do	or pek	816	59
174		3130	15 ch	pek	1350	43
177	Digdola	3139	15 ch	bro or pek	1200	38
178		3142	12 do	bro pek	1140	35
179		3145	32 do	pek	2240	32
183	Penrhos	3157	32 hf ch	bro or pek	1760	49
184		3160	28 do	or pek	1372	45
185		3163	39 ch	pek	3354	35
186		3166	9 do	pek sou	738	32
190	Ireby	3178	20 hf-ch	bro pek	1100	71 bid
191		3181	10 ch	pek	850	47
192	Pansala-tenne	3184	45 ch	pek	3822	30
193	D, in estate mark	3187	18 hf ch	fans	987	22
194	Halbarawa, Invoice No. 2	3190	12 ch	bro pek	1200	35
195		3193	16 do	pek	1440	31
201	Mahayaya	3211	11 ch	pek	847	29
202		3214	16 hf ch	pek sou	800	26
205	S P	3223	11 ch	bro pek fans	1317	16 bid
206		3226	41 hf-ch	dust	3482	15 bid
210	Shrubs Hill	3238	17 ch	bro pek	1700	44
211		3241	21 do	bro or pek	2205	38
212		3244	34 do	or pek	2890	37
213		3247	19 do	pek	1558	34
215		3253	17 hf-ch	bro pek fans	1241	18
216	Quilon	3256	10 do	bro tea	760	14
217	Forest Creek	3259	25 ch	bro or pek	2500	74
218		3262	25 do	bro pek	2500	58
219		3265	12 do	or pek	1080	48
220		3268	15 do	pek No. 1	1350	41
221		3271	17 do	pek No. 2	1530	39
222	Rockside	3274	10 do	sou	800	2[illegible]
225		3283	4 do	dust No. 2	700	18
226		3286	6 do	bro pk fans	720	32
229	N E M	3295	8 do	or pek	717	22
230		3298	12 do	pek	1077	22
231		3301	22 do	pek sou	1977	18
232		3304	21 do	br mixed	1782	14
233	Choisy	3307	80 hf-ch	bro pek	4000	52
234		3310	35 do	pek	1680	39
235		3313	25 do	pek No. 2	1125	38
236		3316	60 do	pek sou	2400	37
237	P in est. mark	3319	28 do	bro or pek	1400	55
238		3322	11 ch	bro or pek	1100	54

Lot.		Box.	Pkgs.	Name.	lb.	c.
239		3325	21 ch	pek	1680	41
240		33282	4 do	pek sou	1920	38
245	New Peacock	3343	12 do	pk fans	800	29
242	E D P	3334	14 do	sou	1050	27
246	Augusta	3346	22 do	bro pek	2090	36
247		3349	23 do	pek	2070	32
250		3358	6 do	dust	840	19
258	Castlereagh	3382	16 do	br pek	1520	51 bid
260		3388	12 do	pek	960	37
265	Tonacombe	3403	25 do	or pek	2250	48
266		3406	7 do	bro or pek	700	64
267		3409	19 do	bro pek	1900	48
268		3412	28 do	pek	2520	43
269		3415	16 do	pek sou	1440	37
271	C in est. mark	3421	19 do	bro pek fans	1900	20 bid
272	F in est. mark	3424	48 do	bro pek	4560	21 bid
273	G P M	3427	35 do	pek sou	2800	16 bid
274	Fredsruhe	3430	33 do	bro pek	3630	38
275		3433	29 do	pek	2900	35
276		3436	17 do	pek sou	1700	29
281	Nakiadenia	3451	27 do	pek	2160	31
282		3454	12 do	pek sou	900	27
283		3457	7 do	bro pk fans	700	24
288	Rosita	3472	17 do	dust	2550	20 bid
290	Broadoak	3478	37 do	sou	3145	24
293		3487	5 do	br pek dust	780	19
295	Bickley	3493	17 hf-ch	bro or pek	918	74
296		3496	47 do	or pek	1269	51
297		3499	31 do	pek	1395	38
298	Munaar	3502	25 do	dust	1719	20
304	Clunes	3520	12 ch	bro or pek	1200	32
305		3523	16 do	bro pek	1440	36
306		3526	13 do	or pek	975	36
307		3529	35 do	pek	2625	30
308		3532	19 do	pek sou	1520	26
312	Seenagolla	3544	26 hf-ch	bro or pek	1430	53
313		3547	61 do	pek	720	40
317	Henleys	3550	28 do	bro pek	1540	44
319		3565	17 ch	pek	1360	31
328	Taldua	3592	16 do	pek	1615	25
329		3595	12 do	pek	915	24
331	Dunnottar	1	8 do	bro or pek	800	66
332		4	8 do	bro pek	800	49
333		7	50 do	pek	4250	39
338	Amblangoda	28	34 do	bro pek	3400	37 bid
341		31	27 do	pek	2430	34
342		34	12 do	pek sou	1080	31
344	Hopton	40	46 do	bro pek	4600	37 bid
345		43	40 do	pek	3600	35
346		46	19 do	pek sou	1710	32
347		49	7 do	dust	770	23
348	Adisham	52	52 hf-ch	bro or pek	2860	53
349		55	28 do	or pek	1260	52
340		58	19 ch	pek	1425	42
351		61	13 do	pek sou	910	39
352		64	11 do	pek No. 2	990	38
553		67	10 hf-ch	br pk fans	750	23
355	Cotswold	73	8 ch	bro or pek	800	52
356		76	14 do	pek	1260	37
360	Gallawatte	88	11 do	bro pek	990	38
361		91	15 do	pek	1275	33
362	Devonford	94	15 do	or pek	1350	60 bid
263	Kitulgalle	97	13 do	or pek	1235	33
364		100	14 do	pek	1260	29 bid
365	B D W P	103	25 do	br pek	2125	36 bid
370	Gonapatiya	118	22 hf-ch	pek fans	1320	38
373	A and H in est. mark	127	13 do	br pek	748	out
378	Forestvale	142	24 ch	or pek	2121	40 bid

[Mr. E. John.—131,217 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	Kandaloya	454	72 hf-ch	bro pek	3240	39 bid
2		457	46 do	or pek	1840	36
3		460	76 do	pekoe	3040	36
6	Loughton	469	20 do	or pek	1000	41
7		472	56 do	pekoe	2800	38
8		475	40 do	pek sou	2000	31
11	Templestowe	484	35 ch	bro or pek	2450	53
12		487	22 do	or pek	880	49
13		490	33 do	pekoe	2475	38
14		493	10 do	sou	850	30
15		496	15 do	bro mix	1275	27
17	Lameliere	502	13 do	bro or pek	1235	66
18		505	11 do	bro pek	990	48 bid
19		508	18 do	pekoe	1512	41
21	Iona	514	27 hf ch	bro or pek	1566	65
22		517	17 ch	or pek	1615	46 bid
23		520	13 do	pekoe	1040	43
25	Yakka	526	12 do	bro pek	1224	31 bid
26		529	19 do	pekoe	1615	36
27	Ben Nevis	532	14 hf-ch	bro pek	868	53
29		538	10 ch	pekoe	900	42
33	Agra Ouvah	550	9 do	pek fans	720	31

Lot.		Box.	Pkgs.	Name.	lb.	c.
34	Mount Everest	553	15 hf-ch	bro or pek	825	82 bid
35		556	18 do	or pek	900	55
36		559	15 ch	pekoe	1500	46
37		562	8 do	pek sou	720	42
38	Wadhurst	565	8 do	or pek	800	50
39		568	8 do	pekoe	760	39
44	P	583	38 do	bro pek	3800	36
45		586	33 do	pek sou	2970	23
46	Ohiya	589	20 do	or pek	1840	45
47		592	52 hf-ch	bro pek	3120	46 bid
48		595	11 ch	pek sou	1012	37
49		598	13 hf-ch	dust	1105	23
50		601	19 do	fans	1197	34
51		604	19 ch	sou	1729	33
52	Syton	607	9 do	bro or pek	900	40
53		610	16 do	bro pek	1440	41
54		613	12 do	pekoe	1020	34
55		616	15 do	pek sou	1275	26 bid
59	Cleveland	628	20 hf-ch	flowy or pek	1160	60 bid
60		631	23 do	pekoe	1219	43
63	B K	640	21 do	dust	1890	16
65	Rookwood	646	59 ch	bro or pek	3245	44
66		649	9 do	or pek	810	36
67	Birnam	652	16 do	pek sou	1312	37
68	Nahavilla	655	24 do	or pek	2400	54
69		658	37 do	bro pek	3700	66
70		661	14 do	pekoe	1400	55
71		664	11 do	pek sou	990	42
72		667	11 hf ch	dust	880	28
76	Kanangama	679	22 ch	bro pek	2200	35
77		682	22 do	bro pek	2090	35
78		685	21 do	br pek No.1	1995	35 bid
79		688	14 do	pekoe	1120	27
81	Orangefield	694	15 do	bro pek	1500	28 bid
82	Evalgolla	697	55 hf-ch	bro pek	2750	39
83		700	63 do	pekoe	3150	33½bid
84		703	19 ch	pek sou	1520	28
91	Rondura	2	16 do	bro pek	1600	38
92		727	18 do	or pek	1440	39
93		730	31 do	pekoe	2480	33
94		733	20 do	pek sou	1600	26
96	P	739	49 hf-ch	bro pek fans	2940	23 bid
97	Poilakande	742	43 ch	bro pek	4300	38
98		745	30 do	pekoe	2700	32
109	Doonhinda	778	13 do	bro pek	1430	57
110		781	20 do	pekoe	2000	47
111		784	9 do	pek sou	855	41

Messrs. Somerville & Co.—191,305 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Doragalla	931	16 ch	bro or pek	1520	53
6		934	17 do	bro pek	1445	44
7		937	21 do	pek	1575	37
9		943	6 do	bro mix	702	22
10	Moragalla	946	14 do	bro pek	1400	32
11		949	14 do	pek	1400	28
15	Polgahakande	961	16 do	bro pek	1520	34
16		964	14 do	pek	1190	29
17		967	14 do	pek sou	1120	27
19	Hanagama	973	21 do	pek	1890	28
20		976	26 do	pek sou	2340	26
24	Venture	988	15 do	pek	1350	41
26	Glenesk	994	28 do	bro pek	2800	29
27		997	31 do	bro pek	2945	29
28		1000	22 do	pek	1870	26
29		1003	7 do	bro tea	700	19
30	Yarrow	1006	37 hf-ch	bro or pek	2072	37
31		1009	34 do	or pek	1360	38
32		1012	56 do	pek	2240	36
35	Kelani	1021	52 ch	bro pek	4160	32
36		1024	38 do	bro or pek	3800	32
37		1027	64 do	pek	5120	28
38		1030	32 do	pek sou	2400	26
52	R K P	1072	16 do	bro pek	1280	31
53		1075	10 do	bro or pek	1100	30
54		1078	16 do	pek	1280	27 bid
55		1081	20 do	pek sou	1500	26
58	Lonach	1090	61 hf ch	bro pek	3355	49
59		1093	26 ch	pek	2080	35
60		1096	13 do	pek sou	1040	31
61	Killin	1099	15 hf ch	bro or pek	750	40
66	Dalukoya	1114	13 do	bro or pek	780	46
67		1117	17 do	or pek	935	34 bid
68		1120	21 do	pek	1155	29 bid
69	Charlie Hill	1123	18 do	bro pek	900	33
74	Bloompark	1138	8 ch	bro pek	800	33
75		1141	8 do	pek	720	28
76		1144	8 do	pek sou	760	26
78	Ingeriya	1150	73 hf ch	bro pek	3650	30 bid
79		1153	25 do	bro or pek	1500	31
80		1156	60 do	pek	2400	29
81		1159	40 do	pek sou	1840	27
83	Annandale	1165	14 do	bro or pek	798	73
84		1168	15 do	or pek	855	48

Lot		Box.	Pkgs.		Name.	lb.	c.
85		11.1	13	hich	pek	715	4
68		1174	21	do	pek sou	1134	38
91	Atabahena	1189	18	do	pek sou	900	27
94	Danawkande	1198	11	ch	pek	1100	31
99	Ravenscraig	1213	19	hf-ch	bro pek	1045	48
100		1216	51	ch	or pek	4335	33 bid
101		1219	32	do	pek	2880	30
103		1225	9	hf ch	fans	720	21
107	Tyspane	1237	16	ch	bro or pek	1600	50
108		1240	19	do	bro pek	1805	42
109		1243	16	do	pek	1360	37
110	Yspa	1246	15	do	pek sou	1200	32
112	Glen Roy	1252	36	hf-ch	bro or pek	2160	48 bid
113		1255	26	ch	or pek	2470	44
114	Kurunegala Estates Co.	1258	13	hf ch	or pek	780	36
115		1261	27	do	bro pek	1620	36
116		1264	16	ch	pek	1600	31
118	L M, in est. mark	1270	14	do	pek sou	1245	25 bid
119	Monrovia	1273	49	do	bro pek	4900	34
120		1276	42	do	pek	3990	31
121		1279	16	do	pek sou	1600	26
124	A A	1288	6	do	dust	930	27
125	Wilford	1291	17	do	bro pek	1700	34
127	A	1297	6	do	pek fans	895	17 bid
133	R A	1315	11	do	pek	1045	26
135	Neuchatel	1321	48	do	bro pek	4800	34 bid
136		1324	37	do	bro pek	3700	35
137		1327	21	do	pek	1785	33
138		1330	10	do	pek sou	800	29
142	Jak Tree Hill	1342	30	hf ch	bro pek	1650	36
143		1345	43	do	pek	2150	31
144		1348	22	do	pek sou	1100	27
147	Auburn	1357	33	ch	bro pek	3300	33 bid
148		1360	13	do	pek	1170	31 bid
149	Selvawatte	1363	13	do	bro pek	1300	30
152	Dikmukalana	1372	59	hf-ch	bro pek fans	3245	25 bid
153	L	1375	9	do	dust	702	26
156	Woodcote, Nilgiris	1384	20	do	pek	1000	30 bid
157	E	1387	100	ch	pek sou	8000	22 bid
159	M	1393	23	hf-ch	dust	1920	18
160	Jak Tree Hill	1396	27	do	bro pek	1350	42
161		1399	30	do	pek	1500	33
165	Citrus	1411	28	ch	bro pek	2800	31 bid
166		1414	22	do	pek	1980	28 bid
167		1417	8	do	pek sou	800	25
170	Mary Hill	1426	18	hf ch	bro pek	900	44
171		1429	18	do	pek	810	36

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.		Name.	lb.	c.
4	Hapugastenne	40	5	ch	bro pek	435	38
7		49	3	hf ch	fans	165	26
8		52	1	do	dust	85	20

[Mr. E. John.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
4	Kandaloya	463	3	hf-ch	pek sou	120	31
5	Loughton	466	10	do	bro or pek	500	42
9		478	5	do	dust	250	22
10		481	8	do	fans	400	26
16	Templestowe	499	3	ch	dust	213	21
20	Lameliere	511	4	hf-ch	pek fans	272	28
24	Iona	523	2	do	dust	160	27
28	Ben Nevis	535	9	ch	or pek	432	51
30		541	3	do	pek sou	255	33
31		544	2	hf-ch	dust	170	26
32	Agra Ouvah	547	3	ch	pek sou	270	40
40	Wadhurst	571	7	do	pek sou	630	31
41		574	1	do	bro mix	100	17
42		577	3	hf-ch	dust	240	22
43		580	1	do	bro pek fans	55	26
56	Sytou	619	2	ch	fans	210	20 bid
57		622	1	do	dust	150	11 bid
58	W, in est. mark	625	6	do	bro tea	436	18
61	Cleveland	634	4	hf-ch	pek sou	208	40
62		637	2	do	fans	160	28
64	B K	643	1	ch	bro tea	87	14
73	Kataboola	670	8	do	pek sou	680	27
74		673	7	hf-ch	dust	560	22
75	L P	676	7	ch	bro mix	695	17
80	Anamallai	691	2	hf-ch	dust	170	21 bid
85	Evalgolla	706	6	do	fans	390	22 bid
86		709	2	do	dust	160	14
87		712	5	ch	pek sou	400	25
88	Theresia	715	2	hf-ch	bro pek fans	130	31
89		718	3	do	dust	240	24
90		721	1	do	sou	40	37

Lot.		Box.	Pkgs.		Name.	lb.	
95	Rondura	736	2	ch	dust	220	23
19	Poilakande	748	4	do	dust	350	
100	Poowakwatta	751	12	hf-ch	bro pek	600	
01		754	6	do	bro pek No.2	300	
102		757	6	do	pek sou	270	
103	W P	760	2	do	pek dust	110	
104		763	3	do	pek fans	135	
105		766	3	do	bro mix	150	
112	Doonhinde	787	2	ch	dust	250	

[Messrs. Somerville & Co.]

Lot.		Box.	Pks.		Name.	lb.	c.
1	California	919	3	ch	bro pek	285	32
2		922	5	do	pek	475	28
3		925	5	do	pek sou	465	26
4	Doonevale	928	6	hf ch	bro pek	268	33
18	Doragalla	940	6	ch	pek sou	420	32
12	Moragalla	952	6	do	pek sou	600	24
13		955	1	do	sou	108	15
14		958	1	do	pek dust	148	14
18	Hanagama	970	6	do	bro pek	600	33
21		979	2	do	fans	228	16
22		982	1	do	dust	154	16
23		985	2	do	red leaf	140	12
25	Venture	991	6	do	pek sou	450	36
33	Yarrow	1015	13	hf ch	pek sou	650	29
34	Y, in estate mark	1018	7	hf ch	dust	595	22
39	Kahatagalla	1033	5	ch	bro pek	400	32
40		1036	3	do	bro or pek	330	30
41		1039	4	do	pek	320	27
42		1042	6	do	pek sou	450	25
43		1045	1	do	dust	135	21
44	J P E	1048	4	do	bro pek	320	32
45		1051	2	do	bro or pek	220	30
46		1054	2	do	pek	160	28
47		1057	4	do	pek sou	300	25
48	Jak Tree Hill	1060	6	do	bro pek	540	35
49		1063	5	do	pek	400	30
50		1066	3	do	pek sou	210	25
51		1069	2	do	fans	200	29
56	R K P	1084	2	do	fans	170	18
57		1087	3	do	dust	405	19
62	Killin	1102	5	do	or pek	450	35
63		1105	3	do	pek	285	29
64		1108	1	do	pek sou	95	18
65		1111	1	hf ch	dust	85	18
70	Charlie Hill	1126	11	do	pek	550	31
71		1129	1	do	pek sou	50	25
72		1132	3	do	bro pek fans	165	25
73		1135	1	do	pek fans	75	22
77	Bloompark	1147	1	ch	con	95	19
82	Ingeriya	1162	4	hf ch	dust	280	20
87	Annandale	1177	6	do	sou	312	33
88	R, in estate mark	1180	3	do	bro mix	174	19
89	Atabahena	1183	9	do	bro pek	486	34
90		1186	9	do	pek	450	27
92	Havilland	1192	3	ch	pek sou	210	21
93	Danawkande	1195	5	do	bro pek	500	37
95		1201	5	do	pek sou	500	28
96		1204	2	do	fans	108	20
97		1207	1	do	dust	134	18
98		1210	1	do	red leaf	100	19
102	Ravenscraig	1222	3	do	pek sou	270	28
104	L F	1228	1	hf ch	bro pek	46	32
105		1231	1	do	pek	46	26
106		1234	1	do	dust	52	8
111	Yspa	1249	4	ch	pek dust	560	22
117	Kurunegala Estates Co	1267	4	do	pek sou	400	28
122	Monrovia	1282	6	do	bro tea	570	18
123		1285	1	do	pek dust	165	18
126	A	1294	1	hf ch	dust	100	27
128	Glenalmond	1300	4	ch	bro pek	385	53
129		1303	3	do	pek	270	37
130		1306	1	do	bro pek fans	110	31
131		1309	1	do	pek sou	90	30
132	R A	1312	6	do	bro pek	665	30
134		1318	8	hf ch	pek fans	544	21
139	Neuchatel	1333	5	ch	bro or pek	625	26
140		1336	3	do	dust	480	17
141	A	1339	8	hf ch	bro tea	360	14
145	Jak Tree Hill	1351	2	do	fans	130	23
146		1354	2	do	dust	160	19
150	Selvawatte	1366	7	ch	pek	665	26
151		1369	1	do	fans	85	21
154	Woodcote, Nilgiris	1378	4	hf ch	bro or pek	220	31
155		1381	5	box	or pek	100	30
158	St. Leys	1390	2	hf ch	red leaf	110	16
162	Jak Tree Hill	1402	12	do	pek sou	600	28
163		1405	3	do	fans	195	24
164		1408	2	do	dust	160	2

Lot		Box.	Pkgs.	Name	lb	c,
168	H A	1420	2 ch	bro tea	134	12
169		1423	1 do	dust	160	14
172	Mary Hill	1432	12 hf ch	pek sou	480	29
173		1135	2 do	dust	130	18

[Messrs. Forbes & Walker.

Lot.		Box,	Pkgs,	Name,	lb,	c,
3	D	2617	5 ch	pek	475	24
7	Sirikandura	2629	6 ch	bro pek	564	36
8		2632	6 do	pek	426	31
9		2635	5 do	pek sou	425	28
10		2638	2 do	bro pek fans	206	28
11		2641	1 do	dust	130	15
14	P A N, in estate mark	2650	6 ch	pek sou	570	26
15		2653	1 do	sou	89	25
16		2656	2 do	or pek	184	29
18	Graceland	2662	9 hf ch	pek	450	27
19		2665	8 do	pek sou	400	24
20		2668	1 do	congou	45	22
21		2671	2 do	dust	150	16
25	Cooroondoowatte	2683	8 hf ch	bro pek	440	56
27		2689	4 ch	pek sou	376	35
28		2692	7 do	pek dust	508	27
45	Queensland	2743	5 do	pek sou	450	37
46	B G F G, in est. mark	2746	4 ch	red leaf	448	12
47	B B B, in est. mark	2749	5 hf ch	dust	400	27
48	New Angamana	2752	2 ch	flowery pek	220	25
49		2755	2 do	sou	180	21
50		2758	1 do	dust No. 1	122	23
51		2761	1 do	dust	150	15
52	A	2764	4 ch	sou	360	26
58	Walpita	2782	5 ch	sou	400	26
59		2785	1 do	fans	120	23
60		2788	2 do	dust	300	22
63	Pendle	2797	6 ch	pek sou	510	36
64		2800	1 do	pek sou No. 2	90	30
65		2803	2 hf-ch	bro mix	100	29
66		2806	3 ch	pek fans	225	26
69	Maligatenne	2815	4 ch	pek sou	380	24
70		2818	2 do	bro pek fans	180	23
78	Cullen, No. 3	2842	4 ch	pek dust	368	22
79	V, in estate mark	2845	5 ch	pek sou	450	25
80		2848	6 hf-ch	dust	480	22
81	Nella Oolla	2851	1 ch	dust	93	14
82		2854	1 hf-ch	red leaf	43	14
88	Farnham	2872	2 do	dust	150	17
91	Rowley	2881	11 hf ch	pek sou	550	24
92		2884	4 do	dust	200	19
98	Hayes	2902	2 ch	dust	168	22
106	Maha Uva	2926	3 hf ch	pek fans	225	28
107		2929	4 do	dust	340	26
111	Erracht	2941	8 ch	pek sou	640	26
112		2944	4 do	bro pek fans	504	23
113		2947	2 do	dust	370	16
117	Non Pariel	2959	5 hf ch	bro pek fans	320	34
118		2962	2 do	bro pek dust	140	22
128	Beausejour	2992	1 ch	fans	100	29
131	Mausakellie	3001	2 ch	pek	170	27
132		3004	2 hf ch	dust	160	23
138	Kumaradola	3022	6 ch	pek	540	29
139		3025	3 do	bro tea	250	26
140		3028	1 hf-ch	dust	90	16
141	K	3031	2 ch	unas	200	27
142	I G A	3334	3 ch	bro pek	300	31
143		3037	2 do	pek	180	26
144	Inguruugalla	3040	7 ch	pek sou	630	30
145		3043	7 hf-ch	bro tea	595	16
146		3046	4 ch	red leaf	360	16
151	Wallaha	3061	1 do	pek sou	95	35
152	N W D	3064	2 ch	bro tea	200	16
153	K W	3067	5 ch	bro tea	576	29
157	Weyungawatte	3079	3 ch	bro tea	255	27
158		3082	4 hf ch	dust	320	20
166	Passara Group	3106	2 hf ch	fans	150	24
167		3109	2 do	fans	130	24
175	Stamford Hill	3133	7 ch	pek sou	595	37
176		3136	3 hf ch	dust	255	27
180	Digdolla	3148	6 ch	pek sou	540	29
181		3151	1 do	dust	145	20

Lot,		Box,	Pkgs,	Name,	lb,	c,
182	Penrhos	3154	18 box	bro flowery or pek	360	78
187		3169	1 ch	bro mix	87	22
188		3172	2 hf ch	fans	150	22
189		3175	3 do	dust	240	17
196	Halbarawa, Invoice No. 2	3196	7 ch	pek sou	525	26
197		3199	1 hf ch	dust	75	18
198		3202	1 do	red leaf	50	10
199	Mahayaya	3205	4 ch	bro or pek	400	26
200		3208	8 do	bro pek	640	32
203		3217	5 hf ch	sou	260	20
204		3220	1 do	dust	100	22
207	D B R	3229	8 do	bro pek fans	576	30
208		3232	2 ch	pek sou	126	36
209		3235	1 do	dust	130	22
214	Shrubs Hill	3250	6 ch	pek sou	510	30
223	Rockside	3277	5 do	bro mixed	400	25
324		3280	4 do	dust	540	23
241	P in est. mark	3331	4 do	unast		33
243	New Peacock	3337	4 do	pek sou	360	33
244		3340	7 hf-ch	bro mixed	350	30
248	Augusta	3352	7 ch	pek sou	620	26
249		3355	1 do	sou	100	19
251		3361	1 do	dust No. 1	170	10
252		3364	1 hf-ch	red leaf	56	14
253	B G	3367	8 do	bro pek	400	32
254		3370	12 do	pek	600	26
255		3373	7 do	sou	350	23
256		3376	1 do	dust	70	18
257	Castlereagh	3379	6 ch	bro or pek	570	81
259		3385	7 do	or pek	560	40
261		3391	4 do	pek sou	320	33
262		3394	3 hf-ch	fans	210	27
263		3397	7 do	dust	560	26
264	U S A	3400	4 hf ch	bro mixed	312	18
270	Pitakande-Group, D	3418	3 ch	sou	225	15
277	W A	3439	5 do	bro pek	550	34
278		3442	4 do	pek	400	27
279		3445	5 do	pek sou	500	25
280		3448	1 do	bro mixed	110	15
284	Nakiadenia	3460	6 do	congou	420	20
285		3463	2 do	dust	280	16
286	Daphne	3466	3 do	bro pek fans	300	22
287		3469	2 do	dust	280	19
289	Rosita	3475	7 do	pek sou	560	25
291	Broadoak	3481	5 do	pk fans	580	32
292		3484	4 do	fans	440	17
294		3490	2 do	dust	284	15
299	Munaar	3505	5 hf-ch	dust	347	16
300	Aneimudi	3508	11 do	pek	485	25
301		3511	4 do	pek sou	160	23
302		3514	7 do	fans	392	18 bid
303	Nakiadeniya	3517	1 do	bro pk fans	100	16
309	Clunes	3535	3 do	dust	270	23
310		3638	4 do	br pk fans	200	22
311		3641	6 do	fans	300	22
314	Seenagolla	3550	12 do	pek sou	540	37
315		3553	5 do	bro mixed	250	34
316		3556	2 do	dust	150	23
318	Henleys	3 62	12 hf-ch	or pek	540	33
320		3568	7 ch	pek sou	525	27
321		3571	2 do	bro mixed	160	20
322		3574	2 hf-ch	dust	160	15
323	P G	3577	2 do	pek fans	190	16 bid
324		3580	2 do	dust	254	16
325		3583	1 do	red leaf	85	12
326	K K	3586	5 ch	pk fans	600	21
327		3589	4 do	dust	520	18
330	Taldua	3598	1 do	dust	85	22
334	Dunnottar	10	4 do	sou	340	35
335		13	4 do	br pk faus	520	23
336		16	2 do	pek sou	200	23
337		19	1 do	dust No. 1	130	24
338		22	1 do	dust No. 2	130	21
339		25	1 do	bro mixed	100	19
343	Ambalangoda	37	5 do	dust	550	23
354	Adisham	70	4 do	bro mix	220	17
357	Cotswold	79	8 do	pek sou	600	27
358		82	2 do	sou	150	21
359		85	1 hf-ch	dust	85	23
366	Ookoowatte	106	4 ch	red leaf	320	12
367		109	1 do	sou	85	19
368		112	1 do	dust	100	16
369		115	3 do	pek fans	405	22
371	Gonapatiya	121	6 do	dust	640	18
374	H S F in est. mark	130	10 do	br pek	550	27
375		133	4 do	pek	200	23
376		136	8 do	pek sou	368	22
377		139	4 ch 1 box	fans	313	14

No. 32 COLOMBO, AUGUST 27, 1900. Price :—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[26,157 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	C D	32	12 hf ch	dust	840	18
2	Battalgalla	35	22 ch	pek sou	1650	33
3	Oakfield	38	21 ch	bro pek	2058	31 bid
4		41	22 do	pek	1760	28 bid
5		44	22 do	pek sou	1540	26 bid
6	B and M	47	74 ch	bro pek	6956	28 bid
7		50	76 do	or pek	6092	26 bid
8		53	26 do	pek	2236	25 bid
9		56	25 do	pek sou	2125	23 bid

Messrs. Forbes & Walker.

[478,485 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
9	Ketadola	169	9 ch	pek	900	25
14	A M B	184	20 ch	fans	1920	13
23	Kincora	211	12 ch	pek	840	34 bid
24		214	13 do	pek No. 2	910	20 bid
28	Great Valley Ceylon in est. mark	226	17 hf ch	bro or pek	935	69
29		229	15 ch	or pek	1275	48
30		232	20 do	pek	1700	41
31		235	10 do	pek sou	750	25
32	K G, in estate mark	238	51 ch	bro pek	5100	53
33		241	31 do	pek	2635	34
34		244	14 do	pek sou	1162	27
38	Thedden	256	16 ch	bro pek	1600	40
39		259	10 do	pek	950	38
42	Carberry	268	24 ch	bro pek	2160	59
43		271	28 do	pek	2520	32
51	Ouvahkellie	295	8 ch	pek sou	720	39
53	Theydon Bois	301	8 do	bro or pek	720	70
54		304	15 do	pek	1200	37
60	Palm Garden	322	7 ch	bro pek	700	33
64	Naseby	334	25 hf ch	bro or pek	1475	68
65		337	20 do	or pek	940	63
66		340	8 do	dust	760	32
67	Pansalatenne	343	33 ch	bro or pek	3300	45
68		346	26 do	bro pek	2340	37
69		349	25 do	pek	2125	23
70		352	20 do	pek sou	1700	29
73	Dehiowita	361	13 ch	pek	1170	27
74		364	51 do	sou	3825	25
75		367	16 do	fans	1920	21
76	Matale	370	48 hf ch	bro pek	2640	41
77		373	21 ch	pek	1785	35
78		376	12 do	pek sou	1020	32
80	Cullen, Invoice No. 4	382	28 ch	bro or pek	3024	49
81		385	39 do	or pek	3510	42
82		388	10 do	pek	910	39
83		391	9 do	pek sou	855	37
85	Aberfoyle	397	16 hf-ch	bro pek	800	51
87		403	9 ch	pek	720	32
88		406	10 do	pek sou	850	30
96	Huanuco	430	25 hf ch	bro pek	1250	18 bid
97	Great Valley	433	10 ch	or pek	900	37 bid
98	Patiagama	436	17 hf ch	bro or pek	935	64
99		439	11 ch	or pek	935	42
100		442	20 do	pek	1600	38
102		448	8 do	pek sou No. 2	720	27
103		451	8 do	bro pek fans	920	25
104	M Roberry	454	17 ch	bro or pek	1700	72
105		457	32 do	bro pek	3200	54
106		460	51 do	pek	4692	47
107		463	35 do	pek sou	3010	40
109		469	14 do	fans	1400	34
110	Glencorse	472	28 ch	bro pek	2520	32
111		475	18 do	bro or pek	1620	33
112		478	37 do	pek	2960	29
114		484	19 do	pek sou	1615	26
115		487	12 do	bro tea	1296	26
117		493	14 do	bro or pek	1190	38
118		496	15 do	bro pek	1200	35
119	Caledonia	499	19 ch	bro pek	1900	33
120		502	15 do	pek sou	1500	29
121		505	11 do	pek sou	1100	26
126	Massena	520	32 bf-ch	pek	1600	37
127		523	23 do	pek sou	1150	29
128		526	13 do	pek fans	715	27 bid
132	Killarney	538	18 bf cb	bro or pek	990	65
133		541	14 ch	pek sou	1260	41
135	Lucky Land	547	61 ch	bro or pek	1760	43
136		550	9 do	or pek	855	54
137		553	15 do	pek	1275	46
138		556	10 do	pek sou	900	38
143	Galkadua	571	11 ch	bro pek	1210	31
144		574	14 do	pek	1260	28
145		577	12 do	pek sou	1080	25
150	Pallagodda	692	11 ch	bro or pek	1100	34
151		595	21 do	bro pek	2100	46
152		598	17 do	or pek	1530	39
153		601	16 do	pek	1280	35
154		604	16 do	pek sou	1440	34
155	Dea Ella	607	12 hf-ch	bro flowery or pek	720	49
156		610	19 do	bro or pek	1045	47
157		613	40 do	or pek	2000	40
158		616	38 do	pek	1900	37
159		619	16 do	pek sou	768	32
160		622	12 do	fans	720	28
161	High Forest	625	18 bf-ch	bro or pek	1314	43
162		628	16 do	pek sou	704	46
163		631	20 do	pek dust	1860	31
164	Battawatte	634	31 ch	bro or pek	3410	44
165		637	37 do	pek	3515	39
166		640	22 do	pek sou	1760	33
167		643	8 do	dust	800	19
169	Lunugalla	649	25 ch	pek	2250	41
170		652	19 do	pek sou	1425	38
179	Weemalla	679	11 ch	pek	990	36
189	C	709	13 ch	sou	1430	out
193	Chesterford	721	44 ch	bro pek	4400	34
194		724	40 do	pek	4000	30
195		727	20 do	pek sou	2400	27
196	Ardlaw and Wishford	730	24 ch	bro pek	2136	50
197		733	11 do	pek	869	41
199	Harrow	739	15 hf-ch	bro or pek	900	68
200		742	27 ch	pek	2565	42
201		745	9 do	pek sou	765	36
203	Knavesmire	751	40 ch	bro pek	4000	33
204		754	20 do	pek	1700	30
205		757	15 do	pek	1125	28
206		760	9 hf-ch	dust	765	19
209	Udaveria	769	25 do	bro or pek	1500	58 bid
210		772	25 do	pek	1375	48 bid
211		775	24 do	pek sou	1200	41
215	L	787	17 ch	bro pek	1530	27 bid
216	K P W	790	27 hf ch	bro or pek	1296	35
217		793	43 do	bro pek	2365	35
218		796	50 do	pek	2500	31
225	Doranakande	817	10 ch	pek sou	900	27
226	Ella Oya	820	15 ch	pek sou	1200	26
227		823	15 do	pek	1200	33
228	N B D	826	20 ch	bro mix	1800	10
229	Mousakelle	829	14 ch	or pek	1257	34
230	Udapolla	832	10 do	bro pek	1000	33
232		838	14 do	pek	1260	32
235	Penrhos	847	38 hf-ch	bro or pek	2090	51
236		850	29 do	or pek	1392	43
237		853	34 ch	pek	2924	34
238		856	16 do	pek sou	1280	31
240	Tembiligalla	862	38 hf ch	bro or pek	2280	37
241		865	17 ch	pek	1530	33
245	Knavesmire	877	43 ch	pek	3652	31
246		880	28 do	pek	2377	32
247		883	16 do	pek sou	1117	25 bid
248		886	13 do	pek sou	907	25 bid
249		889	17 do	pek	1272	28
251	S G	895	13 do	pek sou	1300	27
255	Beausejour	907	10 ch	bro pek	960	34
256		910	26 do	pek	2080	29
258	Gurugoda	916	12 do	sou	984	26
260	New Angamana	922	8 do	bro pek	800	45
268	Cooroondoowatte	946	10 do	pek	820	39
271	St. Paul's	955	119 bf-ch	pek	5831	43
272		958	123 do	pek sou	4920	36
273		961	38 do	bro pek	1900	58
274	Mansfield	964	44 do	bro pek	2640	55
275		967	21 ch	pek	1890	44
277	Holton	973	12 do	bro pek	1140	33
278		976	12 do	bro pek	1140	32
279		979	16 do	pek	1360	29
280		982	13 do	pek sou	1040	26
283	Roskoe	991	16 do	bro pek	1520	out
284	Kitulgalla	994	10 do	or pek	950	33
286		1000	16 do	pek	1440	27

Lot.		Box,	Pkgs,		Name,	lb,	c,
289	B and D	1009	7	ch	unast	760	31
290	P D O	1012	23	hf-ch	br or pk fan	1495	28 bid
291		1015	23	do	pek fans	1978	23 bid
292	R G M	1018	9	do	bro or pek	1050	26 bid
294	Amblakande	1024	13	ch	br pek	1300	39
295		1027	13	do	pek	1040	34 bid
297	Monkswood	1033	31	hf-ch	bro pek	1550	79 bid
298		1036	37	do	or pek	1850	73
299		1039	27	ch	pek	2565	53 bid
300		1042	19	do	pek sou	1615	46
301		1045	14	hf-ch	fans	784	35 bid
304	Ella Oya	1054	11	ch	bro pek	935	42
305		1057	7	do	bro or pek	700	56
306	C N N	1060	17	do	pek sou	1275	33
315	Battawatte	1087	41	do	bro or pek	4510	38 bid
316	Ascot	1090	19	do	br pek	1615	32
318	Anningkande	1096	13	do	bro pek	1300	36
319		1099	26	dc	pek	2470	31
320		1102	20	do	br pek No. 2	2000	38
321		1105	21	do	pek No. 2	1995	31
322	Tempo	1108	42	hf-ch	bro or pek	2100	36
323		1111	24	ch	pek	1600	33
324		1114	11	do	pek sou	770	29
325		1117	14	do	sou	1120	27
326	Clyde	1120	60	do	bro pek	5040	45
327		1123	59	do	pek	3354	35
330		1132	11	do	bro or pek	1265	34
332	H G M	1138	12	hf-ch	bro or pek	720	57
333		1141	16	ch	bro pek	1660	40
334		1144	20	do	pek	1800	33
335		1147	11	do	pek sou	880	33
336		1150	7	do	bro pek fans	700	28
338	H	1156	23	do	bro pek	2185	28 bid
340		1162	8	do	pek sou	720	26
342	Perawattie	1168	47	do	bro pek	4465	34 bid
346	Kelvin	1180	10	do	sou	800	24
347		1183	7	do	pk fans	735	26
350	Ragalla	1192	10	do	fans	700	36
353	Bopats	1201	23	hf-ch	bro or pek	1150	53 bid
354		1204	21	ch	bro pek	1575	46 bid
355		1207	24	do	pek	1680	38 bid
356	Stafford	1210	36	hf-ch	bro or pek	2340	68
357		1213	17	ch	or pek	1615	57
358		1216	27	do	pek	2295	49
361	Torwood	1225	22	do	bro pek	2024	35 bid
362		1228	16	do	or pek	1312	35
363		1231	22	do	pek	1716	31
364		1234	21	do	pek sou	1638	28
365		1237	14	do	sou	1092	24
366	Ingoya	1240	8	do	bro tea	912	17 bid
367		1243	12	hf-ch	dust	1164	17
368	Ambragalla	1246	40	do	or pek	3600	34
369		1249	38	do	bro or pek	3838	30
370		1252	43	do	pek	3440	27
371		1255	55	do	pek sou	4620	25
372	L B K	1258	9	do	sou	900	17
373	Karawkettia	1261	7	do	bro pek	784	34
374		1264	7	do	pek	932	28
376	Choisy	1270	22	do	pek No. 1	1980	38
377		1273	53	do	bro pek	5300	55
378		1276	17	do	pek No. 2	1445	37
379		1279	30	do	pek sou	2400	34
380	Ingrogalla	1282	9	do	bro pek	900	50
384	Irex	1294	41	do	bro pek	3690	32
385		1297	22	do	pek	1760	29
386		1300	10	do	pek sou	800	27
388	Putupaula	1306	12	do	bro or pek	1320	36
389		1309	43	do	br pek	3655	36
390		1312	42	do	pek	3150	30
391		1315	16	do	pek sou	1120	26
394	Loinorn	1324	19	do	or pek	1710	63
395	B D W P	1327	25	do	bro pek	2125	36
401	Talgaswela	1345	24	do	bro or pek	2160	35 bid
402		1348	37	do	pek	2960	29 bid
403		1351	19	do	pek sou	1425	26
406	Geragama	1360	22	do	bro pek	2200	35
407		1363	21	do	pek	1890	30
408		1366	13	do	pek sou	1235	28
411		1375	10	do	bro pek	1000	34
412		1378	11	do	pek	990	32
413		1381	9	do	pek sou	810	28
416	Hayes	1390	8	do	bro or pek	720	60 bid
417		1393	13	do	bro pek	1300	40 bid
418		1396	10	do	or pek	850	35 bid
419		1399	36	do	pek	2880	31
420		1402	17	do	pek sou	1360	28
421	Malia Uva	1405	25	hf-ch	bro or pek	1500	47
422		1408	19	do	or pek	1064	53
423		1411	21	ch	pek	1890	46
425	Woodend	1417	26	do	bro pek	2600	32 bid
426		1420	44	do	pek	3960	29 bid
427		1423	20	do	pek sou	1600	26
429	Forest Creek	1429	22	do	bro or pek	2180	66 bid

[Mr. E. John.—164,580 lb.]

Lot		Box.	Pkgs.		Name.	lb.	c.
1	Sadamulle	790	15	ch	bro pek	1500	28
2		793	14	do	pekoe	1400	26
6	Bellongalla	805	21	do	bro pek	2100	33
7		808	34	do	pekoe	2720	31
8		811	20	do	pek sou	1600	26
9	Vincit	814	34	hf-ch	bro pek	1530	35
10		817	13	ch	pekoe	1170	27 bid
11		820	8	do	pek sou	720	26
15	Uda	832	10	do	bro pek	950	29
16		835	17	do	pekoe	1326	25
17		838	8	hf ch	dust	720	26
18	Mocha	841	14	ch	bro or pek	1400	83
19		844	9	do	or pek	810	65
20		847	15	do	pekoe	1350	53
21		850	9	do	pek sou	720	46
22	Glasgow	853	34	do	bro or pek	2550	62
23		856	11	do	or pek	715	56
24		859	9	do	pekoe	720	45 bid
25		862	9	do	pek sou	810	43 bid
26		865	13	do	fans	1300	27
27	Agra Ouvah	868	17	hf-ch	bro or pek	1054	75
28		871	20	do	bro pek	1800	51 bid
29		874	10	ch	pekoe	1000	46
33	Ratwatte	886	31	do	bro pek	3100	35
34		889	9	do	bro pek No.1	900	32 bid
35		892	30	do	pekoe	2700	29 bid
36		895	11	do	pek sou	880	27
37	Koslande	898	20	hf-ch	bro pek	1100	40 bid
38		901	20	ch	pekoe	1800	34
43	Perth	916	27	do	bro or pek	2700	36
44		919	53	do	bro pek	4505	37
45		922	15	do	pek sou	1125	30
49	Gonavy	931	32	hf-ch	or pek	1440	46
51		940	16	ch	pekoe	1200	38
55	Glentilt	952	26	do	bro pek	2600	57 bid
56		955	22	do	or pek	2090	47
57		958	16	do	pekoe	1440	38 bid
59	Galella	964	18	do	bro pek	1800	43
60		967	20	do	pekoe	1600	38
61		970	10	do	pek sou	800	32
62	Coslande	973	20	hf-ch	bro pek	1100	40 bid
63		976	20	ch	pekoe	1800	34
68	Myraganga	991	54	hf-ch	bro pek	2430	31 bid
69		994	68	do	bro or pek	3400	33
70		997	116	do	bro or pek	6580	32 bid
71		1000	34	do	or pek	1530	32
72		3	84	do	pekoe	3360	32
73		6	96	do	pek sou	3840	29
74		9	45	ch	pek sou	3600	28 bid
75	Morahella	12	15	do	bro or pek	1500	34 bid
76		15	17	do	pekoe	1428	35
78		21	10	do	sou	800	28
79	Mount Clare	24	10	do	bro or pek	930	39
83		36	40	do	sou	3400	21
85	Bittacy	42	13	do	bro pek	1300	63
86		45	10	do	pekoe	800	45
87	G F R, in estate mark	48	9	do	bro or pek	900	53
88		51	21	do	bro pek	1995	29
89		54	16	do	pekoe	1440	38
92	G L	63	10	hf ch	dust	850	19 bid
95	Little Valley	72	10	ch	bro pek	950	48
96		75	22	do	pekoe	1760	35
100	Galoola	87	21	do	bro pek	2100	56
101		90	47	do	pekoe	4230	45
102		93	37	do	pek sou	2960	39
106	Loughton	105	23	hf-ch	or pek	1150	45
107		108	60	do	pekoe	3000	33
108		111	50	do	pek sou	2500	32
111	Galoola	120	16	ch	bro pek	1600	56
112		123	28	do	pekoe	2520	45
113		126	29	do	pek sou	2320	41
116	Ovoca	135	20	hf-ch	bro or pek	1000	69 bid
117		138	54	do	pekoe	2430	36 bid
118		141	16	do	pek sou	720	36 bid
121	Cleveland	150	23	do	pekoe	1219	43
122	Mocha	153	12	ch	or pek	1080	51 bid
124	Maryland	159	7	do	bro pek	700	31
125		162	7	do	pekoe	700	28 bid
127	Evalgolla	168	42	hf-ch	bro pek	1680	37
128		171	47	do	pekoe	1880	29 bid
129		174	20	do	pek sou	710	26
131	Murraythwaite	180	15	ch	bro pek	1425	36
132		183	14	do	pekoe	1190	33 bid
137	Bichmond Hill	198	30	do	pekoe	2310	28 bid
138	Kadien Lena	201	38	do	congou	3420	21

Messrs. Somerville & Co.—268,884 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	H	1141	8	ch	dust	880	22
2	Nyanza	1447	7	ch	bro pek	700	
6		1453	22	do	pek	1760	39

Lot.		Box.	Pks.	Name.	lb.	c.
10	Rambodde	1465	21 hf ch	or pek	1050	48
11		1468	21 do	pek	945	37
16	Marigold	1483	91 hf-ch	bro pek	4914	52
17		1486	34 do	pek	1632	43
18		1489	23 do	pek sou	1150	41
19		1492	12 do	bro pek fans	792	35
21	Paradise	1498	26 hf-ch	bro pek	1430	34
22		1501	17 ch	pek	1700	30
23		1504	11 do	pek sou	1045	27
25	Lawrence	1510	7 ch	bro pek	700	46
26		1513	17 do	pek sou	1275	39
27	Yarrow	1516	18 hf ch	bro or pek	1080	49
29		1522	31 do	pek	1395	36
32	Holmsdale	1531	17 ch	bro or pek	1615	35
33		1534	17 do	pek	1445	30 bid
35	Dryburgh	1540	13 hf ch	bro or pek	728	40
37		1546	15 ch	pek	1170	35
40	Neboda	1555	11 ch	bro or pek	1100	31
41		1558	38 do	bro or pek	3800	32
43		1564	10 do	pek sou	800	27
45		1570	12 do	bro or pek	1200	31
46		1573	38 do	bro pek	3800	32
47		1576	10 do	pek	900	30
54	Rahatungoda	1597	36 hf ch	bro or pek	1800	57
55		1600	22 do	or pek	990	45 bid
56		1603	52 do	pek	2600	41
58	O H S, in estate mark	1609	7 ch	pek	700	26
60	Ravana	1615	24 ch	bro pek	2400	37
61		1618	19 do	pek	1615	34
63	Mora Ella	1624	14 hf-ch	or pek	700	42
64		1627	35 ch	bro or pek	1925	39
65		1630	21 do	pek	1890	36
66		1633	11 do	pek sou	935	34
67	Rayigam	1636	41 ch	bro pek	3895	36
68		1639	24 ch	or pek	1920	33
69		1642	45 do	pek	3600	31 bid
70		1645	28 do	pek sou	2380	29
71		1648	9 hf ch	dust	900	20
74	New Valley	1657	23 ch	bro or pek	2300	57
75		1660	26 hf-ch	or pek	1170	47
76		1663	14 ch	pek	1260	42
77		1666	14 do	pek sou	1120	39
79	N I T	1672	11 ch	unas No. 2	880	21
80	Hapugasmulle	1675	8 ch	unas	848	24
81		1678	5 do	dust	710	17
82	Salawe	1681	23 ch	bro pek	2300	33
83		1684	14 do	pek	1260	30
84		1687	11 do	pek sou	935	27
86	I P	1693	15 ch	pek sou	1275	26
87		1696	8 hf ch	dust	704	18
88	J M D M	1699	10 ch	fans	1000	23
89	Glenesk	1702	19 ch	bro pek	1805	29
91		1708	8 do	bro tea	880	24
92		1711	4 do	dust	700	16
93	G L	1714	17 ch	pek sou	1445	23
94		1717	11 do	pek sou	880	22
95	Maballa	1720	24 hf ch	bro pek	1152	35
100	Narangoda	1735	27 ch	bro pek	2430	36
101		1738	31 do	pek	2790	32
102		1741	13 do	pek sou	1170	28
104		1747	18 do	bro or pek	1755	28
106	Woodthorpe	1753	7 ch	bro pek	700	47
107		1756	12 do	pek	1020	35
108		1759	13 do	pek sou	1040	31
113	Depedene	1774	78 hf ch	bro pek	4290	32
114	Harangalla	1777	13 ch	bro pek	1170	47
115		1780	11 do	pek	880	36
116		1783	9 do	sou	720	30
119	Warakamure	1792	41 ch	bro pek	4100	33
120		1795	32 do	pek	3040	30
123	Mabatenne	1804	15 ch	bro pek	1500	37
124		1807	14 do	pek	1400	33
128	Bullagolla	1819	70 ch	pek	6440	34 bid
129		1822	45 hf ch	pek sou	2475	30 bid
131	Roseneath	1828	17 ch	bro pek	1700	36
132		1831	13 do	pek	1170	34
133		1834	27 do	pek sou	2025	31
136	Lonach	1843	32 ch	pek	2560	33 bid
137		1846	16 do	pek sou	1280	29 bid
183	H J S	1849	38 hf ch	pek sou	2280	26
141	Blackburn	1858	12 hf ch	fans	900	21
142		1861	20 do	dust	1600	19
146	S	1873	16 hf ch	bro tea	800	22
147	Avisawella	1876	34 ch	bro pek	3230	34
148		1879	49 do	pek	4165	30
149		1882	51 ch	pek sou	4080	26
151		1888	14 do	fans	1680	22
152	Hanwella	1891	16 hf ch	or pek	800	30
153		1894	16 do	pek	800	28
154	Neuchatel	1897	38 ch	bro pek	3800	33 bid
155		1	31 do	bro pek	3100	35 bid
156		4	16 do	pek	1360	33
158		10	6 do	bro or pek	720	26
160	Cosgahawella	16	31 ch	bro pek	3100	26 bid
1		19	15 do	pek sou	1350	22 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
165	Primrose Hill	31	10 ch	pek	850	35
166		34	11 do	pek sou	880	29
169	Wilpita	43	21 ch	bro pek	2100	33
170		46	14 do	pek	1350	28
176	Galphele A	64	18 ch	bro or pek	1800	45
178		70	11 do	pek	990	34
180	Do B	76	11 do	bro or pek	1100	37
182		82	8 do	pek	720	30
191	Roeberry	109	14 ch	bro or pek	1400	60 bid
192	Ranasinghapatna	112	121 hf ch	or pek	5808	36
193		115	92 do	bro or pek	5336	36 bid
194		118	68 ch	pek	5440	33
195		121	76 do	pek sou	6384	30
196	Deniyaya	124	21 ch	bro pek	2100	36
197		127	22 do	pek	2200	33
198	Cairn Hill	130	8 ch	or pek	720	36
199		133	15 do	bro pek	1500	34
200		136	22 do	pek	1900	33
201		139	15 do	pek sou	1275	28
204	L L	148	19 ch	pek No. 2	1800	16 bid
205	Warriatenne	151	27 ch	bro pek	2430	31 bid
206		154	57 do	pek	4845	29 bid
207		157	24 do	pek sou	1944	25 bid
208	L & C	160	88 ch	pek	7920	26 bid
212	Rayigam	172	15 ch	bro pek	1425	36
213		175	13 do	or pek	1040	34
214		178	14 do	pek	1120	32
215		181	12 do	pek sou	1020	30
226	Rookwela	214	16 ch	pek	1600	25
222	F F, in estate mark	217	40 ch	bro pek	3800	17 bid
227	Wagnia	220	16 ch	bro pek	1600	64 bid
229		223	11 do	or pek	1100	54
234	Forest Hill	238	9 ch	bro pek	810	34
235		241	10 do	pek	830	30
238	Ravenoya	250	16 hf ch	bro pek	880	36

SMALL LOTS.

[Messrs. Forbes & Walker.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	K D A	145	1 ch	bro pek	100	33
2		148	1 do	pek	100	27
3		151	1 do	pek sou	100	25
4	C E S D, in est. mark, Mount Pleasant	154	3 hf ch	bro pek	165	34
5		157	3 do	pek	150	26
6		160	3 do	pek sou	150	24
7		163	1 do	fans	55	16
8	Ketadola	166	6 ch	bro pek	660	33
10		172	5 do	pek sou	475	24
11		175	1 do	fans	131	17
12	D D S G	178	1 ch	bro pek	107	34
13		181	1 do	pek	88	24
15	Horagaskelle	187	7 hf-ch	bro pek	434	34
16		190	8 do	pek	448	27
17		193	11 do	pek sou	630	25
18	Yatiyana	196	5 ch	bro pek No. 1	465	34
19		199	6 do	bro pek	600	28
20		202	3 do	pek	285	26
21	Kincora	205	3 ch	bro or pek	300	51
22		208	4 do	bro pek	320	47
25		217	4 do	fans	440	33
26		220	1 hf ch	dust	94	19
27		223	3 ch	red leaf	240	17
35	K G, in estate mark	247	8 hf ch	fans	480	28
36		250	4 ch	sou	360	25
37		253	3 do	dust	399	20
40	Thedden	262	4 ch	pek sou	320	30
41		265	2 do	dust	270	19
44	Carberry	274	3 ch	pek sou	270	31
45		277	3 do	bro tea	270	24
46		280	3 do	dust	420	25
47	G K	283	3 ch	bro tea	270	24
48		286	2 do	dust	280	18
49	G F D	289	8 hf-ch	bro pek	404	33
50		292	10 do	pek	445	28
52	Ouvahkellie	298	5 do	dust	400	27
55	Theydon Bois	307	5 ch	pek sou	425	30
56	T B, in estate mark	310	2 ch	congou	160	18
57	W T	313	1 ch	bro pek	100	32
58		316	1 do	pek	90	28
59		319	1 do	pek sou	33	26
61	Palm Garden	325	6 ch	pek	600	28
62		323	4 do	pek sou	400	25
63		331	1 do	fans	105	20
71	Pansalatenne	355	2 ch	dust	300	16
72	Debiowita	358	5 ch	bro pek	475	30
79	Matale	379	5 hf-ch	dust	400	19

Lot.		Box.	Pkgs.	Name.	lb.	c.
84	Cullen, Invoice No. 4	394	3 hf ch	dust	270	20
86	Aberfoyle	408	7 ch	or pek	560	38
89		409	4 do	sou	340	25
90		412	8 hf ch	fans	480	30
91		415	4 do	dust	300	18
92	C N	418	4 ch	bro or pek fans	448	28
93		421	4 ch	bro tea	380	17
94		424	1 do	fans	100	12
95		427	1 hf ch	dust	120	12
101	Patiagama	445	6 ch	pek sou No. 1	480	30
108	Roeberry M	466	3 ch	dust	300	18
113	Glencorse	481	6 ch	pek sou	450	24
116		490	5 do	dust	495	17
122	Caledonia	508	3 ch	pek dust	300	17
123		511	2 do	red leaf	200	12
124	Massena	514	11 hf ch	or pek	550	60
125		517	10 do	bro pek	500	42
129		529	9 do	fans	585	17
130		532	1 do	dust	75	19
131	B P C	535	6 ch	red leaf	510	13
134	Killarney	544	8 hf-ch	dust	640	18
139	Lucky Land	559	2 do	pek fans	180	22
140	C	562	3 ch	bro mix No. 1	315	28
141		565	5 ch	bro mix No. 2	450	26
142	Galkadua	568	2 ch	bro or pek	210	37
146		580	1 do	bro mix	90	14
147		583	1 do	congou	90	18
148		586	1 do	fans	100	16
149		589	1 do	dust	132	12
168	Lunugalla	646	5 ch	bro pek	525	53
171		655	9 do	bro pek fans	585	37
172		658	5 hf-ch	dust	425	21
173	Ingurugalla	661	5 hf ch	bro tea	425	15
174		664	2 do	red leaf	180	16
175	Kennington	667	5 ch	unas	450	19
176		670	2 do	dust	220	16
177	Weemalla	673	6 ch	bro or pek	600	46
178		676	7 do	or pek	595	44
180		682	2 do	pek sou	180	30
181		685	3 hf-ch	bro tea	255	19
182	Dromoland	688	2 ch	red leaf	144	14
183		691	1 do	do	105	13
184		694	1 hf ch	do	35	13
185	St. John's-wood	697	10 hf-ch	bro pek	500	44
186		700	4 ch	pek	340	36
187		703	2 hf ch	pek sou	150	32
188		706	1 do	bro pek fans	57	26
190	G A T	712	4 ch	bro pek	403	19 bid
191		715	7 do	pek	631	16 bid
192	Sunnycroft	718	4 ch	bro tea	480	16
198	Harrow	736	11 hf-ch	or pek	550	55
202		748	2 do	dust	160	22
207	Doorooma-della	763	4 ch	bro pek	360	34
208		766	2 do	dust	150	18
212	Udaveria	778	2 hf-ch	fans	180	24
213		781	4 do	bro pek fans	300	36
214	S T	784	2 hf ch	pek	110	17 bid
219	K P W	799	13 hf ch	pek sou	624	25
220		802	1 do	bro pek fans	75	24
221		805	2 do	dust	180	19
222	Doranakande	808	6 ch	bro pek	600	35
223		811	4 do	pek	380	33
224		814	5 do	pek No. 2	450	28
231	Udapolla	835	6 ch	or pek	540	35
233		841	4 do	pek sou	340	26
234		844	1 hf ch	bro mix	80	12
239	Penrhos	859	4 hf ch	fans	300	23
242	Tembiligalla	868	1 ch	pek sou	90	28
243		871	1 do	bro pek fans	130	20
244		874	1 do	dust	140	17
252	S G	898	1 ch	sou	85	25
253	Fetteresso	901	1 hf ch	fans	72	22
254		904	3 ch	red leaf	300	18
257	Beausejour	913	7 ch	pek sou	525	25
259	Gurugoda	919	4 do	dust	572	19
261	New Anga-mana	925	7 do	pek	630	34
262		928	4 do	pek No. 2	360	30
263		931	5 do	pek sou	450	28
264		934	1 do	or pek	108	25
265		937	1 do	sou	97	25
266		940	1 do	dust	144	17
267	Cooroondoo-watte	943	10 hf-ch	br pek	550	56
269		949	6 ch	pek sou	492	32
270	Church Hill	952	4 do	pek	400	28
276	Mansfield	970	7 do	pek sou	595	40
281	B A	985	3 do	dust	240	17
285	Kitulgalla	997	6 do	bro pek	600	29
287		1003	1 do	pek sou	90	24
288		1006	2 hf-ch	dust	160	18
293	R G M	1021	2 ch	dust	550	17 bid
296	Amblakande	1030	1 ch	pek sou	80	26
302	Monkswood	1048	5 hf-ch	dust	400	27
303	T in est. mark	1051	3 do	unast	291	25
307	B D W P	1063	3 do	br pek No. 2	270	14
308		1066	4 do	pek No. 2	320	12
309		1069	1 do	pek sou No. 2	80	10
310		1072	2 hf-ch	dust	170	18
311		1075	4 ch	bro pk No. 2	360	11
312		1078	4 do	pek No. 2	320	12
313		1081	1 do	pek sou No. 2	80	10
314		1084	1 hf-ch	dust	95	18
317	Ascot	1093	6 do	bro pek fans	570	27
328	Clyde	1126	6 ch	pek sou	540	31
329		1129	2 do	dust	290	20
331		1135	2 do	sou	172	27
337	C	1153	7 do	sou	665	24
339	H	1159	3 do	pek	270	27
341		1165	1 hf-ch	dust	80	18
343	Perawattie	1171	4 ch	pek	360	29 bid
344		1174	6 do	pek sou	540	27 bid
345		1177	1 hf-ch	dust	80	18
348	Kelvin	1186	8 ch	bro mixed	680	20
349		1189	8 hf-ch	dust	600	18
351	Ragalla	1195	1 ch	bro mixed	60	16
352		1198	6 do	dust	540	20
359	Stafford	1219	4 hf ch	fans	280	23
360		1222	3 do	dust	270	22
375	Karawkettia	1267	1 ch	congou	93	20
381	Ingrogalla	1285	7 do	pek	595	36
382	B B in est. mark	1288	2 do	br pek	230	28
383		1291	3 do	pek	300	26
387	Irex	1303	2 do	dust	200	19
392	Putupaula	1318	2 do	sou	140	16
393		1321	2 do	dust	260	18
396	P G A	1330	5 do	bro pek	300	40
397		1333	2 do	pek	90	35
398		1336	3 do	pek sou	126	30
399		1339	5 do	sou	350	30
400		1342	3 hf-ch	fans	180	8
404	Talgaswela	1354	5 do	dust	375	18
409	Geragama	1369	5 hf-ch	fans	375	18
410		1372	4 do	dust	320	17
414		1384	2 do	fans	160	17
415		1387	2 do	dust	170	16
424	Maha Uva	1414	3 do	dust	255	20
428	Woodend	1426	3 do	dust	420	16

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	H	1428	2 ch	sou	180	23
3	Nyanza	1444	5 ch	bro or pek	500	56
5		1450	7 do	or pek	630	38 bid
7		1456	3 do	pek sou	270	30
8		1459	1 do	fans	100	24
9		1462	1 do	dust	160	19
12	Rambodde	1471	7 hf ch	pek sou	315	31
13		1474	3 do	sou	120	25
14		1477	2 do	bro pek fans	140	25
15		1480	1 do	fans	70	22
20	Marigold	1495	7 hf ch	pek dust	525	23
24	Paradise	1507	8 hf ch	dust	600	20
28	Yarrow	1519	15 hf ch	or pek	675	38
30		1525	6 do	pek sou	300	29
31	Y, in estate mark	1528	4 hf-ch	dust	320	14
34	Holmsdale	1537	3 ch	fans	300	19
36	Dryburgh	1543	12 hf ch	or pek	624	43
38		1549	3 ch	pek sou	210	31
39		1552	3 hf ch	fans	240	23
42	Neboda	1561	7 ch	pek	630	28
44		1567	2 hf-ch	dust	170	17
48		1579	8 ch	pek sou	640	25 bid
49		1582	3 hf ch	dust	255	17
50	Bargany	1585	13 hf ch	bro or pek	650	70
51		1588	7 ch	or pek	659	49
52		1591	5 do	pek	400	38
53		1594	2 do	red leaf	146	19
57	O H S, in estate mark	1606	6 ch	bro pek	600	36
59		1612	2 do	pek sou	200	24
62	K G, in estate mark	1621	1 ch	bro pek	96	30
72	Sangaly Top-poe	1651	1 ch	red leaf	83	16
73		1654	1 hf ch	pek dust	94	18
78	N I T	1669	3 ch	unas No. 1	300	21
85	Salawe	1690	2 ch	pek dust	298	21
90	Glenesk	1705	4 ch	pek	340	26
96	Mahalla	1723	8 ch	pek	640	28
97		1726	6 do	pek sou	450	28
98		1729	3 do	pek sou No. 2	210	25
99		1732	1 do	dust	129	18

Lot		Box.	Pkgs.	Name	lb	c.
103	Narangoda	1744	3 hf ch	dust	255	18
105		1750	1 do	sou	55	22
109	Woodthorpe	1762	2 ch	sou	152	22
110		1765	3 hf ch	fans	120	18
111		1768	1 do	fans	80	18
112		1771	1 ch	dust	82	17
117	Harangalla	1786	5 hf ch	dust	400	21
118		1789	3 ch	bro pek fans	300	26
121	Warakamure	1798	7 ch	pek sou	630	26
122	Mahatenue	1801	3 ch	bro or pek	300	50
125		1810	2 do	pek sou	200	26
126		1813	2 do	dust	200	20
127		1816	1 do	bro tea	100	14
130	M, in estate mark	1825	4 hf ch	or pek	200	34
134	Roseneath	1837	6 hf ch	bro pek fans	540	25
135	K G	1840	4 ch	sou	396	20
139	Blackburn	1852	2 ch	pek	184	20
140		1855	3 do	pek sou	210	19
143	A	1864	2 hf ch	dust	160	19
144		1867	5 do	bro tea	250	21
145	S	1870	3 hf ch	dust	240	19
150	Avisawella	1885	8 ch	sou	640	19
157	Neuchatel	7	8 ch	pek sou	640	26
159		13	3 do	dust	465	17
162	Cosgahawella	22	3 ch	fans	330	14
163		25	1 do	dust	142	12
164	Primrose Hill	28	6 ch	bro pek	600	41
167		37	2 ch	sou	152	24
168		40	1 do	fans	78	21
171	Wilpita	49	5 ch	pek sou	475	23
172		52	1 ch	con	95	18
173		55	2 do	fans	200	16
174		58	1 do	dust	150	16
175		61	1 do	red leaf	95	13
177	Galphele A	67	5 ch	bro pek	500	36
179		73	2 do	pek sou	180	26
181	do B	79	3 do	bro pek	300	32
183		85	4 do	pek sou	400	25
184	D B R, in estate mark	88	2 hf ch	bro pek	110	30
185		91	2 do	pek	106	26
186		94	1 ch	pek sou	78	24
187		97	1 hf ch	dust	88	18
188		100	1 box	red leaf	17	12
189	A, in estate mark	103	2 ch	bro pek	200	30
190		106	1 hf ch	bro pek	48	30
202	Cairn Hill	142	1 bag	red leaf	80	8
203		145	4 hf ch	dust	320	16
209	Monte Christo	163	5 hf ch	bro pek	275	42
210		166	3 ch	sou	240	24
211		169	4 hf ch	bro mix	348	20
216	F, in estate mark	184	7 ch	sou	462	25
217		187	4 hf ch	dust	260	27
218	S F, in estate mark	190	4 ch	bro pek	462	27 bid
219		193	5 do	pek	500	24
220		196	3 do	pek sou	230	22
221	L	199	5 hf ch	dust	450	24
222	Glenalla	202	2 ch	dust	280	18
223		205	3 do	fans	270	16
224		208	2 do	bro mix	170	12
225	Rookwela	211	3 ch	bro pek	300	26
230	Wagnila	226	4 ch	pek	400	50 bid
231	Mousakande	229	10 ch	or pek	560	33
232		232	3 do	pek	255	28
233		235	4 do	pek sou	356	24
236	Forest Hill	244	5 ch	pek sou	390	24
237		247	4 do	fans	296	20
239	Ravenoya	253	11 hf ch	pek	550	32
240		256	3 do	pek sou	150	26

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Sadamulle	796	5 ch	pek sou	500	23
4		799	5 do	red leaf	500	10
5		802	1 do	congou	58	8
12	Vincit	823	11 hf-ch	bro pek fans	660	27
13		826	3 do	dust	240	19
14		829	2 ch	red leaf	190	10
30	Alplakande	877	8 do	sou	672	26
31	G	880	1 do			
			7 hf-ch	fans	552	28
32	N	883	8 do	dust	680	27
39	Koslande	904	5 ch	pek sou	475	30
40		907	3 do	congou	255	25
41		910	4 do	fans	440	23
42		913	2 do	dust	280	16

Lot.		Box.	Pkgs.	Name.	lb.	c.
46	Perth	925	6 hf-ch	pek dust	450	16 bid
47	B, in est. mark	928	1 ch	bro pek	88	26
48		931	2 do	pekoe	142	23
50	Gonavy	937	13 hf-ch	bro pek	650	65
52		943	6 ch	pek sou	570	38
53		946	4 hf-ch	dust	300	16
54		949	2 ch	congou	160	24
58	Glentilt	961	5 do	pek sou	475	34
64	Coslande	979	5 do	pek sou	475	25
65		982	3 do	congou	255	24
66		985	4 do	fans	440	22
67		988	2 do	dust	280	17
77	Morahella	18	2 hf-ch	dust	168	17
80	Mount Clare	27	3 ch	or pek	270	30
81		30	4 do	pekoe	328	28
82		33	3 do	pek sou	237	23
84		39	2 do	pek dust	200	14
90	G F R, in estate mark	57	3 do	pek sou	255	28
91		60	2 do	fans	210	26
93	G L	66	6 hf-ch	bro pek fans	420	22
94		69	6 ch	sou	600	21
97	Little Valley	78	7 do	pek sou	525	34
98		81	1 hf-ch	dust	80	15
99		84	1 ch	fans	100	21
103	Galoola	96	2 do	dust	200	21
104		99	4 do	fans	400	35
105	Loughton	102	10 hf-ch	bro or pek	500	43
109		114	5 do	dust	250	18
110		117	8 do	fans	400	20
114	Galoola	129	1 ch	dust	100	21
115		132	3 do	fans	300	35
119	Ovoca	144	10 hf-ch	pek fans	600	28
120		147	4 do	dust	360	19
123	Marakona	156	2 ch	dust	268	16
125	The Farm	165	2 hf-ch	dust	150	15
130	Evalgolla	177	3 do	dust	165	15
133	Murraythwaite	186	7 ch	pek sou	595	23 bid
134		189	1 do	bro pek fans	120	22
135		192	1 do	dust	170	15
136	Anamallai	195	2 hf ch	dust	170	15

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Aug. 3.

"Orizaba."—T, 3 bags sold at 64s.

"Sado Maru."—Hylton OO, 2 bags sold at 69s.

"Sanuki Maru."—Katugastota Estate, 8 bags sold at 75s; 6 bags sold at 64s; ditto 2, 29 bags sold at 71s. Ross 1, 33 bags sold at 83s; ditto 2, 9 bags sold at 69s; ditto Black, 2 bags sold at 55s 6d. Asgeria A, 8 bags sold at 80s; B, 5 bags sold at 72s; ditto T, 2 bags sold at 63s.

"Orizaba."—Kepitigalla, 9 bags sold at 60s 6d; 15 bags sold at 54s.

"Sanuki Maru."—III, 5 bags sold at 62s; T, 1 bag sold at 61s; Black. 1 bag sold at 60s; Meegama A, 1 bag sold at 63s; 1, 1 bag sold at 63s; B, 2 bags sold at 61s; B, 3 bags sold at 56s; New Peradeniya, 2 bags sold at 61s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Rome."—OBEC in estate mark, Naranghena, Ceylon, 8 cases sold at 2s 11d; 2 cases sold at 3s; ditto AA, 10 cases sold at 2s 2d; ditto A, 3 cases sold at 1s 8d; ditto BBB, 2 cases sold at 1s 6d; ditto, 2 cases sold at 1s 5d; ditto BB, 2 cases sold at 1s 3d.

"Tamba Maru."—Pitakande Group, No. 1, 2 cases sold at 2s 9d; ditto No. 2, 2 cases sold at 1s 8d; ditto No. 3, 1 case sold at 1s 2d.

"Sanuki Maru."—Yatawatte No. 1, 2 cases sold at 1s 4d; ditto No. 2, 1 case sold at 1s.

"Wakasa Maru."—Yatawatte No. 1, 2 case sold at 1s 3d; ditto No. 2, 2 cases sold at 1s.

No. 33 COLOMBO, SEPTEMBER 3, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies . rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[15,522 lb.]

Lot.		Box.	Pkgs.	Name.	lb	c
1	Battalgalla	33	10 hf ch	fans	850	22
2		36	9 do	dust	855	18
5	Mapitigama	45	8 ch	bro pek	720	55
6		48	13 do	pek	1014	28
7			13 do	pek sou	1170	26
12	Manickwatte		hf ch	or pek	1360	31
13			12 ch	bro or pek	1200	32 bid
14		72	16 do	pek	1280	31
15		75	19 do	pek sou	1558	28 bid
18	Oakfield	84	10 do	bro pek	1000	34
19		87	12 do	pek	960	30 bid
20		90	14 do	pek sou	980	29 bid

Messrs. Forbes & Walker

[301,152 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	W N	1432	14 ch	bro tea	1176	10 bid
14	Avoca	1471	12 hf ch	bro or pek	1320	60 bid
15		1474	8 do	bro pek	736	58
16		1477	17 do	pek	1530	44
24	Clarendon	1501	16 hf ch	bro pek	1008	66
26		1507	13 ch	pek	1235	45
27		1510	10 do	pek sou	1000	39
30	Chesterford	1519	15 ch	fans	1350	37
32		1525	24 hf ch	dust	1920	17
34	S W	1531	22 ch	congou	1760	27
35	A	1534	16 ch	bro pek	1600	29
36		1537	9 do	pek	900	26
3	Udabage	1543	40 hf-ch	bro pek	2200	29
44	Carendon	1561	8 ch	bro pek	880	34
45		1564	7 do	pek	700	34
48	Sirikandura	1573	7 ch	bro pek	700	38
53	D M V	1588	11 ch	bro pek	1034	30
54		1591	16 do	pek	1184	27
57	Glengariffe	1600	26 hf-ch	bro or pek	1300	4
59		1606	10 do	pek	900	33
63	Ganapalla	1618	30 ch	bro or pek	2700	33 bid
64		1621	27 do	bro pek	2430	31
65		1624	11 do	or pek	946	38
66		1627	45 do	pek	3600	33
67		1630	24 do	pek sou	1800	26
68		1633	12 do	bro pek fans	1272	23 bid
70	Killarney	1639	10 ch	or pek	850	53
71		1642	10 do	pek	850	43
72	Ganapalla	1645	14 ch	bro or pek	1260	34
73		1648	18 do	bro pek	1620	31
75		1654	30 ch	pek	2400	31
78	Battawatte	1663	25 ch	bro or pek	2750	44
79		1666	26 do	pek	2470	41
80		1669	17 do	pek sou	1360	36
81	High Forest	1672	56 hf ch	or pek No. 1	3080	77
82		1675	35 do	or pek	1820	62
83		1678	16 do	pek	752	51
84	Nakiadeniya	1681	23 ch	bro pek	2070	37
85		1684	18 do	pek	1440	29
91	Harrington	1702	9 ch	or pek	803	49
92		1705	10 do	pek	897	44
97	Castlereagh	1720	11 ch	bro pek	1045	48
99		1726	9 do	pek	720	37
101	Dewalakande	1732	17 ch	bro tea	1190	20
102		1735	8 hf-ch	dust	720	13
104	Arapolakande	1741	60 ch	bro pek	5400	36 bid
105		1744	52 do	pek	4160	34
106		1747	12 do	pek sou	1080	31
108	Matale	1753	42 hf ch	bro pek	2310	42
109		1756	19 ch	pek	1615	36
110		1759	11 do	pek sou	935	33
111	P'kande	1762	11 ch	bro pek	1100	37
112		1765	27 do	pek	2295	30
113		1768	12 do	pek sou	960	27
114		1771	10 do	sou	800	24
115	Vogan	1774	10 ch	bro or pek	1100	32
116		1777	25 do	or pek	2375	43
117		1780	44 do	pek	3740	34
118		1783	12 do	pek sou	1020	31
120	Corfu	1789	17 hf-ch	pek	850	36
123	Palmerston	1798	14 do	bro or pek	728	82
124		1801	14 do	bro pek	728	62
125		1804	11 do	pek	935	61
129	G, in estate mark	1816	12 ch	bro or pek	1493	23 bid
133	O B E C, in est. mark, Forest Creek	1828	8 ch	pek dust	800	36
134		1831	34 do	dust	3740	22
138	Kincora	1843	12 ch	pek	837	34 bid
139		1846	13 do	pek No. 2	907	29 bid
140	Carfax	1849	16 ch	bro or pek	1600	60
141		1852	18 do	or pek	1620	45
142		1855	18 do	pek	1620	41
143	Dunkeld	1858	52 hf ch	bro or pek	3120	51
144		1861	12 ch	or pek	1140	47
145		1864	21 do	pek	1890	38
146	High Forest	1867	49 hf-ch	or pek No. 1	2744	81
147		1870	22 do	or pek	1144	62
148		1873	15 do	pek	705	51
149	Polatagama	1876	67 ch	bro pek	6700	36
150		1879	33 do	or pek	2970	33
151		1882	111 do	pek	9435	29
152		1885	25 do	pek sou	2000	25
153		1888	20 do	fans	1800	23
154		1891	5 do	dust	750	15
155	Kirklees	1894	52 hf-ch	bro or pek	3120	44
156		1897	45 ch	or pek	4275	43
157		1900	44 do	pek	4155	39
158		1903	35 do	pek sou	2975	33
160	Agra Oya	1909	8 ch	bro or pek	720	46 bid
161		1912	10 do	or pek	750	37
162		1915	9 do	pek	810	33
163		1918	8 do	sou pek	720	29
165	Old Maddegama	1924	11 ch	bro or pek	770	62
167		1930	14 do	pek	1050	38
181	Golgoola	1972	20 ch	pek fans	2420	16 bid
182	Ugieside	1975	18 ch	fans	1620	23
184		1981	10 do	bro mix	800	25
185	Woodend	1984	31 ch	bro pek	3100	32 bid
186		1987	46 do	pek	4140	30
188		1993	44 do	pek	3957	30
191	Digdola	2002	16 ch	pek	1170	37
193	R G M	2008	9 hf-ch	bro or pek	1017	26
198	Weyunga-watta	2023	16 ch	bro pek	1520	45
199		2026	16 do	pek	1440	35
200		2029	16 do	pek sou	1280	32
203	Marlborough	2038	37 hf ch	bro or pek	1924	59
204		2041	9 ch	or pek	702	46
205		2044	19 do	pek	1463	41
210	Erlsmere	2059	18 hf ch	bro pek	900	58
211		2062	12 ch	pek	900	41
214	F	2071	34 do	or pek	3400	28
215	Deaculla	2074	44 hf ch	bro pek	2420	62
216		2077	41 ch	pek	2870	45
217		2080	22 do	pek sou	1540	39
218		2083	13 hf-ch	dust	1040	22
219		2086	14 ch	pek	1190	33 bid
220	Tymawr	2089	18 hf ch	bro or pek	900	73
221		2092	26 do	or pek	1170	53
222		2095	25 do	pek	1000	43
223	Roeberry	2090	20 ch	bro pek	2000	52 bid
224		2101	7 do	fans	700	34 bid
225	St. Leonards-on-Sea	2104	13 ch	bro or pek	1300	33
226		2107	9 do	or pek	810	32
231	Kelaneiya and Braemar	2122	38 ch	bro or pek	3800	48
232		2125	27 do	or pek	2700	39
233		2128	22 do	pek	2200	36
236	St. Paul's	2137	36 hf-ch	bro pek	1978	58
237		2140	18 do	bro or pek	1188	48
238		2143	66 do	pek	3168	46
239	Hopton	2146	53 ch	bro pek	5300	39 bid
240		2149	41 ch	pek	3690	35
241		2152	21 do	pek sou	1890	32
242		2155	8 do	dust	800	19
243	Galapitakande	2158	12 do	or pek	984	49
244		2161	12 do	bro pek	1200	55
245		2164	33 do	pek	3135	42
249	Grange Garden	2176	39 ch	bro or pek	3900	42
250		2179	26 do	pek	2600	34
254	Bandara Eliya	2191	78 hf-ch	or pek	3588	49
255		2194	107 do	bro pek	5992	50 bid
256		2197	65 do	pek	2925	45

[Messrs. Somerville & Co.—191,264 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Ossington	259	12 ch	bro pek	1200	34
2		262	16 do	pek	1600	28
3		265	7 do	pek sou	700	27
6	J M D M	274	9 ch	bro pek	900	34
7		277	12 do	pek	1140	32
8		280	8 do	pek sou	760	28
9		283	10 do	fans	1000	26
11	Siriniwasa	289	22 ch	bro pek	2200	37
12		292	27 do	pek	2430	33
13		295	15 do	pek sou	1350	30
17	Elchico	307	100 boxes	bro pek	2000	41
18		310	38 do	bro pek	2090	41
19		313	46 hf ch	pek	2300	35
24	Oaklands	328	10 ch	bro or pek	950	32
25		331	13 do	or pek	1170	34
26		334	11 do	bro pek	1155	31
27		337	21 do	pek	1890	31
28		340	11 do	pek sou	935	29
31	Maplecroft	349	13 hf ch	bro or pek	728	35 bid
37	Koladeniya	367	10 ch	bro pek	800	38
38		370	17 do	pek	1445	31
43	A D L, in estate mark	385	12 ch	bro pek	1200	29
44		388	20 do	bro pek	2000	26 bid
48	Ladysmith	400	23 ch	bro pek	2254	33
49		403	21 do	pek	1680	33
50		406	13 do	pek sou	984	30
52	Nellicollaywatte	412	18 hf ch	bro pek	1030	36
53		415	12 ch	pek	960	33
58	Oonankande	430	10 ch	bro pek	950	42
59		433	15 do	pek	1200	35
61	Polgahakande	439	12 ch	bro pek	1140	37
62		442	11 do	pek	990	32
63		445	12 do	pek sou	960	28
64		448	11 do	pek No. 1	935	26
65	X Z	451	10 ch	sou	860	18
70	Columbia	468	34 hf-ch	bro or pek	1760	61
71		469	43 do	or pek	1978	44
72		472	27 do	pek	1242	41
78	Damblagolla	490	11 ch	or pek	990	33
79		493	25 do	bro pek	2500	30 bid
80		496	41 do	pek	3485	30
81		499	21 do	pek sou	1580	27
82	D B G	502	19 ch	bro mix	1900	21
84		508	10 hf ch	dust	800	21
85	Agra Elbedde	511	12 hf ch	bro or pek	720	50
87		517	27 do	pek	1215	42
90	O Attiville	526	12 ch	bro pek	1193	33
91		529	17 do	pek	1603	29
93	Ferriby	535	43 ch	bro pek	3870	34
94		538	57 do	pek	4560	30
95		541	23 do	pek sou	2100	27
96		544	7 do	fans	875	22
99	Honiton	553	18 ch	bro pek	1710	34
100		556	22 do	pek	1870	30
101		559	23 do	pek sou	1840	27
105	Lower Dickoya	571	7 ch	pek	700	30
106		574	7 do	pek sou	700	26
109	Rahatungoda	583	34 hf ch	bro or pek	1700	59
110		586	21 do	bro pek	1260	45
111		589	29 do	pek	1450	43
119	Karangal	613	11 ch	bro pek	1210	41
120		616	10 do	pek	900	35
121		619	9 do	pek sou	765	32
122	R T, in estate mark	622	23 ch	bro mix	2415	27
123		625	24 hf ch	fans	1680	25
124		628	26 do	dust	2210	20
125	Hangranoya	631	14 hf ch	bro or pek	700	62
126		634	14 ch	bro pek	1400	40
131	H G L A	649	18 ch	or pek	1410	33 bid
132		652	15 hf ch	bro or pek	900	32
133	B, in estate mark	655	5 ch	dust	720	20 bid
136	W H R	664	14 ch	pek fans	1710	18
138	A, in estate mark	670	5 ch	dust	720	20 bid
140	Bollagalla	676	33 ch	bro pek	3300	37
141		679	20 do	pek	1600	34
142		682	15 do	pek sou	1200	29
144	Kotera	688	13 ch	bro pek	1800	33
145		691	21 do	pek	1890	27 bid
146		694	26 do	pek sou	2340	25 bid
147		697	16 do	pek sou No. 2	1600	24 bid
148	C, in estate mark	700	6 ch	dust	864	18 bid
149	S	703	7 ch	bro pek	735	28
150		706	8 do	bro or pek	920	23 bid
152		712	17 do	pek sou	1360	out
153		715	10 do	bro pek fans	1200	out
154		718	25 hf ch	pek fans	2125	out
155		721	10 ch	bro tea	780	out
156		724	18 do	sou	1530	out
162	Doragalla	742	14 ch	bro or pek	1330	65
163		745	15 do	bro pek	1350	52
164		748	21 do	pek	1680	39
168	D G A	760	12 ch	or pek	1200	34
169	Oakbam	763	25 hf ch	bro pek	1500	58
170		766	24 do	or pek	1080	46
171		769	18 ch	pek	1620	57 bid
181	Batoologa	799	10 ch	pek	1030	34
182		802	25 do	pek sou	2400	20
186	Ravenscraig	814	36 hf-ch	or pek	3060	39
187		817	9 ch	pek	810	33
190	H B	826	14 hf-ch	dust	1190	23
191	W, in estate mark	829	16 ch	pek	1600	24 bid
192	L M, in estate mark	832	14 ch	pek sou	1245	26 bid
193	Neuchate	835	38 ch	bro pek	3800	54
195	H H	841	11 ch	bro or pek	990	41
196		844	15 do	pek	1200	34
197		847	11 do	sou	880	25
198	Havilland	850	7 ch	pek fans	700	23
204	Gangwarily	868	7 ch	pek fans	700	23

[Mr. E. John.—161,233 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	Natuwakelle	204	9 ch	sou	810	26
4	Oonoogaloya	213	16 do	or pek	1440	46 bid
5		216	13 do	bro or pek	1300	65
6		219	25 do	pekoe	2250	37
7		222	21 do	br or pk No. 2	1470	32
8	Kandaloya	225	51 hf ch	bro pek	2295	42
9		228	58 do	or pek	1540	37
10		231	68 do	pekoe	2720	36
16	Richmond Hill	249	23 ch	bro pek	2185	33 bid
17		252	19 do	pekoe	1520	33
18		255	15 do	pek sou	1200	29
20	Gingranoya	261	22 hf-ch	bro or pek	1210	43 bid
21		264	10 do	bro pek fans	700	29
23	St. John's	270	24 do	bro or pek	1390	84 bid
24		273	28 do	or pek	1400	75 bid
25		276	42 do	pekoe	2184	52
26		279	20 do	pek sou	1300	38
27	S J	282	17 do	bro pek	983	66
28		285	14 do	pekoe	784	47
29	Agra Ouvah	288	12 do	bro or pek	1116	75
30		291	20 do	bro pek	1800	55
31		294	30 ch	pekoe	1056	45
32	Keenagaha Ella	297	27 hf-ch	bro or pek	1350	46
33		300	17 ch	or pek	1275	49
34		303	12 do	pekoe	840	37
35		306	20 do	pek sou	1400	34
41	Coundon	324	14 hf ch	bro or pek	700	49 bid
42		327	17 ch	pekoe	1530	39
43		330	13 do	pek sou	1105	36
48	Oakwell	345	9 do	bro pek	1050	51
49		348	10 do	pekoe	1030	44
53	Riseland	360	13 do	pek sou	1040	25
61	Murraythwaite	384	14 do	bro pek	1330	39 bid
62		387	14 do	pekoe	1190	34
63	Yapame	390	24 do	bro pek	2640	42
64		393	32 do	pekoe	2880	38
65		396	20 do	pek sou	1600	37
67	Kotuagedera	402	31 do	bro pek	3100	31
68		405	18 do	pekoe	1710	30
70	K P	411	10 hf-ch	fans	720	26
73	Mahanilu	420	11 ch	or pek	1045	48
74		423	47 hf-ch	bro pek	2679	50
75		426	20 ch	pekoe	1800	40
76		429	14 do	pek sou	1260	37
78	Brownlow	435	21 hf-ch	bro or pek	1092	80
79		438	18 do	or pek	1044	57
80		441	13 ch	or pek	1170	46 bid
81		444	28 do	pekoe	2296	40
82	Troup	447	27 do	pek sou	2430	36
83		450	10 do	bro mix	1000	25
87	Yapame	462	22 do	bro pek	2420	42
88		465	15 do	pekoe	1500	38
89		468	15 do	pek sou	1425	36
91	Suduganga	477	16 hf-ch	or pek	720	40
93		480	16 do	bro or pek	880	45
94		483	24 ch	pek sou	1800	33
96		489	14 do	sou	980	30
97	Ohiya	492	14 do	pek sou	1288	40
98		495	9 do	sou	819	35
99		498	19 hf-ch	fans	1197	33
100	Gansarapola	501	22 ch	bro pek	2090	32 bid
101		504	15 do	pekoe	1425	30
102		507	16 do	pek sou	1360	28
103	M G	510	12 hf-ch	fans	912	30
104	HS, in est. mark	513	13 ch	bro mix	1495	18
105	Glassaugh	516	16 hf-ch	or pek	832	76
106		519	13 do	bro or pek	845	64
107		522	13 ch	pekoe	1170	48
109	Rookwood	528	41 hf-ch	flowery bro or pek	2378	64 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
110		531	21 hf-ch	or pek	1050	53
111		5·4	16 do	bro pek	1056	32 bid
112		537	7 ch	bro or pek	756	36 bid
113		540	24 do	or pek No.1	2160	37 bid
114		543	52 do	pekoe	4680	35 bid
115		546	11 do	pekoe	990	36 bid
118	Poilakande	555	41 do	bro pek	4100	34
119		558	25 do	pekoe	2250	33
120	Gonavy	561	25 hf-ch	or pek	1250	47
122		567	18 ch	pekoe	1350	38
125	OF, in est mark	576	15 do	bro pek	1500	29
126	Callander	579	13 hf-ch	bro or pek	780	68
127		582	18 do	or pek	936	57
128		585	26 do	pekoe	1170	41
132	Rookwood	597	9 ch	or pek	810	40
133		600	29 do	pekoe	2610	36 bid
134		603	20 do	pek sou	2160	31 bid
135	Morahela	606	33 do	bro or pek	3300	37
136		609	26 do	pekoe	2134	33
139	Kadienlena	618	19 do	pekoe	1425	27 bid
140		621	24 do	pek sou	1800	25
143	Warleigh	630	16 do	bro pek	1600	58
144		633	15 do	pekoe	1275	48

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Hornsey	39	6 hf ch	fans	510	21
4		42	4 do	dust	380	18
8	Mapitigama	51	6 ch	sou	510	24
9		57	3 do	sou	240	23
10		60	4 do	congou	320	15
11		62	3 do	bro or pek fans	345	29
16	Manickwatte	78	2 hf ch	dust	120	20
17		81	2 ch	red leaf	200	18

[Messrs. Forbes & Walker.

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	W N	1435	2 ch	fans	200	08
3		1438	1 hf ch	dust	85	08
4	Uragalla	1441	4 ch	bro pek	380	32
5		1444	5 do	pek	450	28
6		1447	2 do	pek sou	170	25
7		1450	1 do	dust	130	18
8		1453	1 hf ch	bro pek	55	32
9		1456	1 do	bro pek fans	55	25
10		1459	1 do	red leaf	60	21
11		1462	1 do	bro mix	50	27
12	Wewawatte	1465	8 do	bro pek	456	42
13		1468	5 do	pek	280	36
17	Avoca	1480	5 do	pek sou	450	40
18		1483	2 do	bro pek fans	270	31
19	Derby	1486	5 ch	bro tea	300	33
20		1489	4 do	pek	224	28
21		1492	3 hf-ch	pek sou	120	24
22		1495	3 do	bro mix	120	10
23		1498	1 do	dust	64	22
25	Clarendon	1504	10 do	or pek	540	54
28		1513	1 ch	sou	80	31
29		1516	1 hf ch	dust	80	18
31	Chesteford	1522	7 ch	bro tea	630	21
33	L D L	1528	7 ch	red leaf	665	16
37	A	1540	4 do	pek sou	380	24
39	Udabage	1546	13 hf ch	pek	650	27
40	D, in estate mark	1549	10 ch	fans	550	17
41		1552	3 do	pek fans	240	17
42	I K V	1555	2 do	bro mix	224	10
43		1558	5 do	pek fans	400	21
46	Carendon	1567	6 ch	pek sou	600	28
47		1570	1 do	sou	77	21
49	Sirikandura	1576	6 ch			
			1 do	pek	611	33
50		1579	5 do	pek sou	425	31
51		1582	3 do	bro pek fans	300	28
52		1585	2 do	red leaf	180	19
55	D M V	1594	6 ch	pek sou	420	25
56	N V H	1597	1 hf ch	congou	50	25
58	Glengariffe	1603	10 do	or pek	420	38
60		1609	6 ch	pek sou	480	27
61		1612	10 hf ch	fans	650	24
62		1615	2 do	dust	160	18
69	Ganapalla	1636	2 do	dust	172	16
74		1651	6 ch	or pek	516	39
76		1657	6 do	bro pek fans	636	33
77		1660	1 hf-ch	dust	86	16
86	Nakiadeniya	1687	9 ch	pek sou	675	25
87		1690	4 do	bro pek fans	400	27
88		1693	2 do	congou	140	24
89		1696	2 do	dust	280	14

Lot		Box.	Pkgs.	Name	lb	c.
90	Harrington	1699	13 hf-ch	bro or pek	650	7
93		1708	3 ch	pek	270	38
94		1711	4 hf ch	or pek fans	280	34
95		1714	2 do	dust	170	27
96	Castlereagh	1717	6 ch	bro or pek	540	76
98		1723	5 do	or pek	400	44
100	Dewalakande	1729	6 do	bro tea	396	21
103	Arapciakande	1738	6 ch	bro or pek	660	32
107		1750	4 do	dust	460	18
119	Corfu	1786	11 hf-ch	bro pek	605	6
121		1792	2 do	bro pek fans	140	4
122		1795	3 do	bro tea	180	16
126	Palmerston	1807	2 do	bro or pek fans	140	7
127	New Galway	1810	9 do	bro pek	540	7
128		1813	9 do	pek	495	48
130	O B E C, in est. mark, Forest Creek	1819	3 ch	sou	270	29
131		1822	4 do	fans	400	31
132		1825	6 do	red leaf	540	25
135	G O, in est. mark	1834	1 ch	dust	70	14
159	Agra Oya	1906	6 ch	bro pek	600	42 bid
164		1921	1 do	do	100	34
166	Old Maddegama	1927	10 ch	or pek	650	41
168		1933	5 do	pek sou	325	33
169		1936	2 do	sou	150	27
170		1939	2 do	bro pek fans	170	32
171		1942	2 do	dust	190	20
172	Kotua	1945	4 ch	bro pek	400	30
173		1948	3 do	pek	300	26
174		1951	4 do	pek sou	400	24
175		1954	1 do	sou	85	16
176		1927	1 do	fans	110	19
177	B G	1960	6 hf-ch	bro pek	400	34
178		1963	6 do	pek	300	26
179		1966	2 do	pek sou	100	23
180		1969	1 do	dust	60	17
183	Ugieside	1978	4 ch	dust	320	14
187	Woodend	1990	2 ch	dust	280	20
189	Ligdola	1996	6 ch	bro or pek	480	45
190		1999	3 do	bro pek	285	40
192		2005	2 do	pek sou	180	36
194	R G M	2011	4 ch	dust	547	16
195	Aneimudi	2014	2 hf ch	bro pek	106	22 bid
196		2017	7 do	fans	392	13 bid
197	Strathdon	2020	1 do	bro pek	60	53
201	Weyungawatte	2032	1 ch	bro tea	95	28
202		2035	1 hf ch	dust	85	16
206	Marlborough	2047	7 ch	pek sou	560	30
207		2050	2 do	pek fans	192	25
208		2053	1 do	bro pek dust	156	20
209	Erlsmere	2056	5 ch	or pek	400	51
212		2065	3 do	pek sou	225	34
213		2068	1 hf-ch	dust	80	27
227	St. Leonards-on-Sea	2110	4 ch	pek	360	28
228	Mem ra-kande	2113	2 ch	dust	300	13
229		2116	1 do	dust	150	13
230	Poengalla	2119	4 ch	dust	360	20
234	Kelaneiya and Braemar	2131	5 ch	sou	500	30
235		2134	7 hf ch	dult	560	22
246	Galapitakande	2167	5 ch	pek sou	450	36
247		2170	1 do	dust	100	17
248	Allerton	2173	2 ch	dust	240	13
251	Grange Garden	2182	2 ch	pek sou	200	27
252		2185	3 hf ch	dust	255	21
253	G, in estate mark	2188	4 ch	bro mix	400	14
257	Bandara Eliyo	2200	16 hf ch	pek sou	675	38
258		2203	6 do	dust	480	21

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Ossington	268	1 ch	bro tea	118	13
5		271	1 do	dust	156	12
10	J M D M	286	1 ch	dust	124	14
14	Siriniwasa	298	2 ch	unas	180	30
15		301	5 do	bro pek fans	525	28
16		304	2 do	dust	290	19
20	Elchico	316	3 hf ch	fans	210	21
21		319	3 do	dust	255	21
22		322	1 do	con	45	24
23		325	1 do	bro mix	50	16
29	Oaklands	343	5 hf ch	pek fans	325	19
30		346	8 do	dust	600	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
32	Maplecroft	352	4 hf-ch	or pek	200	36
33		355	8 do	pek	400	27 bid
34		358	2 do	pek sou	90	25 bid
35		361	1 do	dust	80	19 bid
36	A A	364	3 hf ch	bro tea	150	15
39	Koladeniya	373	4 ch	pek sou	340	24
40		376	2 do	bro tea	200	25
41		379	2 do	dust	200	18
42		38?	1 do	bro sou	90	14
45	A D L in estate mark	391	6 ch	pek sou	570	23
46		394	1 do	dust	150	17
47		397	2 do	red leaf	160	18
51	Ladysmith	400	5 ch	pek fans	580	23
54	Nillicollaywatte	418	8 ch	pek sou	560	29
55		421	1 hf ch	bro pek fans	68	22
56		424	1 do	dust	84	18
57		427	1 do	fans	64	18
60	Oonankande	436	9 ch	sou	630	33
66	Alfred	454	1 hf ch	bro pek	51	27
67		457	1 do	pek	51	23
68		460	1 do	pek sou	35	16
69		463	1 do	bro mix	29	14
73	Ahamad	475	6 ch	bro pek	600	29
74		478	7 do	pek	600	26
75		481	4 do	pek sou	630	23
76		484	4 do	fans	400	14 bid
77		487	2 do	red leaf	140	14
83	D B G	505	2 ch	fans	200	16
86	Agra Elbedde	514	12 hf ch	or pek	600	48
88		520	9 do	pek sou	324	40
89	X X	523	2 hf ch	pek dust	100	22
92	O Attiville	532	5 ch	pek sou	475	23
97	Ferriby	547	2 ch	bro tea	150	29
98		550	1 do	dust	150	16
102	Honiton	562	4 ch	fans	460	22
103	Lower Dickoya	565	6 ch	bro or pek	324	38 bid
104		568	5 do	bro pek	500	33
107		577	2 do	bro sou	200	16
108		580	2 hf ch	dust	180	17
112	Rahatungoda	592	5 hf ch	dust	400	24
113	Maligatenne	595	4 ch	bro pek	581	28
114		598	6 ch	pek	535	25
115		601	5 do	pek sou	417	23
116		604	7 do	bro tea	581	16
117		607	1 do	dust	110	15
118	P	610	7 ch	unas	646	18
127	Hangranoya	637	3 ch	pek No. 1	270	35
128		640	6 do	pek No. 2	540	32
129		643	6 do	pek sou	480	30
130	X X	646	5 hf ch	unas	290	34
134	Wilford	658	2 ch	bro or pek	200	33
135		661	12 hfch	bro pek	675	33 bid
137	W H R	667	6 ch	dust	640	20 bid
139	K P, in estate mark	673	5 ch	pek fans	535	22
143	A A, in estate mark	685	4 ch	dust	640	21
157	Bope	727	5 hf ch	bro pek	250	32
158		730	6 do	or pek	300	29
159		733	2 hf-ch	pek	98	26
160		736	3 do	pek sou	124	24
161		739	2 do	dust	132	21
165	Doragalla	751	5 hf-ch	or pek fans	330	32
166		754	2 ch	bro mix	250	15
167		757	7 do	pek sou	560	33
172	Oakham	772	6 ch	pek sou	570	33
173		775	2 hf ch	pek fans	160	24
174	W H	778	1 ch	or pek	87	32
175		781	1 do	bro pek	96	28
176		784	2 do	pek	166	27
177		787	7 do	pek sou	540	26
178		790	3 do	fans	360	23
179		793	1 do	red leaf	84	16
180		796	2 do	dust	290	16
183	A	805	1 hf ch	dust	80	22
184	H	808	5 hf-ch	dust	325	20
185	Ravenscraig	811	9 hf ch	bro pek	495	45
188		820	5 hf ch	fans	400	23
189		823	2 do	bro mix	120	12
194	H H	838	6 hf-ch	or pek	480	41
199	Havilland	853	4 ch	pek sou	300	20 bid
200		856	1 hf ch	dust	100	16
201		859	4 ch	sou	280	13
202	Gangwarily	862	9 ch	pek sou	630	21 bid
203		865	2 hf ch	dust	200	17
205		871	4 ch	sou	320	15

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Natuwakelle	207	4 ch	fans	480	27
3		210	2 do	dust	240	19
11	Kandaloya	234	6 hf-ch	pek sou	240	34
12		237	11 do	sou	440	31
13		240	1 do	bro tea	40	27
14		243	13 do	fans	650	25
15		246	8 do	dust	400	21
19	Richmond Hill	258	5 ch	pek fans	580	22
22	Gingranoya	267	8 hf-ch	dust	640	20
36	Keenagaha Ella	309	9 ch	sou	675	31
37		312	8 hf-ch	bro pek fans	520	33
38		315	3 do	fans	165	25
39		318	1 do	dust	85	15
40	Coundon	321	5 ch	or pek	425	44
44		333	9 hf-ch	bro pek fans	540	36
45		333	7 do	fans	420	31
46		336	1 do	dust	85	16
47	K T	342	1 ch	sou	95	19
50	Oakwell	351	5 do	pek sou	500	39
51	Riseland	354	7 do	bro pek	630	29
52		357	6 do	pekoe	540	26.
54		363	1 do	bro or pek	100	22
55		366	1 do	dust	110	14
56	Eladuwa	369	3 do	or pek	285	34
57		372	2 do	bro pek	220	31
58		375	6 do	pekoe	540	27
59		378	4 do	pek sou	360	24
60		381	1 do	mixed	150	11
66	Yapame	389	4 hf-ch	dust	320	21
69	K P	408	5 do	dust	475	16
71		414	1 ch	congou	100	22
72		417	2 do	bro tea	198	17
77	Mahanilu	432	10 hf-ch	fans	680	35
84	Chapelton	453	6 do	dust	540	22
85		456	7 ch	bro mix	560	24
86	M B	459	5 do	bro tea	575	18
90	Yapame	471	1 do	fans	95	25
91		474	1 do	dust	130	16
95	Suduganga	486	4 hf-ch	pek fans	320	27
108	A A	525	2 ch	dust	210	25
116	Rookwood	549	9 do	pek sou	648	33
117		552	6 do	dust	516	28
121	Gonavy	564	12 hf-ch	bro pek	600	67
123		570	4 ch	pek sou	400	34
129	Callander	588	5 hf-ch	pek sou	210	39
130		591	5 do	fans	350	31
131	C L	594	4 do	bro mix	176	17
137	Morahela	612	3 ch	sou	240	28
138		615	3 hf-ch	dust	252	17
141	Warleigh	624	10 do	bro or pek	600	R1·10
142		627	10 do	or pek	600	64
145		636	3 ch	pek sou	249	43

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Aug. 10.

"Hakata Maru."—Kahagalla F, 1 tierce sold at 116s; ditto 1, 2 casks sold at 108s 6d; ditto 2, 1 tierce and 4 casks sold at 99s; ditto S, 1 tierce sold at 65s; ditto PB, 1 tierce sold at 106s.

No sales of Cocoa and Cardamoms this week.

OBSERVER PRINTING WORKS.

No. 34 COLOMBO, SEPTEMBER 10, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[19,430 lb.]

Lot.		Box.	Pkgs.	Name.	lb	c
1	M M	34	20 ch	bro pek	1880	28 bid
2		37	33 do	pek	2970	26 bid
3	Battalgalla	40	32 ch	or pek	2880	51
4		43	21 do	pek	1785	43
5		46	16 do	pek sou	1280	39
6	Torrington	49	16 ch	bro pek	1280	35
7		52	34 do	bro or pek	3230	33
8		55	24 do	pek	1800	30
9		58	31 do	pek sou	2325	28

Messrs. Forbes & Walker

[377,486 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Villehena	2206	37 ch	bro pek	3700	44
2		2209	17 do	pek	1700	34
6	Avanna	2221	7 ch	bro pek	700	39
9	P, in estate mark	2230	15 ch	bro or pek	1500	56
13	Great Valley Ceylon, in est. mark	2242	22 ch	bro or pek	1210	67
14		2245	9 do	or pek	765	50
15		2248	20 do	pek	1700	41
16	Grange Garden	2251	14 ch	bro or pek	1400	46
17		2254	10 do	pek	1000	34
21	Udabage	2266	43 hf ch	bro pek	2365	37
22		2269	14 do	pek	700	31
24	D, in estate mark	2275	15 hf ch	fans	825	25
28	C C	2287	25 ch	sou	2000	25
29		2290	22 bf ch	pek dust	1769	18
30		2293	23 ch	bro mix	1955	18
32	K, Roeberry	2299	14 cb	bro or pek	1400	56 bid
33	Igalkande	2302	15 ch	pek	1080	30
40	Pansalatenne	2323	25 ch	bro or pek	2500	49
41		2326	20 do	bro pek	1800	42
42		2329	28 do	pek	2380	35
43		2332	13 do	pek sou	1105	32
45	Talgaswela	2338	22 ch	or pek	1870	40
46		2341	44 do	pek	3520	35
47		2344	22 do	pek sou	1650	30
48	Middleton	2347	14 hf ch	bro or pek	784	R1·06 bid
49		2350	38 ch	bro pek	3610	67
50		2353	26 do	pek	2080	50 bid
51		2356	14 do	pek sou	1120	46
53	Pingarawa	2362	17 bf-cb	dust	1360	21
55	Ardlaw and Wishford	2368	14 do	bro or pek	714	70
56		2371	12 ch	bro pek	1020	52
57		2374	9 do	or pek	711	51
58		2377	8 do	fans	880	35
60	Ninfield	2383	15 ch	bro or pek	1500	38
61		2386	8 do	bro pek	800	37
62		2389	8 do	or pek	720	35
63		2392	30 do	pek	2700	32
64		2395	9 do	pek sou	720	28
68	Waitalawa	2407	38 hf-ch	bro pek	1900	53
69		2410	44 do	pek No. 1	2200	38
71		2416	20 do	pek sou	1000	32
74	Nugagalla	2425	23 hf-ch	bro pek	1150	47
75		2428	35 do	pek	1750	33
78	Parsloes	2437	61 ch	bro pek	6100	47
79		2440	31 do	pek	2790	39
82	Penrhos	2449	35 box	bro flowery or pek	700	85
83		2452	37 hf-ch	bro or pek	2035	60
84		2455	29 do	or pek	1392	46
85		2458	36 ch	pek	3096	41
86		2461	11 do	pek sou	880	34
88	Pine Hill	2467	28 bf ch	bro or pek	1568	61
89		2470	30 ch	or pek	2700	47
90		2473	28 do	pek	2380	40
94	Dunbar	2485	9 ch	bro pek	774	67 bid
95		2488	9 do	or pek	747	52
96		2491	11 do	pek	803	44
97	Choisy	2494	21 hf-ch	or pek	1050	53
98		2497	44 ch	bro pek	4400	57
99		2500	32 do	pek	2720	41
100		2503	26 do	pek sou	2080	38
101	Dammeria	2506	30 ch	or pek	2700	43
102		2509	10 do	bro or pek	1200	39 bid
103		2512	24 do	bro pek	2400	49
104		2515	28 do	pek	2520	41
105		2518	12 do	pek sou	1080	40
108	Erracht	2527	25 ch	bro or pek	2375	35
109		2530	13 do	bro pek	1040	39
110		2530	30 do	pek	2400	30
111		2536	14 ch	pek sou	1120	25
115	Pallagodda	2548	7 ch	bro or pek	700	34
116		2551	15 do	bro pek	1500	47
117		2554	12 do	or pek	1020	39
118		2557	11 do	pek	880	37
119		2560	13 do	pek sou	1170	33
120	Fairlawn	2563	22 hf ch	bro pek	1100	69
122		2569	17 do	pek	1445	42
127	Tonacombe	2584	21 cb	or pek	1890	49
128		2587	8 do	bro or pek	800	72
129		2590	15 do	bro pek	1500	54
130		2593	26 do	pek	2340	50
131		2596	10 do	pek sou	900	43
133	Glendon	2602	24 ch	or pek	2040	42
134		2605	32 do	bro pek	33 0	39
135		2608	45 do	pek	3600	37
137		2611	21 do	pek sou	1680	32
138	St. Heliers	2617	14 ch	bro or pek	1344	55
139		2620	18 do	pek	1494	40
140	Queensland	2623	8 ch	or pek	720	55
141		2626	13 hf-ch	bro pek	715	65
142		2629	10 ch	pek	850	45
144	Macaldeniya	2635	21 bf-ch	bro pek	1155	51
145		2638	17 do	or pek	850	47
146		2641	31 do	pek	1550	41
152	M V	2659	21 ch	bro mix	1890	24
153	Tambiligalla	2662	27 ch	bro or pek	2700	39
154		2665	16 do	pek	1440	35
157	Ireby	2674	25 hf ch	bro pek	1375	66
158		2677	10 ch	pek	850	47
159	C S G	2680	43 hf ch	bro pek	2150	50
160		2683	33 ch	pek	2640	36
161		2686	14 do	pek sou	1120	31
169	Cooroondoowatte	2710	13 bf ch	bro pek	715	57
170		2713	12 ch	pek	984	39
171		2716	9 do	pek sou	738	35
177	W L	2734	7 ch	bro pek	700	33
182	W V R A	2749	13 hf ch	fans	1040	19
184	B D W P	2755	10 ch	bro pek No. 2	900	21
193	Rowley	2782	28 hf ch	bro pek	1400	54
194		2785	26 do	pek	1300	41
195	R C W, in est. mark	2788	10 ch	bro pek	1000	27
196		2791	10 do	pek sou	860	22 bid
197		2794	29 hf ch	bro pek fans	2610	22
198	Loughton	2797	23 hf ch	pek	1150	38
199	Wyamita	2800	7 ch	bro pek No. 2	700	33
201		2806	8 do	pek	720	30
208	Arapolakande	2827	39 cb	bro pek	3510	41
209		2830	33 do	pek	2640	36
212	L, in estate mark	2839	12 ch	bro tea	1009	24
213	Weoya	2842	35 ch	or pek	3325	37
214		2845	55 do	pek	4675	32
215		2848	28 do	pek sou	2240	30
216		2851	6 do	dust	900	20
217	Polatagama	2854	36 do	bro pek	3600	41
218		2857	16 do	or pek	1440	36
219		2860	40 do	pek	3400	33
223	Gonapatiya	2872	23 hf-ch	bro pek	1173	76
224		2875	30 do	or pek	1350	61
225		2878	26 do	pek	1170	48
226		2881	16 do	pek sou	8 0	42
227	Monkswood	2884	24 do	bro pek	1200	84
228		2887	28 do	or pek	1400	73
229		2890	19 ch	pek	1805	51 bid
231	Doranakande	2893	8 do	br pek	800	41
233		2902	11 do	pek sou	990	28
235	Knavesmire	2908	24 hf-ch	or pek	1.00	36
236		2911	42 ch	bro pek	4200	35
237		3914	33 do	pek	2805	33
238		2917	15 do	pek sou	1050	27
239		2920	9 hf-ch	dust	720	20
230		2923	22 ch	pek	1615	31
243	B G	2932	16 hf-ch	pek sou	800	28
244	Woodend	2935	27 ch	bro or pek	2700	35
245		2938	9 do	bro pek	900	31
246		2941	30 do	pek	2550	31
247		2944	16 do	pek sou	1280	28

Lot.		Box.	Pks.	Name.	lb.	c.
248	Gonavy	2947	13 hf-cb	dust	975	25
253	Ismalle	2962	10 do	sou	8 0	25
255		2968	6 do	fans	750	22
256		2971	15 do	dust	1275	19
257	Ingrogalla	2974	10 ch	br pek	1000	49
259		2980	9 do	pek	765	40
265	Talgaswela	2998	14 do	br pek No. 2	770	25
266	Kosgalla	3001	19 hf ch	bro pek	950	28
268		3007	18 do	pek	810	28
273	P D	3022	30 do	fans	2160	26 bid
274	Dammeria	3025	71 ch	or pek	6390	41
275		3028	30 do	bro pek	3000	49
276		3031	28 do	pek	2520	40
277		3034	12 do	pek sou	1050	37
278		3037	21 hf-ch	bro pek fans	1680	33
279		3040	11 do	dust	990	24
280	D M	3043	7 ch	unast	735	34
281	Clunes	3046	11 do	bro or pek	1100	36
283		3052	14 do	or pek	1120	39
284		3055	39 do	pek	3510	34
285		3058	16 do	pek sou	1410	29
287	Hatton	3061	27 do	bro pek	2700	65
288		3067	31 do	pek	2480	46
290	Nillcomally	3073	31 do	or pek	2480	40
291		3076	26 do	bro or pek	2496	52
292		3079	14 do	pek	1061	29
293	B Y	3082	15 do	pek sou	1200	32
295	Geragama	3088	30 do	bro pek	3000	37
296		3091	31 do	pek	2790	31
297		3094	28 do	pek sou	2380	28
298	Hopton	3097	42 do	bro pek	4200	44 bid
299		3100	35 do	pek	3150	41
300		3103	17 do	pek sou	1530	38
301		3106	7 do	dust	770	23
303	St. Martin	3112	21 hf-ch	bro pek	840	36
304		3115	33 do	pek	1320	35
308	H	3127	6 ch	pk fans	725	19 bid
309	T	3130	7 do	pek fans	846	18 bid
310	Y	3133	7 do	pk fans	846	18 bid
311	K P W	3136	37 hf-ch	bro or pek	2220	38
312		3139	40 do	bro pek	2200	36
313		3142	40 do	pek	2000	32
314		3145	15 do	pek sou	750	28
316	Ambragalla	3151	85 do	or pek	6800	33
317		3154	69 do	bro or pek	6900	32
318		3157	72 do	pek	5688	29
319	Boda	3160	20 hf-ch	bro pek	1060	33
321		3166	12 ch	pek	1032	28

[Messrs. Somerville & Co.—190,281 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Tientsin	874	9 ch	pek sou	765	42
	Hapugasmulle	880	17 ch	bro pek	1870	39
4		883	23 do	pek	2070	23
5	Welgampola	886	15 hf ch	bro pek	840	37
11	S F D	904	12 hf ch	dust	1056	18
13	Ambalawa	910	20 hf ch	bro pek	960	33
14		913	21 do	pek	861	30
18	R K P	925	12 ch	bro pek	1080	45
34	Kalani	973	68 ch	bro pek	6120	36
35		976	42 do	pek	3150	32
36		979	50 do	pek sou	4000	29
37		982	18 do	sou	1080	25
38		985	32 do	bro pek fans	3200	29
48	Tyspane	1015	7 ch	bro or pek	700	53
49		1018	16 do	bro pek	1520	47
50		1021	17 do	pek	1445	37
51	Beauvais	1024	20 cb	pek	1800	23
53	Kurulugalla	1030	14 ch	bro pek	1400	36
54		1033	8 do	pek	720	35
58	A T	1045	17 ch	bro tea	1530	23
59	Dartry	1048	26 hf ch	fans	1820	22
61	Marigold	1054	21 hf-ch	bro or pek	1113	60
64		1063	17 do	pek	816	49
65		1066	19 do	pek sou	912	42
68	Wewatenne	1075	19 hf-ch	bro pek	950	36
69		1078	24 do	pek	1200	33
70		1081	33 do	pek sou	1650	28
71	Lyndhurst	1084	27 hf ch	bro pek	1485	42
72		1087	34 do	pek	1700	36
73		1090	16 do	pek sou	720	30
74		1093	30 do	fans	1590	22
76	Depedeno	1099	61 hf ch	bro pek	3050	36
77		1102	51 do	pek	2550	32
78		1105	42 do	pek sou	2100	27
81	Rayigam	1114	13 ch	bro pek	1235	38
82		1117	11 ch	or pek	880	37
83		1120	11 do	pek	880	34
84		1123	12 do	pek sou	1020	31
87	P T N, in estate mark	1132	27 hf ch	pek sou	1350	26
90	Hatdowa	1141	23 ch	bro pek	2070	30
91		1144	14 do	pek	1050	32
92		1147	14 cb	pek sou	930	23
95	Ferriby	1156	23 do	bro pek	2070	36
96		1159	35 do	pek	2800	30
97		1162	20 do	pek sou	1700	27
100	Avisawella	1171	35 boxes	bro or pek	700	39 bid
101		1174	21 ch	bro pek	1995	36
102		1177	24 do	pek	2040	32
103		1180	40 do	pek sou	3000	28
104		1183	8 do	fans	960	22
104	Deloongama	1186	20 ch 1 box	bro pek	2127	32
105		1189	13 ch	pek	1248	25
107	Bodava	1192	27 hf ch	bro pek	1377	36
108		1195	10 ch 1 hf ch	pek	855	33
112	Ladysmith	1207	23 ch	bro pek	2185	35
113		1210	27 do	pek	2 25	33
114	Hanwella	1213	16 hf-ch	bro pek	800	35
117	P G O	1222	38 ch	bro or pek	3990	32 bid
118		1225	20 hf ch	or pek	900	32 bid
119		1228	22 do	pek	1100	30 bid
120		1231	9 do	pek sou	810	28 bid
121		1234	20 do	pek fans	1800	24
122	Horagoda	1237	8 ch	bro or pek	800	40
123		1240	8 do	or pek	720	36
124		1243	18 do	pek	1710	33
125		1246	10 do	pek sou	850	31
131	S L, in estate mark	1264	50 ch	pek sou	2700	22 bid
132		1267	30 hf ch	pek fans	2550	18 bid
133		1270	10 do	dust	850	18 bid
134	Dikmukalana	1273	43 hf-ch	bro pek fans	2365	25
135		1276	69 do	pek	3450	29
136		1279	32 do	pek sou A	1600	27
137		1282	18 do	pek sou B	864	27
139	Labugama	1288	35 hf ch	bro pek	1750	45
140		1291	17 cb	pek	1615	33
141		1294	19 do	pek sou	1615	28
145	Pitaville	1306	8 ch	pek	760	20
151	Quillon	1324	12 ch	bro pek sou	1092	16 bid
152		1327	21 hf cb	dust	1950	22
153	O, in estate mark	1330	12 ch	bro pek	1200	32 bid
154	Ladrum	1333	9 ch	or pek	900	32
156	D M R, in es-mark	1339	49 hf ch	bro or pek	2940	26 bid
157	Merawatotum	1342	53 ch	bro pek	5300	31 bid
158		1345	38 do	pek	3496	30 bid
159		1348	26 do	pek sou	2106	28
160	A G	1351	27 ch	bro pek	2430	31 bid
162	Raglan	1357	10 ch	pek	950	29
163	M R, in estate mark	1360	52 ch	bro tea	5200	23
164	Neuchatel	1363	36 ch	bro pek	3600	36
165		1366	29 do	bro pek	2900	37
166		1369	19 do	pek	1615	34
169	Oolapane	1378	10 hf ch	dust	800	19
170	Rayigam	1381	16 ch	bro pek	1520	40
171		1384	13 do	or pek	1010	37
172		1386	13 do	pek	1040	34
173		1 90	13 do	pek sou	1105	31
174	Deniyaya	1393	30 ch	bro pek	3000	41
175		1396	13 do	pek	1300	35
176		1399	15 do	pek sou	1200	30
177		1402	9 do	sou	900	28

[Mr. E. John.—74,771 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
1	Bellongalla	639	22 ch	bro pek	2200	35
3		645	38 do	pekoe	3040	30 bid
4		648	7 do	dust	980	12
5	Cumbowelle	651	20 do	bro pek	2000	30
6		654	24 do	pekoe	2160	26 bid
7		657	14 do	pek No. 2	1120	23 bid
8		660	11 do	pek sou	880	25
12	Ottery	672	14 do	bro or pek	1330	60
13		675	14 do	or pek	1120	51 bid
14		678	24 do	pekoe	2040	40
16	Eila	684	39 do 1 hf-ch	bro pek	2583	35 bid
17		687	45 ch	bro or pek	3600	35
18		690	12 do	dust	1200	24
20	Glasgow	696	34 do	bro or pek	2754	55 bid
21		699	11 do	or pek	715	54
22		702	9 do	pekoe	720	45
23		705	8 do	pek sou	720	42
24	N D	708	11 do	pek No. 2	748	34
26	Agra Ouvah	714	17 hf-ch	bro or pek	1054	77
27		717	30 do	bro pek	1800	55
28		720	10 ch	pekoe	960	46
29	Richmond Hill	723	30 do	bro pek	2850	34
30		726	25 do	pekoe	1875	33 bid
31	Mocba	729	18 do	bro or pek	1800	85
32		732	9 do	or pek	765	65
33		735	12 do	pekoe	1080	51 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
35	Brownlow	741	20 hf ch	bro or pek	1080	71 bid
36		744	24 do	or pek	1128	46
37		747	11 ch	pekoe	891	39
38		750	9 hf ch	dust	792	22
42	Lyndford	762	14 ch	bro tea	1400	10 bid
44	Mahanilu	768	12 do	bro or pek	1200	50
45		771	13 do	pekoe	1170	42
46		774	12 do	pek sou	996	39
47	Rockwood	777	22 hf-ch	flowery bro or pek	1276	62 bid
48		780	14 ch	or pek No. 1	1200	45
49		783	19 do	pekoe	1710	41
51	Kotuagedera	789	29 do	bro pek	2900	34
52		792	18 do	pekoe	1710	34
56	Bunyan	804	19 hf-ch	bro or pek	1140	66
57		807	26 do	pekoe	1170	44
58		810	38 do	pek sou	1900	39
59	Gangawatta	813	19 ch	or pek	1900	37 bid
63	Bellongalla	825	9 do	bro pek	900	34
64		828	24 do	pekoe	2040	29 bid

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Villehena	2212	7 ch	pek sou	636	31
4		2215	5 do	sou	250	27
5		2218	3 do	dust	210	24
7	Avanna	2224	7 ch	pek	630	34
8		2227	1 do 1 hf-ch	pek sou	140	23
10	P, in estate mark	2233	3 ch	pek	240	40
11		2236	6 do	pek sou	480	34
12		2239	4 do	unas	220	32
18	Grange Garden	2257	1 ch	pek sou	100	27
19		2260	2 do	fans	200	25
20		2265	2 do	dust	170	20
23	Udabage	2272	12 hf ch	pek sou	510	27
25	D, in estate mark	2278	10 hf-ch	sou	450	25
26		2281	5 do	dust	400	16
27		2284	7 do	bro mix	420	13
31	M'Golla	2296	1 ch	red leaf fans	95	14
34	Clarendon	2305	7 hf ch	bro pek	441	73
35		2308	6 do	or pek	324	58
36		2311	5 ch	pek	475	49
37		2314	4 do	pek sou	400	41
38		2317	1 do	sou	80	35
39		2320	1 hf ch	dust	80	23
44	Pansalatenne	2335	2 ch	dust	300	17
52	Ookoowatte	2359	2 ch	pek fans No. 1	275	23
54	Debatgama	2365	5 hf ch	dust	400	21
59	S W	2380	5 ch	bro mix	525	25
65	Ninfield	2398	3 do	fans	360	22
66	B, in estate mark	2401	5 ch	sou	450	26
67		2404	4 do	dust	560	21
70	Waitalawa	2413	7 hf ch	pek No. 2	350	33
72		2419	5 do	dust	450	29
73		2422	12 do	red leaf	510	21
76	Nugagalla	2431	3 hf-ch	pek sou	150	21
77		2434	5 do	dust	450	20
80	Parsloes	2443	7 ch	pek sou	560	37
81		2446	4 do	dust	360	21
87	Penrhos	2464	3 hf-ch	fans	210	26
91	Rocksi le	2476	4 ch	sou	320	34
92		2479	5 do	dust	675	26
93		2482	4 do	bro pek fans	480	34
106	D M	2521	5 ch	bro pek	600	37
107		2524	4 do	pek	360	31
112	Erracht	2539	3 ch	bro pek fans	351	22
113		2542	2 do	dust	328	17
114		2545	2 do	bro mix	209	16
121	Fairlawn	2566	7 ch	or pek	760	50 bid
123		2572	8 do	pek sou	600	39
124		2575	5 hf ch	dust	255	26
125	F L, in estate mark	2578	1 ch	bro mix	100	18
126	F P W	2581	2 do	bro mix	180	19
132	Tonacombe	2599	7 hf ch	dust	630	29
137	G	2614	7 ch	sou	560	29
143	Queensland	2632	1 hf-ch	bro pek dust	80	28
147	Macaldeniya	2644	9 do	pek sou	459	38
148		2647	1 do	fans	55	28
149		2650	2 do	dust	170	23
150		2653	1 ch	red leaf	111	13
151	M V	2656	8 ch 1 hf ch	fans	427	23
155	Tembiligalla	2668	2 ch	pek sou	180	29
156		2671	1 do	fans	125	20

Lot.		Box.	Pkgs.	Name.	lb.	c.
162	C S G	2689	3 ch	bro mix	330	20
163		2692	5 hf-ch	dust	400	24
164	Derby	2695	5 do	bro pek	300	33
165		2698	4 do	pek	224	27
166		2701	2 do	pek sou	100	25
167		2704	2 do	bro mix	100	20
168		2707	1 do	dust	70	23
172	Coroondoowatte	2719	3 hf-ch	pek dust	201	31
173		2722	3 do	dust	255	17
174	Handrokande	2725	6 ch	bro pek	600	35
175		2728	3 do	pek	255	30
176		2731	1 do	pek sou	80	26
178	O'Bodde	2737	4 ch	bro pek	460	49
179		2740	3 do	or pek	300	46
180		2743	3 do	pek	285	37
181		2746	1 do	pek sou	85	35
183	B D W G	2752	3 hf-ch	dust	270	28
185	B D W P	2758	7 ch	pek No. 2	560	20
186		2761	2 do	pek sou No 2	160	20
187		2764	1 hf ch	dust No. 2	75	16
188		2767	3 ch	bro pek No. 2	270	19
189		2770	4 do	pek No. 2	340	20
190		2773	1 do	pek sou No. 2	85	19
191		2776	1 hf ch	dust No. 2	75	18
192		2779	1 do	dust	85	22
200	Wyamita	2803	3 ch	bro pek	300	35
202		2809	6 do	pek sou	480	28
203	Yataderia	2812	1 ch	pek sou	92	19
204		2815	1 do	do	91	19
205		2818	1 do	bro or pek	92	32
206		2821	1 do	bro pek	92	28
207	Arapolakande	2824	3 ch	bro or pek	330	32
210		2833	6 do	pek sou	540	28
211		2836	3 do	dust	345	18
220	Polatagama	2863	3 ch	pek sou	255	27
221		2866	3 do	fans	270	25
222		2869	3 do	dust	420	19
232	Doranakande	2899	4 ch	pek	380	30
234		2905	2 do	dust	192	20
241	K	2926	3 do	pek	300	29
242	B G	2929	5 hf-ch	bro pek	250	34
249	Maldeniya	2950	7 ch	sou	560	25
250		2953	1 do	congou	85	
251		2956	2 do	fans	250	
252		2959	4 hf-ch	dust	340	19
254	Ismalle	2965	1 do	congou	85	21
258	Ingrogalla	2977	4 ch	bro pk No. 2	400	24
260	I N G in est. mark	2983	4 do	pek sou	340	33
261		2986	3 do	sou	255	27
262		2989	3 do	br pek dust	360	21
263		2992	4 do	pek fans	400	27
264		2995	2 do	red leaf	180	19
267	Kosgalla	3004	11 hf-ch	bro pek X	550	28
269		3010	8 do	pek X	360	27
270		3013	8 do	pek sou	400	25
271		3016	4 do	pek sou X	200	25
272		3019	2 do	unast	100	23
282	Clunes	3049	7 ch	bro pek	665	35
286		3061	2 hf-ch	dust	180	17
289	Hatton	3070	5 ch	pek s u	375	40
294	B Y	3085	6 hf-ch	dust	480	16
302	N	3109	1 do	twanky	68	21
305	St. Martin	3118	9 do	pek sou	360	39
306		3121	1 do	congou	40	20
307		3124	2 do	fans	120	20
315	K P W	3148	2 hf-ch	dust	180	15
320	Boda	3163	7 do	or pek	322	35
322		3169	7 ch	pek sou	560	25
323		3172	2 do	bro mixed	154	14
324		3175	3 hf-ch	bro pek fans	225	19
325		3178	2 do	pek dust	174	10

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Tient in	877	4 ch	dust (unbulked)	560	21
6	Welgampola	889	9 hf ch	pek	450	31
7		892	9 do	pe sou	450	29
8		895	3 do	sou	150	25
9		898	2 do	dust	120	18
10	S F D	901	5 ch	con (colinda pkgs.)	485	25
12		907	3 hf ch	red leaf	201	16
15	Ambalawa	916	6 hf ch	pek fans	348	24
16	San Cio	919	12 hf ch	sou	480	25
20		922	4 do	bro mix	168	16
19	R K P	928	7 ch	pek	525	28
20		931	8 do	pek sou	640	25
21		934	3 do	sou	180	19
22		937	5 do	bro pek fans	500	22
23	Homadola	940	2 ch	bro pek	200	34
24		943	5 do	pek	450	27

Lot.		Box.	Pkgs.	Name.	lb.	c.
25		946	3 do	pek sou	240	24
26		949	3 do	pek fans	270	19
27		952	2 do	con	160	21
28		955	3 do	bro mix	270	18
29	Labuduwa	958	3 ch	bro pek	341	35
30		961	4 do	pek	402	31
31		964	4 do	pek sou	410	28
32		967	3 bf ch	unas	129	25
33		970	2 do	con	87	22
39	J P E	988	2 ch	bro pek	160	33
40		991	1 do	pek	75	28
41		994	1 do	pek sou	80	25
42		997	1 do	sou	60	25
43		1000	1 do	bro pek fans	100	22
44	Kahatagala	1003	3 ch	bro pek	240	33
45		006	2 do	pek	150	29
46		1009	2 do	pek sou	160	25
47		1012	2 do	bro pek fans	200	23
52	Beauvais	1027	5 ch	pek sou	365	20
55	G A	1036	2 ch	bro pek	158	32
56		1039	1 do	pek	80	30
57		1042	2 do	pek sou	130	20
60	Dartry	1051	5 hf ch	dust	450	16
62	Marigold	1057	10 hf ch	or pek No. 1	470	53
63		1060	11 do	or pek	517	50
66		1069	6 do	bro pek fans	396	36
67		1072	3 do	pek dust	225	29
75	Lyndhurst	1096	2 hf ch	dust	170	17
79	Depedene	1108	6 hf ch	bro mix	300	19
80		1111	3 do	dust	240	19
85	Rayigam	1126	7 hf ch	dust	672	25
86	P T N, in estate mark	1129	7 hf ch	bro pek	392	6
88		1135	2 do	pek fans	124	9
89		1138	1 do	pek dust	90	
93	Hatdowa	1150	4 ch	fans	400	25
94		1153	5 do	sou	350	25
98	Ferriby	1165	1 do	bro tea	90	23
99		1168	4 do	fans	560	18 bid
109	Bodava	1198	6 do	pek sou	480	25 bid
110		1201	1 do			
			1 hf ch	red leaf	149	16
111		1204	1 do	pek dust	85	16
115	Hanwella	1216	3 do	pek sou	132	25
116		1219	5 do	dust	300	23
126	Horagoda	1249	1 ch	dust	100	17
127	Black Pearl	1252	3 hf ch	bro pek	165	30
128		1255	3 do	pek	165	26
129		1258	5 ch	pek sou	450	21
130		1261	1 do	sou	90	19
138	S	1285	5 hf ch	dust	425	17 bid
142	Labugama	1297	7 do	bro or pek	420	29
143	A, in estate mark	1300	5 ch	pek sou	425	23
144	Pitaville	1303	2 do	bro pek	222	25
146		1309	2 do	pek sou	202	15
147	R T W	1312	2 hf ch	bro pek	120	31
148	,,	1315	2 do	pek	110	29
149		1318	5 do	bro pek	250	24
150		1321	1 ch	dust	140	12 bid
155	Ladrum	1336	1 do	dust	150	14
161	Raglan	1354	5 do	bro pek	500	30 bid
167	Neuchatel	1372	4 do	pek sou	320	27
168		1375	1 do	dust	150	16
178	Deniyaya	1405	1 do	red leaf	100	16

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Bellongalla	642	7 ch	or pek	560	38
9	Cumbowelle	663	2 hf-ch	sou	150	19
10		666	3 ch	fans	324	14
11		669	2 do	dust	284	17
15	Ottery	681	4 do	pek fans	388	31
19	Eila	693	3 do	fans	255	24
25	N D	711	4 do	pek sou No. 2	288	30
34	Mocha	738	7 hf-ch	fans	525	33
39	W H R	753	3 ch	dust	315	25
40		756	2 do	sou	150	19
41	M C	759	2 do	red leaf	150	16
43	Mahanilu	765	7 do	or pek	665	52
50	Rookwood	786	5 hf-ch	pek dust (Venesta)	255	29
53	Kotuagedera	795	5 ch	pek sou	450	28
54		798	2 hf-ch	dust	180	20
55		801	5 do	bro pek fans	375	28
60	W H	816	2 ch	bro pek	110	31
61		819	5 do	pek sou	240	26
62		822	5 do	dust	420	25

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, Aug. 17.

"Hakata Maru."—Gonomatava F, 1 cask and 1 tierce sold at 114s; ditto 1, 4 casks and 1 tierce sold at 107s; ditto 2, 10 casks and 1 barrel sold at 97s; ditto S, 1 cask and 1 barrel sold at 63s; ditto PB, 1 cask and 1 barrel sold at 102s; GMT T in estate mark, 1 cask and 1 barrel sold at 47s 6d; Gonomatava, 1 bag sold at 81s.

"Borneo."—Roehampton O, 3 casks sold at 114s; ditto 2, 1 cask sold at 65s; ditto PB, 1 cask sold at 117s; ditto T, 1 cask sold at 40s; 2 bags sold at 100s.

"Hakata Maru."—Gowrakellie F, 1 tierce sold at 123s; ditto 1, 2 cask and 1 barrel sold at 117s; ditto 2, 5 casks and 1 tierce sold at 110; ditto S, 1 barrel sold at 61s; ditto PB, 1 tierce sold at 120s; GKE T in estate mark, 1 barrel sold at 50s; GKE, 2 bags sold at 100s.

"Workman."—Nayabedda F, 1 cask sold at 115s; ditto 1, 3 casks sold at 111s 6d; ditto 2, 9 cask sold at 101s 6d; ditto S, 1 cask and 1 tierce sold at 72s; ditto PB, 1 cask and 1 tierce sold at 102s; MB T in estate mark, 1 cask sold at 52s; 3 bags sold at 99s.

CEYLON COCOA SALES IN LONDON.

"Agamemnon."—Hentimalie, 13 bags sold at 70s 6d; 6 bags sold at 69s.

"Workman."—Warriapolla, 31 bags sold at 96s; 53 bags sold at 91s; 4 bags sold at 64s 6d; 8 bags sold at 60s; 8 bags sold at 70s; Suduganga, 36 bags sold at 91s 6d; 3 bags sold at 86s 6d; 9 bags sold at 72s 6d; 4 bags sold at 54s 6d; 3 bags sold at 63s.

"Borneo."—HST in estate mark, 2 bags sold at 58s; ditto A 2, 4 bags sold at 76s; ditto L, 2 bags sold at 60s; ditto B, 1 bag sold at 50s.

"Workman."—Kaduwella, 24 bags sold at 81s 6d.

"Awa Maru."—MAK in estate mark, Estate Cocoa, 34 bags sold at 71s 6d.

"Sanuki Maru."—ASM in estate mark, 20 bags sold at 71s.

"Workman."—North Matale. 24 bags sold at 85s; 29 bags sold at 73s; KK 16 bags sold at 63s; Alloowiharre A, 16 bags sold at 73s; B, 16 bags sold at 73s; Dickeria A, 9 bags sold at 87s 6d; AW, 10 bags sold at 56s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Derbyshire."—Hoolo Group No. 1., 3 cases sold at 2s 5d; ditto No. 2., 1 case sold at 1s 8d; ditto Seed, 1 cwt sold at 2s.

"Borneo."—Oonoonagalla Estate, 5 cases sold at 1s 10d.

"Sanuki Maru."—A A & C in estate mark, 2 cases sold at 1s 6d; 1 case sold at 1s 7d; 2 cases sold at 1s 8d.

"Awa Maru."—C A S in estate mark, 1 case sold at 1s 9d; 1 case sold at 1s 10d; Gallantenne Cardamoms AA, 1 case sold at 3s 9d.

"Borneo."—Gallantenne Cardamoms AA, 8 cases sold at 2s 9d.

"Awa Maru."—Vicarton A, 2 cases sold at 1s 10d; ditto B, 2 cases sold at 1s 11d; 1 case sold at 2s.

"Borneo."—MAF, 6 cases sold at 4d.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 35 COLOMBO, SEPTEMBER 17, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[9,645 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	B'Watte	35	9 ch	bro mix	900	15
2	Bogahagodewatte	38	16 ch	bro pek	1600	36
3		41	10 do	pek	950	29
4		44	9 do	pek sou	855	27
6	Hornsey	50	15 hf-ch	bro or pek	825	71
8		56	18 ch	or pek	1620	46
9		59	17 do	pek	1445	41
10		62	9 do	pek sou	720	38

Messrs. Forbes & Walker

[322,526 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
12	Kincora	3214	16 ch	pek	1120	4)
13		3217	11 do	pek No. 2	825	32
15	St. H	3223	11 ch	pek	1100	26
17	Kelaneiya and Braemar	3229	15 ch	bro or pek	1500	58
18		3232	14 do	or pek	1400	43
19		3235	11 do	pek	1100	37
22	Golpate	3244	15 ch	bro pek	1395	35
23		3247	22 do	pek	1804	31
26	K G, in estate mark	3256	29 ch	bro pek	2900	35
27		3259	17 do	pek	1445	35
28		3262	9 do	pek sou	747	31
32	Naseby	3274	23 hf ch	or pek	1196	60
34	Pansalatenne	3280	17 ch	bro pek	1350	43
35		3283	18 do	bro or pek	1800	50
36		3286	32 do	pek	2720	36
37		3289	18 do	pek sou	1530	32
40	L L	3298	40 ch	sou	3200	26
41		3301	37 do	bro mix	3182	17
42		3304	32 do	pek dust	2560	18
44	Udabage	3310	22 hf ch	bro pek	1210	34
50	D, in estate mark	3328	24 hf ch	bro pek	1320	28
51		3331	14 do	pek	700	27
57	Glencorse	3349	18 ch	or pek	1440	39
59		3365	14 do	bro pek	1120	43
60		3358	19 do	pek	1710	36
61		3361	13 do	pek sou	1170	33
62		3364	7 do	bro tea	770	31
64	Trewardena	3370	8 ch	bro pek	800	32
65		8373	13 do	pek	1170	29
71	E D P	3391	14 hf ch	sou	1050	28
75	Mawiliganga-watte	3403	8 ch	bro or pek	760	50
76		3406	45 do	bro pek	4050	38
77		3409	31 do	pek	2170	32
84	Mabaya	3430	15 hf-ch	pek	810	33
88	Galkanda	3442	16 ch	bro pek	1600	29
89		3445	8 do	pek	720	29
96	Ettapola	3466	16 ch	bro pek	896	39
100	O B E C, in est. mark Summer Hill	3478	31 hf ch	bro or pek	1953	91
101		3481	23 ch	or pek No. 1	2047	71
102		3484	26 do	or pek	2340	63
104	Kirklees	3490	12 ch	pek fans	1320	28
105		3493	17 do	dust	1530	25
106	Maha Uva	3496	46 hf-ch	bro or pek	2760	47
107		3499	42 do	or pek	2352	61
108		3502	43 ch	pek	3870	50
109		3505	23 do	pek sou	1840	42
113	Erracht	3517	28 ch	bro or pek	2660	38
114		3520	11 do	bro pek	880	40
115		3523	29 do	pek	2320	35
116		3526	13 do	pek sou	1040	28
120	Inverness	3538	24 hf-ch	bro or pek	1440	61
121		3541	19 ch	pek	1710	46
126	Morankande	3556	16 hf-ch	bro or pek	840	42
127		3559	23 ch	or pek	1955	38
128		3562	25 do	pek	2250	36
129		3565	13 do	pek sou	1170	30
131	P K, in estate mark	3571	8 ch	pek sou	760	28
133	H M D, in est. mark	3577	8 ch	pek sou	720	2
134	Torwood	3580	21 ch	bro pek	1974	42
135		3583	18 do	or pek	1476	37
136		3586	34 do	pek	2720	35
137		3589	22 do	pek sou	1628	32
138	Weyunga-watte	3592	16 ch	bro pek	1520	45
139		3595	17 do	pek	1530	35
140		3598	16 do	pek sou	1280	33
143	Chesterford	7	73 ch	bro pek	7300	36
144		10	55 do	pek	5500	37
145		13	40 do	pek sou	3800	32
146	H G M	16	15 ch	bro pek	1500	45
147		19	20 do	pek	1800	39
148		22	10 do	pek sou	800	36
150	T U, in estate mark	28	21 ch	bro or pek	2100	41
151	P, in estate mark	31	28 ch	pek sou	2520	29 bid
153	Knavesmire	37	45 ch	bro pek	4500	30 b
154		40	34 do	pek	2830	30 b
155		43	19 do	sou	1425	29
156	Adisham	46	35 hf-ch	bro or pek	1925	63
157		49	23 do	or pek	1035	55
158		52	14 do	pek	1050	48
159		55	10 do	pek sou	700	43
163	Gallawatte	67	9 ch	fans	720	18
164	N	70	9 ch	bro tea	1170	21
165		73	10 do	unas	1000	28
167		79	9 do	bro oek	945	22
169		85	21 do	pek sou	1785	17
170		88	6 do	fans	720	16
171		91	22 do	sou	1760	13
172		94	24 do	dust	2040	13
174	Maligatenne	100	9 ch	bro pek	945	35
175		103	9 do	pek	945	30
183	Thedden	127	15 ch	bro pek	1500	50
184		130	12 do	pek	1080	40
188	Gurugoda	142	8 do	bro pek	880	31 bid
190	N B D	148	20 hf-ch	bro mixed	1800	11
194	Harrow	160	15 do	bro or pek	900	60 bid
195		163	25 ch	pek	2375	39 bid
196		166	10 do	pek sou	850	37 bid
203	Putupaula	187	53 do	bro pek	4770	39
204		190	60 do	pek	4500	36
205		193	15 do	pek sou	1050	31
207	Richmond	199	9 do	or pek	900	56
212	T T	214	8 do	pek	760	20 bid
213		217	7 do 1 hf-ch	bro pek	755	out
215	Vogan	223	15 ch	bro or pek	1650	33
216		226	40 do	or pek	3800	45
217		229	68 do	pek	5780	38
218		232	26 do	pek sou	2210	31
219		235	31 hf-ch	dust	2635	20
225	St. H in est. mark	253	22 do	pek sou	1100	34 bid
226	Ascot	256	51 ch	bro pek	4335	32
227		259	20 do	bro pek	1700	32
228		262	10 do	bro or pek	950	27
229	S	265	23 hf-ch	bro pek fans	1380	24
230	T	268	50 ch	bro pek fans	5000	20 bid
231	Kitulgalla	271	12 do	or pek	1400	32
232		274	9 do	bro or pek	900	28 bid
233		277	10 do	pek	900	30
236	Middleton	286	15 hf-ch	bro or pek	840	89
237		289	29 ch	bro pek	2900	65
238		292	21 do	pek	1785	50
239		295	26 do	pek	2080	50
240		298	9 do	pek sou	810	46
241	Cotta	301	35 hf-ch	bro or pek	2100	33
242	Cotswald	304	8 ch	bro or pek	720	53
243		307	13 do	pek	1040	38
247	Farnham	319	27 do	br pek	2430	44
249		325	27 do	pek	2295	36
250		328	25 do	or pek	1875	36
251		331	28 do	pek sou	2240	32
256	Digdola	346	18 do	bro pek	1620	45 bid
257		349	16 do	pek	1200	40
258	Puspone	352	36 do	or pek	3420	35 bid
259		355	38 do	bro pek	4180	39
260		358	19 do	pek	1615	33
261	Hopton	361	18 do	bro or pek	1800	51 bid
262		364	14 do	or pek	1400	47 bid
563		367	25 do	pek	2250	43
264		370	9 hf-ch	pek sou	855	39
269	Allagalla	385	10 ch	bro mix	750	28
270		388	29 hf-ch	dust	2415	20
271		391	37 do	fans	2135	32
272	Ambragalla	394	13 ch	bro tea	1274	20
273		397	26 do	bro tea	2600	19 bid
274	Hayes	400	10 do	bro pek	1000	47

Lot.		Box.	Pkgs.	Name.	lb.	c.
275		403	35 cb	pek	2800	33
276		406	20 do	pek sou	1700	28
277	Seenagolla	409	14 hf-cb	bro or pek	770	66
283	Passara Group	427	30 ch	or pek	2700	53
284		430	16 do	bro or pek	1600	56
285		433	14 do	pek	1260	45
286		436	9 do	pek sou	810	41
288	C	442	33 bf-cb	sou	2700	19 bid
289	F	455	33 cb	fans	3300	20 bid

[Messrs. Somerville & Co.—197,502 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	B, in estate mark	1411	14 cb	bro mix (co-linda)	1260	20
3		1414	14 cb	dust	1960	16
4		1417	33 do	bro mix	2970	23
6	G A	1423	16 cb	bro mix	1216	18
7	Neboda	1426	14 ch	bro or pek	1400	34
8		1429	47 do	bro pek	4700	33
9		1432	10 do	pek	900	31
12	Warakamure	1441	43 ch	bro pek	4300	33 bid
13		1444	33 do	pek	3135	30
14		1447	12 do	pek sou	1080	27
15	Elcbico	1450	43 bf ch	bro pek	2365	41
16		1453	13 cb	pek booped	1300	35
19	Ettie	1462	28 ch	bro pek	2800	31
20		1465	16 do	pek	1600	30
21		1468	11 do	pek sou	990	27
24	Glenesk	1477	10 ch	bro pek	950	30 bid
28	R C T F, in estate mark	1489	10 cb	bro pek	950	out
29		1492	13 do	pek	1105	out
30		1495	20 do	pek sou	1600	out
31		1498	8 do	bro pek fans	760	out
33	Kerenvilla	1504	7 cb	bro pek	700	31
34		1507	8 do	pek	760	28
39	Oonanagala	1522	9 ch	or pek	720	51 bid
40		1525	19 do	bro pek	1710	50 bid
41		1528	32 do	pek	2400	39
51	L	1558	10 ch	bro mix	900	22
53	Marigold	1564	20 bf-cb	bro or pek	1060	65
54		1567	15 do	or pek No. 1	705	57
56		1573	15 do	pek	720	49
60	S	1585	7 cb	bro pek	735	22 bid
61		1588	8 do	bro or pek	920	22 bid
63		1594	17 do	pek sou	1360	20 bid
64		1597	10 do	bro pek fans	1200	14 bid
65		1600	25 do	pek fans	2125	13 bid
66		1603	10 bf cb	bro tea	780	13 bid
67		1606	18 cb	sou	1530	12 bid
68	Mabanilu	1609	8 hf-ch	dust	720	19 bid
69	I P	1612	16 ch	pek sou	1360	26
72	G B	1621	17 hf-ch	dust	850	19
73	Y	1624	9 cb	red leaf	810	11 bid
74	Ingeriya	1627	44 bf ch	bro pek	2200	33 bid
75		1630	30 do	bro or pek	1800	28 bid
76		1633	37 do	pek	1776	33
77		1636	23 bf cb	pek sou	1053	28
85	Hanagama	1660	8 cb	bro or pek	800	40
86		1663	22 do	bro pek	1826	34
87		1666	16 do	pek	1360	30
88		1669	11 do	pek	880	29
89	Tyspane	1672	10 cb	bro or pek	1000	54
90		1675	23 do	bro pek	2185	44
91		1678	20 do	pek	1700	39
97	Meddegodde	1696	57 boxes 4 bf ch	bro pek	2480	42
98		1699	61 boxes	pek	2440	33
99		1702	40 do	pek sou	1400	28
102	Tavalamtenne	1711	34 bf cb	bro or pek	2040	40
106	D D, in estate mark	1723	24 hf ch	pek fan	1800	25 bid
107		1726	25 do	pek fans	1875	25 bid
108	Jak Tree Hill	1729	12 ch	bro pek	1125	41 bid
114	J, in estate mark	1747	20 ch	bro pek fans	1800	26 bid
115	Citrus	1750	30 ch	bro pek	3000	33 bid
116		1753	30 do	pek	2700	32
117		1756	10 do	pek sou	1000	29
120	Wilpita	1765	16 ch	bro pek	1600	32
121		1768	9 do	pek	810	30
123	Paragabakande	1774	8 ch	bro pek	800	31
124		1777	13 do	pek	1170	28
125	H U T, in estate mark	1780	25 hf ch	pek fans	1825	25 bid
126		1783	25 do	pek fans	1825	25 bid
127	Yarrow	1786	56 bf ch	or pek	2520	43
128		1789	39 do	bro or pek	2340	47
129		1792	86 do	pek	3870	37
130		1795	14 do	pek sou	700	32
132	Kosgahahena	1801	14 ch	bro pek	1540	31
133		1804	17 do	pek	1700	28
138	S T	1819	14 hf cb	dust	1260	20
139	Dumbarton	1822	32 ch 1 hf cb	bro pek	3580	31 bid
140		1825	28 cb 1 bf cb	pek	2839	24
146	Fairfield	1843	26 hf-cb	bro or pek	1430	73 bid
147		1846	18 do	or pek	720	49
148		1849	14 cb	bro pek	1400	55
149		1852	19 do	pek	1558	43
150		1855	11 do	pek sou	990	40
153	Mora Ella	1864	34 bf ch	bro or pek	1870	48
154		1867	23 cb	pek	2070	39
155		1870	13 do	pek sou	1105	35
156	Rayigam	1873	13 cb	bro pek	1235	41
157		1876	11 do	or pek	880	36
158		1879	11 do	pek	880	34
159		1882	11 do	pek sou	935	31
161	Cairn Hill	1888	13 cb	or pek	1170	38
162		1891	16 do	bro pek	1600	36
163		1894	25 do	pek	2250	35
164	Ranasingbapatna	1897	40 cb	or pek	3400	39
165		1	30 do	bro or pek	3000	38
166		4	43 do	pek	3440	35
167		7	45 do	pek sou	3690	32
169	A G	13	25 cb	pek fans	2500	18
170		16	7 do 1 hf cb	dust	705	12
171	M D R, in estate mark	19	30 cb	bro tea	2940	18 bid
178	Tiddydale	40	10 cb	bro pek	1000	30 bid
179		43	14 do	pek	1260	27 bid
180		46	13 do	pek sou	1170	25
182	D S	52	5 cb	dust	725	18
183	Marigold	55	27 hf cb	bro or pek	1512	61
184		58	21 do	or pek No. 1	987	56
189	Henburst	73	11 cb	or pek	935	37 bid
190		76	14 do	bro or pek	1330	38 bid
191		79	26 do	pek	2080	36 bid
192		82	13 do	sou	1105	30
196	S K	94	8 ch	dust	1200	18

[Mr. E. John.—86,382 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
2	Mel Villa	834	14 bf-cb	pekoe	700	33
5	Wellington	843	13 do	bro pek	780	68
9	Oonoogaloya	855	14 cb	or pek	1260	53
10		858	11 do	bro or pek	1100	69
11		861	9 do	pekoe	810	38
12	Kandaloya	864	62 hf-cb	bro pek	2790	51
13		867	51 do	or pek	2040	40
14		870	88 do	pekoe	3520	38
19	Templestowe	885	28 do	bro or pek	1960	57
20		888	20 do	or pek	800	52
21		891	21 cb	pekoe	1680	39
22		894	11 do	pek sou	880	35
23		897	11 bf cb	dust	825	35
24	Glentilt	900	28 ch	bro pek	2800	64
25		903	22 do	or pek	2090	41 bid
26		906	15 do	pekoe	1350	38 bid
27		909	19 hf cb	fans	1520	27
28	Brownlow	912	22 do	bro or pek	1100	69
29		915	11 cb	bro pek	968	52
30		918	31 do	pekoe	2325	38
31		921	10 do	pek sou	790	34 bid
32	Galella	924	12 do	bro pek	1200	50
33		927	15 do	pekoe	1200	40
35	Gangawatte	933	7 do	or pek	700	40
36		936	24 hf-cb	bro or pek	1200	73
37		939	11 cb	bro pek	1155	47 bid
38		942	22 do	pekoe	1980	35 bid
42	Dickapittia	954	34 do	bro pek	3400	50
43		957	41 do	pekoe	4100	40
45	G E	963	8 do	pek sou	720	30 bid
47	G K W	969	16 bf-cb	bro pek	928	45
50	Maskeliya	978	23 do	bro or pek	1150	67
51		981	17 ch	or pek	1530	40
52		984	12 do	pekoe	1080	38
54	Ferndale	990	7 do	bro or pek	700	56
5		993	13 do	or pek	1170	50
6		996	12 do	pek No. 1	1080	40
57		999	9 do	pek No. 2	810	37
58		2	6 do	dust	750	21
60	Poilakande	8	44 do	bro pek	4180	34 bid
61		11	25 do	pekoe	2250	30 bid
63	G and F	17	21 bf-cb 1 box	or pek	1080	60
64	W H	20	18 bf-cb	pek sou	900	35
65	F F, in est. mark	23	25 cb	bro pek	2375	22 bid
66		26	25 do	pek sou	1750	20 bid
67		29	20 do	pek fans	2000	20 bid
69	Agra Ouvah	35	9 bf-cb	pek fans	720	30
70	N B	38	16 ch	pek sou	1440	35
71	Ottery	41	14 do	or pek	1120	47 bid
72	Nelunvilla	44	7 do	bro pek	700	34 bid

Lot.		Box.	Pks.	Name.	lb.	c.
73		47	11 ch	pekoe (B)	1045	29 bid
75	Glassaugh	53	14 hf-ch	or pek	742	75
76		56	12 do	bro or pek	780	67
77		59	13 do	pekoe	1235	52

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Bogahagodawatte	47	2 ch	bro pek fans	250	22
7	Hornsey	53	8 hf ch	bro or pek No. 2	480	37

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Wood Lark	3181	4 ch	bro pek	240	31
2		3184	5 do	pek	300	30
3		3187	4 do	pek sou	240	27
4		3190	1 do	bro pek fans	85	22
5		3193	2 do	bro mix	135	18
6	Kahiriskande	3196	2 ch	bro pek	180	46
7		3199	7 do	pek	665	33
8		3202	4 do	pek sou	380	28
9		3205	1 do	dust	105	16
10	Kincora	3208	4 do	bro or pek	360	70
11		3211	6 do	bro pek	510	53
14		3220	3 do	fans	360	39
16	St. H.	3226	1 ch	dust	148	18
20	Kelaneiya and Braemar	3238	2 ch	sou	200	32
21		3241	3 do	dust	300	22
24	Galpate	3250	8 ch	pek sou	592	27
25		3253	2 do	dust	158	21
29	K G, in estate mark	3265	6 hf ch	fans	360	27
30		3268	2 ch 1 hf ch	sou	220	28
31		3271	2 ch	dust	257	21
38	Pansalatenne	3292	2 ch	sou	170	26
39		3295	2 do	dust	300	16
43	L L	33 7	7 ch	bro tea	644	19
45	Udabage	3313	11 hf ch	pek	550	30
46		3316	8 do	pek sou	360	28
47	D, in estate mark	3319	5 hf ch	sou	225	27
48		3322	10 do	fans	550	19
49		3325	1 do	dust	80	17
52	D, in est. mark	3334	3 hf-ch	pek sou No 1	150	26
53		3337	4 do	pek sou No. 2	180	25
54		3340	6 do	fans	330	19
55		3343	4 do	dust	320	16
56	A	3346	3 ch	sou	270	28
58	Glencorse	3352	6 ch	bro or pek	600	44
63		3367	2 do	dust	340	16
66	Trewardene	3376	2 ch	pek sou	180	26
67		3379	2 do	pek fans	180	24
68		3382	4 do	bro mix	380	16
69		3385	1 do	dust	125	19
70	E D P	3288	7 hf-ch	dust	560	20
72	N V H	3394	3 hf ch	bro mix	150	20
73		3397	1 do	congou	50	25
74	Mawiligangawatte	3400	8 box	or pek fans	232	50 bid
78		3412	3 ch	dust	357	18
79		3415	6 do	dust	588	18
80		3418	1 do	fans	102	25
81		3421	1 do	bro mix	53	20
82	Mahayaya	3424	6 hf-ch	bro or pek	408	34
83		3427	9 do	bro pek	504	36
85		3433	13 do	pek sou	663	27
86		3436	5 do	sou	265	18
87		3439	1 do	dust	100	17
90	Galkanda	3448	7 ch	pek sou	630	26
91		3451	1 do	dust	120	21
92	Wyamita	3454	4 ch	bro pek	400	9
93		3457	2 do	bro pek	200	36
94		3460	5 do	pek	450	32
95		3463	4 do	pek sou	320	28
97	Ettapola	3469	7 hf ch	pek	392	30
98		3472	3 do	pek sou	168	27
99		3475	1 do	dust	73	19
103	Kirklees	3487	5 ch	congou	400	28
110	Maha Uva	3508	1 ch	congou	100	25
111		3511	3 hf ch	pek fans	225	37
112		3514	5 do	dust	425	24
117	Erracht	3529	2 ch	bro pek fans	218	20
118		3532	1 do	dust	185	14
119	Inverness	3535	12 hf ch	or pek	660	62
122		3544	7 ch	pek sou	630	39
123		3547	5 hf-ch	dust	425	26
124	S	3550	3 ch	sou	268	19
125	K	3553	1 ch	sou	100	28
130	P K, in estate mark	3568	4 hf ch	bro pek	240	33
132		3574	4 do	pek dust	310	20
141	Weyungawatte	1	1 ch	bro tea	100	25
142		4	2 hf ch	dust	160	20
149	Elephants Rock	25	10 hf ch	bro or pek (golden tipped)	500	63 bid
152	Manayaya	34	8 ch	bro or pek	560	34
160	W N	58	7 ch	bro tea	560	16
161	Quilon	61	8 ch	bro tea	640	15
162	F F, in estate mark	64	1 hf-ch	bro pek fans	65	20
166	S P	76	2 ch	or pek	230	20
168		82	4 do	pek	360	16
173		97	4 do	dust	368	15
176	Maligatenne	106	3 do	pek sou	285	27
177		109	2 do	fans	210	24
178	Graceland	112	10 hf-ch	bro pek	550	31
179		115	5 do	pek	250	26
180		118	5 do	pek sou	250	24
181		121	1 do	congou	45	20
182		124	1 do	dust	75	16
185	Thedden	133	6 ch	pek sou	480	35
186		136	1 do	dust	150	22
187	Gurugoda	139	7 do	or pek	665	30
189		145	5 do	pek	450	28
191	Pungetty	151	5 hf-ch	or pek	310	72
192		154	8 do	pek	400	56
193	Harrow	157	11 do	or pek	605	52 bid
197	Sirikandura	169	6 ch 1 hf ch	br pek	681	40
198		172	5 ch 1 hf-ch	pek	508	33
199		175	6 hc	pek sou	499	31
200		178	3 do	bro pek fans	300	27
201		181	1 do	red leaf	75	25
202		184	1 do	dust	163	15
206	Richmond	196	5 hf-ch	bro or pek	300	68
208		202	6 ch	pek	540	49
209		205	1 hf-ch	pek sou	35	41
210	D B R	208	5 do	bro pek fans	355	35
211		211	2 do	pek sou	114	38
214	T T	220	1 do	sou	45	13
220	Kalupahana	238	5 ch	bro pek	525	38
221		241	3 do	or pek	276	32
222		244	4 do	pek	360	29
223		247	4 do	pek sou	340	27
224		250	1 do	dust	140	18
234	Kitulgalla	280	4 do	pek sou	360	26
235		283	2 hf-ch	dust	160	19
244	Cotswald	310	7 ch	pek sou	525	34
245		313	1 do	sou	75	26
246		316	2 do	dust	170	19 bid
248	Farnham	322	7 hf-ch	bro or pek	455	38
252		334	3 ch	sou	225	27
253		337	5 do	fans	325	23
254		340	2 hf ch	dust	170	19
255	Glenalpin	343	1 ch	pek	90	37
265	Hopton	373	4 do	dust	440	25
266	Allagalla	376	3 do	bro pek	300	41
267		379	2 do	pek	186	33
268		382	2 do	pek sou	160	32
278	Seenagolla	412	7 hf-ch	pek	322	29
279		415	4 do	pek son	184	51
280		418	3 do	bro mixed	159	45
281		421	1 do	dust	80	36
282	P	424	1 do	pek sou	62	24
287	Passara Group	439	3 do	fans	255	25

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Mel Villa	831	12 hf-ch	bro pek	600	37
3		837	3 do	pek sou	150	25
4		840	1 do	bro pek dust	70	21
6	Wellington	846	7 ch	pekoe	665	46
7		849	1 do	pek sou	75	36
8		852	1 hf-ch	dust	65	22
15	Kandaloya	873	6 do	pek sou	240	33
16		876	8 do	fans	400	23
17		879	8 do	sou	320	32
18		882	4 do	dust	200	20
34	Galella	930	5 ch	pek sou	400	35
39	Gangawatte	945	2 do	dust	260	21
40		948	2 do	pek sou	180	33
41		951	4 do	fans	440	26
44	G E	960	8 hf-ch	bro pek	400	40
46		966	1 do	fans	70	22
48	G K W	972	13 do	or pek	650	40 bid
49		975	7 ch	pekoe	560	35 bid
53	Maskeliya	987	4 hf-ch	dust	360	22
59	Ferndale	5	2 ch	fans	200	32
62	Poilakande	14	4 do 1 hf-ch	dust	420	18
68	Agra Ouvah	32	3 ch	pek sou	270	40
74	Nelunvilla	50	1 do	fans	123	17

[Messrs. **Somerville & Co.**]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	B, in estate mark	1408	2 ch	dust	250	18
5	G A	1420	1 ch	dust	103	14
10	Neboda	1435	6 ch	pek sou	480	29
11		1438	3 hf ch	dust (unbulked)	255	19
17	Elchico	1456	1 hf ch	fans hooped	70	23
18		1459	3 do	dust do	255	19
19	Ettie	1462a	1 ch	bro pek A	100	27
22		1471	3 do	bro mix	270	20
23		1474	1 do	dust	150	15
25	Glenesk	1480	5 ch	pek	425	29
26		1483	1 do	bro tea	110	20
27		1486	4 do	pek sou	340	23
32	R C T F	1501	6 hf ch	dust	450	out
35	Kerenvilla	1510	5 ch	pek sou	500	24
36		1513	3 do	pek fans	300	16
37		1516	3 hf ch	pek dust	255	18
38		1519	1 ch	red leaf	100	12
42	Oonanagala	1531	7 ch	pek sou	560	32
43	Glenalla	1534	1 ch	dust	145	22
44		1537	1 do	fans	105	17
45		1540	2 do	red leaf	170	18
46	Glenalmond	1543	3 ch	bro pek	270	45
47		1546	2 do	pek	160	35
48		1549	2 do	pek sou	140	34
49		1552	1 do	bro pek fans	100	29
50		1555	1 do	dust	71	18
52	L	1561	6 hf ch	dust	480	20
55	Marigold	1570	11 hf ch	or pek	517	55
57		1576	12 do	pek sou	576	41
58		1579	6 do	bro pek fans	396	38
59		1582	4 do	pek dust	300	27
62	S	1591	5 ch	pek	440	out
70	I P	1615	2 ch	red leaf	170	14
71		1618	7 hf ch	dust	595	20
78	Ingeriya	1639	12 hf ch	unas	600	28
79		1642	3 do	dust	240	18
80	Atherton	1645	5 hf ch	pek sou	225	27 bid
81	Wesak	1648	8 boxes	pek sou	80	28
82	Mossville	1651	5 ch	bro pek fans	500	22
83		1654	6 do	dust	540	18
84		1655	3 do	red leaf	270	16
92	G P S A	1681	2 hf ch	bro pek No. 1	120	26
93		1684	1 do	bro pek No. 2	50	19
94		1687	2 ch 6 hf ch	pek No. 2	390	19
95		1690	2 do	pek No. 1	100	25
96		1693	2 ch	pek dust	175	14
100	Maddegodde	1705	4 hf ch	fans	200	23
101		1708	2 do	dust	110	25
103	Tavalamtenne	1714	11 hf ch	pek	550	35
104		1717	4 do	pek sou	200	31
105		1720	2 do	dust	160	19
109	Jak Tree Hill	1732	5 ch	pek	412	34
110		1735	5 do	pek sou	360	31
111	T H	1738	1 ch	dust	129	15
112	Galtota	1741	6 ch	bro pek	690	26
113		1744	2 do	pek	200	25
118	Citrus	1759	2 do	dust	320	15
119	H A	1762	2 do	fans	184	13
122	Wilpita	1771	5 do	pek sou	450	23
131	Y, in est. mark	1798	5 hf ch	dust	400	20
134	Kosgahahena	1807	5 ch	pek sou	500	23
135		1810	3 do	sou	300	20
136		1813	1 do	fans	105	14
137		1816	1 do	pek dust	150	18
141	Dumbarton	1828	1 hf ch	bro pek sou	52	17
142		1831	2 ch	or pek	164	38 bid
143		1834	2 do	bro mix	224	14
144		1837	4 do	dust	550	14 bid
145	K P	1840	5 hf ch	dust	475	16
150	Fairfield	1858	7 hf ch	fans	490	28
152		1861	2 ch	dust	190	20
160	Rayigam	18[illegible]5	7 hf ch	dust	665	21
168	B	10	6 do	bro pek sou	516	21
172	St. Catherine	22	5 ch	bro or pek	500	49
173		25	5 do	or pek	450	42
174		28	5 do	pek	425	35
165		31	6 do	pe sou	450	30
117		34	1 hf ch	dust	65	19
771		37	1 do	red leaf	40	14
817	D S	49	2 ch	sou	150	24
185	Marigold	61	14 hf ch	or pek	658	55
186		64	13 do	pek	650	48
187		67	1[illegible] do	pek sou	624	44
188		70	5 do	pek dust	375	29
193	Henhurst	85	7 do	dust	525	18 bid
194		88	4 ch	bro pek fans	400	22 bid
195	XX, in est. mark	91	5 do	sou	425	19

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Aug. 24.

"Socotra."—Craig O, 3 bags sold at 106s 6d; ditto 1, 4 bags sold at 94s; ditto 2, 3 casks and 1 tierce sold at 76s; ditto P, 1 tierce sold at 126s; ditto T, 1 tierce sold at 54s; Craig, 3 bags sold at 90s; East Gowerakellie A, 1 cask sold at 107s; ditto B, 5 casks sold at 97s; 5 casks and 1 tierce sold at 97s; ditto C, 3 casks sold at 65s 6d; ditto PB, 1 cask sold at 110s; ditto T, 1 cask and 1 barrel sold at 48s.

CEYLON COCOA SALES IN LONDON.

"Sanuki Maru."—Hylton OO, 33 bags sold at 96s 6d; ditto O, 3 bags sold at 70s 6d; ditto Brown, 1 bag sold at 63s; ditto Black, 3 bags sold at 50s.

"Awa Maru."—Hylton OO, 43 bags sold at 87s 6d; ditto O, 4 bags sold at 60s 6d; ditto Black, 2 bags sold at 50s.

"Sanuki Maru."—Katugatosta Estate, 67 bags sold at 88s.

"Aldalia."—Marakona ii, 16 bags sold at 72s; ditto iii, 5 bags sold at 50s 6d; Glenury i, 9 bags sold at 84s 6d; ditto ii, 2 bags sold at 72s; ditto 3, 4 bags sold at 52s 6d.

"Borneo."—Monarakelle 1, 99 bags sold at 86s; Broken, 3 bags sold at 65s; Palli A, London 1, 89 bags sold at 97s; ditto 2, 8 bags sold at 78s; ditto T, 1 bag sold at 60s; Palli, London F, 20 bags sold at 94s; 40 bags sold at 95s 6d; 34 bags sold at 95s; Palli, London 1, 42 bags sold at 98s; ditto 2, 17 bags sold at 78s 6d; ditto T, 5 bags sold at 66s 6d; PKY, London 1, 12 bags sold at 77s; ditto 2, 1 bags sold at 65s; ditto T, 1 bag sold at 66s 6d; Wiltshire, London 1, 14 bags sold at 89s 6d; ditto 2, 1 bag sold at 68s; Wiltshire T, London, 1 bag sold at 61 6d.

OBSERVER PRINTING WORKS.

No. 36 COLOMBO, SEPTEMBER 24, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[16,238 lb.]

Lot.		Box.	Pkgs.	Name.	lb	c.
1	Mapitigama	36	9 ch	bro or pek	900	46
2		39	11 do	bro pek	1045	38
3		42	15 do	pek	1275	36
4		45	10 do	pek sou	860	34
5	Battalgalla	48	16 do	or pek	1520	47
6		51	13 do	pek	1170	42
7		54	10 do	pek sou	800	38
9	Manickwatte	60	17 do	or pek	1445	36
10		63	13 do	bro or pek	1300	35
11		66	19 do	pek	1463	33
12		69	17 do	pek sou	1394	30
15	Oakfield	78	8 do	bro pek	800	32
16		81	9 do	pek	720	30
17		84	11 do	pek sou	770	27

Messrs. Forbes & Walker

[470,031 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	C P H, Galle	460	21 hf ch	bro pek	1050	37
6		463	16 do	pek	800	32
	Seaton	472	20 do	bro or pek	1200	66
10		475	47 do	or pek	2350	56
11		478	33 do	pek	1485	47
12		481	14 do	pek sou	700	44
14	Drayton	487	15 ch	or pek	1425	53 bid
15		490	35 do	pek	2975	43
16		493	12 do	pek sou	1020	39
18	Summer Hill	499	24 do	bro or pek	1632	77
19		502	29 do	pek	2610	55
20		505	93 do	pek sou	7254	42
21	Mousakellie	508	15 do	bro or pek	1425	50
22		511	11 do	or pek	990	39
25	New Angamana	520	16 hf ch	bro or pek	800	43
27		526	14 do	pek	700	36
31	Pendle	538	13 ch	bro pek	1300	56
32		541	11 do	pek	990	41
37	Carlabeck	556	9 do	pek sou	810	40
38		559	12 hf-ch	bro pek fans	900	32
41	T'villa	568	21 ch	bro or pek	1995	29
42		571	12 do	or pek	1080	30
43		574	27 do	pek	2295	25
44		577	21 do	pek sou	1680	22
45		580	14 do	sou	1120	20
48	Holton	589	21 do	bro pek	1995	36
49		592	20 do	pek	1610	31
50		595	12 do	pek sou	965	29
59	Great Valley, Ceylon, in est. mark	622	20 hf ch	bro or pek	1100	64
60		625	9 ch	or pek	765	49
61		628	24 do	pek	2040	41
62		631	21 do	pek sou	1575	35
63		634	10 hf ch	dust	850	22
64	Queensland	637	15 do	bro or pek	700	97 bid
65		640	14 do	bro pek	700	59
66		643	14 ch	pek	1190	41
70	Roeberry	655	13 do	bro or pek	1300	70
71		658	25 do	bro pek	2500	58
72		661	32 do	pek	2944	49
73		664	9 do	pek sou	774	44
75	Theydon Bois	670	8 do	bro or pek	720	60
76		673	12 do	or pek	1020	45 bid
77		676	13 do	pek	1040	36
80	S P	685	18 do	sou	1440	23
81	Sutton	688	26 do	bro or pek	2860	92
82		691	31 do	or pek	3100	68 bid
83		694	17 do	pek	1360	54 bid
86	L H O	703	37 do	pek sou	3515	out
87	Harrington	706	15 hf-ch	bro or pek	750	60 bid
88		709	9 ch	or pek	810	51 bid
89		712	11 do	pek A	990	42
92	Maldeniya	721	18 do	bro or pek	1890	43
93		724	34 do	or pek	3060	37
94		727	47 do	pek	3995	35
95		730	36 do	pek sou	3060	30
96	Killarney	733	22 hf ch	bro or pek	1210	64
97		736	14 ch	pek sou	1260	43
100	Galapitakande	745	13 do	or pek	1144	57
101		748	12 do	bro pek	1200	54
102		751	40 do	pek	3600	47
03		754	9 do	pek sou	810	40
105	Tonacombe	760	21 ch	or pek	[illegible]	49
106		763	9 do	bro or pek	[illegible]	62
107		766	20 do	bro pek	[illegible]	55
108		769	37 do	pek	3330	43
109		772	24 do	pek sou	2160	39
113	Castlereagh	784	17 hf-ch	bro or pek	850	64 bid
114		787	14 ch	bro pek	1330	47
115		790	7 do	or pek	720	45
116		793	14 do	pek	1120	40
117	Tillyrie	796	25 hf-ch	bro pek	1375	48
121	Beaumont	808	23 ch	bro pek	2185	38
122		811	41 do	or pek	3485	34
125	Ingoya	820	30 do	bro pek fans	2370	15
126		823	34 do	bro tea	2618	16
127	Broad Oak	826	28 do	sou	2296	15 bid
128		829	6 do	pek fans	720	20
130	Penrhos	835	23 hf-ch	bro or pek	1265	47
131		838	20 do	or pek	980	46
132		841	25 ch	pek	2150	39
133		844	10 do	pek sou	800	36
146	Dunbar	883	9 do	pek	702	45
147	Munukattia, Ceylon, in est. mark	886	20 hf ch	or pek	960	47
148		889	31 do	bro pek	1798	52
149		892	21 ch	pek	1680	39
150		895	9 do	pek sou	810	37
151	Doranakande	898	7 do	bro pek	700	35
154		907	9 do	pek sou	810	28
157	New Peacock	916	11 hf-ch	pek fans	825	26
158	Fredsruhe	919	40 ch	bro pek	4400	36
159		922	39 do	pek	3900	3[illegible]
160		925	21 do	pek sou	2100	3[illegible]
163	W A	934	9 do	pek sou	900	23
165	Walpita	940	14 do	or pek	1400	41
166		943	15 do	bro pek	1500	37
167		946	25 do	pek	2500	37
168		949	17 do	pek sou	1360	32
170	Nakiadeniya	955	26 do	bro pek	2340	34
171		958	24 do	pek	1920	3
172		961	13 do	pek sou	975	29
176	Grange Garden	973	9 ch	bro or pek	900	42 bid
177		976	7 do	pek	700	37
181	Bandara Eliya	988	122 hf-ch	br pk No. 1	6832	60
182		991	70 do	or pek	3220	55
183		994	45 do	pek	2025	47
184		997	32 do	pek sou	1440	42
185		1000	70 do	bro pek	3920	52 bid
186		1003	81 do	or pek	3726	52
187		1006	42 do	pek	1890	45
188		1009	30 do	pek sou	1350	41
189		1012	30 do	pek fans	2040	32
192	Gallawatte	1021	14 ch	pek	1190	34
195	Monkswood	1030	31 hf-ch	bro pek	1550	72 bid
196		1033	35 do	or pek	1750	70
197		1036	23 ch	pek	2185	54
198		1039	18 do	pek sou	1530	49
200		1045	17 hf-ch	fans	1020	37
201	Mansfield	1048	48 do	bro pek	2880	53
202		1051	24 ch	pek	2160	44
203		1054	12 do	pek sou	1020	40
205	Pine Hill	1060	44 hf-ch	bro or pek	2552	59
206		1063	32 ch	or pek	2880	46
07		1066	29 do	pek	2465	40
208		1069	12 do	pek sou	1020	28
211	Meegama	1078	7 do	bro pek	735	25
212		1081	13 do	pek	1300	22
213		1084	14 do	pek sou	1400	20
215	Shrubs Hill	1090	5 do	bro pek	2000	45
216		1093	16 do	pek	1360	36
217		1096	39 do	or pek	3510	39
218		1099	21 do	bro or pek	2226	38
220		1105	9 do	bro pek fans	720	21
221	Quilon	1108	29 do	bro tea	2030	12
228	Stamford Hill	1129	17 hf-ch	bro pek	1054	57
229		1132	15 do	or pek	720	57
230		1135	14 ch	pek	1190	43
233	Ireby	1144	25 hf-ch	bro pek	1375	62 bid
234		1147	10 ch	pek	850	47
235		1150	9 do	pek sou	765	39
238	Naseby	1159	34 hf-ch	bro or pek	2040	77
239		1162	25 do	or pek	1175	73
240		1165	27 do	pek	1242	55
246	Ella Oya	1183	11 ch	bro pek	935	39
247		1186	16 do	pek	1360	33
249		1192	16 do	pek sou	1280	31
253	Arapolakande	1204	68 do	bro pek	6120	43
254		1207	54 do	pek	4320	37
255		1210	8 do	pek sou	720	33
257	Dambagas-talawa	1216	10 do	bro or pek	1050	69
258		1219	16 do	br pek	1632	52

Lot.		Box.	Pkgs.		Name.	lb.	c.
259		1222	12	ch	pek	1080	43
262	Forest Creek	1231	26	do	bro or pek	2600	63 bid
263		1234	32	do	bro pek	3200	53
264		1237	13	do	or pek	1170	50
265		1240	18	do	pek No. 1	1620	42
266		1243	16	do	pek No. 2	1440	39
268	Cooroondoo-watet	1249	11	do	or pek	902	39
270	Halbarawe	1255	15	do	bro pek	1500	36
272		1261	16	do	pek	1140	33
275	Palmerston	1270	14	hf-ch	bro or pek	720	72
276		1273	12	ch	pek	1020	61
285	Dunnottar	1300	8	do	bro or pek	800	66
286		1303	8	do	br pek	800	57
288	P in est. mark	1309	13	do	bro or pek	1300	54
293	Strathspey	1324	8	do	or pek	800	56
294		1327	8	do	pek	736	46
298	Parsloes	1339	33	do	bro pek	3300	48
299		1342	18	do	pek	1620	41
307	C T C B	1366	56	hf-ch	bro or pek	3360	39 bid
308	Geragama	1369	23	ch	bro pek	2300	37
309		1372	25	do	pek	2250	32
310		1375	24	do	pek sou	2040	29
313		1384	33	do	bro pek	3300	37
314		1387	33	do	pek	2805	32
315		1390	26	do	pek sou	2340	29
318	Chesterford	1399	62	do	bro pek	5890	40
319		1402	40	do	pek	3800	39
320		1405	20	do	pek sou	1900	33
323	Madulkelle	1414	11	do	br pek	990	42
324		1417	20	do	pek	1500	40
327	Glendon	1426	15	do	or pek	1200	41
328		1429	27	do	bro pek	2700	39
329		1432	39	do	pek	3315	37
330		1435	24	do	pek sou	1920	33
331	G	1438	17	do	sou	1445	30
332	Fermoy	1441	30	do	bro pek	3000	32 bid
333		1444	26	hf-ch	pek	1300	32
334	Ganapalla	1447	20	ch	bro or pek	1800	36
335		1450	20	do	bro pek	1800	32
337		1456	35	do	pek	2800	33
340	Aberdeen	1465	22	do	bro pek	2024	38
341		1468	16	do	bro or pek	1456	32
342		1471	46	do	pek	3220	31
343		1474	14	do	bro pek fans	980	23
344	Battawatte	1477	18	do	bro or pek	1980	52
345		1480	23	do	pek	2070	41
347	Ruanwella	1486	22	do	or pek	1870	39
348		1489	11	do	bro pek	1100	34
349		1492	30	do	pek	2700	33
350		1495	10	do	pek sou	900	30
352	Battawatte	1501	21	do	bro or pek	2310	52
353		1504	21	do	pek	1890	41
354		1507	9	do	pek sou	720	38
356	High Forest	1513	36	hf-ch	or pk No. 1	1980	80
357		1516	20	do	or pek	1010	63
358		1519	18	do	pek	864	51
359	M A in est. mark	1522	34	do	dust	2890	18
360	Talgaswela	1525	18	do	bro or pek	990	56
361		1528	29	ch	or pek	2320	40
362		1531	44	do	pek	3520	34
363		1534	26	do	pek sou	1950	29
366	Tymawr	1543	21	hf-ch	or pek	1050	55
367		1546	21	do	or pek	945	51
368		1549	18	do	bro or pek	990	63
369		1552	27	do	pek	1080	41
37		1555	28	do	pek sou	1200	37
371	Passara Group	1558	29	ch	or pek	2610	47
372		1561	28	do	br or pek	2800	52
373		1564	37	do	pek	3330	42
374		1567	12	do	pek sou	1080	40
376	Ambragalla	1573	53	do	or pek	4505	32
377		1576	42	do	bro or pek	4200	32 bid
378		1579	55	do	pek	4235	31
379		1582	64	do	pek sou	5120	28
380		1585	13	do	red leaf	1300	19

[Messrs Somerville & Co.—252,627 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Rothes	97	17	hf ch	bro or pek	952	60 bid
2		100	14	do	or pek	700	46
3		103	8	ch	pek	704	39
7	R, in estate mark	115	10	ch	pek sou	800	20 bid
11	Primrose	127	9	ch	pek	720	35
12		130	10	do	pek sou	800	31
15	Yspa	139	16	ch	pek sou	1280	32
17	Ravana	145	18	ch	bro pek	1800	41
18		148	18	do	pek	1530	36
19		151	18	do	pek sou	1440	32
20	Carney	154	29	hf ch	bro pek	1450	34
21		157	38	do	pek	1710	32
22		160	22	do	pek sou	1100	28
26	Mahalla	172	29	hf-ch	bro pek	1392	36
27		175	10	ch	pek	800	32
31	Ritni, in estate mark	187	17	hf ch	bro or pek	935	60 bid
32		190	24	do	bro pek	1200	37 bid
33		193	19	do	or pek	855	40
40	Holmsdale	214	20	ch	bro or pek	1900	35
41		217	19	do	pek	1615	32
44	Ladysmith	226	22	ch	bro or pek	1536	40
45		229	24	do	bro pek	2280	32 bid
46		232	21	do	pek	1680	
47		235	22	do	pek sou	1650	
48	Hanagama	238	30	ch	pek	2550	30
49		241	12	do	pek sou	852	29
53	California	253	8	ch	pek	760	29
56	Ukuwela	262	11	ch	bro tea	990	13
62	Gangwarily	280	10	ch	sou	800	18
63	Patulpana	283	11	hf ch	bro pek	770	31
64		286	14	do	pek	700	28
68	F F, in estate mark	298	21	hf-ch	bro pek	1155	31
72	H	310	12	ch	bro pek	1200	30 bid
80	Waverley	334	17	ch	pek sou	1675	35
81	Hanwella	337	15	hf ch	bro pek	825	33
82		340	16	do	pek	800	30
83	Warakamure	343	10	ch	bro or pek	1150	31
84		346	30	do	bro pek	3000	34
85		349	20	do	pek	1900	30
87	Nillicollay-watte	355	17	hf ch	bro pek	1156	37
88		358	12	ch	pek	954	34
93	Woodthorpe	373	11	ch	bro pek	1100	43
94		376	18	do	pek	1440	35
95		379	20	do	pek sou	1600	30
98	Annandale	388	18	ch	bro or pek	1044	64 bid
99		391	19	do	or pek	1007	45 bid
100		394	18	do	pek	990	42 bid
101		397	13	do	pek sou	754	38
107	Findlater	415	29	ch	bro pek	3045	50
108		418	19	do	pek	1748	42
111	Ravenoya	427	21	hf ch	bro pek	1155	38
116	Danwella	442	8	ch	pek	800	24
117	Narangoda	445	22	ch	bro pek	1980	39
118		448	9	do	bro or pek	900	33
121	R K P	457	16	ch	bro pek	1440	36
123		463	15	do	pek	1200	30
126	New Valley	472	19	ch	bro or pek	1900	57
127		475	24	hf ch	or pek	1080	44
128		478	12	ch	pek	1080	41
129		481	12	do	pek sou	960	38
133	Mahatenne	493	13	ch	bro pek	1300	56
134		496	13	do	pek sou	1300	34
138	Monrovia	508	43	ch	bro pek	4300	35
139		511	47	do	pek	4465	33
140		514	14	do	pek sou	1400	30
143	Buddawella	523	8	ch	pek	800	24
148	Galphele A	538	21	ch	bro or pek	2100	41
150		544	12	do	pek	1080	36
154	do B	556	13	ch	bro or pek	1300	36
156		562	9	do	pek	810	34
160	Roseneath	574	20	ch	bro pek	2000	37
161		577	8	do	pek	720	35
162		580	17	do	pek sou	1275	30
164	Bellagalla	586	17	ch	bro pek	1700	45
165		589	16	do	pek	1280	36
166		592	12	do	pek sou	960	33
173	Donside	613	24	hf-ch	bro or pek	1440	45
177	Kelani	625	62	ch	bro pek	5580	36
178		628	19	do	bro or pek	2090	34
179		631	52	do	pek	4160	32
180		634	19	do	pek sou	1425	30
181		637	8	do	dust	1040	17
189	Melton	661	9	ch	pek	810	41
190	B D	664	13	hf ch	dust	910	22 bid
191		667	13	ch	unas	1300	26
194	Doragalla	676	17	ch	bro or pek	1700	45
195		679	17	do	bro pek	1530	48
196		682	27	do	pek	2160	39
200	Avisawella	694	35	boxes	bro or pek	700	35 bid
201		697	35	do	bro or pek	700	39 bid
202		700	19	ch	pek	1805	34
203		703	34	do	pek	2890	30
204		706	35	do	pek sou	2800	28
206		712	6	do	fans	720	18 bid
207	Ferriby	715	15	ch	bro pek	1350	34
208		718	28	do	pek	2240	30
209		721	13	do	pek sou	975	27
212	Batgodde	730	27	ch	pek	2430	out
218	Ladysmith	748	35	ch	bro pek	3500	31 bid
219		751	23	do	pek	1840	33
220	Batcoloya	754	11	ch, 1 hf ch	bro or pek	1150	35
224		766	22	ch	pek sou	1782	14
225		769	20	do	sou	1820	12
228	Pitavila	773	7	ch	pek	700	20
229		781	28	do	pek sou	2660	18
230		784	8	do	pek sou	780	17

Lot.		Box.	Pkgs.	Name.	lb.	c.
232	Charlie Hill	790	29 hf ch	bro pek	1450	33
233		793	14 do	pek	700	34
236	Elladella	802	35 hf ch	pek	3500	30 bid
237		805	25 ch	bro pek	1250	31 bid
238	Salawe	808	29 ch	bro pek	2900	34
239		8 1	18 ch	pek	1710	32
240		814	13 do	pek sou	1170	30
242	Killin	820	11 ch	bro pek	990	35
254	J S	856	17 ch	bro pek	1700	29 bid
255		859	28 do	pek	2800	26 bid
256		862	20 do	pek sou	1800	19 bid
258		868	11 hf ch	dust	990	23
260		874	10 ch	red leaf	1000	11 bid
261	Kurunegalle est. mark	877	15 hf ch	or pek	1900	37
262		880	20 do	bro pek	1800	42
263		883	15 ch	pek	1500	33
265	Welicoda	889	8 ch	bro tea	720	13
266	H M, in estate mark	892	23 hf ch	bro pek	1145	20 bid
267		895	31 do	pek	1347	18 bid
269		901	21 ch	pek sou	1680	15
271	Columbia	907	20 hf-ch	bro or pek No 1	1000	64
272		910	17 do	bro or pek No. 2	850	60
273		913	39 do	or pek	1794	46
274		916	23 do	pek	1058	41
275	D	919	9 ch	bro pek	900	35
281	Sadamulla	937	10 ch	bro pek	1000	30
282		940	16 do	pek	1600	28
283	Ferryside	943	39 ch	bro pek	3705	35 bid
284		946	14 do	pek	1330	35 bid
285		949	9 do	pek sou	747	29 bid
286	Rahatungoda	952	44 hf-ch	bro or pek	2200	54
287		955	42 do	pek	2100	42

[Mr. E. John.—158,670 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
3	Bittacy	68	10 ch	bro pek	1000	67
4		71	9 do	pekoe	720	47
7	Natuakelle	80	18 do	pek sou	1620	30
10	Rookwood	89	24 hf-ch	flowery bro or pek	1392	66
11		92	21 ch	or pek	1890	45
12		95	23 do	pekoe	2070	41
13	Iona	98	19 hf-ch	bro or pek	1102	64 bid
14		101	13 ch	or pek	1170	49
15		104	10 do	pek e	830	43
17	Kolapatna	110	20 hf-ch	bro or pek	1060	60
18		113	15 ch	or pek	720	46
20	Cleveland	119	20 hf-ch	flowy or pek	1160	64
21		122	21 do	pekoe	1113	45
24	St. John's	131	30 do	or pek	1500	80
25		134	30 do	pekoe	1620	54
26	Lameliere	137	11 ch	bro or pek	1045	57 bid
27		140	8 do	bro pek	720	46
28		143	17 do	pekoe	1428	38 bid
30	St. John's	149	25 hf-ch	bro or pek	1450	81
31		152	28 do	pekoe	1512	53
32		155	12 do	pek fans	816	39
33	Agra Ouvah	158	20 do	bro or pek	1240	78
34		161	40 do	bro pek	2400	60
35		164	11 ch	pekoe	1056	48
36	Glasgow	167	52 do	bro or pek	4160	66
37		170	17 do	or pek	1105	53
38		173	16 do	pekoe	1280	48
39		176	9 do	pek sou	828	42
40		179	10 do	fans	1000	30
41	Rondura	182	30 do	bro pek	3000	35 bid
42		185	29 do	or pek	2320	39
43		188	47 do	pekoe	3760	34
44		191	20 do	pek sou	1600	30
46	Nahavilla	197	36 do	or pek	2600	46
47		200	47 do	br pek	4700	65
48		203	8 do	pekoe	800	48
49		206	8 do	pek sou	720	40
51	Birnam	212	11 do	pek sou	726	33
52	Gingranoya	215	15 hf-ch	bro pek	825	45
53		218	18 do	bro or pek	900	46
54		221	15 ch	pekoe	1425	38
60	Maryland	239	7 do	bro pek	700	31
61	Kanangama	242	8 do	bro or pek	800	35
62		245	15 do	bro pek	1350	37
63		248	32 do	pekoe	2[illegible]	32
64		251	16 do	pek fans	1280	22 bid
65		254	21 do	pek sou	1680	29
67	Koslande	260	20 hf ch	bro pek	1100	55
68		263	16 ch	pekoe	1440	40
77	Murraythwaite	290	13 do	bro pek	1300	38
78		293	14 do	pekoe	1120	35
79		296	9 do	pek sou	765	32
82	Maryland	305	7 do	bro pek	735	32
83		308	7 do	pekoe	700	27
84	Lameliere	311	11 do	bro or pek	1045	60 bid

Lot.		Box.	Pks.	Name.	lb.	c.
85		314	8 ch	bro pek	720	46
86		317	17 do	pekoe	1428	37 bid
90	Suduganga	329	22 hf ch	or pek	990	41
91		332	21 ch	bro or pek	1155	41
92		335	17 do	pek sou	1275	32
94		341	22 do	sou	1540	28
96	Duawatta	347	14 do	bro pek No.2	2465	15 bid
103	Bellongalla	368	7 do	bro pek	700	36
104		371	17 do	pekoe	1360	31 bid
109	Gonavy	386	37 hf-ch	or pek	1665	47
110		389	16 do	bro pek	800	68
111		392	23 ch	pekoe	1725	40
112		395	7 do	pek sou	700	35
114	Coslande	401	20 do	bro pek	1100	56
115		404	16 do	pekoe	1440	40
119	Glentilt	419	13 hf-ch	fans	1040	20
120	Glasgow	422	13 ch	fans	1300	21
121	Mocha	425	18 do	bro or pek	1800	81 bid
122		428	10 do	or pek	850	61 bid
123		431	18 do	pekoe	1620	53
125	Kotuagedera	437	33 do	bro pek	3300	34
126		440	21 do	pekoe	1890	33
130	Doonhinde	452	12 do	bro pek	1320	50 bid
131		455	20 do	pekoe	1999	50
134	Little Valley	464	8 do	bro pek	760	45
135		467	28 do	pekoe	2240	38 bid
136	N	470	10 hf-ch	dust	850	25
137	Morahela	473	30 ch	bro or pek	3000	43
138		476	25 do	pekoe	2100	38
139		479	23 do	or pek No.2	2001	40
140		482	16 do	or pek No.1	1344	41 bid
142	Ovoca	488	24 hf-ch	bro or pek	1200	60 bid
143		491	21 do	or pek	882	42 bid
144		494	18 ch	pekoe	1530	37 bid
145		497	23 hf-ch	pek sou	989	35 bid
148	Dalhousie	506	19 do	pek No. 1	855	38 bid
153	Ben Nevis	521	9 ch	pekoe	810	41
	Ottery	530	12 hf-ch	dust	900	20
	M V	533	7 ch	bro pek	700	30 bid
	Eilandu	539	11 do	pekoe	990	51 bid

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Battalgalla	57	7 ch	fans	560	32
3	Manickwatte	72	1 do	dust	116	19
4		75	2 do	red leaf	160	18

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A B F	448	4 ch	bro pek	400	30
2		451	3 do	pek	300	27
3		454	3 do	pek sou	300	26
4		457	1 do	congou	70	20
7	Hillside	466	7 hf ch	pek sou	350	26
8		469	3 do	congou	135	24
13	Seaton	484	5 do	fans	350	36
17	Drayton	496	1 ch	sou	80	28
23	Mousakellie	514	2 do	pek	170	32
24		517	3 hf ch	dust	240	22
26	New Angamana	523	12 do	or pek	600	36
28		529	13 do	pek sou	585	30
29		532	3 do	fans	182	25
30		535	2 do	dust	144	18
33	Pendle	544	6 ch	pek sou	540	37
34		547	2 do	pek sou No. 2	180	36
35		550	2 hf ch	bro mix	100	26
36		553	3 do	pek fans	225	30
39	Kabragalla	562	2 do	dust	170	20
40		565	6 do	bro tea	330	21
46	T'villa	583	4 ch	fans	440	17
47		586	1 do	fans	112	17
51	B A	598	3 do	dust	210	15
53	G F D	604	11 hf-ch	bro pek	550	30
54		607	14 do	pek	629	28
55		610	14 do	pek sou	560	26
56		613	6 do	sou	207	20
57		616	1 ch	bro mix	58	14
58		619	1 do	bro pek fans	86	26
67	Queensland	646	4 do	pek sou	360	38
68		649	1 do	sou	100	34
69		652	1 hf ch	bro pek dust	80	22
74	Roeberry	667	1 ch	fans	100	32
78	Theydon Bois	679	5 do	pek sou	425	30
79		682	4 do	fans	360	30
81	Sutton	697	2 do	pek sou	160	45
85		700	2 do	dust	230	23
90	Harrington	715	1 do	pek B	95	36
91		718	3 hf ch	or pek fans	210	33
98	Killarney	739	4 do	fans	320	28
99	R	742	4 ch	bro mix	400	38

Lot.		Box,	Pkgs,	Name,	lb,	c,
104	Galpitakande	757	3 hf ch	dust	300	17
110	Tennehena	775	1 ch	bro pek	92	38
111		778	1 do	pek	110	30
112		781	2 hf-ch	pek	106	29
118	Tillyrie	799	6 ch	pek	4:0	36
119		802	5 do	pek sou	375	34
120		805	7 hf ch	dust	525	22
123	Beaumont	814	4 do	fans	364	21
124		817	1 do	fans	91	19
129	Broad Oak	832	3 ch	dust	465	20
134	Penrhos	847	3 do	bro mix	249	18
135		850	5 hf-ch	pek dust	470	17
136	Igdola	853	5 ch	bro pek	450	50
137		856	8 do	pek	600	38
138		859	5 do	pek sou	425	35
139		862	2 do	dust No 1	240	24
140		865	2 do	dust No. 2	300	18
141	B B, in estate mark	868	3 hf-ch	bro pek	180	20
142		871	2 ch	pek	180	22
143	Dunbar	874	7 hf-ch	bro or pek	350	91 bid
144		877	11 do	or pek	528	52 bid
145		880	6 do	bro pek	288	60
152	Doranakande	901	4 ch	pek	380	30
153		904	5 do	pek No. 2	450	30
155	New Peacock	910	7 do	pek sou	630	37
156		913	8 hf ch	bro mix	400	27
161	W A	928	4 ch	bro pek	440	36
162		931	5 do	pek	500	32
164		937	1 do	bro mix	110	18
169	Walpita	952	5 do	sou	450	26
173	Nakiadeniya	964	2 ch	fans	200	23
174		967	4 do	dust	520	16
175		970	4 do	dust	560	16
178	Grange Garden	979	1 do	pek sou	100	28
179		982	1 do	fans	100	24
180		985	1 do	bro mixed	100	17
190	Bandaraeliya	1015	6 hf-ch	dust	480	21
191	Gallawatte	1018	7 ch	bro pek	630	37
193		1024	8 do	pek sou	640	38
194		1027	5 hf-ch	pek fans	350	31
199	Monkswood	1042	7 do	dust	525	25
204	Mansfield	1057	7 do	dust	630	21
209	Pine Hill	1072	4 do	dust	340	20
210		1075	1 ch	sou	70	27
214	Meegama	1087	3 do	dust	420	16
219	Shrubs Hill	1102	6 do	pek sou	498	29
231	Stamford Hill	1138	5 do	pek sou	400	37
232		1141	2 do	dust	170	22
236	Ireby	1153	5 hf-ch	fans	350	35
237		1156	5 do	dust	425	23
245	Ella Oya	1188	5 ch	bro or pek	500	45
248		1189	1 hf-ch	pek	52	31
250		1195	5 do	dust	400	18
251		1198	5 do	bro pek fans	300	22
252	Arapolakande	1201	5 ch	bro or pek	575	35
256		1213	5 do	dust	575	17
260	Dambagastalawe	1225	5 do	pek sou	450	39
261		1228	4 do	bro pek fans	540	32
267	Cooroondoowatte	1246	8 hf-ch	bro pek	440	50
269		1252	7 ch	pek sou	574	32
271	Halbarawe	1258	1 hf-ch	bro pek	50	32
273		1264	7 ch	pek sou	560	26
274		1267	1 do	dust	150	16
277	Palmerston	1276	8 do	pek sou	240	39
278		1279	1 hf-ch	dust No. 1	80	25
279		1282	1 ch	dust No. 2	95	18
280		1285	1 do	unast	80	31
281	Kotua	1288	4 do	bro pek	400	36
282		1291	3 do	pek	300	29
283		1294	3 do	pek sou	270	26
284		1297	1 do	dust	120	16 bid
287	Dunnottar	1306	6 do	pek No. 1	510	40
289	P in est. mark	1312	6 do	pek	480	40
290		1315	7 do	pek sou	560	38
291		1318	3 do	unast	180	34
292	Strathspey	1321	5 do	bro or pek	525	77
295		1330	2 do	pek sou	188	39
296		1333	1 do	dust	104	22
297		1336	1 do	red leaf	94	19
300	Parsloes	1345	3 do	pek sou	240	38
301		1348	2 do	dust	180	17
302	Boda	1351	11 hf-ch	bro pek	605	36
303		1354	4 do	or pek	192	35
304		1357	7 ch	pek	574	29
305		1360	3 do	pek sou	216	26
306		1363	2 h-fch	fans	150	22
311	Geragama	1378	5 do	fans	400	16
312		1381	4 do	dust	340	16
316		1393	2 do	fans	170	16
317		1396	4 do	dust	360	17
321	D	1408	2 ch	souchong	170	13
322	Madulkelle	1411	6 do	bro pek	480	36
325		1420	6 do	pek sou	480	30
326		1423	1 do	dust	100	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
336	Ganapalla	1453	7 ch	or pek	602	37
338		1459	8 do	pek sou	600	27
339		1462	6 hf-ch	br pek fans	636	23
346	Battawatte	1483	8 ch	pek sou	640	38
351	Ruanwella	1498	7 do	dust	525	20
355	Battawatte	1510	4 do	dust	400	19
364	T	1537	2 do	bro mixed	160	12
365		1540	4 hf-ch	fans	240	17
375	Passara Group	1570	4 do	fans	300	24
381	Ambragalla	1588	4 ch	dust	340	17

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
4	Rothes	106	8 ch	pek sou	255	32
5		109	2 hf ch	bro or pek fans	140	31
6		112	1 do	dust	95	17
8	R, in estate mark	118	4 ch	bro mix	340	17
9		121	1 hf ch	dust	60	17
10	Primrose Hill	124	6 ch	bro pek	600	44
13		133	2 do	sou	152	28
14		136	2 hf ch	dust	125	16
16	Yspa	142	4 ch	pek dust	560	19
23	Carney	163	2 hf ch	bro pek fans	100	21
24		166	4 do	sou	200	21
28		169	3 do	dust	150	21
29	Mahalla	178	8 ch	pek sou	600	30
30		181	3 do	pek sou No. 2	210	26
34		184	1 do	dust	124	20
35	Ritui	196	13 hf ch	pek	585	37
36		199	13 do	pek sou	520	33
37		202	1 do	sou	40	24
38		205	2 do	fans	150	20
39	Venture	208	5 ch	pek	450	39
42		211	4 do	pek sou	500	36
43	Holmsdale	220	1 ch	sou	90	26
50		223	4 do	fans	400	17
51	Hanagama	244	10 ch	sou	680	26
52		247	3 do	dust	359	16
54	California	250	5 ch	bro pek	475	35
55		256	7 do	pek sou	665	21
57		259	1 do	dust	131	16
58	Havilland	265	5 ch	pek fans	500	25
55		268	6 do	sou	480	19
59a		268a	2 do	sou a	100	16
60		271	1 hf ch	dust	92	17
61	Gangwarily	274	1 hf ch	dust	85	21
66		277	5 ch	pek fans	500	25
25	Patulpana	280	11 hf ch	pek sou	550	26
69		292	2 do	sou	90	20
66	Welimaluwa	295	2 hf ch	bro mix	100	18
76	F F, in estate mark	301	11 hf ch	pek	550	28
70		304	6 do	pek sou	270	27
71		307	2 do	bro pek fans	130	19
73	St. Leys	313	1 hf ch	fans	90	17
74		316	1 do	red leaf	54	14
75	S R K	319	5 ch	pek sou	475	35
76		322	3 do	dust	450	19
77		325	3 do	bro tea	300	18
78	S L G	328	11 hf ch	sou	550	24
79		331	5 do	red leaf	225	16
86	Warakamure	352	5 ch	pek sou	450	26
89	Nillicollaywatte	361	5 ch	pek sou	360	28
90		364	1 hf ch	sou	32	22
91		367	1 do	dust	90	19
92		370	1 do	fans	60	21
96	Woodthorpe	382	4 ch	sou	304	27
97		385	1 do	dust	76	17
102	Annandale	400	6 hf ch	dust	480	21
103	F F, in estate mark	403	4 ch	sou	240	29
104		406	3 hf ch	dust	204	27
105	F A, in estate mark	409	1 ch 1 hf ch	pek sou	107	36
106		412	2 do	dust	166	19
109	Findlater	421	7 ch	pek sou	630	38
110		424	4 hf ch	dust	380	20
112	Ravenoya	430	11 hf ch	pek	550	37
113		433	3 do	pek sou	135	33
114		436	1 do	sou	45	24
115		439	2 do	fans	160	20
119	Narangoda	451	3 hf ch	sou	150	26
120		454	3 do	dust	240	18
122	R K P	460	5 ch	bro or pek	550	31
124		466	5 do	pek sou	375	27
125		469	2 do	dust	260	17
130	N I T	484	2 ch	unas No. 1	200	24
131		487	5 do	unas No. 2	400	22
132	Mahatenne	490	5 ch	bro or pek	500	51
135		499	2 ch	pek sou	200	30
136		502	1 hf ch	dust	80	20
137		505	1 do	red leaf	50	16

Lot.		Box.	Pkgs.		Name.	lb.	c.
141	Mourovia	517	6	ch	bro tea	670	22
142		520	3	do	pek dust	435	19
144	Halloowella	526	1	ch	sou	80	31
145		529	2	do	fans	210	25 bid
146		532	1	hf ch	dust	92	28
147		535	3	do	red leaf	270	16 bid
148	Galphele (a)	541	6	ch	bro pek	600	39
151		547	8	do	pek sou	300	29
152		550	1	do	sou	85	26
153		553	2	do	fans	300	22
155	do (b)	559	5	ch	bro pek	500	36
157		565	3	do	pek sou	300	28
158		568	1	do	sou	60	24
159		571	2	do	fans	300	21
163	Roseneath	583	7	ch	bro mix	504	15
167	Bollagalla	595	2	ch	bro tea	220	20
168		598	1	hf ch	dust	90	16
169	Glenalla	601	2	ch	dust	260	20
170		604	2	do	fans	220	18
171		607	2	do	red leaf	170	15
172	G	610	10	hf ch	or pek	450	36
174	A K	616	3	ch	bro pek	300	30
175		619	3	do	pek	300	25 bid
176		622	2	do	pek sou	200	22
182	G O R, in estate mark	640	2	ch	bro or pek	225	26 bid
183		643	2	hf ch	bro pek	126	24 bid
184		646	1	ch	pek	73	22 bid
185		649	2	do	pek sou	155	21 bid
186		652	2	do	pek dust	200	16
187	Melton	655	10	hf-ch	bro or pek	550	69
188		658	7	ch	bro pek	665	42
192	A	670	1	hf-ch	dust	55	14
193	L Z	673	3	hf cb	pek dust	238	17
197	Doragalla	685	8	ch	pek sou	680	33
198		688	3	do	bro mix	375	16
199		691	7	hf-ch	or pek fans	455	26
205	Avissawella	709	7	ch	sou	560	20
210	Ferriby	724	3	ch	bro tea	255	23
211		727	3	do	fans	405	18
213	Batgodde	733	6	ch	sou	420	18
214	do (a)	736	2	ch	bro pek	224	42 bid
215		739	2	do	pek	200	40
216		742	1	do	pek No. 2	95	37
217		745	1	hf ch	dust	81	22
221	Batooloya	757	2	ch	or pek	186	35
222		760	2	do	pek	160	31
223		763	5	do	pek A	250	29
226		772	4	hf ch	dust	320	17
227	Pitavila	775	6	cb	bro pek	600	25 bid
231		787	2	do	dust	340	15
234	Charlie Hill	796	1	hf-cb	pek sou	50	24
235		799	4	do	bro pek fans	280	20
241	Salawe	817	3	cb	pek dust	480	20
243	Killin	823	6	ch	pek	510	32
244		826	3	do	sou	270	26
245		829	1	do	bro mix	95	16
246		832	2	hf-ch	dust	160	17
247	K G	835	6	ch	sou	561	22
248	Bargany	838	11	hf ch	or pek	550	66
249		841	5	ch	pek	475	46
250		844	5	do	pek sou	400	40
251		847	1	do	dust	83	19
252		850	1	ch	fans	112	28
253		853	1	hf-ch	red leaf	50	18
257	J S	865	4	ch	or pek	380	37 bid
259		871	1	do	con	80	15 bid
264	Kurunegalle est. Co.	886	3	ch	pek sou	300	26
276	D	922	7	ch	pek	665	28
277		925	6	do	pek sou	650	25
278		928	1	do	bro pek fans	90	18
279		931	1	do	bro pek dust	110	15
280		934	1	do	bro mix	76	18
281	Walla Valley	1168	25	hf-ch	bro or pek	1375	64 bid
282		1171	17	ch	bro pek	1530	48
283		1174	6	do	pek	540	42
284		1175	21	do	pek	1890	39

[Mr. E. John.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Theresia	62	2	hf-ch	bro pek fans	130	32
2		65	3	do	dust	240	22
5	Bittacy	74	3	ch	pek sou	270	39
6		77	3	hf-ch	dust	240	22
8	Natuakelle	83	2	ch	sou	160	22
9		86	3	do	dust	330	21
16	Iona	107	2	hf-ch	dust	160	21
19	Kolapatna	116	15	ch	pek	660	36
22	Cleveland	125	4	hf-ch	pek sou	208	39
23		128	2	do	fans	160	30
29	Lameliere	146	6	ch	sou	600	26
45	Rondura	194	4	do	dust	480	23
	HS, in est. mark	209	4	do	bro mix	400	18

Lot.		Box.	Pkgs.		Name.	lb.	c.
55	Gingranoya	224	4	ch	pek sou	360	34
56		227	3	hf-ch	bro pek fans	210	25
57		230	2	do	dust	160	20
58	Kandaloya	233	2	do	bro pek	90	34
59	A P	236	4	ch	pek sou	329	25
66	Kanangama	257	4	do	dust	560	19
69	Koslande	266	3	do	pek sou	270	37
70		269	1	do	fans	110	27
71		272	1	hf-cb	dust	80	22
72	Elkaduwa	275	2	ch	or pek	190	38
73		278	2	do	bro pek	220	33
74		281	7	do	pek	630	29
75		284	3	do	pek sou	270	26
76		287	1	do	mixed	130	18
80	Murraythwaite	299	1	do	bro pek fans	120	25
81		302	1	do	dust	170	16
87	Lamiliere	320	6	do	sou	600	26
88	A	323	2	hf-ch	dust	170	15 bid
89	F	326	2	do	dust	150	18 bid
93	Suduganga	338	4	do	pek fans	320	23
95	Marakona	344	2	cb	dust	300	16
97	Duawatta	350	4	do	dust	560	15
98	L, in est. mark	353	2	hf-ch	bro pek	115	32
99		356	7	do	pek	360	30
100	G K	359	1	ch	pek sou	85	26
101	V G	362	2	do	pek	188	30
102	A P	365	1	hf-cb	pek fans	52	17
105	Poowakwatte	374	11	do	bro pek	550	28
106		377	8	do	pek	400	26
107		380	10	do	pek sou	450	22
108		383	2	do	pek fans	100	16
113	Gonavy	398	6	do	dust	420	21
116	Coslande	410	3	cb	pek sou	270	37
117		413	1	do	fans	100	28
118		416	1	hf-ch	dust	80	21
124	Mocha	434	5	ch	pek sou	425	44
127	Kotuagedera	443	3	do	pek sou	270	27
128		446	1	hf-ch	dust	95	21
129		449	3	do	bro pek fans	225	26
132	Doonhinda	458	7	cb	pek	698	38
133		461	2	do	dust	220	22
141	Morahela	485	7	do	sou	560	26
146	Dalhousie	500	8	hf-ch	bro pek	400	71
147		503	7	do	or pek	315	60
149		509	13	do	pek No. 2	585	33 bid
150		512	5	do	bro pek fans	300	30
151	Bennevis	515	11	do	bro pek	682	59 bid
152		518	8	do	or pek	384	57
154		524	4	ch	pek sou	320	37
155		527	1	hf-ch	dust	86	21
158	Eilandhu	536	7	cb	bro pek	700	36
160		542	1	do	bro tea	75	20
161		545	1	do	dust	155	20
162	Kolapatna	548	5	hf-ch	fans	350	29 bid
163		551	2	do	pek sou	98	33
164	L, in est. mark	554	6	ch	bro mix	462	14
165		557	1	do	bro tea	106	13

CEYLON COFFEE SALES IN LONDON

(From Our Commerical Correspondent.)

MINCING LANE, Aug. 31.

"Antenor."—Poonagalla B, 2 casks sold at 102s; ditto 1, 1 barrel sold at 45s.

"Inaba Maru."—Broughton F, 1 barrel sold at 108s; ditto 1, 1 cask sold at 104s; ditto 2, 7 baskets sold at 98s; ditto S, 1 cask and 1 tierce sold at 63s; ditto PB, 1 cask sold at 103s; BGT T, in estate mark, 1 cask sold at 51s; Broughton, 2, 1 bag sold at 81s; GA Ouvah O, 1 cask sold at 111s; ditto 1, 2 casks sold at 107s; ditto 2, 5 casks sold at 98s; ditto 3, 1 cask sold at 63s; ditto IPB, 1 tierce sold at 103s; ditto Triage, 1 tierce sold at 49s; 1 bag sold at 75s.

"Craftsman."—GA Ouvah O, 1 tierce sold at 110s; ditto 1 cask and 1 barrel sold at 109s; ditto 2, 5 casks sold at 100s; ditto 3, 2 casks sold at 66s; ditto IBP, 1 tierce sold at 99s, ditto Traye, 1 barrel sold at 30s; ditto 1 bag sold at 75s.

CEYLON COCOA SALES IN LONDON.

"Adalia."—B, 16 bags sold at 73s 6d; C, 4 bags sold at 65s 6d; D, 2 bags sold at 28s; Gangaroowa, 1 bag sold at 88s; ditto 2 bags sold at 69s; High Walton, 22 bags sold at 91s 6d; 10 bags sold at 80s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Clan Sinclair."—DPO, 1 case sold at 3s 8d; 2 cases sold at 3s 3d; 4 cases sold at 2s 8d; 4 cases sold at 2s 1d; 1 case sold at 2s 2d; 1 case sold at 1s 5d; 1 case sold at 2s; 1 case sold at 1s 7d.

"Kamakura Maru."—A, in estate mark, Malabar, 8 cases sold at 1s 8d.

"Adalia."—P, in estate mark, Malabar, 3 cases sold at 1s 5d; 6 cases sold at 1s 4d.

CEYLON CINNAMON SALES IN LONDON.

"Clan Menzies."—1 FPA Walahandua, 7 bales sold at 11½d; 2 ditto, 10 bales sold at 10½d; 3 ditto, 2 bales sold at 9½d; 4 ditto, 4 bales sold at 8½d; 1 FPA, 2 bales sold at 11d; 2 ditto, 2 bales sold at 10½d; 3 ditto, 2 bales sold at 9½d; 4 ditto, 2 bales sold at 8½d.

"Borneo."—1 MAF Plantation, 1 bale sold at 7d; O MAF, 5 bales sold at 6½d; AD & Co., in estate mark, 101 bales sold at 1d.

"Hitachi Maru."—DD Mahawatte Plantation I, 1 bale sold at 7d; ditto 2, 2 bales sold at 6½d; ditto 3, 2 bales sold at 6d; ditto 4, 3 bales sold at 5½d.

"Orestes."—L in estate mark, Mahawatte Plantation 1, 1 bale sold at 7d; ditto 2, 3 bales sold at 6½d; ditto 3, 5 bales sold at 6d; ditto 4, 5 bales sold at 5½d; ditto 5, 1 bale sold at 2d.

"Java."—J in estate mark, Mahawatte Plantation 1, 3 bales sold at 7d; ditto 2, 3 bales sold at 6½d; ditto 3, 3 bales sold at 6d; ditto 4, 1 bale sold at 4d; J in estate mark, 1 bag out.

"Lancashire."—A S G P in estate mark, Kadirana, 16 bales sold at 1s 7d; 12 bales sold at 1s 7d; 2 bales sold at 1s 6d; 23 bales sold at 1s 7d; 6 bales sold at 1s 6d; 6 bales sold at 1s 1d; 12 bales sold at 1s; 6 bales sold at 11½d; 6 bales sold at 11d; 6 bales sold at 10½d; 1 bale sold at 10d; 1 bale sold at 10½d; 5 bales sold at 9d; FSK Kadirana, 14 bales sold at 1s 7d; 14 bales sold at 1s 5d; 4 bales sold at 1s 1d; 4 bales sold at 10d; 4 bales sold at 9d; 1 box sold at 10d.

"Inaba Maru."—Horahena Estate, JDSR in estate mark, Kadirana Plantation, 14 bales sold at 1s 5d; 15 bales sold at 1s 4d; 8 bales sold at 1s 4d; 3 bales and 1 parcel sold at 1s 1d; 1 bale sold at 10½d; 1 box sold at 9½d.

"Antenor."—FSWS in estate mark, Kadirana; 13 bales sold at 1s 7d; 10 bales sold at 1s 6d; 2 bales sold at 1s 1d; 6 bales sold at 10d; 2 bales sold at 9d; 1 box sold at 10d; FSWS in estate mark, North Kadirana, 6 bales sold at 1s 8d; 11 bales sold at 1s 7d; 11 bales sold at 1s 6d; 1 bale sold at 1s 4d; 2 bales sold at 1s; 5 bales sold at 11d; 3 bales sold at 9d; 1 bale sold at 9½d; 1 bale sold at 1s 8d; FSK Kadirana, 9 bales sold at 1s 7d.

"Inaba Maru."—JRKP in estate mark, 7 bales sold at 1s 3d; 6 bales sold at 1s 1d; 5 bales sold at 11½d; 1 bale sold at 11d; 6 bales sold at 10½d; 6 bales sold at 10d; 5 bales and 1 parcel sold at 9½d; 4 bales and 1 parcel sold at 8½d; 1 bale sold at 8½d.

"Lancashire."—GR SA in estate mark, 1 bale sold at 10½d; 17 bales and 1 parcel sold at 10½d; 11 bales and 1 parcel sold at 9d; CR 1 SA in estate mark, 1 bag sold at 3d; 1 bag sold at 3d; GR L ditto, 2 bags sold at 3d.

"Hakata Maru."—HV 805 in estate mark, Ekelle Plantation, 8 bales sold at 1s 1d; 30 bales sold at 1s.

"Inaba Maru."—HV 832 in estate mark, Ekelle Plantation, 38 bales sold at 8½d; 12 bales sold at 9d; HV 833 in estate mark, Ekelle Plantation, 25 bales sold at 8d.

"Sanuki Maru."—HV 792 in estate mark, Ekelle Plantation, 25 bales sold at 8d.

"Benlarig."—R & Co., Plantation Ceylon, 19 bales sold at 11½d; 12 bales sold at 11d; 33 bales sold at 10½d; 31 bales sold at 10d; 8 bales sold at 8½d.

"Socotra."—R Co., Plantation Ceylon, 3 bales sold at 1s 1d; 15 bales sold at 1s; 15 bales sold at 11d; 8 bales sold at 10d; 2 bales sold at 9d.

"City of Perth."—R & Co., Plantation Ceylon, 3 bales sold at 11½d; 9 bales sold at 10d.

"Inaba Maru."—R & Co., Plantation Ceylon Cinnamon, 5 bales sold at 1s; 4 bales sold at 11d; 14 bales sold at 10½d; 20 bales sold at 10d; 8 bales sold at 9½d; 10 bales sold at 8½d.

"Menelaus."—VR 1 in estate mark, Ekelle, 9 bales sold at 1s; DB & Co., Ekelle Plantation London, 20 bales sold at 11½d; 4 bales sold at 9½d.

"Clan MacAlister."—DB & Co., 405 in estate mark, 6 bales sold at 11½d; Ekelle Plantation, 2 bales sold at 9d.

"Duke of Norfolk."—DB & Co., 409 in estate mark, 58 bales sold at 9d; DB & Co., 408 in estate mark, 20 bales sold at 11½d; 25 bales sold at 10½d; DB & Co., 408B in estate mark, 6 bales sold at 10d; 4 bales sold at 9d; DB & Co., 408O in estate mark, 14 bales sold at 11½d; 30 bales sold at 11d; 2 bales sold at 10½d; 4 bales sold at 8½d; DB & Co., 408D in estate mark, 6 bales sold at 1s; 14 bales sold at 11½d; 25 bales sold at 10½d; 5 bales sold at 9½d.

"Orestes."—Ekelle Plantation London, DB & Co., 407 1899 in estate mark, 28 bales sold at 10d; Ekelle Plantation London, DB 408E 1899 in estate mark, 19 bales sold at 11½d; 49 bales sold at 10½d; 24 bales sold at 10d.

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 37 Colombo, October 8, 1900. Price :—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[14,700 lb.

Lot.		Box.	Pkg	Name.	lb	c
1	Torrington	37	17 ch	bro pek	1530	31 bid
2		40	17 do	bro or pek	1615	33
3		43	16 do	pek	1120	32
4		46	16 do	pek sou	1200	30
5	Battalgalla	49	19 do	or pek	1805	47 bid
6		52	17 do	pek	1530	39 bid
8	Mapitigama	58	7 do	bro or pek	700	48
9		61	11 do	bro pek	990	39
10		64	16 do	pek	1280	35
11		67	22 do	pek sou	1650	33

Messrs. Forbes & Walker.

[679,512 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
9	Clarendon	1615	9 ch	bro pek	990	32
10		1618	7 do	pek	700	34
17	Yellangowry	1639	25 do	or pek	2250	35
18		1642	17 do	pek	1530	33
19		1645	14 do	pek sou	1260	28
28	Yatiyana	1672	11 do	or pek	1067	out
36	Choisy	1696	15 do	or pek	1125	53
37		1699	41 do	bro pek	4100	55 bid
38		1702	33 do	pek	2805	42
39	Pannawatte	1705	13 do	bro pek	1300	33
40		1708	10 do	or pek	920	37
41		1711	11 do	pek	1045	32
42		1714	13 do	pek sou	1040	29
44	Kotagaloya	1720	11 do	pek	935	39
52	D M V	1744	9 do	bro pek	810	30
53		1747	15 do	pek	1050	27
56	Beverley	1756	15 hf ch	bro or pek	750	56
57		1759	57 do	or pek	2850	43
58		1762	39 do	pek	1755	39
60		1768	18 do	pek sou	810	34
64	Udapolla	1780	9 ch	bro pek	900	34
65		1783	14 do	pek	1350	34
69	Stellenberg	1795	10 do	pek sou	950	35
70		1798	9 do	dust	1305	19
74	Kelaneiya and Braemar	1810	8 do	bro or pek	800	54
79	Bickley	1825	14 hf-ch	bro or pek	756	58 bid
80		1828	25 do	or pek	1250	52
81		1831	24 do	pek	1104	43
83	Ingrogalla	1837	10 ch	bro pek	1000	45
84		1840	9 do	pek	765	38
85	Carberry	1843	27 do	bro pek	2430	37
86		1846	25 do	pek	2250	33 bid
93	I K V	1867	6 do	dust	720	15
95	Attempettia	1873	21 do	pek	1155	41
97	Glencorse	1879	14 do	or pek	1260	41
98		1882	10 do	bro pek	1000	43
99		1885	10 do	pek	950	36
100		1888	22 do	pek sou	1980	32
108	S V. in estate mark	1912	9 hf ch	dust	720	18
111	V O A	1921	9 ch	bro tea	900	14
112	Wallaha	1924	32 do	bro or pek	3200	51
113		1927	29 hf ch	bro pek	1334	53
114		1930	27 ch	pek No 1	2295	41 bid
115		1933	19 do	pek No. 2	16 5	38
117	Weemalle	1939	7 do	bro or pek	700	42
119		1945	13 do	pek	1170	37 bid
122	Vellaioya	1954	32 do	pek sou	2880	28 bid
123	V O A	1957	13 do	dust	1560	15 bid
124	Kumaradola	1960	25 hf ch	bro pek	1400	39
125		1963	8 ch	or pek	720	37
130	Vogan	1978	9 do	bro or pek	990	33
131		1981	29 do	or pek	2755	42
132		1984	50 do	pek	4000	34
133		1987	12 do	pek sou	1020	30
134	Tembiligalla	1990	32 do	bro or pek	3200	37
135		1993	21 do	pek	1890	34
139	Tempo	2005	19 do	bro or pek	1900	34
140		2008	25 do	pek	1925	33
141		2011	15 do	pek sou	1050	30
142		2014	13 do	sou	806	29
143		2017	15 hf ch	bro pek fans	750	27
147	Pansalatenne	2029	27 ch	bro pek	2565	46
148		2032	25 do	pek	2125	36
149		2035	15 do	pek sou	1200	33
150		2038	6 do	fans	720	31
152	Ismalle	2644	26 ch	pek sou	2210	28
156		2056	6 hf-ch	dust	930	17
157	Udaveria	2059	35 do	bro or pek	2030	59 bid
158		2062	40 do	pek	2000	40
161	Clyde	2071	52 ch	bro pek	4472	41 bid
162		2074	41 do	pek	3444	33 bid
163		2077	12 do	pek sou	1080	31
164		2080	9 do	bro or pek	1035	30
166	Irex	2086	44 hf ch	bro pek	3960	31 bid
167		2089	23 ch	pek	1840	33
168		2092	9 do	pek sou	720	29
170	M T P, in est. mark	2098	11 do	sou	880	16
171		2101	10 do	dust	1000	15
172	K P W	2104	46 hf-ch	bro pek	2530	37
173		2107	28 do	bro or pek	1820	32 bid
174		2110	30 do	pek	1500	33
180	Pallagodda	2128	13 ch	bro or pek	1300	31
181		2131	31 do	bro pek	3100	46
182		2134	22 do	or pek	1980	40
183		2137	23 do	pek	1040	36
184		2140	26 do	pek sou	2340	33
185		2143	14 hf-ch	dust	1190	19
186	Erracht	2146	18 ch	bro or pek	1710	32
188		2152	28 do	pek	2240	31
192	High Forest	2164	65 hf ch	or pek No. 1	3575	87
193		2167	43 do	or pek	2322	63
194		2170	37 do	pek	1813	55
195	Dea Ella	2173	20 do	bro or pek	1100	59
196		2176	45 do	or pek	2250	37
197		2179	31 do	pek	1550	35
198		2182	16 do	pek sou	800	33
199		2185	12 do	fans	720	28
201	Pallegodde	2191	10 ch	bro or pek	1000	31
202		2194	13 do	bro pek	1300	44
203		2197	11 do	or pek	935	38
204		2200	11 do	pek	880	35
205		2203	11 do	pek sou	990	33
209	Massena	2215	21 hf-ch	pek	1050	35
213	Dunsmld	2227	58 do	bro or pek	3480	53
214		2230	14 ch	or pek	1330	43
215		2233	23 do	pek	2070	38
216	Battawatte	2236	18 do	bro or pek	1980	49
217		2239	22 do	pek	1980	44
220	Maha Uva	2248	40 hf ch	bro or pek	2400	44 bid
221		2251	31 do	or pek	1736	53
222		2254	40 ch	pek	3600	43
223		2257	12 do	pek sou	960	38
226	Kir lees	2266	30 hf ch	bro or pek	2100	45
227		2269	40 do	or pek	2600	43 bid
228		2272	30 ch	pek	2850	39
229		2275	25 do	pek sou	2000	36
232	B, in estate mark	2284	12 do	pek	1159	out
233	Woodend	2287	25 do	bro or pek	2500	24 bid
235		2293	25 do	pek	2250	31
236		2296	12 do	pek sou	960	28
244	Yaha Ella	2320	9 do	bro pek	850	34 bid
245		2323	22 do	pek	1965	32
249	C S G	2335	31 hf-ch	bro pek	1550	47
250		2338	15 ch	pek	1200	40
254	Bickley	2350	13 hf-ch	bro or pek	702	69 bid
255		2353	16 do	or pek	1120	51 bid
256		2356	14 do	pek	868	43
257	Summer Hill	2359	52 hf ch	bro or pek	3172	72
258		2362	28 ch	pek	2604	53
259		2365	47 do	pek sou	3666	43
265	Old Meddegama	2383	10 hf-ch	bro or pek	1330	46
266		2386	12 do	or pek	789	38 bid
267		2389	21 ch	pek	1575	34
273	Doorooma-della	2407	15 hf-ch	bro or pek	840	32
275		2413	11 ch	pek	990	30
276	Tonacombe	2416	26 do	or pek	2340	48
277		2419	50 boxes	bro or pek	1000	60
278		2422	22 ch	bro pek	2200	49
279		2425	41 do	pek	3690	41
280		2428	22 do	pek sou	1980	39
281		2431	10 hf-ch	dust	900	23
282	Dammeria	2434	38 ch	or pek	3800	40 bid
283		2437	10 do	pek sou	900	38
284		2440	9 do	bro or pek	1080	40
285		2443	14 do	bro pek fans	1120	27
287	Polatagama	2449	35 do	bro pek	3500	43
288		2452	14 do	or pek	1260	37
289		2455	11 do	bro pek fans	1100	28
293	O F, in estate mark	2467	8 do	dust	1073	25
294	O	2470	9 do	bro pek	900	25
295		2473	14 do	pek	1400	24
297	Glengariffe	2479	18 hf ch	bro or pek	900	49
298		2482	17 do	or pek	731	40

Lot.		Box.	Pkgs,	Name.	lb.	c.
299		2485	13 ch	pek	1170	35
301	Matale	2491	61 hf ch	bro pek	3355	37 bid
302		2494	25 ch	pek	2125	39 bid
303		2497	16 do	pek sou	1360	33
304	H G M	2500	12 hf ch	bro or pek	720	57
305		2503	12 ch	or pek	840	44
306		2606	13 do	bro pek	1040	39
307		2509	11 do	pek	890	36
308		2512	9 do	pek sou	720	32
309		2515	7 do	br pk fans	700	28
315	Ardlaw and Wishford	2533	16 hf-ch	bro or pek	816	63
316		2536	27 ch	bro pek	2476	50
317		2539	12 do	pek No. 1	816	41
318		2542	18 do	pek No. 2	1422	38
319	Hopton	2545	25 do	bro or pek	2500	47 bid
320		2548	19 do	or pek	1900	42 bid
321		2651	32 do	pek	2880	39 bid
322		2554	17 do	pek sou	1615	38
324	Amblakande	2560	12 do	bro pek	1200	40
325		2563	13 do	pek	1046	35
328	Coreen	2572	30 hf-ch	bro or pek	1560	52 bid
329		2575	11 ch	or pek	916	44 bid
330		2578	20 do	pek	1700	39 bid
333	Knavesmire	2587	23 hf-ch	or pek	1035	33
334		2590	31 ch	bro pek	2945	31
335		2593	27 do	pek	2295	30
336		2596	10 do	pek sou	700	27
338		2602	17 do	pek	1275	28
339	Harrow	2605	15 hf-ch	bro or pek	897	52 bid
340		2608	25 ch	pek	2374	37
342	L G F in est. mark	2614	15 do	sou	1500	18
343		2617	9 do	dust	1197	17
344	Naahlma	2620	35 do	pek	3290	22
345	Pambagama	2623	35 do	bro tea	2625	22
346	Anningkande	2626	18 do	br pek	1800	36
347		2629	12 do	pek	1140	33
348		2632	16 do	pek sou	1440	30
349		2635	8 do	sou	720	27
351	Errollwood	2641	16 hf-cb	bro or pek	720	65
352		2644	8 ch	or pek	720	49
353		2647	14 do	pek	1190	40
354	Ascot	2650	36 do	bro pek	3060	36
355		2653	18 do	pek	1620	29
356		2656	12 do	pek sou	1080	26 bid
357		2659	13 do	bro pk fans	1235	24
359	Middleton	2665	19 bf-ch	bro or pek	1045	60 bid
360		2668	27 ch	br pek	2565	58 bid
361		2671	27 do	pek	2160	47
362	Erlsmere	2674	12 do	or pek	1020	47
363		2677	18 hf-ch	bro or pek	1080	50
364		2680	17 ch	pek	1275	41
367	St. Leonards-on-Sea	2689	28 do	br or pek	2800	31 bid
368		2692	14 do	or pek	1260	30
369		2695	8 do	pek	720	28
374	Gonapitiya	2710	28 bf-cb	bro pek	1624	69
375		2713	40 do	or pek	2000	60
376		2716	48 do	pek	2448	50
377	Devonford	2719	23 do	bro or pek	1265	73 bid
378		2722	11 ch	or pek	995	49 bid
379		2725	14 do	or pek	1250	57 bid
380		2728	13 do	pek sou	1005	42
381	Monkswood	2731	20 bf-cb	bro pek	1200	77
382		2734	26 do	or pek	1430	67
383		2737	19 ch	pek	1805	52
384	Malvern	2740	59 hf-cb	bro pek	3245	52
385		2743	45 ch	pek	3150	43
386		2746	21 do	pek sou	1470	37
388	Gallawatte	2752	18 do	fans	1440	17
389	S R in est. mark	2755	17 do	congou	1615	29
391	Aneimudi	2761	27 do	pek fans	2619	25
392	W in est. mrrk	2764	14 do	bro tea	1260	20
393	Clunes	2767	12 do	bro or pek	1260	29
394		2770	18 do	br pek	1710	34
395		2773	20 do	pek No. 1	1800	31
400	Polatagama	2788	31 do	bro pek	3100	42
401		2791	12 do	or pek	1080	36
402		2794	45 do	pek	4050	33
403		2797	23 do	pek sou	2070	23
405	Inverness	2803	11 do	or pek	1100	55
406		2806	35 hf-ch	bro or pek	2100	50
407		2809	30 ch	pek	2700	43
414	Weyunga-watte	2830	18 do	bro pek	1710	44
415		2833	17 do	pek	1530	36
416		2836	13 do	pek sou	075	33
421	Yogama	2851	14 do	bro pek	1400	36
423		2857	10 do	pek sou	800	29
424	Putupaula	2860	12 do	bro or pek	1380	33 bid
425		2863	31 do	bro pek	2790	36
426		2866	21 do	pek	1575	36
430	St. Martin	2878	23 hf-ch	bro pek	920	37
431		2881	35 do	pek	1400	34
435	Ewhurst	2893	18 ch	bro pek	1620	38 bid

Lot		Box,	Pkgs.	Name.	lb,	c.
436		2896	19 ch	pek	1596	35
439	Ingrogalla	2905	13 do	bro pek	1300	50
440		2908	13 do	pek	1105	30
441	Waitalawa	2911	45 hf-ch	bro pek	2250	51
442		2914	59 do	pek	2950	37
445	Nugagalla	2923	21 do	bro pek	1050	43
446		2926	35 do	pek	1900	35
448	Penrhos	2932	24 do	bro or pek	1200	41
449		2935	19 do	or pek	912	40
450		2938	26 ch	pek	2236	37
451		2941	9 do	pek sou	720	32
453	B C	2947	30 do	pek sou	2700	29 bid
454	Torwood	2950	17 do	bro pek	1598	40
455		2953	12 do	or pek	984	34
456		2956	22 do	pek	1760	33
457		2959	13 do	pek sou	936	30
458		2962	13 hf-ch	dust	884	18
459	Marlborough	2965	64 do	bro or pek	3328	56
460		2968	12 ch	or pek	900	42 bid
461		2971	14 do	pek	1190	38
464	Patiagama	2980	18 hf-ch	dust	1435	19
467		2989	9 ch	sou	810	18
468	N B D in est. mark	2992	20 do	bro mixed	1800	10
471	Patiagama	3001	15 hf-ch	bro or pek	825	60
472		3004	8 ch 1 hf-ch	or pek	725	38
473		3007	19 ch	pek	1520	36
475	Queensland	3013	7 do	bro pek	700	60 bid
476		3016	12 do	pek	1020	46
478	M V	3022	19 do	sou	1520	15
479	A and H in mark	3025	13 hf ch	bro pek	745	29 bid
480	Chesterford	3028	21 ch	fans	1890	27
483		3037	20 hf-ch	dust	1600	19
484	Geragama	3040	15 ch	bro pek	15 0	35
485		3043	12 do	pek	1080	32
486		3046	10 do	pek sou	800	29
487	Kosgama	3049	16 do	bro pek	1680	
488		3052	15 do	pek	1300	
493	Hopton	3067	18 do	bro or pek	1800	44
494		3070	13 do	or pek	1170	41
495		3073	16 do	pek	1440	39
496		3076	14 do	pek sou	1260	37
498	Geragama	3082	19 do	bro pek	1900	35
499		3085	11 do	pek	990	32
500		3088	10 do	pek sou	800	29
501	Bandaraeliya	3091	69 hf-ch	or pek	3174	47
502		3094	98 do	bro pek	5488	53
503		3097	37 do	pek	1665	43
504	Ambragalla	3100	25 ch	bro or pek	2500	32
505		3103	24 do	pek	1848	28 bi
506		3106	27 do	pek sou	2160	27
507	Cooroondoo-watte	3109	13 hf-ch	bro pek	715	51
508		3112	15 ch	or pek	1230	40
509		3115	19 do	pek sou	820	33
513	Forest Creek	3127	26 do	bro or pek	2597	58 bid
514	Naseby	3130	38 bf-ch	bro or pek	2280	74
515		3133	27 do	pek	1269	51
516		3136	14 do	pek sou	700	45
521	B G	3151	18 do	pek sou	810	24
522	Dunnottor	3154	44 ch	pek	3740	37
527	Augusta	3169	6 do	dust	840	18
530	St Heliers	3178	14 hf-ch	br or pk No. 1	742	65
531		3181	27 do	bro or pek	1485	43
532		3184	18 ch	pek	1530	34
534	Castlereagh	3190	21 hf-cb	bro or pek	1050	50 bid
535		3193	14 ch	bro pek	1260	45
536		3196	13 do	or pek	975	39
537		3199	14 do	pek	1120	36
548	Cotta	3232	30 bf-cb	bro or pek	1800	34
549	Maratenne	3235	49 do	bro pek	2450	42
550		3238	28 do	or pek	1400	47
551		3241	22 do	pek	1160	41
554	C N N	3250	18 do	fans	1350	32
557	Rowley	3259	42 do	bro pek	2100	46
558		3262	42 do	pek	2100	36
560	Ella Oya	3268	8 ch	pek	720	32
561	St. Pauls	3271	89 bf-ch	bro pek	4628	53
562		3274	50 do	pek	2450	45
563		8277	50 do	pek sou	2050	38
564	Sutton	3280	31 ch	or pek	3097	63
565	Vogan	3283	7 do	bro or pek	770	31
566		3286	38 do	or pek	3610	37 bid
567		3289	60 do	pek	5100	34
568		3292	16 do	pek sou	1360	28
569		3295	9 do	dust	765	18
579	Talgaswela	3325	21 do	or pek	1764	38
580		3328	32 do	pek	2560	32
581		3331	19 do	pek sou	1425	27
584	Amblangoda	3340	27 do	bro pek	2700	46 bid
585		3343	29 do	pek	2610	41
586		3346	14 do	pek sou	1330	36 bid
589	Galkadua	3355	11 do	br pek	1210	31
590		3358	10 do	pek	1000	28
591		3361	7 do	pek sou	700	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
594	Fairlawn	3370	23 hf-ch	bro pek	1150	56
595		3373	11 ch	or pek	825	41
596		3376	14 do	pek	1120	38
605	Massena	3403	20 hf-ch	pek	1000	35
609	Maha Uva	3415	31 do	bro or pek	1860	40 bid
610		3418	26 do	or pek	1456	51
611		3421	31 ch	pek	2790	42
612		3424	10 do	pek sou	800	27
615	Carfax	3433	10 do	bro or pek	1000	56
616		3436	12 do	or pek	108	43
618		3442	12 do	pek	1080	39
619	Passara Group	3445	18 do	or pek	1620	43 bid
620		3448	33 do	bro or pek	3300	46
621		3451	36 do	pek	3240	40
622		3454	13 do	pek sou	1300	36
624	Knavesmire	3460	20 hf-ch	or pek	900	33
625		3463	43 do	bro pek	4300	31 bid
626		3466	31 ch	pek	2635	29 bid
627		3469	11 do	pek sou	770	26 bid
628		3472	10 hf-ch	dust	750	19
629		3475	19 ch	pek	1425	28
630	Macaldeniya	3478	20 hf-ch	bro pek	1100	54
631		3481	15 do	or pek	750	45
632		3484	26 do	pek	1300	40

[**Mr. E. John**.—268,297 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Wendura	518	20 ch	bro pek	1960	33
9		584	12 do	pekoe	936	33
10		587	11 do	pek sou	858	29
13	Harrisland	596	13 do	bro pek	1274	36 bid
14		599	9 do	pekoe	702	33
15		602	9 do	pek sou	702	30 bid
18	Vincit	611	20 do	bro pek	1800	33
19		614	15 do	pekoe	1350	28
20		617	10 do	pek sou	900	26
21		620	7 do	bro pek fans	770	24
24	Poilakande	629	37 do	bro pek	3700	34
25		632	19 do	pekoe	1710	31
26	Mount Everest	635	14 hf-ch	bro or pek	770	80 bid
27		633	18 do	or pek	900	54
28		641	17 ch	pekoe	1700	45
29		644	11 do	pek sou	990	40
30	Natuwakella	647	20 do	bro pek	2000	32 bid
31		650	13 do	bro or pek	1300	34 bid
32		653	14 do	pekoe	1260	33
33		656	10 do	pekoe	900	29
35	Mount Clare	662	8 do	bro or pek	800	45
37		668	10 do	pek	900	33
39		674	12 do	sou	1080	18
43	Eila	686	83 do	bro pek	6640	36
44		689	78 do	pekoe	6240	31 bid
45	Glentilt	692	26 do	bro pek	2600	53 bid
46		695	20 do	or pek	1900	40 bid
47		698	14 do	pekoe	1260	37 bid
48	Templestowe	701	29 hf-ch	bro or pek	2175	45 bid
49		704	20 do	or pek	800	49 bid
50		707	26 ch	pekoe	2080	36
51		710	13 do	fans	1105	31
52	Whyddon	713	15 do	bro pek	1650	50 bid
53		716	11 do	or pek	1045	39 bid
54		719	8 do	pekoe	744	37 bid
58	Eila	731	34 do	bro pek	2210	35
59		734	15 do	pekoe	1200	31 bid
60		737	13 do	pek sou	1040	27
64	Brownlow	749	14 do	bro or pek	1288	52 bid
65		752	11 do	bro pek	1067	44
66		755	17 do	or pek	1428	44
67		758	30 do	pekoe	2700	36
68	Mahanilu	761	9 do	or pek	855	40
69		764	20 do	bro or pek	2000	42 bid
70		767	14 do	pekoe	1260	29
71		770	9 do	pek sou	783	35
72		773	8 do	fans	800	30
73	Syston	776	9 do	or pek	2300	38
74		779	14 do	pek	1120	36
75		782	10 do	pekoe sou	800	32
78	Galella	791	14 do	bro pek	1400	38 bid
79		791	16 do	pekoe	1280	35
80		797	9 do	pek sou	720	32
82	G T	803	12 do	sou	1080	30
86	M R	815	12 hf ch	dust	1020	20
87	Perth	818	23 ch	bro or pek	2254	31 bid
88		821	36 do	bro pek	2988	34
89		824	44 do	pekoe	3300	33
93	Cumbowella	836	20 do	bro or pek	2000	out
94		839	20 do	bro pek	1800	out
95		842	18 do	pekoe	1530	out
96		845	18 do	pek sou	1437	out
101	Anganda	860	20 do	bro pek	2000	32 bid
102		863	25 do	pekoe	2250	31 bid
103		866	15 do	pek sou	1350	28 bid
105	Y K	875	10 do	dust	1500	17
107	Murraythwaite	878	11 do	bro pek	1100	36
108		881	14 do	pekoe	1120	33

Lot.		Box.	Pks.	Name.	lb.	c.
111	Coundon	890	19 ch	pekoe	1615	40
112		893	18 do	pek sou	1440	37
119	KeenagabaElla	914	32 hf-ch	bro or pek	1600	38 bid
120		917	25 ch	or pek	1500	36
125	D H K	932	22 do	unassorted	1980	15 bid
126	Agra Ouvah	935	22 hf-ch	bro or pek	1364	75
127		938	38 do	bro pek	2280	53
128		941	10 ch	pek	960	46
129	Glasgow	944	33 do	bro or pek	2475	56
130		947	12 do	or pek	780	53
131		950	11 do	pekoe	880	45
132		953	8 do	pek sou	700	42
133	Callander	956	15 hf-ch	bro or pek	900	53 bid
134		959	18 do	or pek	936	56 bid
135		962	30 do	pekoe	1440	45
138	Agra Ouvah	971	23 do	bro or pek	1426	73
139		974	23 ch	bro pek	2415	53
140		977	11 do	pekoe	1056	48
141	W H	980	25 do	pek sou	2250	23 bid
142	G F R in estate mark	983	9 do	bro or pek	900	49
143		986	22 do	bro pek	2090	36
144		989	15 do	pek	1350	33
153	Elston	16	11 hf-ch	dust	935	17 bid
154	Westhall	19	23 ch	bro mix	2300	18
155	Dunwatte	22	14 do	bro pek No. 2	2165	15
157	Gangawatte	28	23 hf-ch	bro or pek	1150	56 bid
158		31	11 ch	bro pek	1100	41 bid
159		34	21 do	pekoe	1890	36
163	Galella	46	11 do	bro pek	1100	34 bid
164		49	15 do	pekoe	1200	35
166	Rookwood	55	20 hf-ch	flo bro or pek	1160	44 bid
167		58	22 do	do	1276	44 bid
168		61	16 do	or pek	832	46 bid
169		64	32 do	bro or pek	2018	33 bid
170		67	8 ch	or pek No. 1	720	36 bid
171		70	14 do	pek	1260	34 bid
174	Galloola	79	20 do	bro pek	2000	53
175		82	36 do	pekoe	3240	44
176		85	33 do	pek sou	2640	37
179	Maryland	94	7 do	pek	700	27
180	Kanangama	97	10 do	bro or pek	1050	33
181		100	19 do	bro pek	1805	33
182		103	23 do	pek	1955	3
183		106	18 do	pek sou	1440	27 bid
184		109	12 do	pek fans	1080	24
185		112	16 do	do	1280	24
186		115	10 hf-ch	dust	800	19
188	Brownlow	121	25 do	bro or pek	1250	53 bid
189		124	18 do	bro pek	918	44
191		130	27 ch	pek	2160	35
192		133	13 do	bro pek fans	871	28
193	Ratwatte	136	35 do	bro pek	3500	33
194		139	10 do	br pek No 2	1000	32
195		142	25 do	pek	2250	32
196		145	14 do	pek sou	1120	27
197	Gallavilla	148	10 do	bro pek	1000	30
198		151	22 do	or pek	2090	27
201	Bellongalla	160	12 do	bro pek	1200	31
202		163	32 do	pek	2560	23 bid
203	Lunugalla	166	8 do	bro pek	800	30 bid
204		169	21 do	pekoe	1680	23 bid
205	Oonoogaloya	172	16 do	or pek	1440	47
206		175	9 do	bro or pek	900	60
207		178	25 do	pek	2250	37
208		181	13 do	pek sou	1105	34
209		184	17 hf ch	bro or pek	1020	51 bid
211		190	11 do	pek	825	37 bid
212		193	19 do	pek sou	1805	36 bid
213	Perth	196	51 do	bro pek	4233	34
214		199	20 ch	bro or pek	1960	30 bid
215		202	22 do	pek	1650	33
216		205	11 do	pek sou	825	28
218	Maskeliya	211	24 hf-ch	bro or pek	1200	53 bid
219		214	11 ch	or pek	1100	43
220		217	17 do	pek	1700	38
221		220	8 do	pek sou	800	33
224	Kotuagedera	229	33 do	bro pek	3300	35
225		232	19 do	pek	1710	28 bid
235	Eila	262	12 do	dust	1200	20 bid
236	Obiya	265	49 hf-ch	bro pek	2940	48 bid
237		268	19 ch	pek	1824	43 bid
238		271	14 do	pek sou	1288	38 bi
240		277	16 do	sou	1440	34
241	Little Valley	280	28 do	pek	2240	31 bid

[**Messrs. Somerville & Co.**—300,654 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	H J S	991	22 hf ch	pek	1320	30 bid
9	Wallasmulle	994	10 ch	unas	1000	30
10		997	6 do	dust	840	20
12	Wilpita	1003	8 do	bro pek	800	28
18	Tonglutotum	1021	8 do	bro pek	796	24
23	Polgahakande	1036	27 do	bro pek	2565	34

Lot.		Box.	Pkgs.	Name.	lb.	c.
24		1039	34 ch	pek	2040	33
25		1043	6 do	dust	750	16
31	H niton	1060	19 ch	bro pek	1805	32
32		1063	18 do	pek	1530	30
32		1066	21 do	pek sou	1680	27
42	Ambalawa	1093	31 hf ch	bro pek	1550	32
43		1096	19 do	pek sou	760	28
50	Hatdowa	1117	18 ch	bro pek	1620	36
51		1120	15 do	pek	1125	30
52		1123	14 do	pek sou	980	26
56	A C B	1135	26 ch	bro pek	2600	48
57		1138	12 do	pek	1080	38
59	Siriniwasa	1144	21 ch	bro pek	2100	36 bid
61		1150	22 do	pek	2090	32
62		1153	16 do	pek sou	1440	29
67	Neboda	1168	12 ch	bro or pek	1200	33
68		1171	36 do	bro pek	3600	35
72	Neuchatel	1183	29 ch	or pek	2465	34
73		1186	28 do	bro or pek	2800	33
74		1189	14 do	pek	1190	31
75		1192	11 do	pek sou	880	28
77	Mary Hill	1198	15 hf-ch	bro or pek	750	46
78		1201	19 do	pek	855	34
81	Oonankande	1210	8 ch	bro pek	800	39
83		1216	11 do	pek sou	880	31
87	Thia Shola Nilgri	1228	18 hf ch	or pek	967	39 bid
88		1231	32 do	pek	1711	34 bid
91	Blackburn	1240	9 ch	pek sou	720	26
92	Blinkbonnie	1243	21 hf ch	bro pek	1260	51 bid
93		1246	15 ch	or pek	1200	55
94		1249	15 do	pek	1320	43
96	Rambodde	1255	14 hf ch	or pek	770	44
104	Ravenscraig	1279	19 ch	or pek	1615	36 bid
105		1282	14 do	pek	1260	31
109	Kurulugalla	1294	13 ch	bro pek	1300	32
110		1297	8 do	pek	720	31
115	Dryburg	1312	20 hf ch	bro or pek	1120	34
116		1315	12 ch	or pek	1080	47
117		1318	22 do	pek	1694	32
126	Beausejour	1345	15 ch	bro pek	1350	32
127		1348	18 do	pek	1440	30
133	Tyspane	1366	19 ch	bro or pek	1900	44
134		1369	19 do	bro pek	1805	43
135		1372	21 do	pek	1785	36
136	Depedene	1375	46 hf-ch	bro pek	2300	31
137		1378	37 do	pek	1850	30
138		1381	22 do	pek sou	1100	27
143	Daluk Oya	1396	14 hf ch	bro or pek	840	44
144		1399	18 do	or pek	990	33
145		1402	22 do	pek	1210	31
147	Pindeni Oya	1408	21 ch	bro or pek	1890	35
148		1411	29 ch	pek	2175	36
149		1414	14 do	pek sou	2380	31
150		1417	31 do	sou	2790	28
152		1423	21 do	sou	1890	28
153	Karangalla	1426	9 ch	bro pek	945	38
154		1429	10 do	pek	850	34
157	Attiville	1438	9 ch	bro pek	900	28
158		1441	14 do	pek	1400	26
159		1444	9 do	pek sou	900	20
160	Nyanza	1447	8 ch	bro or pek	800	57
161		1450	7 do	pek	709	39
162		1453	14 do	or pek	1260	39
163		1456	22 do	pek	1980	35
166	Avisawella	1465	18 ch	bro pek	1710	34
167		1468	23 do	pek	1840	29
168		1471	28 do	pek sou	2240	26
170		1477	40 boxes	bro or pek	760	out
171	Hangranoya	1480	16 hf ch	bro or pek	800	54
172		1483	18 ch	bro pek	1800	37
173		1486	8 do	pek	720	33
175	Oaklands	1492	9 ch	bro or pek	855	37 bid
176		1495	12 ch	or pek	1140	34
177		1498	9 do	bro pek	900	26 bid
178		1501	22 do	pek	1980	30 bid
179		1504	18 do	pek sou	1440	28
185	Mousakande	1522	15 ch	pek sou	1275	27
186	Monte Christo	1525	34 ch	bro pek	3400	41
187		1528	18 do	or pek	1440	37
190	Rayigam	1537	21 do	bro pek	1995	35 bid
191		1540	16 do	or pek	1280	33 bid
192		1543	18 do	pek	1440	31 bid
193		1546	15 do	pek sou	1275	28 bid
196	Auburn	1555	18 ch	bro pek	1800	33
200	Oakham	1567	14 hf ch	bro pek	840	54
202		1573	10 ch	pek	900	37 bid
205	Dikmukalana	1582	33 hf ch	or pek	1650	33
206		1585	33 do	pek	1650	30 bid
207	Warakamure	1588	51 ch	bro pek	5100	31 bid
208		1591	26 do	pek	2470	29
209		1594	9 do	pek sou	810	24
210		1597	11 hf-ch	dust	990	18
212	P T N, in estate mark	1603	22 hf ch	pek sou	1100	12 bid
214	Henhurst	1609	12 ch	or pek	1020	36
215		1612	10 do	bro or pek	950	33 bid
216		1615	23 ch	pek	1840	32
217		1618	9 do	sou	720	35
218	Waganila	1621	9 ch	bro pek	900	50 bid
224	Galphele A	1639	11 ch	bro or pek	1100	37 bid
229	do B	1654	11 ch	bro or pek	1100	33 bid
230		1660	9 do	pek	810	32
231	Hanwella	1669	15 hf ch	bro pek	825	32
235		1672	16 do	pek	800	30
240	Rayigam	1687	16 ch	bro pek	1520	34 bid
241		1690	13 do	or pek	1040	34 bid
242		1693	13 do	pek	1040	32
243		1696	14 do	pek sou	1190	29
244		1699	9 hf ch	dust	882	21
245	Ranasinghapatna	1702	41 ch	or pek	3740	38
246		1705	31 do	bro or pek	3100	28
247		1708	46 do	pek	3680	32 bid
248		1711	44 do	pek sou	3690	30
249	Lawrence	1714	7 ch	bro pek	700	43
250		1717	12 do	pek sou	900	36
252	Ladysmith	1723	47 ch	bro pek	4165	32
253		1726	20 do	pek	1600	31
254		1729	11 do	pek sou	880	28
255	Florida	1732	8 ch	bro pek	800	29
256		1735	11 do	pek	1015	25
261	Meddegodde	1750	59 hf ch	bro pek	2360	38
262		1753	94 do	pek	2820	31
263		1756	23 do	pek sou	805	28
267	Koladeniya	1768	18 ch	pek	1530	26 bid
268	I P	1771	18 ch	pek sou	1530	25
269		1774	16 hf ch	dust	1360	19
270	Rambodde	1777	18 hf-ch	or pek	990	40
271		1780	20 do	pek	930	35
276	Nebo la	1795	11 ch	bro or pek	1100	33 bid
277		1798	26 do	bro pek	2600	34
281	Annandale	1810	13 hf ch	bro or pek	715	65
282		1813	16 do	or pek	832	50
283		1816	16 do	pek	832	43
284		1819	12 do	pek sou	708	38
289	Salawe	1834	20 ch	bro pek	2000	31 bid
290		1837	12 do	pek	1000	31
291		1840	9 do	pek sou	810	28
292		1843	13 do	unas	1300	26
294	Paradise	1849	23 hf ch	bro pek	1265	34
295		1852	10 ch	pek	1000	32
296		1855	10 do	pek sou	950	27
298	P, in estate mark	1861	11 ch	unas	1100	25
310	Ladrum	1897	16 ch	bro or pek	1600	out
311		1	16 ch	or pek	1600	34
312		4	18 do	pek	1800	30
313	N Y A	7	17 ch	bro pek	1700	21
314		10	28 do	pek	2800	15 bid
315	Calgary	13	32 ch	bro or pek	3520	22 bid
316		16	17 do	bro pek	1700	25 bid
317		19	19 ch	or pek	1805	out
318		22	66 do	pek	6270	out
320	K G	28	10 ch	red leaf	1000	12 bid
321	Eila Oya	31	30 ch	fans	2430	18 bid
322		34	33 do	bro tea	2640	out
323	B G	37	15 hf ch	bro pek	780	25 bid
325	Tongaltotum	43	7 ch	or pek	708	31 bid

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
7	Battalgalla	55	8 ch	pek sou	640	36
12	Mapitigama	70	8 do	bro mix	640	20

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	S K M	1591	1 hf-ch	bro pek	62	31
2		1594	1 do	pek	53	29
3		1597	1 do	pek sou	53	26
4	Wewawatte	1600	9 do	bro pek	522	35
5		1603	7 do	pek	350	31
6	Palm Garden	1606	5 ch	bro pek	550	33
7		1609	5 do	pek	500	29
8		1612	5 do	pek sou	360	24
11	Carendon	1621	4 do	pek sou	400	29
12	Uragalla	1624	5 do	bro pek	450	33
13		1627	5 do	pek	450	29
14		1630	3 do	pek sou	255	26
15		1633	1 do	unas	85	26
16		1636	1 do	dust	125	16
20	Handrokande	1648	5 do	bro pek	500	32
21		1651	2 do	pekoe	170	28
22		1654	1 do	pek sou	80	24
23		1657	1 do	dust	100	17
24	Ugurasse	1660	2 hf-ch	bro pek	95	24
25		1663	1 do	pek	50	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
26		1663	1 hf-ch	pek	36	23
27		1669	1 do	sou	34	22
29	Yatiyana	1675	4 ch	bro pek No. 1	404	29
30		1678	6 do	pek No. 1	606	25
31	Harankahatenne	1681	5 do	bro pek	438	34
32		1684	5 do	pek	475	29
33		1687	5 do	pek sou	450	21
34		1690	1 do	bro tea	05	24
35		1693	1 do	dust	123	18
43	Kotagaloya	1717	6 do	bro pek	600	47
45		1723	5 do	pek sou	425	33
46	Geddes	1726	2 do	or pek	160	52
47		1729	3 do	bro pek	315	46
48		1732	7 do	pek	560	38
49		1735	5 do	pek No. 2	375	31
50		1738	2 do	bro or pek	200	69
51		1741	1 do	unas	88	33
54	D M V	1750	5 do	pek sou	350	24
55		1753	2 do	bro tea	130	19
59	Beverley	1765	2 hf ch	pek No 2	110	31
61		1771	3 do	bro tea	165	18
62		1774	6 do	fans	450	22
63	Udapolla	1777	6 ch	or pek	540	37
66		1786	4 do	pek sou	340	28
67		1789	1 hf-ch	dust	80	24
68	Stellenberg	1792	1 ch	unas	94	35
71	Rockside	1801	3 do	sou	240	31
72		1804	3 do	dust	405	21
73		1807	4 do	bro pek fans	480	31
75	Kelaneiya	1813	6 do	or pek	600	58
76		1816	5 do	pek	500	36
77		1819	1 do	sou	100	29
78		1822	1 do	dust	100	18
82	Bickley	1834	8 hf-ch	pek sou	336	34
87	Carberry	1849	4 ch	pek sou	360	32
88		1852	4 do	bro tea	360	26
89		1855	3 do	dust	420	17
90	G K	1858	3 do	bro tea	270	25
91		1861	2 do	dust	280	18
92	I K V	1864	2 do	bro mix	224	16 bid
94	Attampiettia	1870	11 do	bro pek	616	55
96		1876	2 do	pek sou	160	36
101	Glencorse	1891	5 do	bro tea	550	28
102		1894	2 do	dust	340	15
103	Bonami, J D, in est mark	1897	12 hf ch	bro or pek	456	18
104		1900	13 do	bro pek	416	18
105		1903	2 ch	pek	150	18
106	Kennington	1906	5 do	unas	450	22
107		1909	2 do	dust	270	13
109	S V, in estate mark	1915	9 hf ch	fans	594	18
110		1918	2 do	bro mix	100	24 bid
116	Wallaha	1936	3 ch	pek sou	255	32
118	Weemalle	1942	8 do	or pek	680	45
120		1948	2 do	pek sou	180	31
121		1951	3 hf ch	bro tea	255	20
126	Kumaradola	1966	5 ch	pek	450	32
127		1969	1 do	bro tea	80	30
128		1972	1 hf-ch	dust	90	19
129	Sunny Croft	1975	4 ch	bro tea	460	17
136	Tembiligalla	1996	1 ch	pek sou	95	28
137		1999	1 do	bro pek fans	110	21
138		2002	1 do	dust	150	17
144	Tempo	2020	5 hf ch	dust	400	21
145	A G	2023	1 ch	bro pek	78	29
146		2026	1 do	pek sou	67	18
151	Pansalatenne	2041	1 do	dust	150	16
153	Ismalle	2047	7 do	sou	595	26
154		2050	8 do	congou	680	22
155		2053	4 do	fans	540	18
159	Udaveria	2065	2 hf-ch	bro pek fans	150	33
160		2068	3 do	fans	261	23
165	Clyde	2083	3 ch	dust	450	18
169	Irex	2095	2 do	dust	200	19
175	K P W	2113	10 hf-ch	pek sou	450	27
176		2116	2 do	dust	180	18
177	New Galway	2119	7 do	bro pek	420	62
178		2122	9 do	pek	495	44
179		2125	1 do	pek sou	50	36
187	Erracht	2149	7 ch	bro pek	560	37
189		2155	8 do	pek sou	640	27
190		2158	2 do	bro pek fan	232	20
191		2161	2 do	dust	296	12
200	Dea Ella	2188	4 hf ch	dust	300	20
206	Massena	2206	4 do	bro or pek	200	54
207		2209	5 do	or pek	250	55
208		2212	7 do	bro pek	350	44
210		2218	7 do	pek sou	350	29
211		2221	7 do	bro pek fans	385	33
212		2224	4 do	fans	300	20
218	Battawatte	2242	8 ch	pek sou	640	38
219		2245	3 do	dust	300	21
224	Maha Uva	2260	3 hf ch	pek fans	225	31
225		2263	6 do	dust	510	
230	Glenlyon	2278	1 ch / 1 hf ch	bro pek	191	46

Lot.		Box.	Pkgs.	Name.	lb.	c.
231	Wallaha	2281	1 box	unas	18	36
234	Woodend	2290	6 ch	bro pek	600	30
237		2299	3 do	dust	420	19
238	Poengalla	2302	4 do	dust	360	20
239	T, in estate mark	2305	6 do	pek	540	26
240		2308	1 do	dust	80	18
241	Relugas	2311	5 do	bro mix	450	12
242		2314	3 do	dust	465	28
243	Yaha Ella	2317	2 do	bro or pek	220	23
246		2326	6 do	pek sou	520	23
247		2329	1 do	sou	85	25
248		2332	1 do	pek fans	130	21
251	C S G	2341	5 do	pek sou	400	33
252		2344	2 do	bro mix	200	18
253		2347	3 hf-ch	dust	240	20
260	Sirikandura	2368	6 ch / 1 hf ch	bro pek	687	36
261		2371	6 ch / 1 hf ch	pek	580	31
262		2374	5 ch	pek sou	425	29
263		2377	3 do	bro pek fans	300	26
264		2380	1 do	dust	72	18
268	Old Maddegama	2392	9 do	pek sou	675	30
269		2395	2 do	fans	200	20
270	Aberfoyle	2398	9 hf ch	bro pek	495	38
271		2401	5 ch	pek	425	31
272		2404	2 do	pek sou	190	28
274	Dooroomadella	2410	6 do	bro pek	576	35
286	Dammeria	2446	5 hf ch	dust	450	10
290	Polatagama	2458	2 ch	dust	300	18
291	O F in est mark	2461	1 hf ch	pek	55	28
292		2464	1 do	fans	76	21
296	O	2476	4 ch	bro mix	500	9
300	Glengariffe	2488	5 hf ch	bro or pek fans	325	23
310	H G M	2518	4 do	dust	360	26
311	Kottagodde	2521	5 ch	bro pek	514	35
312		2524	4 do	pek	339	3
313		2527	2 do	pek sou	168	34
314	Ellamulle	2530	4 bags	red leaf	200	14
323	Hopton	2557	6 ch	dust	660	20
326	Amblakande	2566	4 do	pek sou	320	29
327		2569	3 do	dust	400	19
331	Coreen	2581	2 do	pek sou	170	33
332		2584	2 hf-ch	dust	160	21
337	Knavesmire	2599	9 do	dust	675	20
341	M'Golla	2611	1 ch	red leaf fans	95	13
350	Anningkande	2638	3 do	red leaf	270	14
358	Ascot	2662	8 hf ch	dust	600	18
365	Erlsmere	2683	5 ch	pek sou	375	33
366		2686	2 hf-ch	dust	144	30
370	St. Leonards-on-Sea	2693	2 do	dust	170	18
371		2701	2 ch	pek sou	190	27
372	Ookoowatte	2704	2 do	pek fans	200	22
373		2707	3 hf-ch	dust	285	16
387	Gallawatte	2749	4 ch	bro tea	340	16
390	S R in est. mark	2758	1 do	red leaf	100	11
396	Clunes	2776	7 do	pek sou	630	26
397		2779	3 hf-ch	dust	270	18
398		2782	6 ch	pek No. 2	540	30
399	Polatagama	2785	6 do	bro or pek	660	29
404		2800	2 do	dust	280	17
408	Inverness	2812	5 do	pek sou	450	34
409		2815	6 hf-ch	dust	510	21
410	O F in est. mark	2818	2 ch	bro pek	192	39
411		2821	2 do	pek	146	28
412		2824	3 do	pek sou	222	24
413		2827	1 do	dust	160	15
417	Weyungawatte	2839	1 do	bro tea	100	27
418		2842	1 hf-ch	dust	80	19
419	Allerton	2845	1 ch	congou	80	15
420		2848	2 do	dust	240	18
422	Yogama	2854	6 do	pek	540	30
427	Putupaula	2869	9 do	pek sou	630	28
428		2872	2 do	sou	120	15
429		2875	2 do	dust	280	18
432	St. Martin	2884	11 hf-ch	pek sou	440	28
433		2887	1 do	congou	40	0
434		2890	3 do	fans	180	21
437	Ewhurst	2899	4 ch	pek sou	324	26
438		2902	5 hf-ch	fans	390	19
443	Waitalawa	2917	12 do	pek sou	600	30
444		2920	4 do	dust	360	21
447	Penrhos	2929	21 boxes	br flo. or pek	420	70 bid
452		2944	4 hf-ch	fans	304	20
462	Patiagama	2974	5 do	bro pek	250	30
463		2977	5 ch	pek sou	450	24
465		2983	3 do	fans	315	19
466		2986	1 hf-ch	unast	55	28
469	Ouvahkellie	2995	5 ch	pek sou	450	37
470		2998	3 hf-ch	dust	240	20

Lot.		Box.	Pkgs.	Name.	lb.	c.
474	Patiagama	3010	6 ch	pek sou	480	27
	Queensland	3019	2 do	unast	180	17
481	Chesterford	3031	3 do	congou	270	21
482		3034	6 do	bro tea	570	24
489	Kosgama	3055	5 do	pek sou	375	24
490	W	3058	2 do	pek sou	174	30
491	M	3061	do			
			1 hf-ch	pek sou	181	25
492		3064	1 ch	dust	117	18
497	Hoyton	3079	4 do	dust	440	18
510	Cooroondoowatte	3118	4 hf-ch	pek fans	268	24
511	N B	3121	4 ch	bro tea	340	13
512		3124	5 do	souchong	375	21
517	Cullen	3139	6 hf ch	pek dust	504	19
518		3142	3 do	pek dust	264	19
519	B G	3145	6 do	bro pek	300	32
520		3148	7 do	pek	350	27
523	Dunnottar	3157	1 ch	sou	85	27
524		3160	1 do	pk fans	100	21
525		3163	2 do	br pek fans	260	25
526	Memorakande	3166	3 do	dust	240	18
528	Augusta	3172	1 do	dust No. 2	170	24
529		3175	2 do	sou	200	19
533	St. Heliers	3187	4 do	pek sou	360	30
538	Castlereagh	3202	5 hf-ch	fans	400	20
539	B D W G	3205	3 do	dust	270	21
540	B D W P	3208	3 ch	br pk No. 2	270	18
541		3211	3 do	pek No. 2	255	17
542		3214	1 do	pek sou No. 2	85	17
543		3217	1 hf-ch	dust	85	17
544		3220	5 ch	br pek No 2	475	18
545		3223	2 do	pek No. 2	170	17
546		3226	2 do	pek sou No. 2	240	16
547		3229	1 hf-ch	dust	85	18
552	Maratenne	3244	7 do	dust	560	20
553	C N N	3247	4 ch	pek sou	400	34
555		3253	2 do	bro tea	140	27
556		3256	6 hf-ch	dust	540	17
559	Ella Oya	3265	7 ch	bro pek	630	36
570	D	3298	7 hf-ch	bro or pek	385	29
571		3301	5 do	bro pek	275	28
572		3304	4 do	pek	220	23
573		3307	4 do	pek sou	200	20
574	Corfu	3310	10 do	bro pek	550	35
575		3313	8 do	or pek	350	35
576		3316	12 do	pek	600	33
577		3319	8 do	pek sou	360	32
578		3322	2 do	bro pek fans	120	22
582	Talgaswela	3334	4 do	dust	320	15
583	Ookeowatte	3337	4 ch	pek fans	520	52
587	Amblangoda	3349	5 do	dust	550	18 bid
588	Galkadua	3352	1 do	bro or pek	120	31
592		3364	1 do	fans	100	15
593		3367	1 do	congou	86	20
597	Fairlawn	3379	8 do	pek sou	600	31
598		3382	2 hf-ch	dust	170	20
599	F L in est. mark	3385	2 ch	bro mixed	200	16
600	U R	3388	4 do	bro tea No. 1	400	22
601		3391	3 do	bro tea No. 2	246	21
602	Massena	3394	4 hf-ch	bro or pek	200	53
603		3397	5 do	bro pek	250	42
604		3400	5 do	or pek	250	53
606		3406	7 do	pek sou	350	29
607		3409	6 do	bro pek fans	330	31
608		3412	4 do	fans	240	19
613	Maha Uva	3427	2 do	pek fans	140	30
614		3430	5 do	dust	425	20
617	Carfax	3439	5 ch	bro pek	550	34
623	Passara Group	3457	5 hf-ch	fans	375	18
633	Macaldeniya	3487	5 do	pek sou	250	27
634		3490	2 do	dust	169	21

[Mr. E. John.]

Lot.		Box	Pkgs.	Name.	lb.	c.
1	A A	560	2 ch	dust	20	18 bid
2	Agodawatte	563	6 hf-ch	bro pek	500	23 bid
3		566	4 do	pek	180	27
4	P P P	569	2 ch	bro pek	220	29
5		572	4 do	pek	371	30
6		575	5 do	pek sou	4 7	28
7		578	1 do	dust	120	18
11	Wendura	590	5 do	pek sou No 2	470	23
12		593	2 hf ch	dust	172	18
16	Harrisland	605	5 ch	pek sou No 2	470	26
17		608	2 hf ch	dust	170	18
22	Vincit	623	5 do	dust	425	17
23		626	5 do	red leaf	325	15
31	Natuwakella	659	1 ch	fans	120	25
36	Mount Clare	665	6 do	or pek	542	37
38		671	5 do	pek sou	425	30
40		677	1 do	dust	110	19
41		680	1 do	sou dust	95	16
42		683	1 do	fans	93	16

Lot.		Box.	Pkgs.	Name.	lb.	c.
55	Whyddon	722	2 ch	pek sou	190	32
56		725	2 do	fans	226	24
57		728	1 do	dust	118	15
61	Eila	740	2 hf-ch	dust	200	22
62	Ladbroke	743	3 ch	sou	270	25
63		746	2 hf-ch	dust	164	30
76	Syston	785	1 ch	dust	150	18
77		788	1 do	fans	120	18
81	G T	800	5 hf-ch	dust	475	26
83	Villa	806	7 ch	red leaf	560	16
84	K P	809	11 hf-ch	pek fans	678	18
85	Alplakande	812	8 ch	sou	672	29
90	Perth	827	9 do	pek sou	675	30
91		830	5 hf-ch	pek dust	375	19
92		833	1 ch	red leaf	82	14
97	Cumbowella	848	4 do	fans	369	12
98		851	2 do	dust	280	16 out
99	Doonevale	854	1 do	pek sou	80	
100		857	2 hf-ch	bro pek dust	200	19
104	Ankanda	869	5 hf-ch	dust	400	19
105	Y K	872	7 ch	sou	560	14
109	Clundon	884	13 hf-ch	bro or pek	650	47
110		887	12 do	or pek	540	45
113		896	10 do	bro pek fans	600	31
114		899	7 do	fans	420	29
115		902	1 do	dust	85	19
116	K T	905	1 hf-ch	bro pek	45	38
117		908	1 do	pek	70	31
118		911	1 do.	sou	95	31
121	KeenagahaElla	920	9 ch	pek	675	34
122		923	8 do	pek sou	600	30
123		926	8 do	sou	600	26
124		929	9 hf-ch	bro pek fans	585	21
136	Callander	965	6 do	pek sou	240	38
137		968	5 do	bro pek fans	350	32
145	G F R in estate mark	992	4 ch	pek sou	340	27
146		995	3 do	dust	390	19
147		998	2 do	fans	210	20
148	W H	1	1 hf-ch	bro pek	68	31
149		4	6 do	pek sou	288	31
150		7	4 do	dust	332	22
151		10	3 do	bro mix	192	14
152	Wewelmadde	13	2 ch	red leaf	200	14
156	Gangawatte	25	7 do	or pek	665	35
160		37	2 do	dust	260	19
161		40	3 do	fans	330	25
162		43	4 do	pek sou	360	28
165	Gallella	52	6 do	pek sou	480	30 bid
172	Rookwood	73	8 do	pek sou	576	27 bid
173		76	2 hf-ch	pek dust	176	25
177	Galloola	88	2 ch	dust	200	19
178		91	2 do	fans	200	32
187	Kanangama	118	3 do	congu	240	20
190	Brownlow	127	8 do	or pek	664	47
199	Gallavilla	154	6 hf ch	fans	380	13
200	Bellongalla	157	5 ch	bro or pek	400	34
210		187	15 hf ch	or pek	600	51
217	Perth	208	5 do	pek dust	375	20
222		223	1 do	sou	100	14
233		226	9 hf ch	bro pek fans	546	26
226	Kotuagedera	235	2 do	pek sou	180	26
227		238	2 hf ch	dust	180	18
228		241	2 do	bro pek fan	140	21
229	Chapelton	244	6 do	dust	540	20
230		247	6 ch	bro mix	480	24
231	H P	250	3 hf ch	pek	150	23
232		253	2 do	pek sou	90	22
233		256	1 do	pek dust	65	17
234		259	2 do	pek fans	100	14
239	Ohiya	274	5 do	dust	410	19

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
1	S F D	970	4 ch	con	412	24
2		973	5 hf ch	dust	450	17
3		976	1 ch	red leaf	1 9	17
4	Alutkelle	979	12 hf ch	bro pek	600	31
5		982	7 do	pek	350	25
6		985	8 do	sou	360	23
7		988	1 do	dust	80	20
11	Wallasmulle	1000	2 ch	mix	150	16
13	Wilpitiya	1006	6 ch	pek	570	26
14		1009	2 ch	pek sou	180	23
15		1012	2 do	dust	250	18
16		1015	1 do	fans	100	16
17		1018	2 do	red leaf	200	14
19	Tongultotum	1024	3 ch	pek No 1	255	28 bid
20		1027	4 do	pek No. 2	359	27
21		1030	7 do	pek sou	609	26
22		1033	40 boxes	bro or pek	200	53
26	Hurstpierpoint	1045	6 ch	bro pek	576	28
27		1048	4 do	pek	368	26
28		1051	4 do	pek sou	400	22
29		1054	1 do	dust	130	17
30		1057	1 do	con	90	18

Lot.		Box	Pkgs.	Name.	lb.	c.
34	Honiton	1069	3 ch	fans	360	16
35	S	1072	3 hf ch	dust	240	17
36		1075	6 do	bro tea	300	18
44	Batgodde B.	1099	1 ch	bro pek	112	39
45		1102	1 do	pek	96	36
46		1105	1 do	pek No. 2	88	34
47	A S W	1108	4 hf ch	unas	200	18
48		1111	2 do	fans	100	16
49	Hatdowa	1114	2 ch	bro or pek	200	33
53		1126	3 do	dust	420	17
54		1129	4 do	fans	400	22
55		1132	2 do	sou	140	22
58	A C B	1141	4 ch	pek sou	340	31
60	Siriniwesa	1147	4 ch	bro pek No. 2	400	34
63		1156	4 ch	unas	330	31
64		1159	5 do	bro or pek fan	525	26
65		1162	3 do	dust	435	18
66		1165	2 do	cou	168	18
69	Neboda	1174	7 ch	pek	630	29
70		1177	5 do	pek sou	400	27
71		1180	2 hf ch	dust	170	18
76	Neuchatel	1195	3 ch	dust	450	18
79	Mary Hill	1204	11 hf ch	pek sou	440	28
80		1207	2 do	dust	150	17
82	Oonankande	1213	8 ch	pek	680	34
84		1219	5 do	sou	350	27
85		1222	4 do	dust	280	19
86		1225	1 do	red leaf	65	15
89	Thia Shola Nilgri	1234	6 hf ch	pek sou	282	28
90		1237	8 do	fans	471	28
95	Blinkbonnie	1252	6 ch	pek sou	492	35
97	Rambodde	1258	14 hf-ch	pek	630	34
98		1261	7 do	pek sou	315	30
99		1264	2 do	sou	80	26
100		1267	1 do	dust	90	19
101		1270	1 do	dust	70	21
102		1273	1 do	bro pek fans	70	28
103	Ravenscraig	1276	4 hf ch	bro pek	220	40
106		1285	1 ch	pek sou	90	27
107		1288	3 hf ch	fans	240	18
108		1291	2 do	unas	86	13
111	Kurulugalla	1300	6 ch	pek sou	540	28
112	K G A, in estate mark	1303	2 ch	bro tea	180	16
113		1306	4 do	bro pek fans	520	18
114		1309	2 do	dust	280	18
118	Dryburg	1321	7 ch	pek sou	462	27
119		1324	5 hf-ch	fans unbulked	400	18
120	Maligatenne	1327	4 do	bro pek	402	16
121		1330	6 do	pek	518	16
122		1333	6 do	pek sou	491	15
123		1336	4 do	bro tea	361	14
124	P	1339	5 ch	unas	515	17
125		1342	1 do	dust	115	13
128	Beausejour	1351	5 ch	pek sou	375	26
129		1354	3 do	bro pek fans	300	23
130	I P	1357	7 boxes	pek dust	140	20
131	G B	1360	4 hf ch	bro tea	200	17
132		1363	12 do	dust	600	19
139	Depedene	1384	2 hf-ch	bro mix	110	14
140		1387	6 do	dust	480	18
146	Ratnatenne	1405	1 hf-ch	pek sou	49	23
151	Pindeni Oya	1420	2 ch	dust	290	18
155	Karangalla	1432	8 ch	pek sou	680	30
156		1435	1 hf-ch	dust	85	18
164	Nyanza	1459	3 ch	pek sou	255	26
165		1462	2 do	fans	200	21
69	Avisawella	1474	5 ch	fans	600	15
174	Hangranoya	1489	3 ch	pek sou	240	29
180	Oaklands	1507	4 hf ch	dust	280	19
181		1510	3 do	pek fans	180	15
182	A A	1513	1 hf ch	bro tea	50	13
183	Mousakande	1516	10 ch	bro or pek	520	33
184		1519	6 do	bro pek	540	33
188	Monte Christo	1531	8 ch	pek	680	33
189		1534	3 do	pek sou	240	27
194	Blackburn	1549	2 ch	sou	164	17
195		1552	2 do	bro tea	158	15
197	Auburn	1558	6 ch	pek	540	30
198		1561	4 do	pek sou	320	28
199		1564	1 do	sou	84	19
201	Oakham	1570	13 hf-ch	or pek	585	41 bid
203		1576	5 ch	pek sou	475	31
204		1579	2 hf ch	pek fans	160	22
211	P T N, in estate mark	1600	7 hf ch	bro pek	392	26
213		1606	2 do	fans	124	18
219	Waganila	1621	5 ch	or pek	500	64
220		1627	4 do	pek	400	48
221		1630	4 do	pek sou	360	42
222		1633	3 hf ch	pek fans	210	30
223		1636	2 do	dust	160	23
225	Galphele A	1642	4 ch	bro pek	400	35
226		1645	6 do	pek	540	33
227		1648	2 do	pek sou	161	30
228		1651	1 do	fans	150	23
230	do B	1657	3 ch	bro pek	300	34
232		1663	2 do	fans	260	20
233		1666	2 do	pek sou	200	28
236	Hanwella	1675	4 hf ch	pek sou	150	26
237	Galatota	1678	6 ch 1 hf-ch	bro pek	650	27
238		1681	1 ch	pek	100	23
239		1684	1 ch 1 hf-ch	pek sou	150	21
257	Florida	1738	4 ch	pek sou	330	22
258		1741	5 do	fans	430	18
259		1744	2 do	red leaf	172	13
260		1747	1 do	dust	134	17
264	Meddegodde	1759	10 hf-ch	s u	300	26
265		1762	2 do	fans	100	22
266		1765	2 do	dust	110	18
272	Rambodde	1783	3 hf ch	pek sou	135	27
273		1786	2 do	sou	80	25
274		1789	2 do	bro pek fans	140	27
275		1792	1 do	fans	70	21
278	Neboda	1801	4 ch	pek	360	29
279		1804	4 do	pek sou	320	27
280		1807	2 hf-ch	dust	170	18
285	Annandale	1822	5 hf-ch	bro pek	320	32
286	Wavena	1825	4 ch	pek	320	34
287		1828	7 do	pek sou	560	30
288		1831	3 hf-ch	dust	240	19
293	Salawe	1846	3 ch	dust	465	18
297	Paradise	1858	9 hf-ch	pek dust	630	19
299	P, in estate mark	1864	3 ch	bro mix	315	23
300	Agra Elbedde	1867	5 hf ch	or pek	250	54 bid
301		1870	6 do	bro or pek	330	54 bid
302		1873	5 do	pek	225	42 bid
303		1876	12 do	pek sou	480	40
304	X X	1879	5 hf ch	bro pek	250	36 bid
305		1882	5 do	pek sou	200	34
306		1885	2 do	dust	160	19
307		1888	11 do	bro pek	605	46 bid
308		1891	11 do	pek	495	34 bid
309		1894	5 do	pek sou	200	28 bid
319	K G	25	1 ch	con	80	out
324	B G	40	2 ch	pek	170	17
326	W, in estate mark	46	1 ch	bro pek	110	30
327		49	1 do	pek	105	26
328		52	2 do	pek sou	180	21
329		55	1 do	dust	140	15
330	Alfred	58	2 hf ch	bro pek	105	29
331		61	3 do	pek	87	22
332		64	1 do	pek sou	34	20
333	S O	67	2 ch	bro pek	182	23
334	C R G	70	3 ch	bro pek	300	23
335	V G	73	1 ch	pek	90	22

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, Sept. 7.

"Clan Sinclair."—BB London, 11 bags sold at 47s ; 2 bags sold at 41s.

"Inaba Maru."—OBEC, Delmar O, in estate mark, 1 barrel sold at 105s ; ditto 1, 2 casks and 1 barrel sold at 97s 6d ; ditto PB, 2 casks sold at 70s 6d ; ditto T, 1 barrel sold at 80s ; OBEC, Delmar, in estate mark, 1 barrel sold at 51s ; 1 bag sold at 80s ; OBEC, Mahaberiatenne OO, in estate mark, 2 barrels sold at 65s ; ditto 1, 1 barrel sold at 50s ; ditto PB, 1 barrel sold at 58s ; ditto T, 1 barrel sold at 38s.

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, Sept. 14.

"Menelaus."—Haldummulla F, 1 barrel sold at 104s ; ditto 1, 1 cask and 1 tierce sold at 104s ; ditto 2, 5 casks and 1 tierce sold at 93s 6d ; ditto S, 2 casks sold at 65s ; ditto P B, 1 tierce sold at 105s ; HMT in estate mark, 1 tierce sold at 49s ; Haldummulla, 1 bag sold at 85s ; Meeriabedde F, 1 barrel and 1 cask sold at 90s ; ditto 2, 1 barrel and 1 cask sold at 76s 6d ; Craig O, 1 cask sold at 106s ; ditto 1, 3 casks sold at 95s 6d ; ditto 2, 8 casks and 1 barrel sold at 72s ; ditto P, 1 tierce sold at 106s ; ditto T, 1 cask sold at 56s ; B MAK in estate mark, 10 bags sold at 38s.

"Inaba Maru."—Middlemarch, 1 bag sold at 25s,

CEYLON COCOA.

"Clan Sinclair."—AL OO in estate mark, 2 bags sold at 74s; AL in estate mark, 15 bags sold at 76s; 51 bags sold at 72s 6d.

"Borneo."—L in estate mark, S, 30 bags sold at 72s 6d; ditto A, 20 bags sold at 72s; ditto B, 10 bags sold at 75s.

"Kanagawa Maru."—DBEC in estate mark, Kondesalle Ceylon D, 7 bags sold at 85s 6d.

"Benlarig."—AA in estate mark, Estate Cocoa, 67 bags sold at 74s; D AA in estate mark, Estate Cocoa, 40 bags sold at 73s; E AA in estate mark, Estate Cocoa, 13 bags sold at 75s.

"Inaba Maru."—Middlemarch, 9 bags sold at 78s; 2 bags sold at 54s 6d.

"Adalia."—Dammeria Cocoa 1, 7 bags sold at 82s 6d; 3 bags sold at 68s 6d.

"Inaba Maru."—Palli, London 1, 108 bags sold at 99s; ditto 2, 14 bags sold at 77s 6d; ditto T, 3 bags sold at 70s; Patragalla, London 1, 28 bags sold at 93s 6d; ditto 2, 3 bags sold at 74s; ditto 3, 1 bag sold at 71s; 1 MM in estate mark, 25 bags sold at 73s; B MS in estate mark, 7 bags sold at 70s.

"Menelaus."—MAK in estate mark, Estate Cocoa, 74 bags sold at 73s; 1 MA in estate mark, Estate Cocoa, 93 bags sold at 73s.

"Adalia."—Bandarapola 1, 12 bags sold at 82s; ditto 2, 1 bag sold at 64s; ditto T, 1 bag sold at 50s.

"Menelaus."—Bandarapola 1, 6 bags sold at 83s; ditto T, 1 bag sold at 50s; Kepitigalla, 5 bags sold at 84s; 2 bags sold at 68s; 13 bags sold at 60s.

"Mazagon."—Lower Haloya, 8 bags sold at 79s 6d; 2 bags sold at 50s; Marakona 1, 40 bags sold at 90s; ditto 2, 10 bags sold at 91s; 9 bags sold at 74s 6d; Broken, 1 bag sold at 68s.

"Menelaus."—Normandy A, 31 bags sold at 92s 6d.

"Inaba Maru."—WSB J I, 5 bags sold at 66s 6d; ditto J II, 2 bags sold at 60s.

"Menelaus."—Warriapolla, 14 bags sold at 100s 6d; 25 bags sold at 96s 6d; 8 bags sold at 77s 6d; 2 bags sold at 66s 6d; 5 bags sold at 64s 6d; Suduganga, 9 bags sold at 100s; 4 bags sold at 88s; 8 bags sold at 77s; 1 bag sold at 67s; 2 bags sold at 68s; 2 bags sold at 69s; 2 bags sold at 51s.

CEYLON CARDAMOMS SALES IN LONDON.

"Menelaus."—Wattakelly No. 1, 5 cases sold at 2s 3d; ditto No. 2, 4 cases sold at 1s 6d; ditto No. 3, 1 case sold at 1s 3d; ditto Seed, 1 bag sold at 1s 4d.

"Kanagawa Maru."—K in estate mark, Ceylon Seeds, 4 cases sold at 2s 2d.

"Menelaus."—Wariagalla, Mysore A, 3 cases sold at 2s 5d; ditto B, 4 cases sold at 1s 8d; ditto C, 2 cases sold at 1s 2d; ditto D, 4 cases sold at 1s 4d.

"Shropshire."—Wariagalla, Mysore 3, 4 cases sold at 2s 5d; ditto C 3, 11 cases sold at 1s 5d; ditto D 3, 4 cases sold at 1s 3d.

"Workman."—Midlands O, 3 cases sold at 2s 10d; ditto 1, 6 cases sold at 2s; ditto 2, 1 case sold at 1s 2d; ditto B & S, 1 case sold at 1s 2d; 1 bag sold at 1s 6d; Elkadua O, 1 case sold at 2s 8d; ditto 1, 2 cases sold at 1s 10d; ditto 2, 1 case sold at 1s 2; ditto B & S, 1 case sold at 10d; 1 bag seed sold at 1s 3d.

"Menelaus."—Elkadua O, 1 case sold at 3s; ditto 1, 2 cases sold at 2s; 1 case sold at 1s 11d; ditto 2, 1 case sold at 1s 3d; ditto B & S, 1 case sold at 1s; Midlands O, 4 cases sold at 2s 9d; ditto 1, 2 cases sold at 2s 2d; 2 cases sold at 2s 3d; ditto 2, 1 case sold at 1s 3d; ditto B & S, 1 case sold at 1s; 1 case sold at 1s 8d.

"Antenor."—Midlands O, 3 cases sold at 2s 11d; ditto 1, 8 cases sold at 2s 3d; ditto 2, 2 cases sold at 1s 4d; ditto B & S, 1 case sold at 1s 4d; Seed, 1 case sold at 1s 10d.

"Collegian."—Midlands 2, 1 case sold at 1s 2d; ditto B & S, 1 case sold at 1s 7d; ditto O, 3 cases sold at 3s; ditto 1, 5 cases sold at 2s 3d; ditto 2, 1 case sold at 1s 2d; ditto B & S, 1 case sold at 1s; 1 case sold at 1s 7d; MM 1 case sold at 1s 4d.

"Orestes."—Tonacombe, Special 1, 2 cases sold at 3s.

"Menelaus."—OBC in estate mark, Dangkanda, 6 cases sold at 2s 8d.

No. 38 COLOMBO, OCTOBER 15, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

Messrs. Forbes & Walker.

[435,902 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
7	Villehena	3511	20 ch	bro pek	2000	42
8		3514	10 do	pek	1000	31
12	M O T O	3526	18 hf cb	bro pek	900	20 bid
23	Kincora	3559	13 ch	pek	1040	41
		3562	13 do	pek No. 2	910	38
26	Great Valley Ceylon in estate mark	3568	30 hf-cb	bro or pek	1650	62
27		3571	12 ch	or pek	1020	47
28		3574	28 do	pek	2380	39
29		3577	15 do	pek sou	1125	33
30		3580	11 do	sou	825	24
31	Walton	3583	52 ch	bro pek	5720	46
32		3586	41 do	or pek	3690	40
33		3589	28 do	pek	2700	33
36	Nillomally, O B E C, in est. mark	3598	23 ch	bro or pek	2300	44
		1	25 do	or pek	1900	38
38		4	18 do	pek	1360	35
39		7	19 do	pek sou	1444	
	O B K C, in est. mark, Summer Hill	16	24 ch	bro or pek	1440	78
43		19	24 do	bro pek	1536	58
44		22	28 do	or pek	2520	57
45	St Paul's	25	50 bf ch	bro pek	2600	59
46		28	75 do	pek	3675	44
48	Gurugoda	34	10 ch	bro mix	900	24
58	Puspone	64	25 ch	or pek	2375	37
59		67	28 do	bro pek	3136	36 bid
60		70	14 do	pek	1190	33
61	Deviturai	73	33 do	bro pek	3300	38
62		76	34 do	pek	3230	35
67	Maragalla	91	9 ch	bro pek	990	41
72	Maragalla	106	23 do			
			1 bf cb	bro pek	2565	41
73		109	15 ch	or pek	1413	41
74		112	10 do	pek	922	38
77	Labookellie	121	15 do	young hyson	1575	52
78		124	15 do	hyson No 1	1260	42
79		127	40 do	do No. 2	3920	37
80	L B K	130	9 ch	sou	900	14
82	Kitulgalla	136	9 ch	bro or pek	900	29
		139	22 do	bro pek	2090	30
		142	15 do	pek	135	2
88	Tymawr	154	13 hf cb	bro or pek	1265	57 bid
89		157	25 do	or pek	1250	50
90		160	37 do	pek	1665	41
91		163	25 do	pek sou	1125	36
92		166	10 do	dust	800	21
94	Monkswood	172	20 hf ch	bro pek	1200	75
95		175	26 do	or pek	1430	62
96		178	18 ch	pek	1710	51
98	Agra Oya	184	13 do	bro pek	1235	38
99		187	19 do	or pek	700	37
100		190	12 do	pek	1020	33
101	Ireby	193	25 bf-ch	bro pek	1375	63
102		196	10 ch	pek	850	46
107	P S P	211	28 do	sou	2240	12
108		214	7 do	fans	840	15
109	V, in estate mark	217	11 ch	pek sou	990	29
112	Yellangowry	226	21 do	bro pek	2100	36
113		229	23 do	or pek	2070	35
11		232	15 do	pek	1350	32
118	Quilon	244	20 ch	sou	1700	10
119		247	23 do	bro tea	2100	9
		250	15 do	dust	900	17
122	Tonacombe	256	20 ch	or pek	1800	48
123		259	45 box	bro or pek	900	59
124		262	17 ch	bro pek	1700	51
125		265	27 do	pek	2430	43
126		268	14 do	pek sou	1260	39
127	Glendon	271	15 do	or pek	1125	39
128		274	28 do	bro pek	2800	41
129		277	40 do	pek	3200	36
130		280	20 do	pek sou	1600	32
132	G	286	12 bf ch	dust	960	19
133	Chesterford	289	65 ch	bro pek	6175	38
134		292	64 do	pek	6080	36
135		295	30 do	pek sou	2350	30
136	Ardlaw and Wishford	298	18 ch	bro pek	15?4	51 bid
		301	24 hf ch	or pek	1056	48
138	Gallaheria	304	19 ch	bro pek	1710	38
139		307	15 do	pek	1125	36
141	Stamford Hill	313	16 hf-cb	bro or pek	896	70
142		316	16 do	or pek	720	61
143		319	17 do	bro pek	986	58
144		322	19 do	pek	1653	43
147	Udaveria	331	20 hf ch	bro mix	1100	26
148	Doranakande	334	8 ch	bro pek	800	36
150		340	12 do	pek sou	1080	29
152	Maligatenne	346	7 do	bro pek	700	32
162	O H I	376	29 ch	pek sou	2310	23
164	Lindupatna	382	13 do	bro or pek	1365	80
165		385	20 do	bro pek	2000	53
166		388	19 do	pek	1596	44
173	Killarney	409	25 hf cb	bro or pek	1375	59
174		412	25 ch	bro sou	2250	40
175	Seenagolla	415	15 hf ch	bro or pek	825	54
182	Morankande	436	20 do	bro or pek	1120	43
183		439	21 ch	or pek	1785	38
184		442	20 do	pek	1800	35
185		445	13 do	pek sou	1170	31
186	Ganaplla	448	9 ch	or pek	774	38
187		451	12 do	bro or pek	1080	37
188		454	17 do	bro pek	1530	31
189		457	38 do	pek	3040	1
192	Nonpariel	466	15 hf ch	bro pek	856	52
193		469	15 do	pek	765	46
194		472	17 do	pek sou	762	40
198	Polatagama	484	40 ch	bro pek	4000	44
199		487	13 do	or pek	1105	36
200		490	41 do	pek	3690	34
201		493	18 do	pek sou	1620	29
203	High Forest	499	55 ch	or pek No. 1	3025	8
204		502	26 do	or pek	1404	66
205		505	27 do	pek	1323	55
206	Weoya	508	12 ch	bro or pek	1200	34
207		511	18 do	bro pek fans	1800	28
208		514	39 do	or pek	3705	37
209		517	52 do	pek	4420	34
210		520	24 do	pek sou	1920	28
211		523	6 do	dust	900	19
212	Ganapalla	526	10 do	or pek	860	38
213		529	23 do	bro or pek	2070	36
214		532	23 do	bro pek	2070	31
215		535	45 do	pek	3600	31
216		538	10 do	pek sou	759	26
217		541	6 do	bro pek	720	19
221	Arapolakande	553	18 do	young hyson	1710	50
222		556	16 do	hyson	1360	41
223		559	8 do			
			1 hf-ch	hyson No. 2	852	37
229	Palmerston	577	16 do	bro or pek	832	80
230		580	14 ch	pek	1190	48
232	Woodend	586	30 do	bro or pek	3000	35
233		589	7 do	bro pek	700	32
234		592	29 do	pek	2610	34
235		595	13 do	pek sou	1040	29
237	Ketadola	601	9 do	bro pek	900	36
238		604	12 do	pek	1140	30
239		607	do	pek sou	665	28
243	Cooroondoowatte	619	10 do	or pek	836	
244	St. Helen	622	14 hf-ch	fans	770	1
245	E D P	625	10 do	dust	800	17
247	Halbarawa	631	17 do	bro pek	1700	36
248		634	15 do	pek	1350	30
255	Parslees	655	43 do	bro pek	4300	44
256		658	26 do	pek	2340	40
259	Hopton	667	25 do	bro or pek	2497	50
260		670	19 do	or pek	1897	48
261	Estaganga	673	50 do	pek sou	4520	10
262		676	52 do	bro pek fans	6240	18
263		679	63 do	bro tea	5670	12
264	Group	682	61 hf-ch	dust	5490	10 bid
267	G W	691	11 ch	pek sou	990	out
269	C L B K in est mark	697	16 do	bro pek	1600	40 bid
270		700	10 do	pek	950	40 bid
271		703	15 do	pek sou	1350	35
272	Kenmare	706	39 do	bro or pek	4363	49
273		709	40 do	bro or pek	4120	45 bid
273A			19 do	bro or pek	1950	47
274		712	18 do	pek	1692	40
275		715	19 do	pek sou	1558	38
276	Erlsmere	718	11 do	or pek	935	45
278		724	13 do	pek	975	
281	Ascot	733	16 do	bro pek	1360	35
282		736	15 do	bro pek	1350	35
283		739	11 do	pek	880	29

Lot.		Box.	Pkgs.	Name.	lb.	c.
285		745	12 ch	pek sou	960	27
286		748	24 hf-ch	bro pk fans	1440	26
288		754	13 ch	fans	1300	16 bid
290	Farnham	760	27 do	bro pek	2430	35
292		766	13 do	or pek	975	34
293		769	17 do	pek	1360	32
294		772	13 do	pek sou	1040	28
300	Mawaliganga-watte	790	41 do	bro pek	3690	37
301		793	28 do	pek sou	1960	30
304	K W	802	10 do	bro tea	1001	37
305		805	9 do	dust	1351	22
307	Arapolakande	811	42 do	bro pek	3780	39
308		814	30 do	pek	2400	34
316	Y	838	11 do	pek sou	1056	15 bid
317		841	11 do	red leaf	891	14
320	Middleton	850	20 hf-ch	br or pk	1120	77
321		853	51 ch	bro pek	4845	56
322		856	27 do	bro pek	2565	55 bid
323		859	50 do	pek	4250	46
324	Drayton	862	28 do	or pek	2660	55
325		865	48 do	pek	4080	42
326		868	18 do	pek sou	1530	37
328	Digdola	874	11 do	bro pek	990	45
329		877	9 do	pek	720	37
334	Geragama	892	22 do	bro pek	2185	33
335		895	12 do	pek	1080	30
336		898	9 do	pek sou	720	27
337		901	20 do	br pek	2000	33 bid
338		904	16 do	pek	1440	32
339		907	8 do	pek sou	720	28
340	Harrow	910	14 hf-ch	or pek	728	46 bid
341		913	18 do	bro or pek	1080	58
342		916	38 ch	pek	3610	40
343		919	12 do	pek sou	1080	35
345	Adisham	925	47 hf-ch	bro or pek	2585	55
346		928	26 do	or pek	1170	55
347		931	11 ch	bro pek	935	42
350	Knavesmire	940	44 do	bro pek	4400	31
351		943	28 do	pek	2380	30
352		946	17 do	pek A	1200	28
360	Ninfied	970	14 do	bro or pek	1400	36
361		973	8 do	bro pek	800	37
362		976	8 do	or pek	720	35
363		979	36 do	pek	2880	32
371	Talgaswela	1003	19 do	pek	1500	30
375	Erracht	1015	13 do	pek	1200	28 bid

[Mr. E. John.—117,460 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
4	G B	294	12 hf ch	fans	780	27
8	Westhall	304	11 ch	bro pek	1100	30
10	Elston	310	36 do	pek sou	3060	34
11	Nahavilla	313	33 do	or pek	3300	65
12		316	47 do	bro pek	4700	64
13		319	7 do	pekoe	700	50
14	Glassaugh	322	37 hf-ch	or pek	1924	69
15		325	28 do	bro or pek	1820	56 bid
16		328	27 ch	pekoe	2565	47
19	Eila	337	79 do	bro or pek	7505	32 bid
20		340	79 do	pek sou	5925	25 bid
21		343	14 hf ch	dust	1190	18 bid
22	Mocha	346	22 ch	bro or pek	2200	75
23		349	11 do	or pek	935	60
24		352	15 do	pekoe	1350	56
26	Kandaloya	358	41 hf-ch	bro pek	1845	43
27		361	29 do	or pek	1160	38
28		364	57 do	pekoe	2280	36
29	Poilakande	367	49 ch	bro pek	4900	35
30		370	28 do	pekoe	2510	33
32	Gonavy	376	31 hf ch	or pek	1395	45
34		382	31 do	pekoe	2325	38
35		385	8 ch	pekoe sou	840	30
46	Glasgow	418	69 do	bro or pek	3588	57
47		421	22 do	or pek	990	61
48		424	11 do	pekoe	880	46
49		427	9 do	pek sou	855	46
50	Agra Ouvah	430	27 hf ch	bro or pek	1674	71
51		433	31 ch	bro pek	3255	54
52		436	13 do	pekoe	1248	50
53	Rondura	439	25 do	bro pek	2500	35
54		442	17 do	or pek	1360	40
55		445	43 do	pekoe	3440	35
56		448	16 do	pek sou	1280	30
62	Ohiya	466	49 hf ch	bro pek	2940	52 bid
63		469	1 ch	pekoe	1824	41 bid
64		472	1 do	pek sou	1288	39
65	A F in estate mark	475	20 hf ch	dust	1600	20
67	Little Valley	481	10 ch	or pek	850	38
68		484	7 do	bro pek	735	46
69		487	20 do	pekoe	700	34
72	Cumbowella	496	20 do	bro or pek	2000	23 bid
73		499	20 do	bro pek	1800	25 bid
74		502	1 do	pekoe	1530	21 bid

Lot		Box.	Pkgs.	Name.	lb.	c.
75		505	1 ch	pek sou	1437	17 bid
77	S H in estate mark	511	15 do	pek sou	1350	35
78	Rookwood	514	39 hf-ch	flo br or pek	2262	60
79		517	14 do	or pek	728	49 bid
80		520	34 ch	or pek No. 1	3060	50
81		523	28 do	pekoe	2520	42

[Messrs. Somerville & Co.—183,236 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Melton	82	11 ch	bro pek	990	45
6	Labugama	91	46 hf ch	bro pek	2300	36
7		94	15 ch	pek	1425	32
9	W V Y	100	7 ch	pek	756	29
10	Polgahakande	103	30 ch	bro pek	2700	35
11		106	23 do	pek	1955	32
12		109	48 do	pek sou	3840	28
18	Neuchatel	127	31 ch	or pek	2635	36
19		130	26 do	bro or pek	2600	36
20		133	14 do	pek	1190	34
26	Oaklands	151	8 ch	pek	720	29
27	Koladeniya	154	10 do	bro pek	850	35
30	Ladysmith	166	20 do	bro pek	2000	32 bid
31		163	21 do	pek	16 8	32 bid
32	Mousa Eliya	169	8 ch	bro or pek	920	35
33		172	11 do	bro pek	1100	
34		175	10 do	or pek	900	37
35		178	16 do	pek	1440	33
39	Illukettia	190	12 ch	bro pek	1320	30
40		193	13 do	pek	1300	28
41		196	7 do	pek sou	700	26
44	Citrus	205	32 ch	bro pek	2880	30 bid
45		208	16 do	pek	1600	29 bid
48	Marigold	217	29 hf ch	bro or pek	1624	59
49		220	29 do	or pek No. 1	1450	57
50		223	23 do	or pek	1081	52
51		226	18 do	pek	900	49
52		229	24 do	pek sou	1152	46
55	Wewatenne	238	14 hf ch	bro pek	770	39
56		241	17 do	pek	850	33
57		244	26 do	pek sou	1300	30
58		247	11 do	dust	825	18
59	Glenesk	250	26 ch	bro pek	2340	36
61		256	12 do	pek sou	900	27
63	Fernby	262	29 ch	bro pek	2610	35
64		265	37 do	pek	2960	31
65		268	16 do	pek sou	1200	28
67		274	7 do	fans	875	18
68	Avisawella	277	16 ch	bro pek	1520	34
69		280	20 do	pek	1700	30
70		283	23 do	pek sou	1840	28
73	Hangranoya	292	6 ch	fans	720	21
75	Charlie Hill	298	27 hf ch	bro pek	1350	35
79	Jak Tree Hill	310	15 ch	bro pek	1362	43
85	Yona	328	13 ch	bro pek	1170	44
86		331	16 do	bro or pek	1552	34
87		334	22 do	pek	1672	35
88		337	28 do	pek sou	1960	32
89	Glenalla	340	13 ch	bro or pek	1300	37
90		343	18 do	pek No. 1	1530	35
91		346	13 do	pek No. 2	1040	31
98	Attabahena	367	18 hf-ch	bro pek	900	30
101	J M D M	376	10 ch	bro pek	1000	37
102		379	9 do	pek	855	34
106	Walla Valley	391	19 hf ch	bro or pek	1083	65
107		394	27 ch	bro pek	2430	46
108		397	17 do	pek	1445	40
109	Doragalla	400	18 ch	bro or pek	1710	51
110		403	20 do	bro pek	1700	47
111		406	29 do	pek	2320	36
112		409	11 do	pek sou	825	32
115	Havilland	418	12 ch	bro or pek	1200	38
116		421	14 do	or pek	1129	37 bid
117		424	27 do	pek	2160	33 bid
118		427	11 do	pek sou	880	22 bid
119	Henhurst	430	9 ch	or pek	765	38
120		433	9 do	bro or pek	810	36
121		436	19 do	pek	1520	32
122		439	9 do	sou	720	26
123		442	11 hf-ch	dust	770	18
124	S K	445	15 ch	bro pek	1500	38
125		448	8 do	pek	760	36
126		451	17 do	pek sou	1615	27 bid
127	Ravana	454	25 ch	bro pek	2625	37
128		457	20 do	pek	1700	36
129		460	18 do	pek sou	1440	30
130	E Eliya, in estate mark	463	16 hf ch	bro pek	800	40 bid
131		466	8 ch	pek sou	755	29 bid
133	California	472	9 ch	pek	855	28
149	Kelani	520	52 ch	bro pek	4680	39
150		523	18 do	bro or pek	1980	35
151		526	34 do	pek	2720	36

Lot.		Box.	Pkgs.	Name.	lb.	c.
157	Deniyaya	544	43 ch	bro pek	4300	44
158		547	23 do	pek	2300	36
159		550	17 do	pek sou	1700	33
160		553	7 do	sou	700	29
163	Cairn Hill	562	11 ch	cr pek	990	41
164		565	11 do	bro pek	1100	37
165		568	19 do	pek	1710	34 bid
166	Selvawette	571	9 ch	bro pek	900	28 bid
169	Tyspane	580	18 ch	bro or pek	1800	47
170		583	26 do	bro pek	2470	44
171		586	30 do	pek	2550	38
172	Tongultotum	589	17 ch	pek sou	1360	out
174		595	7 ch, 1 hf ch	red leaf	837	13 bid
175	Yorks	598	7 bags	mix	719	13 bid
176	A D L, in estate mark	601	15 ch	bro pek	1500	27
177		604	12 do	pek	1140	27
181	Gigranel	616	9 hf ch	dust	763	13
182	Lyndhurst	619	25 hf ch	bro or pek	1350	34
183		622	31 do	bro pek	1705	38
184		625	29 do	pek	1450	34

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	L N S, in est. mark	3493	1 hf ch	bro pek	40	30
2		3493	2 do	pek sou	169	25
3		3499	1 do	dust	51	16
4	D F D	3502	1 ch	pek	88	32
5	A B	3505	1 do	pek	83	35
6	Lower Dikoya	3508	6 ch	bro sou	597	15
9	Viletiena	3517	4 do	pek sou	360	28
10		3520	2 hf-ch	sou	100	26
11		3523	2 do	dust	160	19
13	M O T O	3529	11 do	bro or pek	550	20 bid
14		3532	12 do	pek	576	20 bid
15		35 5	13 do	pek sou	637	15 bid
16	Mahayaya	3538	3 ch	bro or pek	306	33
17		3541	4 do	bro pek	348	34
18		3544	7 do	pek	546	31
19		3547	6 do	pek sou	450	26
20		3550	2 do	sou	150	18
21	Kincora	3553	6 ch	bro or pek	570	62
22		3556	5 do	bro pek	400	50
25		3565	2 do	fans	210	38
34	Walton	3592	8 do	bro tea	650	32
35		3525	3 do	dust	320	18
40	Nilloomally, O B E C, in est. mark	10	7 hf ch	fans	490	21
41		13	2 do	dust	180	16
47	Gurugoda	31	7 ch	pek sou	560	28
49		37	4 do	dust	600	18
50	P	40	10 hf-ch	pek sou	450	25
51		43	5 do	fans	350	19
52		46	5 do	dust	400	20
53	M, in estate mark	49	10 do	bro pek fans	550	23
54		52	1 do	dust	80	18
55	D, in estate mark	55	3 hf-ch	sou	135	18
56		58	6 do	fans	330	18
57		61	2 do	dust	160	15
63	Kumaradola	79	4 ch	bro pek	440	37
64		82	3 do	or pek	270	36
65		85	4 do	pekoe	360	34
66		88	1 do	bro tea	89	30
68	Maragalla	94	7 ch	or pek	630	36
69		97	6 do	pek	540	34
70		100	1 do	bro tea	80	29
71		103	1 hf-ch	dust	74	18
75	Maragalla	115	3 ch	bro tea	248	29
76		118	2 hf ch	dust	150	18
81	L B K	133	4 ch	dust	400	16
85	Kitulgalla	145	3 do	pek sou	270	24
86		148	4 hf ch	dust	320	18
87		151	1 ch	bro mix	80	20
93	Tymawr	169	3 hf ch	fans	210	30
97	K W D	181	5 do	bro or pek fans	200	32
103	P S P	199	4 ch	or pek	400	15 bid
104		202	5 do	bro pek	525	15 bid
10		205	3 do	pek	270	14
106		208	4 do	pek sou	440	10
110	V, in estate mark	220	6 ch	dust	480	20
111	S P	223	7 do	sou	602	25
115	Yellangowry	235	5 do	sou	450	20
116		238	5 hf-ch	dust	400	17
117		241	3 do	fans	195	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
121	Nilambe	253	4 ch	unas	400	20
131	G	283	7 do	sou	560	28
140	Gallaheria	310	7 do	pek sou	560	30
145	Stamford Hill	325	6 hf-ch	pek sou	480	36
146		328	3 do	dust	255	20
149	Doranakande	337	5 ch	pek	475	31
151	Maligatenne	343	3 do	bro or pek	291	33
153		349	6 do	pek	600	29
154		352	3 do	pek sou	285	25
155		355	2 do	fans	228	18
156		358	2 do	dust	206	16
157		361	1 do	red leaf	130	11
158	Grace Land	364	12 hf ch	bro pek	660	30
159		367	6 do	pek	300	29
160		370	3 do	pek sou	150	27
161		373	1 do	dust	70	17
163	O H I	379	1 do	pek sou	53	21
167	Lindupatne	391	7 ch	pek sou	630	41
16		394	5 do	bro pek fans	650	36
169	A	397	2 do	pek	190	30
170		400	3 do	pek sou	210	24
171	C	403	3 do	bro mix No. 1	315	27
172		406	5 do	bro mix No. 2	450	30
176	Seenagolla	418	6 hf ch	or pek	300	44
177		421	7 do	pek	350	42
178		424	2 do	pek sou	92	40
179		427	2 do	unas	90	34
180		430	2 do	bro mix	112	27
181		433	1 do	dust	70	21
190	Ganapalla	460	8 ch	pek sou	600	26
191		463	1 do	dust	115	15
195	Non Pariel	475	6 hf-ch	bro pek fans	317	42
196		478	2 ch	bro pek dust	124	23
197	Polatagama	481	4 do	bro or pek	400	31
202		496	2 do	dust	280	16
218	Ganapalla	544	2 hf-ch	dust	172	17
219	P in est. mark	547	1 do	pek sou	41	29
220	G P	550	1 do	pek	60	29
224	Arapolakande	562	2 ch	twanky	224	18
225	A P K	665	4 do	young hyson	380	50
526		568	3 do	hyson	255	40
227		571	3 do, 1 hf-ch	hyson No. 2	367	33
228		574	1 ch	twanky	64	20
231	Palmerston	583	1 do	pek sou	80	37
236	Woedend	598	3 do	dust	420	19
240	Ketadola	610	2 do	sou	180	25
241		613	1 do	fans	105	24
242		616	1 do	bro mixed	100	27
246	E D P	268	9 do	sou	630	25
249	Halbarawa	637	7 ch, 1 hf ch	pek sou	610	28
250		640	1 do	sou	44	21
251		643	1 do	dust	75	15
252		646	1 do	red leaf	57	15
325	B B in est. mark	649	3 do	bro pek	180	18
253		652	1 ch	pek	82	24
257	Parsloes	661	6 do	pek sou	480	35
258		664	2 hf-ch	dust	180	22
265	G W	685	2 ch	bro pek	180	20
266		688	2 do	pek	190	27
268		694	5 do	red leaf	400	10
277	Erlsmere	721	11 hf-ch	bro or pek	660	49
279		727	4 ch	pek sou	300	34
280		730	1 hf-ch	dust	84	27
284	Ascot	742	7 ch	or pek	560	30
287		751	5 do	pek sou No. 2	475	26
289		757	4 do	dust	600	16
291	Farnham	763	6 hf-ch	bro or pek	372	34
295		775	3 ch	souchong	234	25
296		778	1 hf-ch	dust No. 1	85	16
297		781	1 do	dust No. 2	85	16
298		784	1 do	pek fans	62	18
299	Mawaligangawatte	787	7 ch	bro or pek	665	46
302		796	3 do	dust	330	20
303		799	2 do	fans	120	21
306	Arapolakande	808	4 do	bro or pek	440	33
309		811	6 do	pek sou	540	28
310		817	3 do	dust	345	19
311	L in est. mark	820	3 do	bro tea	231	14
312	C in est. mark	826	4 do	bro tea	308	15
313	A G	829	3 do	pek sou	282	20
314		832	1 do	bro tea	94	20
315		835	3 do	dust	339	17
318	Kabragalla	844	2 hf-ch	dust	170	20
319		847	6 do	bro tea	330	18
327	Drayton	871	2 do	sou	160	26
330	Dig lola	880	4 do	pek sou	280	34
331	Nuawella	883	7 ch, 1 hf-ch	pek sou	600	24
332	Mosville	886	6 ch	br pek fans	600	16
333	B in est. mark	889	6 do	pek sou	516	25
344	Harrow	922	2 hf-ch	dust	170	20
353	Ragalla	949	5 do	fans	375	24
354		952	5 do	dust	450	19
355	Rajawatte	955	3 hf-ch	dust	240	19

Lot.		Box.	Pkgs.	Name.	lb.	c.
356	B	958	1 hf-ch	dust	50	17
357		961	5 ch	dust	400	16
358		964	1 do	br pek	105	23
359		967	1 do	pek	95	22
364	Ninfied	982	7 do	pek sou	560	28
365		985	7 do	sou	525	25
366		988	2 do	fans	240	20
367		991	1 do	fans	95	20
368	T in est. mark	994	2 do 1 hf-ch	unast	251	out
370	A F and R W	1000	7 do	sou	697	25
372	R	1006	3 ch	bro pek	258	31
373		1009	2 do	pek	120	30
374		1012	1 do	pek sou	56	33
376	Rattawatte	1018	6 do	pek sou	540	28

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	G B	283	3 ch	bro pek	300	34
2		286	5 do	pekoe	400	31
3		289	6 hf ch	dust	510	21
5		295	3 do	bro mix	240	12
6	M G	298	9 hf ch	fans	684	31
7	H S in estate mark	301	5 ch	bro mix	500	14
9	Westhall	307	4 do	pek	320	28
17	Glassaugh	331	7 do	pek sou	636	41
18		334	4 hf ch	dust	360	26
25	Mocha	355	9 do	fans	630	32
31	Poilakande	373	8 do	dust	655	18
33	Gonavy	379	13 do	bro pek	650	55
39	Mahagalatenne	397	5 hf ch	pekoe	250	26
40		400	2 do	pek sou	100	20
41		403	1 do	dust	60	15
42		406	2 do	bro or pek	100	16
43		409	2 do	bro pek	100	30
44		412	1 do	fans	50	14
45	S D J	415	3 ch	bro or pek	300	39
57	Rondura	451	3 do	dust	360	22
58	F S	454	5 do	sou	500	39
59	Ullandapitiya	457	11 hf ch	bro pek	550	33
60	Galloola	460	1 ch	pek sou	70	35
61		463	1 do	fans	90	37
66	R W	478	3 do 1 hf-ch	or pek	343	25 bid
70	Little Valley	490	2 do	dust	160	18
71	The Farm	493	4 ch	dust	300	19
76	Cumbowella	508	4 ch	fans	369	12 bid

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
1	A P	76	3 ch	red leaf	270	14
2	Melton	79	9 hf ch	bro or pek	495	55 bid
4		85	8 ch	pek	680	38
5	Labugama	88	9 hf ch	bro or pek	540	25
8		97	6 ch	pek sou	510	26
13	Polgahakande	112	4 ch	dust	500	18
14	D B R	115	1 ch	bro pek	87	30
15		118	1 do	pek	88	29
16		121	1 hf ch	pek sou	66	25
17		124	1 ch	dust	96	18
21	Neuchatel	136	6 ch	pek sou	480	28
22		139	1 do	dust	160	17
23	Oaklands	142	6 ch	bro or pek	570	31
24		145	4 do	or pek	360	30
25		148	4 do	bro pek	400	28
28	Koladen ya	157	7 ch	pek sou	595	23
29		160	1 do	bro tea	100	19
36	Mousa Eliya	181	1 ch	bro pek fans	135	20
37		184	1 do	pek sou	100	24
38		187	2 do	dust	340	19
42	Illukettia	199	1 ch	sou	80	18
43		202	1 do	bro mix	80	10
46	Citrus	211	4 ch	pek sou	400	22
47		214	2 do	dust	320	16
53	Morigold	232	6 hf ch	bro pek fans	408	40
54		235	5 do	pek dust	95	36
60	Glenesk	253	8 ch	pek	640	29
62		259	4 do	bro tea	440	21
66	Ferriby	271	1 ch	sou	76	25
71	Hangranoya	286	3 ch	sou	210	24
72		289	2 do	red fans	210	23
74		295	3 do	bro tea	210	20
76	Charlie Hill	301	11 hf-ch	pek	550	30
77		304	1 do	pek sou	50	25
78		307	2 do	bro pek fans	140	19
80	Jak Tree Hill	313	6 ch	pek	486	32
81		316	7 do	pek sou	496	32
82		319	1 do	fans	100	23
83		322	1 do	sou	65	25
84		325	1 do	bro or pek	97	51
92	Glenalla	349	7 do	pek sou	560	26
93		352	1 do	dust	150	17
94		355	1 ch	fans	105	15
95		358	2 do	red leaf	170	12
97	D B	364	3 ch	pek	249	22
99	Attabahena	370	12 hf ch	pek	576	29
100		373	14 do	pek sou	672	23
103	J M D M	383	3 ch	pek No. 2	270	29
104		385	2 do	pek sou	255	25
105		388	4 do	fans	380	20
113	Doragalla	412	7 hf ch	or pek fans	455	22
114		415	3 ch	bro mix	330	16
132	California	469	6 ch	bro pek	570	30
134		475	7 do	pek sou	665	22
135	W	478	5 ch	red leaf	425	12
136	Sangaly Toppe	481	1 hf ch	pek dust	88	16
137		484	1 ch	red leaf	84	14
138	Maplecroft	487	4 hf-ch	bro or pek	200	33
139		490	7 do	or pek	315	33
140		493	5 do	pek	225	29
141		496	5 do	pek sou	225	25
142		499	2 do	fans	120	20
143	A A	502	3 hf-ch	bro or pek	165	17
144		505	1 do	or pek	50	21
145		508	1 do	pek	50	18
146		511	1 do	pek sou	45	16
147		514	1 do	unas	45	16
148		517	1 hf ch	bro tea	55	11
152	Kelani	529	9 ch	pek sou	675	28
153	Kahatagala	532	5 ch	bro pek	450	37
154		535	1 do	bro or pek	110	32
155		538	3 do	pek	270	33
156		541	1 do	pek sou	75	23
161	Deriyaya	556	4 ch	dust	640	17
162		559	3 do	bro pek fans	330	22
167	Selvawatte	574	3 ch	pek	285	28
168		577	1 do	fans	70	16
173	Tongultotum	592	4 ch 1 hf ch	red leaf	350	11 bid
178	A D L, in estate mark	607	6 ch	pek sou	570	14 bid
179		610	2 do	bro mix	180	12 bid
180		613	1 do	dust	140	14 bid
185	Lyndhurst	628	11 hf ch	pek sou	440	29
186		631	7 do	fans	304	25
187		634	3 do	dust	255	17

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Sept. 21.

"Clan Sinclair."—Gowrakellie F, 1 barrel sold at 118s; ditto 2, 1 cask sold at 116s; 8 casks sold at 105s; ditto S, 1 cask and 1 barrel sold at 69s; ditto PB, 1 tierce sold at 120s; GKE T in estate mark, 1 barrel sold at 54s; GKE 2, 1 cask sold at 63s; ditto PB, 1 barrel sold at 50s.

"Menelaus."—GKE 2, 5 casks sold at 98s; ditto S, 3 casks sold at 72s 6d; NB T in estate mark, 1 cask sold at 55s; NB 1 barrel sold at 56s.

"Collegian."—Kahagalla F, 2 casks sold at 98s; ditto PB, 1 tierce sold at 105s; KG T in estate mark, 1 barrel sold at 49s; KG P in estate mark, 1 barrel sold at 43s; KG, 1 barrel sold at 45s; Kahagalla, 1 bag sold at 73s; PB Kahagalla, 1 cask sold at 105s; T ditto, 1 cask sold at 52s; G S R in estate mark, 2 casks sold at 47s 6d; Roehampton, 2 bags sold at 72s 6d; Size 1 Alnwick, 1 tierce sold at 104s; Size 2, 6 casks sold at 91s; Size 3, 2 casks sold at 66s; PB, 1 cask sold at 91s; T, 1 barrel sold at 46s; Alnwick Size 1, 2 bags sold at 68s; Size 2, 5 casks sold at 76s; Size 3, 1 cask sold at 49s; Sarnia, 1 cask sold at 86s; 1 cask and 1 barrel sold at 75s 6d; PB, 1 tierce sold at 76s; T, 1 cask and 1 barrel sold at 44s; Sarnia, 1 bag sold at 65s.

"Clan Sutherland."—Standard Co., St. Leonards, 3 casks and 1 tierce sold at 91s; S, 4 casks sold at 70s 6d; PB, 1 barrel sold at 91s; St. L T in estate mark, 1 barrel sold at 47s.

"Collegian."—No. 3, 1 barrel sold at 51s; T, 1 barrel sold at 43s; Pingarawa, 1 bag sold at 65s.

"Kamakura Maru."—APR in estate mark, 35 bags sold at 62s.

"Shropshire."—Gonamotava A, 1 cask sold at 106s; ditto PB, 1 cask and 1 barrel sold at 102s; GMT T in estate mark, 1 cask sold at 50s; Gonamotava, 2 bags sold at 79s 6d.

"Kamakura Maru."—Size 1, Kitulagalla, 1 cask sold at 104s; Size 2 ditto, 4 casks and 1 barrel sold at 82s 6d; Size 3 ditto, 1 cask sold at 52s 6d; PB ditto, 1 tierce sold at 80s; T ditto, 1 tierce sold at 47s; Size 2 ditto, 1 cask sold at 47s; Size 3, 1 tierce sold at 36s; T ditto, 1 tierce sold at 31s.

CEYLON COCOA SALES IN LONDON.

"Mazagon."—Palli, London F, 66 bags sold at 98s; ditto 2, 14 bags sold at 77s.

"Gannet."—MAF, 20 bags sold at 82s.

"Clan Macpherson."—SS London, 2 bags sold at 62s.

"Kamakura Maru."—OO London, 4 bags sold at 69s; I ditto, 1 bag sold at 64s.

"Shropshire."—OBEC in estate mark, Kondesalle, Ceylon O, 83 bags sold at 92s; ditto II, 3 bags sold at 73s 6d; ditto No. 1, 22 bags sold at 75s; OBEC in estate mark, Kondesalle Ceylon O, 12 bags sold at 94s 6d; OEC F in estate mark, Mahaberia, Ceylon O, 12 bags sold at 97s; ditto No. 1, 10 bags sold at 86s 6d; OEC C in estate mark, Mahaberia, Ceylon O, 16 bags sold at 97s 6d; ditto No. 1, 2 bags sold at 76s 6d.

"Jumna."—Udapolla A, 66 bags sold at 86s; ditto B, 21 bags sold at 74s; ditto C, 8 bags sold at 59s 6d; ditto G, 15 bags sold at 69s 6d; ditto Pieces, 1 bag sold at 69s.

"Adalia."—Beredewelle COC Ex. No. 1, 18 bags sold at 95s 6d; ditto B, 1 bag sold at 37s; ditto T, 2 bags sold at 69s.

"Austral."—Beredewelle COC Ex. No. 1, 19 bags sold at 96s 6d; 2 bags sold at 70s; ditto 1, 3 bags sold at 79s; ditto T, 2 bags sold at 60s; ditto B, 3 bags sold at 55s.

"Kamakura Maru."—Hylton OO, 13 bags sold at 85s 6d; ditto O, 2 bags sold at 66s 6d; ditto Brown, 2 bags sold at 40s; ditto Black, 3 bags sold at 40s.

"Clan Alpine."—Mousava AA, 24 bags sold at 92s 6d; A, 4 bags sold at 81s; B, 5 bags sold at 45s; C, 3 bags sold at 67s; Rockhill AA, 39 bags sold at 91s; 10 bags sold at 76s 6d; A, 4 bags sold at 71s; B, 13 bags sold at 45s; C, 6 bags sold at 67s; 2 bags sold at 60s.

"Menelaus."—Ross 1, 12 bags sold at 85s 6d; 2, 4 bags sold at 55s 6d; Brown, 1 bag sold at 60s; 3, 2 bags sold at 40s.

"Mazagon."—Yattawatta 2, 6 bags sold at 66s.

No. 39 COLOMBO, OCTOBER 22, 1900. { PRICE :—12½ cents each 3 copies, 30 cents ; 6 coppies ½ rnpee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[13,970 lb.]

Lot.		Box.	Pkg	Name.	lb.	c.
	Bogahagoda-watte	41	14 ch	bro pek	1400	31 hid
3		44	8 do	pek	760	29
5	Battalgalla	50	36 do	or pek	3420	45 hid
6		53	17 do	pek	1530	39
7		56	10 do	pek sou	800	35
8	Hornsey	59	24 do	or pek	2280	42 bid
9		62	17 do	pek	1530	38 bid

Messrs. Forbes & Walker

[493,960 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Sirikandura	1042	9 ch	bro pek	866	38
14	Mansfield	1060	47 hf-ch	bro pek	2820	48 bid
15		1063	24 ch	pek	2160	69
16		1066	11 do	pek sou	935	35
17	Thedden	1069	21 ch	bro pek	2100	35 bid
18		1072	11 do	pek	990	37
21	Kosgalla	1081	23 hf ch	hro pek	1150	29
22		1084	16 do	pek	720	28
23		1087	20 do	unas	1000	out
26	Lyegrove	1096	18 ch	bro pek	1890	44
27		1099	11 do	pek	1045	40
28		1102	10 do	pek sou	900	36
30	Glengariffe	1108	22 hf ch	bro or pek	1100	47
31		1111	16 do	or pek	704	37
3		1114	9 ch	pek	810	36
		1117	10 do	pek sou	780	34
35	Pansalatenne	1123	52 ch	bro pek	4940	39 bid
3		1126	28 do	pek	2240	37
		1129	15 do	pek sou	1200	31
42	New Peacock	1144	13 hf ch	pek fans	975	26
43	Pendle	1147	13 ch	bro pek	1300	50
44		1150	12 do	pek	1080	39
49	Great Valley Ceylon in estate mark	1165	22 hf ch	bro or pek	1210	59
50		1168	9 ch	or pek	765	47
51		1171	29 do	pek	2465	39
52		1174	14 hf ch	pek sou	1050	36
53	Ardlaw and Wishford	1177	18 hf-ch	bro or pek	954	6
54		1180	14 ch	bro pek	1360	46
55		1183	17 do	pek	1343	41
56	S W	1186	6 ch	fans	708	31
57	Queensland	1189	8 ch	bro pek	720	60 bid
58		1192	8 do	or pek	720	47
59		1195	11 do	pek	935	43
63	Theydon Bois	1207	9 ch	or pek	765	45
64		1210	21 do	pek	1680	35
69	M'Golla	1225	11 hf-ch	dust	880	17
70	Yogama	1228	20 ch	bro pek	2000	38
71		1231	8 do	pek No. 1	720	30
73		1237	20 do	pek sou	1600	26
74	Harrington	1240	23 hf ch	bro or pek	1100	76
75		1243	24 ch	or pek	2160	47 bid
76		1246	27 do	pek	2430	38 bid
80	Detangalla	1258	20 hf ch	or pek	1000	45 hid
81		1261	30 do	pek	1500	39 bid
82	O B E C, in est. mark, Forest Creek	1264	23 ch	bro or pek	2300	61
83		1267	29 do	bro pek	2900	49
84		1270	12 do	or pek	1080	47
85		1273	16 do	pek No. 1	1440	40
86		1276	17 do	pek No. 2	1530	39
87	High Forest	1279	57 hf ch	or pek No I	3192	71 bid
88		1282	35 do	or pek	1890	63
89		1285	26 do	pek	1300	55
0	Gampaha	1288	31 ch	bro or pek	3410	45
91		1291	36 do	or pek	3420	50
92		1294	42 do	pekoe	3570	45
93		1297	27 do	pek sou	2430	40
95	Kirklees	1303	13 hf ch	bro or pek	780	48
96		1306	27 ch	or pek	2700	45
97	Battawatte	1309	23 ch	bro or pek	2530	43
98		1312	26 do	pek	2340	40
99		1315	12 do	pck sou	960	36
101	Hayes	1321	13 do	bro or pek	1300	62
102		1324	12 ch	bro pek	1200	40
103		1327	14 do	or pek	1190	38
104		1330	60 do	pek	4800	33
105		1333	23 do	pek sou	1955	28
106		1336	6 do	dust	780	18
107	Pallegodde	1339	9 ch	bro or pek	900	32
108		1342	23 do	bro pek	2300	46
109		1345	16 do	or pek	1360	37
110		1348	14 do	pek	1120	35
111		1351	14 do	pek sou	1260	33
112	Hayes	1354	71 ch	pek	6035	32
113	Kirklees	1357	33 do	pek	3135	39
114		1360	20 do	pek sou	1600	37
115	Erracht	1363	21 ch	bro or pek	1890	32
116		1366	10 do	or pek	800	38
119		1375	41 do	pek	3280	28
120		1378	11 do	pek sou	880	24
121		1381	11 do	bro pek fans	1100	27
123	Dammeria	1387	6 ch	bro or pek	720	39
124		1390	30 do	or pek	3000	40
125		1393	30 do	bro pek	3300	42
126		1396	31 do	pek	2790	37
127		1399	16 do	pek sou	1440	34
128		1402	10 hf-ch	bro pek fans	800	26
130	Clunes	1408	10 ch	bro or pek	1100	29 bid
131		1411	18 do	bro pek	1710	34
132		1414	34 do	pek	3060	32
133		1417	15 do	pek sou	1350	26
135	Killarney	1423	12 ch	or pek	1020	50
136		1426	10 do	pek	850	40
137	Ganapalla	1429	25 ch	or pek	2150	37
138		1432	42 do	bro or pek	3780	31
139		1435	45 do	pek	3600	31
140		1438	15 do	pek sou	1125	26
141		1441	10 do	bro pek fans	1200	22 bid
143	M O I O	1447	18 hf-ch	bro pek	897	15 bid
145	Mousakelle	1456	18 ch	bro or pek	1710	41 bid
147		1459	14 do	or pek	1260	38
150	Baloogama	1468	20 ch	bro tea	1820	11 bid
151	Patiagama	1471	9 ch	sou	810	16 bid
153	E D P	1477	10 ch	sou	700	21
154		1480	10 hf ch	dust	750	18
159	Dunbar	1495	15 do	bro or pek	720	71 bid
160		1498	33 do	or pek	1551	55
161		1501	26 ch	pek	1950	41 b
166	Freds Ruhe	1516	40 do	bro pek	4400	36
167		1519	37 do	pek	3700	34
168		1522	22 do	pek sou	2200	27
172	Pannawatte	1534	26 ch	bro pek	2600	32
174		1540	14 do	pek	1260	32
175		1543	13 d0	pek sou	1040	28
181	Vogan	1561	12 ch	bro or pek	1380	30 bid
182		1564	54 do	or pek	5400	36 bid
183		1567	88 do	pek	7920	32
184		1570	25 do	pek sou	2000	29
185		1573	11 hf ch	dust	880	19
186	Tambiligalla	1576	42 ch	bro or pek	4200	38
187		1579	32 do	pek	2880	36
192	K P W	1594	34 hf ch	hro or pek	2040	33 bid
193		1597	35 do	or pek	1750	35
194		1600	37 do	pek	2035	31
195		1603	17 do	pek sou	850	29
197	H G M	1609	12 hf ch	hro or pek	720	49
198		1612	13 ch	bro pek	1300	38
199		1615	18 do	pek	1620	36
200		1616	10 do	pek sou	800	34
201		1621	7 do	bro pek fans	700	32
202	Deaculla	1624	49 hf ch	bro pek	2695	49
203		1627	59 ch	pek	4130	37 bid
204		1630	17 do	pek sou	1190	33 bid
205	Gonapatiya	1633	29 hf ch	bro pek	1624	[illegible]3 bid
206		1636	35 do	or pek	1750	[illegible]6
207		1639	45 do	pek	2295	[illegible]3
208		1642	25 do	pek sou	1250	[illegible]
209	Cotswold	1645	9 ch	bro or pek	855	[illegible]
210		1648	14 do	pek	1190	[illegible]
217	Ascot	1669	23 ch	bro pek	2070	36
223		1687	13 do	fans	1300	18
224	Rowley	1690	26 hf ch	bro pek	1300	42
225		1693	24 do	pek	1200	37
226	Old Medegama	1696	14 do	bro or pek	1050	
227		1699	13 do	or pek	845	
228		1702	21 ch	pek	1680	
229		1705	10 do	pek sou	700	33
233	Elfindale	1717	15 do	fans	1500	25
234	Ingrogalla	1720	18 do	bro pek	1800	44
235		1723	19 do	pek	1615	36 bid

Lot.		Box.	Pkgs.		Name.	lb.	c.
236	D M V	1726	12	ch	bro pek	1080	30
237		1729	17	do	pek	1190	27
243	Glencorse	1747	16	do	or pek	1360	38 bid
244		1750	12	do	bro pek	1020	38 bid
245		1753	9	do	pek	900	35 bid
246		1756	32	do	pek sou	2560	32
250	Clencorse	1768	14	do	or pek	1190	40
253		1777	17	do	pek sou	1360	33
255	Devonford	1783	23	hf-ch	bro or pek	1650	62 bid
256		1786	14	ch	or pek	1250	53
257		1789	20	do	pek	1700	46
262	Galkande	1805	13	do	bro pek	1300	37
266	Grange Garden	1816	25	do	bro or pek	2500	46
267		1819	15	do	pek	1500	36
269	Walpita	1825	14	do	or pek	1400	38
270		1828	10	do	bro pek	1000	34
271		1831	19	do	pek	1900	34
272		1834	13	do	pek sou	1040	30
275	H F	1843	15	hf-ch	bro pek	750	42 bid
277	A and W	1849	20	ch	pek sou	1800	out
278	Dunnottar	1852	7	do	bro or pek	700	72
279		1855	8	do	bro pek	800	51
281	Koya	1861	21	do	pek sou	1890	23 bid
282	Irex	1864	43	do	bro pek	3870	35
283		1867	19	do	pek	1520	34
284		1870	10	do	pek sou	800	29
286	Raglan	1876	8	do			
			1	hf-ch	pek	760	24 bid
287	P in est mark	1879	19	ch	bro or pek	1900	55
288		1882	10	do	pek	800	42 bid
289		1885	16	do	pek sou	1280	38
291	Weyungawatte	1891	17	do	bro pek	1700	38
292		1894	19	do	pek	1710	35
293		1897	20	do	pek sou	1600	32
297	Dewalakande	1909	12	do	bro tea	792	22
301	Tillyrie	1921	15	do	bro pek	1500	51
302		1924	14	do	pek	1190	41
303		1927	14	do	pek sou	1120	36
304	Beaumont	1930	22	do	bro pek	2200	33 bid
304		1933	42	do	or pek	3780	33
308	Castlereagh	1942	13	do	bro pek	1235	44
309		1945	10	do	or pek	850	39
310		1948	12	do	pek	960	37
313	Monkswood	1957	21	hf-ch	bro pek	1260	76
314		1960	21	do	or pek	1430	69
315		1963	22	ch	pek	2090	55
316		1966	24	do	pek sou	2040	46
317		1969	23	hf ch	fans	1380	37
318		1972	10	do	dust	750	29
319	Anningkande	1975	24	ch	bro pek	2400	37
320		1978	20	do	pek	1900	34
321	St. Leonards on Sea	1981	28	do	bro pek	2800	25 bid
322		1984	7	do	bro or pek	700	26 bid
327	Middleton	1999	21	do	bro pek	2280	56
328		2002	24	do	pek	2040	47
329	Knavesmire	2005	15	hf-cb	or pek	750	34
330		2008	23	cb	bro pek	2300	31 bid
331		2011	18	do	pek	1530	31
332		2014	12	do	pek sou	840	26
334		2020	11	do	pek	825	30
335	Palmerston	2023	13	hf-ch	bro or pek	715	72
336		2026	13	do	bro pek	715	50
337		2029	10	do	pek	900	46
339	Kelvin	2035	14	cb	bro mixed	1190	14
341	Stafford	2041	18	hf-ch	bro or pek	1170	75
342		2044	10	ch	or pek	950	61
343		2047	11	do	pek	935	57
346	Matale	2056	59	hf-ch	bro pek	3245	37 bid
347		2059	25	do	pek	2125	37
348		2062	16	do	pek sou	1360	33
351	Igalkande	2071	29	do	pek	2465	28
352	D V	2074	8	do	dust	960	18
353	Yellangowry	2077	17	do	or pek	1530	32
354		2080	12	do	bro pek	1200	29 bid
355		2083	12	do	pek	1080	28 bid
356		2086	16	do	pek sou	1440	24 bid
357	Bloompark	2089	10	do	bro pek	1000	35
358		2092	12	do	br pk No. 2	1200	20 bid
359		2095	12	do	pek	1140	26
360		2098	9	do	pek sou	900	23
363	Avoca	2107	16	do	bro or pek	1680	65
364		2110	28	do	bro pek	2800	52
365		2113	27	do	pek	2160	40
370	Clarendon	2128	12	do	pek	1140	47
371		2131	7	do	pek sou	700	41
377	Talgaswela	2149	28	do	or pek	2352	37
378		2152	41	do	pek	3280	33
379		2155	20	do	pek sou	1500	27
381	Maha Uva	2161	22	hf-ch	bro or pek	1320	42
382		2164	19	do	or pek	1064	50
383		2167	17	ch	pek	1530	40
384		2170	10	do	pek sou	800	35
388	Polatagama	2182	34	do	bro pek	3400	42
389		2185	11	do	or pek	990	37
390		2188	46	do	pek	4140	34
391		2191	21	do	pek sou	1890	27

Lot.		Box.	Pkgs.		Name.	lb.	c.
393	P	2197	9	ch	bro mixed	855	15
394	Ruanwella	2200	22	do	or pek	1870	36
395		2203	9	do	bro pek	900	[illegible] bid
396		2206	30	do	pek	2700	[illegible]
397		2209	11	do	pek sou	900	27
399	Passara Group	2215	17	do	or pek	1530	40 bid
400		2218	28	do	bro or pek	2800	45
401		2221	23	do	pek	2070	38 bid
402		2224	14	do	pek sou	1260	35
404	Bandaraeliya	2230	114	hf-ch	or pek	5244	49
405		2233	113	do	bro pek	7448	51
406		2236	62	do	pek	2790	41
407		2239	50	do	pek sou	2250	37 bid
408		2242	25	do	fans	1700	36
410	L G F in est. mark	2248	11	ch			
			1	hf-ch	sou	934	15 bid

[Messrs. Somerville & Co.—267,677 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Welgampola	637	19	bf ch	bro pek	1064	33 bid
3		643	14	do	pek sou	700	25 bid
5	Horagoda	649	10	ch	bro or pek	1000	35 bid
6		652	10	do	or pek	900	35
7		655	19	do	pek	1805	32
8		658	9	do	pek sou	810	30
12	Primrose	670	9	do	pek	720	34 bid
13		673	10	do	pek sou	800	29
21	Hanwella	697	15	hf ch	bro pek	825	32
22		700	16	do	or pek	800	32
24	Yarrow	706	38	bf ch	bro or pek	2280	46
25		709	49	do	or pek	2205	42
26		712	76	do	pek	3420	37
27		715	15	do	pek sou	750	31
32	Bodava	730	25	bf cb	bro pek	1250	33 bid
33		733	9	ch	pek	720	33
34		736	9	do	pek sou	720	25 bid
37	L	745	12	ch	bro mix	1080	17
39	Oolapane	751	10	hf ch	dust	800	18
40	Elcbico	754	42	hf ch	bro pek	2310	40
41		757	43	do	pek	1150	36
43	Mt. Vernon	763	22	ch	pek	2178	45 bid
44		766	17	do	pek A	1530	42
45		769	9	do	pek sou	846	42
46		772	16	hf cb	fans	1280	27
47	Mora Ella	775	22	hf cb	or pek	990	46 bid
48		778	44	do	bro or pek	2420	48
49		781	29	ch	pek	2610	37 bid
50		784	19	do	pek sou	1520	36
53	R K P	793	20	ch	bro pek	1800	35 bid
55		799	12	do	pek	960	33
64	Dryburgh	826	22	hf ch	bro or pek	1232	35
65		829	21	do	or pek	966	37 bid
66		832	31	do	pek	1395	32
69	Hanagama	841	18	ch	bro or pek	1980	34 bid
70		844	38	do	bro pek	3420	34
71		847	61	do	pek	5490	28 bid
72		850	9	do	pek sou	816	26
75	Glen Morgan	859	22	hf ch	bro or pek	1100	32 bid
76		862	22	ch	or pek	1980	32 bid
77		865	6	do	bro or pek fans	780	22 bid
78	Ambalawa	868	24	hf ch	bro pek	1224	34
79		871	24	do	pek	984	32
81	Ladysmith	877	32	cb	bro pek	3200	34
82		880	27	do	pek	2160	32 bid
83		883	22	do	pek sou	1760	28 bid
84	O H S	886	8	cb	bro pek	800	25 bid
85		889	8	do	pek	800	25 bid
89	Yspa	901	14	ch	pek sou	1190	32
90		904	6	do	dust	840	19
91	Ingeriya	907	45	hf ch	bro pek	2250	33 bid
92		910	25	do	bro or pek	1500	28 bid
93		913	36	do	pek	1728	28 bid
94		916	24	do	pek sou	1104	26 bid
97	Nehoda	925	11	ch	bro or pek	1100	36 bid
98		928	29	do	bro pek	2900	34 bid
105	Kosgahewella	949	21	ch	bro pek	2100	25 bid
106		952	10	do	pek	1000	22 bid
107		955	7	do	pek sou	700	out
109	Beausejour	961	15	ch	bro pek	1350	32 bid
110		964	12	do	pek	960	30
113	Woodthorpe	973	9	ch	bro pek	900	38 bid
114		976	17	do	pek	1360	35
115		979	18	do	pek sou	1440	31
118	Hapugasmulla	988	15	cb	bro pek	1560	36
119		991	17	do	pek	1530	3
122	Dartry	1000	20	hf ch	fans	1400	20
124		1006	10	ch	bro tea	900	21
125	New Valley	1009	31	cb	bro or pek	3100	55 bid
126		1012	35	hf ch	or pek	1575	41 bid
127		1015	18	ch	pek	1620	38 bid
128		1018	17	do	pek sou	1360	39

Lot.		Box	Pkgs.	Name.	lb.	c.
131	N I T	1027	10 ch	unas No 2	800	16 bid
132	Columbia	1030	37 hf-ch	or pek No 2	1720	42 bid
133		1033	32 do	or pek No 1	1600	48 bid
134		1036	26 do	pek	1196	37 bid
136	Rambodde	1042	24 hf ch	or pek	1320	36 bid
137		1045	26 do	pek	1170	35
141	Ravenscraigh	1057	16 ch	or pek	1360	38
143		1063	12 do	pek	1080	34
146	Kabatungoda	1072	56 hf ch	bro or pek	2800	53
147		1075	24 do	bro pek	1440	42
148		1078	41 do	pek	2050	41
151	Panmure	1087	32 hf-ch	bro or pek (venesta)	1920	45 bid
152		1090	41 do	or pek (venesta)	2255	43 bid
153		1093	38 ch	pek	3230	37 bid
157	Mahatenne	1105	7 ch	bro pek	700	39
158		1108	16 do	bro pek	1600	34
159		1111	14 do	pek	1400	32
163	Warakamure	1123	57 ch	bro pek	5700	33
164		1126	30 do	pek	2850	30
165		1129	10 do	pek sou	900	25 bid
166	Moragalla	1132	11 ch	bro pek	1100	33
167		1135	13 do	pek	1300	30
171	Haniton	1147	13 ch	bro pek	1235	31 bid
172		1150	14 do	pek	1190	28 bid
173		1153	15 do	pek sou	1260	25 bid
175	Fiadlater	1159	28 ch	bro pek	2800	45 bid
176		1162	19 do	pek	1748	38 bid
177		1165	10 do	pek sou	900	31 bid
179	Rayigam	1171	20 ch	bro pek	1900	35 bid
180		1174	17 do	or pek	1360	32 bid
181		1177	17 do	pek	1360	31 bid
182		1180	17 do	pek sou	1530	30
185	B, In estate mark	1189	10 ch	bro or pek fans	1150	21
186	H J S	1192	19 hf ch	bro pek	1140	31 bid
188		1198	10 do	dust	750	19
189	Sadamulla	1201	8 ch	bro pek	808	28 bid
190		1204	32 do	pek	3200	26 bid
191		1207	11 do	pek sou	990	21
194	S, in estate mark	1216	18 hf-ch	bro or pek fans	1150	22
195	Murraythwaite	1219	14 ch	bro pek	1400	36
196		1222	16 do	pek	1280	33
201	Monrovia	1237	40 ch	bro pek	4000	34
202		1240	37 do	pek	3515	33
203		1243	15 do	pek sou	1500	27
206	W	1252	13 ch	unas	1097	13
207	Hinpola	1255	15 hf ch	pek fans	1050	20
209	Kurunegalla est. Co Ltd.	1261	32 hf ch	bro or pek	1920	39
210		1264	19 do	or pek	1140	37 bid
211		1267	14 ch	pek	1400	31 bid
213	St V	1273	25 hf ch	pek fans	1875	21 bid
214		1276	14 ch	dust	2450	27 bid
215	H Oya	1279	19 hf ch	pek sou	950	27 bid
216	L B	1282	17 ch	bro pek	1700	26 bid
217	Henburst	1285	11 ch	or pek	935	36
218		1288	11 do	bro or pek	1045	33
219		1291	29 do	pek	2465	32
220		1294	19 do	sou	1520	25 bid
223	K G	1303	19 ch	red leaf	1900	9 bid
225	Wilpita	1309	20 ch	bro pek	2000	27 bid
226		1312	14 do	pek	1400	24 bid
233	Tyspane	1333	11 ch	bro or pek	1100	40
234		1336	20 do	bro pek	2000	38
235	Lower Dickoya	1339	10 ch	bro pek	1000	32 bid
236		1342	9 ch	pek	900	31
241	Bollagalla	1357	18 do	bro pek	1800	39
242		1360	19 do	pek	1520	37
243		1368	12 do	pek sou	960	30
244	Mahalla	1366	31 hf ch	bro pek	1488	35
245		1369	10 ch	pek	800	31
249	Havilland	1381	8 ch	pek fans	800	20
250		1384	11 do	sou	880	12
252	Gangwarily	1390	10 ch	bro or pek	1000	34 bid
253		1393	12 do	or pek	960	36 bid
254		1396	30 do	pek	2400	31 bid
256	Oonankande	1402	16 hf ch	bro pek	800	43
258		1408	11 ch	pek sou	880	34
261	Walla Valley	1417	14 hf ch	bro or pek	798	52 bid
262		1420	21 ch	bro pek	1890	41 bid
263		1428	11 do	pek	935	39 bid

[**Mr. E. John.**—229,356 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
4	Bittacy	535	13 ch	bro pek	1300	60 bid
5		538	11 do	pek	990	46
6	C D	541	16 hf ch	bro or pek	800	43
7	Waragalande	544	9 ch	bro or pek	900	40
8		547	17 do	bro pek	1700	35
9		550	15 do	pekoe	1350	33
10		553	12 do	pek sou	1080	28

Lot.		Box	Pkgs.	Name.	lb.	c.
13	Elston	562	15 ch	or pek	1500	43
14		565	11 do	bro pek	1210	48 bid
15		568	20 do	pek	1900	39
16		571	17 do	pek No 2	1445	38
17		574	10 hf ch	dust	850	20
18		577	15 ch	pek sou	1350	34
19	Dickapittia	580	27 do	bro pek	2700	42
20		583	40 do	pek	4000	37
21	N B	586	16 hf-ch	dust	1440	26
22		589	7 ch 1 hf ch	sou	755	38
23		592	13 ch	unassorted	1300	34
25	Gansarapolla	598	22 hf ch	bro pek	1320	35
26		601	12 ch	or pek	1080	34
27		604	19 do	pek	1615	32
22	Glassaugh	607	21 hf ch	or pek	1113	70
29		610	16 do	bro or pek	1040	51 bid
30		613	17 ch	pek	1615	50
32	N	619	9 hf-ch	dust	765	25
33	Iona	622	28 do	bro or pek	1624	61 bid
34		625	14 ch	or pek	1260	50
35		628	12 do	pek	1020	44
37	St John's	634	26 hf-ch	bro or pek	1508	80
38		637	30 do	or pek	1500	75
39		640	30 do	pek	1620	49
40	Uda	643	7 ch	bro pek	700	27
41		646	14 do	pekoe	1092	27
42	Glentilt	649	27 do	bro pek	2700	57
43		652	21 do	or pek	1995	42
44		655	12 do	pekoe	1080	37
46	Lamiliere	661	15 do	bro or pek	1425	59
47		664	11 do	bro pek	990	47
48		667	21 do	pekoe	1848	36 bid
59	G W	679	19 hf-ch	fans	1710	21
53	Cleveland	682	22 do	flow or pek	1232	63
54		685	22 do	pekoe	1144	43 bid
57	Callander	694	19 do	bro or pek	1140	50 bid
58		697	21 do	or pek	1092	50 bid
59		700	30 do	pek	1440	42 bid
62	G W	709	12 ch	pek sou No 2	1075	33 bid
63	Oonoogaloya	712	15 do	or pek	1350	50
64		715	11 do	bro or pek	1100	60
65		718	19 do	pekoe	1710	37
66		721	9 do	pek sou	765	36
67		724	11 hf-ch	dust	770	22
68	Gingran oya	727	27 do	bro pek	1485	42 bid
70		733	23 ch	pekoe	2070	38
74	Vincit	745	19 do	bro pek	1710	35
75		748	14 do	pek	1260	31
77		754	7 do	pek fans	840	20 bid
88	Lunugalla	787	8 do	bro pek	800	27 bid
89	Mount Clare	790	9 do	bro or pek	900	48
91		796	21 do	pekoe	1932	32
95	Ottery	808	18 do	or pek	1519	50
97	Lamiliere	814	15 do	bro or pek	1425	58
98		817	11 do	bro pek	990	45 bid
99		820	21 do	pek	1848	36 bid
102	Evalgolla	829	32 hf-ch	bro pek	1280	39
103		832	57 do	pek	1710	34
110	Elkaduwa	853	9 ch	pek	810	30
113	Orangefield	862	12 do	bro pek	1200	26 bid
114		865	19 do	bro pek	855	22 bid
115		868	22 do	pek	1980	21 bid
121	Mocha	886	20 do	bro or pek	2000	73 bid
122		889	13 do	or pek	1170	61
123		892	12 do	pek	1080	56
124		895	10 do	pek sou	800	49
125	Kanan Gama	898	7 do	bro or pek	770	29 bid
126		901	14 do	bro pek	1400	34
127		904	12 do	pek	1080	30
131	Templestowe	916	35 do	bro or pek	2625	48 bid
132		919	18 hf-ch	or pek	810	46 bid
133		922	28 ch	pek	2240	37
135	Gonavy	928	28 hf-ch	or pek	1260	45
137		934	30 ch	pek	2250	38
138		937	7 do	pek sou	770	34
141	Kandaloya	946	35 hf-ch	bro pek	1575	41 bid
142		949	18 do	or pek	720	40 bid
143		952	72 do	pek	2880	34 bid
148	A O	967	14 ch	bro pek	1400	41 bid
149		970	8 do	pek	760	37 bid
150	Ferndale	993	16 do	bro or pek	1600	43 bid
151		996	19 do	pek No. 1	1710	60
154	Warleigh	5	12 do	bro pek	1200	55
155		8	11 do	pek	935	49
158	Gangawatte	17	24 do	pek	2160	32 bid
159	Lunugalla	20	7 do	bro pek	700	26 out
160		23	20 do	pek	1600	22 bid
161	L V Y	26	20 do	pek sou	1800	20 bid
162	Glasgow	29	42 do	bro or pek	3192	59
163		32	20 do	or pek	1320	61
164		35	15 do	pek	1275	48
165		38	12 do	pek sou	1140	44
166		41	16 do	fans	1529	27
168	Agra Ouvah	47	13 hf-ch	pek fans	1040	29
169		50	25 do	bro or pek	1550	71
170		53	30 ch	bro pek	3150	55
171		56	11 do	pek	1056	48

Lot		Box.	Pkgs.	Name.	lb.	c.
174	Dalhousie	65	21 hf-ch	pek No. 1	945	35
180	Ben Nevis	83	10 ch	pekoe	900	38
183	Rookwood	92	20 hf ch	flow br or pk	1160	53 bid
184		95	16 ch	or pek	832	53
185	Galella	98	20 do	bro pek	2000	42
186		101	17 do	pekoe	1360	36
189		110	21 hf ch	dust	1571	20
191	Kotuagedera	116	33 ch	bro pek	3300	34
192		119	23 do	pekoe	2070	30 bid
196	Glassaugh	131	29 do	or pek	1537	71
197		134	21 hf-ch	bro or pek	1365	46 bid
198		137	24 ch	pekoe	2280	47 bid
199	Mahanilu	140	9 do	or pek	855	44
200		143	17 do	bro or pek	1700	46 bid
201		146	11 do	pekoe	1012	40
202		149	10 do	pek sou	900	36
204		155	7 do	dust	700	19
205	Brownlow	158	22 hf ch	bro or pek	1144	63
206		161	21 do	bro pek	1176	47
207		164	13 ch	or pek	1144	45 bid
208		167	33 do	pekoe	2838	36
209		170	16 do	pek sou	1360	34
210	Rookwood	173	22 hf ch	flo br or pk	1276	62
211		176	31 do	bro or pek	1984	32 bid
215	Riseland	188	12 ch	pek sou	960	17
216	Morahela	191	31 do	bro or pek	3100	37 bid
217		194	18 do	pekoe	1512	32 bid
218		197	13 do	or pek	1092	36 bid
221	Yahalakella	206	62 do	bro pek	6200	26 bid
222		209	23 do	pekoe	1600	26 bid
223		212	18 do	pek sou	1260	20 bid
224	Bellongalla	215	10 do	bro pek	1000	27 bid
225		218	24 do	pekoe	1920	24 bid

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Bogahagoda-watte	38	4 ch	bro or pek	420	30 bid
4		47	7 do	pek sou	630	25
10	Hornsey	65	8 do	pek sou	640	33
11		68	7 do	fans	560	22 bid

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	C E D S, in est. mark, Mount Pleasant	1021	2 hf ch	bro pek	110	35
2		1024	2 do	pek	100	29
3		1027	2 do	pek sou	100	24
4		1030	2 do	dust	160	16
5		1033	1 do	fans	50	17
6		1036	1 do	unas	50	20
7		1039	2 do	red leaf	130	10
9	Sirikandura	1045	8 ch	pek	691	34
10		1048	7 do	bro sou	595	31
11		1051	4 do	bro pek fans	420	26
12		1054	4 do	red leaf	330	12
13		1057	1 do	dust	98	16
19	Thedden	1075	5 ch	pek sou	400	30
20		1078	1 do	dust	150	20
24	Kosgalla	1090	6 hf-ch	pek sou	300	20
25		1093	6 do	dust	420	18
29	Lyegrove	1105	5 do	dust	425	21
34	Glengariffe	1120	3 do	dust	240	18
38	Pansalatenne	1132	5 ch	fans	600	31
39		1135	2 do	dust	300	16
40	New Peacock	1138	7 ch	pek sou	630	33
41		1141	8 hf ch	bro mix	400	24
45	Pendle	1153	7 ch	pek sou	595	34
46		1156	2 do	pek sou	180	33
47		1159	1 hf-ch	bro mix	50	18
48		1162	3 do	pek fans	225	26
60	Queensland	1198	6 ch	pek sou	510	36
61		1201	2 do	unas	200	24
62		1204	2 do	sou	190	17
65	Theydon Bois	1213	6 ch	pek sou	510	28
66	T B, in estate mark	1216	3 do	dust	270	17
7		1219	3 do	fans	270	30
68	M'Golla	1222	1 ch	sou	80	25
72	Yogama	1234	6 do	pek	540	32
77	Harrington	1249	3 ch	pek	270	36
78		1252	5 hf-ch	or pek fans	350	30
7		1255	2 do	dust	180	20
94	Gampaha	1300	5 do	pek fans	450	19
100	Battawatte	1318	2 ch	dust	200	21
117	Erracht	1369	7 do	bro pek	560	37
118		1372	2 do	pek No. 1	160	33
1[illegible]		1384	2 do	dust	344	15

Lot.		Box.	Pks.	Name.	lb.	c.
129	Dammeria	1405	6 hf ch	dust	540	19
134	Clunes	1420	3 do	dust	270	18
142	Ganapalla	1444	2 do	dust	172	17
144	M O I O	1450	11 do	bro or pek	547	21
145		1453	13 do	pek sou	634	14
148	Mousakelle	1462	3 ch	pek sou	255	31
149		1465	3 hf ch	dust	240	19
152	Kennington	1474	5 ch	unas	450	15 bid
155	Strathspey	1483	3 ch	bro or pek	321	72 bid
156		1486	5 do	or pek	500	58
157		1489	7 do	pekoe	637	47
158		1492	2 do	pek sou	170	40
162	Dunbar	1504	11 hf-ch	bro pek	550	45
163		1507	7 ch	bro pek fans	490	38
164		1510	2 do	pek sou	132	37
165		1513	1 do	dust	136	22
169	W A	1525	2 ch	pek	200	28
170		1528	2 do	pek sou	200	22
171		1531	2 do	bro mix	200	16
173	Pannawatto	1537	4 do	or pek	360	37
177	D	1549	4 hfch	pek	220	12
178		1552	2 do	pek sou	110	12
179		1555	2 do	bro mix	100	9
180		1558	1 do	dust	58	16
188	Tembiligalla	1582	3 ch	pek sou	270	31
189		1585	2 do	bro mix	210	18
190		1588	1 do	bro pek fans	115	20
191		1591	2 do	dust	280	17
196	K P W	1606	3 hf-ch	dust	270	20
211	Cotswold	1651	6 ch	pek sou	450	32
212		1654	1 do	dust	85	19
213		1657	1 hf-ch	sou	75	22
214	Ookoowatte	1660	1 do	dust	100	16
2 1		1663	2 do	pek fans	260	23
21		1666	2 do	red leaf	160	15
218	Ascot	1672	3 ch	or pek	255	31
219		1675	6 do	pek	480	28
220		1678	3 do	pek sou	240	26
221		1681	6 do	bro pek fans	660	24
222		1684	1 do	pek sou No. 2	95	24
230	Old Madegama	1708	4 hf ch	pek fans	340	21
231		1711	1 do	dust	100	19
232	D	1714	3 ch	sou	230	14
238	D M V	1732	5 hf-ch	pek sou	350	24
239		1735	2 do	fans	184	18
240		1738	1 do	bro tea	66	18
241		1741	1 do	dust	54	17
242	Glencorse	1744	6 do	bro or pek	600	41
247		1759	4 ch	bro tea	440	29
248		1762	1 do	dust	170	15
249		1765	4 do	bro or pek	400	44
251		1771	6 do	bro pek	480	43 bid
252		1774	6 do	pek	540	38
254		1780	5 do	bro tea	550	29
256	Devonford	1792	6 hf-ch	dust	480	22
259	Handrokande	1795	5 ch	bro pek	500	35
260		1798	3 do	pek	255	30
261		1801	2 do	pek sou	160	25
263	Galkande	1807	7 do	pek	630	21 bid
264		1810	6 do	pek sou	540	18 bid
265		1813	1 do	dust	130	14
268	Grange Garden	1822	2 hf-ch	dust	170	18
273	Walpita	1837	5 ch	sou	450	24
274		1840	2 do	dust	250	17
276	H F	1846	5 do	pek	375	30 bid
280	Dunnottar	1858	5 do	pek No. 1	425	42
285	Putupaula	1873	4 hf-ch	sou	280	10
290	S H	1888	4 ch	bro mixed	460	13
294	Weyunga-watte	1900	2 do	bro tea	180	25
295		1903	2 hf-ch	dust	128	19
296	N W D	1906	3 ch	bro tea	360	12
298	Dewalakande	1912	4 hf-ch	dust	320	18
299	Dromoland	1915	9 do	bro pek fans	585	25
300		1918	5 do	dust	416	18
306	Beaumont	1936	7 do	fans	616	19
307	Castlereagh	1939	13 do	bro or pek	650	58
311		1951	2 do	fans	140	20
312		1954	2 do	dust	140	19
323	St. Leonards on Sea	1987	5 ch	or pek	450	29
324		1990	3 do	or pek	270	27
325		1993	8 do	pek	680	26
326		1996	5 do	fans	400	25
333	Knavesmire	2017	8 hf-ch	dust	600	18
338	Kelvin	2032	3 ch	pek	270	28
340		2038	7 hf-ch	dust	525	17
344	Hayes	2020	1 ch	pek	80	27
345	Kelaneiya	2050	1 do	bro or pek	100	47
349	Matale	2065	4 hf-ch	fans	280	20
350		2068	7 do	dust	560	18
361	Bloompark	2101	2 ch	congou	160	15
362		2104	1 hf-ch	bro pek	44	33
366	Avoca	2116	6 ch	pek sou	552	37
367		2119	5 do	br pek fans	675	25
368	Clarendon	2122	10 hf-ch	bro pek	630	69
369		2125	8 do	or pek	432	62

Lot.		Box.	Pkgs.	Name.	lb.	c.
372		2134	2 ch	sou	160	33
373		2137	1 hf ch	dust	80	18
374	Mosville	2140	6 ch	bro pek fans	597	17
375	B in est. mark	2143	6 do	bro pek fans	513	24 bid
376	Talgaswela	2146	12 hf-ch	bro or pek	660	32
380		2158	8 do	br pk No. 2	480	20
385	Maha Uva	2173	1 do	pek fans	75	26
386		2176	3 do	dust	255	19
387	Polatagama	2179	4 ch	bro or pek	440	25 bid
392		2194	2 do	dust	230	18
393	Ruanwela	2212	9 hf-ch	dust	675	21
403	Passara Group	2227	3 ch	ians	240	19
409	Bandaraeliya	2245	6 hf-ch	dust	480	18
411	L G F in est mark	2251	9 do	fans	564	14 bid

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
2	Welgampola	640	7 hf ch	pek	350	32
4		646	7 do	sou	350	26
9	Horagoda	661	1 ch	dust	100	18
10		664	1 do	con	95	22
11	Primrose ill	667	5 ch	bro pek	500	41
14		676	1 do	sou	76	26
15		679	2 hf ch	dust	103	19
16	Kumaragala	682	8 hf-ch	bro pek	440	37 bid
17		685	12 do	pek	540	34
18		688	14 do	pek sou	630	29
19		691	3 do	sou	120	25
20		694	1 do	dust	84	19
23	Hanwella	703	7 hf ch	pek sou	315	24
28	Yarrow	718	8 boxes	or pek	200	43
29	Y, in estate mark	721	4 hf ch	dust	320	16
30	Tientsin	724	8 ch	pek sou	680	39
31		727	4 do	dust	560	21
35	Bodava	739	1 ch	red leaf	80	13
36		742	2 do, 1 hf ch	dust	332	16
38	L	748	8 hf ch	dust	640	19
42	Elchico	760	1 hf ch	dust	84	19
51	Mora Ella	787	3 ch	bro pek fans	360	24
52		790	4 hf-ch	dust	329	18
54	R K P	796	6 ch	hro or pek	660	31
56		802	3 do	pek sou	225	27
57	Halloowella	805	2 hf-ch	bro or pek	90	36
58		808	2 do	bro pek	110	34
59		811	2 do	or pek	104	37 bid
60		814	4 do	pek sou	264	30
61		817	2 do	sou	76	28
62		820	1 do	dust	41	18
63		823	3 do	red leaf	138	14
67	Dryburgh	835	8 ch	pek sou	496	28
68		838	5 hf ch	fans	370	18
73	Hanagama	853	8 ch	sou	640	24
74		856	2 do	dust	288	18
80	San Cio	874	4 hf ch	bro mix	168	14
86	O H S	892	3 ch	pek sou	300	20
87		895	1 do	dust	107	16
88		898	1 do	red leaf	84	11
95	Ingeriya	919	12 hf ch	unas	600	27
96		922	3 do	dust	225	16
99	Neboda	931	8 ch	pek sou	640	28
100		934	2 do	dust	170	18
101	Glenalmond	937	6 ch	bro pek	546	40
102		940	3 do, 1 hf ch	pek	282	32
103		943	2 ch	pek sou	140	28
104		946	1 do, 1 hf ch	hro pek fans	168	26
108	Kosgahawella	958	2 ch	bro fans	200	13
111	Beausejour	967	3 ch	pek sou	225	26
112		970	5 do	pek fans	500	22 hid
116	Woodthorpe	982	2 ch	sou	152	25
117		985	2 hf ch	dust	119	18
120	Hapugasmulla	994	4 ch	pek sou	392	26
121		997	3 do	dust	480	16
123	Dartry	1003	7 hf ch	dust	602	21
129	N I T	1021	2 hf ch	dust	170	17
130		1024	2 ch	unas No 1	200	19
135	C M	1039	1 hf ch	bro pek	50	36
138	Rambodde	1048	6 hf-ch	pek sou	270	30
139		1051	3 do	sou	120	29
140		1054	2 do	fans	140	27
142	Ravenscraig	1060	7 hf-ch	bro pek	385	40
144		1066	2 ch	pek sou	180	26
145		1069	4 hf ch	dust	320	19
149	Rahatungoda	1081	5 hf-ch	pek sou	250	36
150		1084	5 do	dust	400	20
154	Panmure	1096	7 hf ch	hro or pek fans, venesta	490	28 bid
155		1099	3 ch	pek sou	270	28 hid
156		1102	3 hf ch	dust venesta	300	18 bid
160	Mahatenne	1114	3 ch	pek sou	300	25
161		1117	2 do	dust	190	18
162		1120	1 hf ch	red leaf	55	14

Lot.		Box.	Pkgs.	Name.	lb.	c.
168	Moragalla	1138	6 ch	pek sou	600	25
170	M, in estate mark	1144	1 do	pek dust	100	14
174	Honiton	1156	5 hf ch	fans	300	12
178	Findlater	1168	4 hf ch	dust	360	18
183	Comillah	1183	11 hf ch	hro pek	550	31
184		1186	6 do	pek hooped	300	27
187	H J S	1195	9 hf ch	pek sou	540	28
192	Sadamulla	1210	1 ch	dust	133	17
193		1213	4 do	bro mix	600	10
197	Murraythwaite	1225	8 ch	pek sou	640	28
198	S R K	1228	4 ch	pek sou	380	36
199		1231	2 do	dust	300	17
200		1234	1 do	bro tea	100	16
204	Monrovia	1246	4 ch	bro tea	380	15
205		1249	2 do	pek dust	300	16
208	S T, in estate mark	1258	5 ch	pek	500	25
212	Kurunegalle est Co. Ltd.	1270	3 ch	pek sou	300	26
221	Henhurst	1297	8 hf ch	dust	640	19
222		1300	3 ch	bro pek fans	300	25
224	N	1306	11 hf ch	hro pek	605	28 hid
227	Wilpitiya	1315	5 ch	pek sou	475	21
228		1318	2 do	fans	200	14
229		1321	1 do	dust	150	15
230		1324	3 do	red leaf	240	12
231	L	1327	2 ch	bro mix	170	13
232	J S	1330	4 ch	or pek	380	38
237	S F D	1345	6 ch	con venesta	582	27
238		1348	5 hf ch	dust	425	18
239		1351	1 ch, 2 hf ch	red leaf	20	13
240	K G	1354	3 ch	sou	279	15
246	Mahalla	1372	8 ch	pek sou	600	28
247		1375	4 do	pek sou No. 2	280	24
248		1378	1 do	dust	111	20
251	Havilland	1387	2 ch	dust	180	17
255	Gangwarily	1399	8 ch	pek sou	640	24 bid
257	Oonankande	1405	8 ch	pek	680	36
259		1411	8 do	sou	560	26 hid
260		1414	3 hf ch	dust	195	18
264	B & D	1426	8 hf ch	dust	467	19 hid
265		1429	10 do	hro pek sou	455	22 hid
266		1432	4 ch	unas	400	24 bid

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Theresia	526	2 hf ch	hro pek fans	130	35
2		529	4 do	dust	320	21
3		532	1 do	sou	60	34
11	Waragalande	556	2 ch	dust	250	20
12		559	1 do	fans	120	20
24	N B	595	4 do	bro mix	396	15
31	W H R	616	5 do	dust	500	21
36	Iona	631	2 hf ch	dust	170	20
45	Glentilt	655	6 ch	pek sou	570	32
49	Lameliere	670	9 hf ch	pek fans	612	23 bid
50	G W	673	5 ch	pek sou	475	36
51		676	4 do	bro mix	300	17
55	Cleveland	688	5 hf-ch	pek sou	250	37
56		691	2 do	dust	160	23
60	Callander	703	5 hf-ch	pek sou	200	35 bid
61		700	6 do	fans	420	27
69	Glngran Oya	730	12 hf-ch	or pek	600	38 bid
71		736	7 ch	pek sou	630	30
72		739	5 hf-ch	fans	350	23
73		742	2 do	dust	240	20
76	Vincit	751	6 ch	pekoe sou	540	25
78		757	2 do	dust	300	18
79		760	1 do	red leaf	110	12
80	Agodawatte	763	6 hf ch	hro pek	300	15 bid
81		766	4 do	pekoe	180	15 hid
82	Franklands, S P A in estate mark	769	6 do	br pek No 1	300	20 bid
83		772	4 do	br pek No. 2	200	22 bid
84		775	4 do	pekoe	200	17 hid
85		778	5 do	pek sou	225	out
86		781	1 do	pek fans	45	out
87		784	1 do	dust	56	out
90	Mount Clare	793	6 ch	or pek	516	36
92		799	6 do	pek sou	540	25 bid
93		802	1 do	fans	96	18
94		805	1 do	pek dust	116	18
96	Ottery	811	7 do	dust	525	22
100	Lameliere	612	9 hf ch	pek fans	612	30
104	Evalgolla	835	13 do	pek sou	455	27
105		838	5 do	sou	150	24
106		841	4 do	fans	200	20
107		844	2 do	dust	110	21
108	Eladuwa	847	4 ch	or pek	380	39
109		850	3 do	hro pek	330	31
111		856	4 do	pek sou	360	24
112		859	1 do	mix	158	15
116	Orangefield	871	5 do	pek sou	425	out

Lot.		Box.	Pkgs.	Name.	lb.	c.
117		874	1 do	pek fans	95	out
118		877	1 do	dust	120	out
119		880	2 do	bro mix	180	out
120	C	883	4 do	fans	369	14
128	Kanan Gama	907	7 do	pek sou	560	27
129		910	4 do	pek fans	360	22
130		913	7 hf-ch	dust	560	17
134	Tamplestowe	925	4 ch	unassorted	280	36
136	Gonavy	931	13 hf-ch	bro pek	650	58
139		940	7 do	dust	525	20
140		943	2 ch	congou	180	25
144	Kandaloya	955	4 hf-ch	pek sou	160	32
145		958	12 do	sou	480	28
146		961	9 do	fans	450	3
147		964	5 do	dust	250	18
152	Warleigh	999	10 do	bro or pek	600	R1
153		2	11 do	or pek	605	60
156		11	2 cb	pek sou	160	46
157		14	6 hf-cb	dust	450	30
167	Agra Ouvah	44	3 ch	pek sou	255	39
172	Dalhousie	59	12 hf-ch	bro pek	600	63
173		62	6 do	or pek	270	53
175		68	12 do	pek No. 2	540	36
176		71	4 do	fans	260	29
177	Ben Nevis	74	8 do	bro or pek	448	59
178		77	9 do	or pek	405	54
179		80	5 ch	bro pek	535	42 bid
181		86	3 do	pek sou	240	33
182		89	1 hf ch	dust	84	21
187	Galella	104	8 ch	pek sou	640	32
188		107	3 do	sou	240	28
190		113	3 Bags	red leaf	156	13
193	Kotuagedera	122	1 cb	pek sou	90	25
94		125	1 do	dust	90	20
195		128	1 hf cb	bro pek fans	70	16
203	Mahanilu	152	3 ch			
			1 hf-ch	fans	372	28
212	Riseland	179	1 cb	bro or pek	100	28
213		182	5 do	bro pek	450	32
214		185	4 do	pekoe	360	27
219	Morahela	200	4 do	sou	320	25
220	R W in estate mark	203	3 do			
			1 hf cb	or pek	343	19 bid

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, Sept. 28.

"Austral."—Blackwood, 1 cask and 1 tierce sold at 103s 6d; ditto PB, 1 bag sold at 89s; BKW T, 1 bag sold at 43s.

CEYLON COCOA SALES IN LONDON.

"Logician."—Arangalla, 12 bags sold at 78s; Arduthie, 31 bags sold at 88s 6d; 5 bags sold at 69s 6d.

"Shropshire."—Kotua 1, 3 bags sold at 74s; 2, 2 bags sold at 66s 6d; 3, 2 bags sold at 55s; BG 1, 2 bags sold at 74s; 2, 1 bag sold at 66s 6d; 3, 3 bags sold at 55s.

"Jumna."—North Matale, 14 bags sold at 91s; KK, 4 bags sold at 56s 6d; DAB, 8 bags sold at 9s 6d.

"Logician."—Nuwagalla A, 24 bags sold at 89s; ditto B, 27 bags sold at 82s.

"Clan Alpine."—Katugastota, 18 bags sold at 92s 6d; 2 bags sold at 69s; 5 bags sold at 55s.

"Canton."—Katugastota T, 2 bags sold at 67s 6d; PKY London 1, 28 bags sold at 93s 6d; ditto T, 10 bags sold at 67s 6d; Pathregalla, London 1, 19 bags sold at 94s; ditto T, 1 bag sold at 67s 6d; Rosebury, London 1, 17 bags sold at 98s 6d; ditto T, 3 bags sold at 67s 6d; Wiltshire, London 1, 14 bags sold at 89s; ditto T, 1 bag sold at 67s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Logician."—Gavatenne, Mysore O, 2 cases sold at 2s 6d; ditto 1, 2 cases sold at 1s 9d; 5 cases sold at 1s 10d; ditto 2, 2 cases sold at 1s 4d; 3 cases sold at 1s 5d; ditto 3, 1 case sold at 1s 3d; ditto B, 1 case sold at 1s; Gavatenne Mysore, 1 bag sold at 1s 6d.

"Menelaus."—Tonacombe Special, 2 cases sold at 1s 6d; 7 cases sold at 3s 1d; 3 cases sold at 2s 1d; 3 cases sold at 1s 7d.

"Collegian."—Wattakely A, 2 cases sold at 2s 3d; ditto B, 3 cases sold at 1s 9d; ditto C, 4 cases sold at 1s 3d.

"Mazagon."—Vedehette, Cardamoms Ex., 1 case sold at 3s 4d; ditto AA, 7 cases sold at 2s 10d; ditto A, 5 cases sold at 2s 2d; ditto B, 3 cases sold at 1s 5d; ditto C, 5 cases sold at 1s 4d; ditto D, 1 case sold at 2s.

"Hitachi Maru."—Altwood, Ceylon Cardamoms, 4 cases sold at 2s 8d; 5 cases sold at 1s 11d; 5 cases sold at 1s 6d; 1 case sold at 1s 2d.

"Mazagon."—Peru, Ceylon Cardamoms, 4 cases sold at 1s 10d.

No. 40 COLOMBO, OCTOBER 29, 1900. PRICE :—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[19,065 lb.]

Lot.		Box.	Pkg		Name.	lb.	c.
1	Hornsey	39	10	ch	pek sou	800	35
2	K M W, in est mark	42	25	hf ch	bro pek	1375	45 bid
3		45	45	do	pek	2205	33 bid
4		48	35	do	pek sou	1575	34 bid
5		51	40	do	pek	2000	34 bid
6	Battalgalla	54	30	ch	or pek	2850	43 bid
7		57	22	do	pek	1980	33 bid
8		60	10	do	pek sou	800	35
9		63	15	hf ch	fans	1275	24
11	Mapitigama	69	9	ch	bro pek	810	35
12		72	15	do	pek	1230	33
13		75	13	do	pek sou	975	31

Messrs. Forbes & Walker

[494,588 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Cooroondoowatte	2254	13	hf ch	bro pek	715	48
2		2257	17	ch	or pek	7[illegible]0	37
3		2260	10	do	pek sou	1000	33
10	Beverley	2281	62	hf ch	or pek	3100	36
11		2284	33	do	pek	1485	34
12		2287	16	do	pek sou	720	30
14		2293	20	do	bro or pek	960	49
15	St John's Wood	2296	14	do	bro pek	770	38
16		2299	14	do	pek	700	37
19	Drayton	2308	34	ch	bro or pek	3230	46
20		2311	57	do	pek	4845	38
21		2314	16	do	pek sou	1360	35
23	Kelaneiya and Braemar	2320	20	do	bro or pek	2000	47
24		2323	15	do	or pek	1500	40
25		2326	13	do	pek	1300	37
28	Carberry	2335	25	do	bro pek	2250	35
29		2338	24	do	pek	2[illegible]60	32
36	Udapolla	2359	10	do	bro pek	1000	32
37		2362	17	do	pek	153	32
40	Shrubs Hill	2371	14	do	bro pek	1316	40
41		2374	25	do	bro or pek	[illegible]640	36
42		2377	35	do	or pek	3080	37
43		2380	23	do	pek	1955	30
45		2386	12	hf ch	bro pek fans	900	26
54	Kakiriskande	2413	21	ch	pek	1995	31
56	Puspone	2419	24	do	or pek	2160	36
57		2422	28	do	bro pek	2940	34 bid
58		2425	13	do	pek	1045	32 bid
59	Holton	2428	14	do	bro pek	1330	37
60		2431	13	do	pek	1040	32
65	Torwood	2446	17	do	bro pek	1564	36
66		2449	14	do	or pek	1148	34
67		2452	23	do	pek	1748	32
68		2455	15	do	pek sou	1080	29
69		2458	13	do	bro pek fans	780	25
70		2461	15	do	dust	1020	18
71	Poonagalla	2464	23	hf-ch	or pek	1150	45
72	P G A	2467	10	ch	sou	750	30
74	Dooroomadella	2473	16	do	pek	1520	32
75		2476	17	do	pek sou	1530	30
76		2479	21	hf ch	bro or pek	1260	32
77		2482	15	ch	bro pek	1440	35
78	Pine Hill	2485	39	hf ch	bro or pek	2340	55
79		2488	46	ch	or pek	4140	42
80		2491	33	do	pek	2805	37
82	A	2497	14	do	bro pek	1400	31
83		2500	8	do	pek	800	28
87	Queensland	2512	15	hf ch	bro or pek	705	87
88		2515	8	ch	bro pek	720	63
89		2518	12	do	pek	1020	46
91	Yatiyana	2524	8	do	bro pek No 1	808	33
98	Doranakande	2545	7	do	bro pek	700	36
102	Macaldeni	2557	17	hf-ch	bro pek	935	49
103		2560	14	do	or pek	700	42 bid
104		2563	22	do	pek	1100	38
107	St. Heliers	2572	32	do	bro or pek	1760	41
108		2575	19	ch	pek	1672	36
110	Ouvahkellie	2581	8	do	pek sou	720	27
115	High Forest	2596	34	hf-ch	or pek No. 1	2074	84
116		2599	25	do	or pek	1500	64
117		2602	24	do	pek	1320	57
118	Pallagodde	2605	10	ch	bro or pek	1000	32
119		2608	19	do	bro pek	1900	42
120		2611	14	do	or pek	1250	37
121		2614	15	do	pek	1275	35
122		2617	15	do	pek sou	1350	33
123		2620	10	hf ch	dust	850	20
124	Battawatte	2623	18	ch	bro or pek	1980	41
125		2626	17	do	pek	1530	38
129	Galkadua	2638	10	do	bro pek	1100	32
130		2641	11	do	pek	1100	27
131		2644	8	do	pek sou	800	25
133	Dunkeld	2650	67	hf ch	bro or pek	4020	47
134		2653	25	ch	pek	2250	37
135		2656	15	do	or pek	1425	40
136	Naseby	2659	25	hf-ch	bro or pek	1500	66 bid
137		2662	42	do	or pek	1932	61 bid
138		2665	8	do	dust	720	30
139	St. Paul's	2668	25	do	bro pek	1375	54
140		2671	40	do	pek	1960	40
141		2674	35	do	pek sou	1435	36
142	Errollwood	2677	14	do	bro or pek	770	53
143		2680	11	ch	or pek	990	39 bid
144		2683	17	do	pek	1445	36
146	Tymawr	2689	23	hf ch	or pek	1150	40 bid
147		2692	22	do	bro or pek	1210	42 bid
148		2695	40	do	pek	1800	39
149		2698	26	do	pek sou	1170	33
152	Ella Oya	2707	17	ch	pek	1445	34
153		2710	20	do	pek sou	1600	29
156	Gallawatte	2719	16	do	pek	1360	30
157	Kitulgalla	2722	24	do	bro pek	2280	29 bid
158		2725	16	do	pek	1440	28
161	Yuillefield	2734	21	hf ch	bro or pek	1155	55
162		2737	27	ch	or pek	2565	36 bid
165	Wallaha	2746	55	do	bro or pek	5500	49
166		2749	29	hf ch	bro pek	1392	52
167		2752	41	ch	pek No. 1	3362	39 bid
168		2755	24	do	pek No. 2	2040	37
170	Kumaradola	2761	9	do	bro pek	920	38 bid
171		2764	8	do	or pek	720	37 bid
175	Maragalla	2776	13	do	bro pek	1430	40
176		2779	12	do	or pek	1080	40
177		2782	10	do	pek	900	36
182	Chesterford	2797	53	do	bro pek	5035	36
183		2800	37	do	pek	3515	32
184		2803	22	do	pek sou	2090	30
185	O Roeberry	2806	20	do	bro or pek	2000	66
186		2809	41	do	bro pek	4100	57
187		2812	55	do	pek	5060	49
188		2815	15	do	pek sou	1290	42
209	Tempo	2878	9	do	or pek	810	35
210		2881	17	do	bro pek	1700	39
211		2884	34	do	pek	2550	32
212		2887	15	do	pek sou	1050	30
213		2890	22	do	sou	1364	28
215	Penrhos	2896	29	hf ch	bro or pek	1595	50
216		2899	24	do	or pek	1152	42
217		2902	31	ch	pek	2666	56
218		2905	10	do	pek sou	800	31
220	Choisy	2911	19	hf-ch	or pek	950	64
221		2914	21	ch	bro pek	2100	45 bid
222	Pallawatte	2917	15	do	bro pek	1500	28 bid
227	Nakiadeniya	2932	62	ch	bro pek	5580	28 bid
228		2935	33	do	pek	2640	30
229		2938	17	do	pek sou	1275	25
0	Munukattia, Ceylon in est. mark	2941	15	hf-ch	or pek	720	39
231		2944	31	ch	br pek	1798	46
232		2947	19	do	pek	1520	36
233		2950	8	do	pek sou	760	33
236	Clyde	2959	50	do	br pek	4300	38
237		2962	11	do	bro or pek	1265	29 bid
238		2965	42	do	pek	3528	31 bid
239		2968	14	do	pek sou	1260	27
243	A K	2980	7	do	pek sou	700	32
246	Ugieside	2989	10	do	bro mixed	800	22
247		2992	11	do	fans	1045	20
248	Weyagalla	2995	22	do	bro pek	2090	41 bid
249		2998	27	do	pek	2430	35
250		3001	11	do	pek sou	990	30
254	Kosgalla	3013	20	hf-ch	unast	997	19
261	Haputelewella	3043	20	do	bro pek	1200	51
265		3046	15	do	pek	750	44
269	Hatton	3058	30	ch	bro pek	3000	63
270		3061	39	do	pek	3120	46
273	V	3070	11	do	pek sou	990	30
276	M P	3079	16	do	sou	1360	22
277		3082	7	do	dust	945	19
279	Yellangowry	3088	12	do	bro pek	1197	29 bid
280		3091	12	do	pek	1077	28

Lot.		Box.	Pkgs.	Name.	lb.	c,
281		3094	16 ch	pek sou	1437	24
282	S F D	3097	13 do	pek sou	1105	35
283	Marlborough	3100	61 hf-ch	bro or pek	3356	49
284		3103	14 ch	or pek	1050	39
285		3106	49 do	pek	4410	36
286		3109	10 do	pek sou	800	33
287	Castlereagh	3112	28 do	bro pek	2660	43
288		3115	10 do	or pek	850	37 bid
289		3118	16 do	pek	1280	35
394	Middleton	3133	24 hf-ch	oro or pek	1320	76
295		3136	32 ch	bro pek	3200	51 bid
296		3139	33 do	pek	2805	44
297		3142	12 hf-ch	dust	900	26
298	Anningkande	3145	14 ch	pek sou	1260	30
299		3148	12 hf-ch	dust	900	20
300	Dunnottar	3151	19 ch	pek	1615	40
304	Woodend	3163	26 do	bro or pek	2600	29 bid
306		3160	28 do	pek	2520	30
307		3172	11 do	pek sou	880	27
314	W	3193	17 do	pek sou	1530	24 bid
315	Elfindale	3196	15 do	fans	1497	17 bid
316	East Holyrood	3199	10 do	or pek	1100	41
318	Ireby	3205	20 do	bro pek	2000	56
319		3208	15 do	pek	1275	45
320		3211	12 do	pek sou	1020	40
322	Galapitakande	3217	10 do	or pek	880	44
323		3220	11 do	bro pek	1100	48
324		3223	34 do	pek	3230	38
327	Tonacombe	3232	18 do	or pek	1620	41
328		3235	10 do	bro or pek	970	47 bid
32		3238	18 do	br pek	1800	42
330		3241	38 do	pek	3420	36
331		3244	13 do	pek sou	1170	34
333	Harrow	3250	15 hf-ch	or pek	825	47 bid
334		3253	24 do	bro or pek	1440	51 bid
335		3256	21 ch	pek	1995	39
336		3259	8 do	pek son	720	35
338	Pansalatenne	3265	52 do	br pek	4940	41 bid
339	Maldeniya	3268	18 do	bro or pek	1890	33
340		3271	32 do	or pek	2752	32
341		3274	43 do	pek	3655	30
342		3277	31 do	pek sou	2635	27
343	Ugieside	3280	14 do	bro mix	1260	11 bid
345		3286	12 do	fans	1080	out
346	Bo Pats	3289	30 hf-ch	bro or pek	1650	50 bid
347		3292	20 ch	or pek	1500	45 bid
348		3295	23 do	pek	1725	38 bid
349		3298	18 do	pek sou	1260	30 bid
351	Vogan	3304	12 do	bro or pek	1380	30
352		3307	36 do	or pek	3600	35
353		3310	68 do	pek	6120	32
354		3313	15 do	pek sou	1275	26
355		3316	9 do	sou	765	23
356	Digdola	3319	10 do	bro pek	900	39
360	M P T in est. mark	3331	22 do	sou	1870	out
361		3334	7 do	pek dust	840	out
363	Tymawr	3340	35 hf-ch	br or pk	1925	42
364		3343	37 do	or pek	1850	41
365		3346	47 do	pek	2115	34 bid
366		3349	40 do	pek sou	1800	31 bid
367	C P H Galle in est. mark	3352	7 ch	bro pek	700	31
370		3358	8 do	pek	720	27
371		3361	17 hf-ch	pek	850	24 bid
373		3364	9 ch	pek sou	810	24
377	Weoya	3382	14 do	bro pk fans	1400	22 bid
378		3385	23 do	or pek	2185	35
379		3388	55 do	pek	4675	33
380		3391	18 do	pek sou	1440	28
382	Dammeria	3397	25 do	or pek	2500	36
383		3400	15 do	pek	1650	37 bid
384		3403	11 do	bro or pek	1320	38
385		3406	40 do	pek	3600	36
386		3409	15 do	pek sou	1350	32
387	D M	3412	11 do	bro pek	1210	26 bid
389	Inverness	3418	20 hf-ch	or pek	1000	45 bid
390		3421	37 do	bro or pek	2220	40
391		3424	39 ch	pek	3510	35 bid
393	Fairlawn	3430	22 hf-ch	bro pek	1100	51
395		3436	14 ch	pek	1190	38
399	Ambragalla	3448	75 hf-ch	or pek	3600	25 bid
400		3451	40 ch	bro or pek	4000	27 bid
401		3454	44 do	pek	3212	27
402		3457	49 do	pek sou	3822	25
404		3463	13 do	red leaf	1300	out
405	Amblakande	3466	11 do	bro pek	1100	38
406		3469	12 do	pek	960	33
408	Geragama	3475	22 do	bro pek	2200	31
409		3478	16 do	pek	1520	28 bid
410		3481	14 do	pek sou	1330	26 bid
413		3490	15 do	bro pek	1500	51
414		3493	12 do	pek	1050	28 bid
415		3496	11 do	pek sou	990	26 bid
418		3505	21 do	bro pek	2100	32
419		3508	18 do	pek	1710	20 bid
420		3511	11 do	pek sou	990	27 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
421	Gonapatiya	3514	29 hf-ch	bro pek	1620	65
422		3517	18 do	pek fans	1188	37
424	Walpita	3523	15 ch	bro pek	1500	33 bid
425	Ganapalla	3526	12 do	br or pek	1080	32 bid
424	G L S	3529	16 do	pek sou	1520	18 bid

[Mr. E. John.—169,529 lb.]

Not		Box.	Pkgs.	Name.	lb.	c.
6	Wadhurst	236	9 ch	or pek	900	44
7		239	9 do	pek	855	36
10	Mossend	248	25 hf-ch	bro or pek	1375	42 bid
11		251	29 do	or pek	1305	43 bid
15	Mount Everest	263	13 do	bro or pek	715	80
16		266	14 do	or pek	700	58
17		269	17 ch	pekoe	1700	44
21	Birnam	281	14 do	pek sou	896	39
24	H	290	11 do	bro mix	1100	17
25	St John's	293	25 hf-ch	or pek	1250	65 bid
26		296	35 do	pek	1890	44 bid
27	Uda	299	11 ch	bro pek	1100	27
28		302	20 do	pek	1560	24
29		305	8 hf-ch	dust	720	21
32	Tamplestowe	314	23 ch	bro or pek	1725	49 bid
33		317	18 hf-ch	or pek	810	46
34		320	22 ch	pek	1760	36
35		323	22 do	pek sou	960	34
36	Perth	326	19 do	bro or pek	1862	33 bid
37		329	10 do	bro pek	830	33 bid
41	Kolapatna	341	20 hf-ch	bro or pek	1000	49 bid
42		344	21 do	bro pek	1008	44 bid
43		347	23 do	pek	1035	38
46	Osborne	356	12 ch	br or pk No.1	1260	43 bid
47		359	24 do	do No.2	2400	39
48		362	9 do	bro pek	945	36
52	Loughton	374	20 hf-ch	bro pek	1000	37
53		377	34 do	pekoe	1700	34
54		380	37 do	pek sou	1850	31
56	N B	386	10 ch	sou	900	34 bid
58	Koslande	392	18 hf-ch	bro pek	990	47 bid
59		395	15 ch	pekoe	1350	38
63	Glentilt	407	30 do	bro pek	3000	53 bid
64		410	24 do	or pek	2280	39
65		413	16 do	pekoe	1440	36
66		416	17 hf ch	fans	1360	20 bid
67	Mount Clare	419	9 do	bro or pek	900	38
69		425	15 do	pek	1425	30
73	Ovoca	437	25 hf-ch	bro or pek	1250	66
74		440	19 do	or pek	855	46 bid
75		443	19 ch	pekoe	1615	36 bid
76		446	24 hf-ch	pek sou	1080	35
77	Anchor in estate mark	449	17 do	bro or pek	1020	53
78		452	11 ch	pek	825	37
79		455	19 do	pek sou	1805	35
80	Brownlow	458	22 hf ch	bro or pek	1210	57 bid
81		461	18 do	bro pek	954	45
82		464	14 ch	or pek	1246	39 bid
83		467	43 do	pek	3741	35
85	G F R in estate mark	473	10 do	bro or pek	1000	47
86		476	20 do	bro pek	1900	33 bid
87		479	17 do	pek e	1530	32
89	Coslande	485	18 do	bro pek	990	47 bid
90		488	15 do	pek	1350	38
94	Little Valley	500	7 do	bro pek	700	43
95		503	28 do	pek	2380	33
98	C P T	512	18 do	pek sou	1530	24 bid
99	Poilakande	515	43 do	bro pek	4300	32
100		518	27 do	pek	2420	31
101	Rookwood	521	39 hf ch	flo br or pk	2262	56 bid
102		524	9 ch	or pek No.1	803	42 bid
103		527	14 do	pek	1190	39 bid
104		530	13 do	pek sou	936	31 bid
106	Y B K	536	13 do			
			1 hf-ch	bro tea	1156	14 bid
108	Morahela	542	31 ch	bro or pek	3100	36
109		545	18 do	pek	1512	31
110		548	13 do	or pek No.2	1092	34 bid
111	Natuwakelle	551	21 do	bro pek	2100	34
112		554	9 do	bro or pek	900	33 bid
113		557	16 do	pek	1440	31
114		560	12 do	pek sou	1080	28
117	Bellongalla	569	20 do	pek	1600	22 bid
118	Lunugalla	572	9 do	pek	720	24
119	Callander	575	19 hf-ch	bro or pek	1140	52 bid
120		578	21 do	or pek	1092	51 bid
121		581	20 do	pek	1440	42 bid
123	Bellongalla	587	10 ch	bro pek	1000	27
124		590	24 do	pek	1920	22
125	Glasgow	593	55 do	bro or pek	3850	55
126		596	20 do	or pek	1300	60
127		599	15 do	pek	1275	45
128		602	10 do	pek sou	950	43
129	Agra Ouvah	605	17 do	bro or pek	1955	67
130		608	41 do	bro pek	4510	50

Lot.		Box	Pkgs.		Name.	lb.	c.
131		611	27	ch	pek	2700	47
132	Glassaugh	614	31	hf-ch	or pek	1643	70
133		617	23	do	bro or pek	1541	49 bid
134		620	27	ch	pek	2700	46 bid
135	Maskeliya	623	29	hf-ch	bro or pek	1450	57
136		626	19	ch	or pek	1710	40
137		629	15	do	pekoe	1500	34 bid
140	Maryland	638	7	do	bro pek	735	29
141		641	7	do	pekoe	700	26
142	Ferndale	644	16	o	bro or pek	1600	42 bid
143		647	24	do	or pek	2160	35 bid
144		650	17	do	pek No. 2	1530	33
145	Oakwell	653	16	do	bro pek	1593	40 bid
146		656	8	do	pek	816	44
147		659	9	do	pek sou	860	37
149	Orangefield	665	12	do	bro pek	1200	24
150		668	9	do	bro pek	855	22
151		671	22	do	pek	1980	19
157	Kebedda	689	26	hf-ch	pe sou	1160	18

[Messrs. Somerville & Co.—
238,524 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Hanwella	1435	16	hf ch	pek	800	30
3	Nillicollay-wattte	1441	17	hf ch	hro pek	1190	33
4		1444	13	ch	pek	1014	31
16	Nyanza	1480	8	ch	bro or pek	800	46
17		1483	9	do	bro pek	900	35
18		1486	15	do	or pek	1350	38
19		1489	25	do	pek	2250	33
22	Carney	1498	33	hf ch	bro pek	1650	31 bid
23		1501	44	do	pek	1980	30
24		1504	25	do	sou	1250	26
26	Meddegodde	1510	42	hf-ch	bro or pek	1890	39
27		1513	23	do	or pek	920	38
28		1516	83	do	pek	2905	33
33	Koladeniya	1531	13	ch	bro pek	1170	28 bid
34		1534	12	do	pek	1020	25 bid
41	Oak Lands	1555	13	ch	pek	1170	31
42		1558	10	do	pek sou	800	26
51	Waverley	1585	17	ch	pek sou	1649	39
52	Tyspane	1588	22	ch	pek	1980	36
53	Siriniwasa	1591	24	do	bro pek	2400	35
54		1594	26	do	pek	2470	31
55		1597	17	do	pek sou	1530	29
56		1600	7	do	bro or pek	735	27
58	Ettie	1606	18	ch	bro pek	1800	29 bid
59		1609	10	do	pek	1000	27
61	Citrus	1615	20	ch	bro pek	1800	29 bid
62		1618	15	do	pek	1500	26 bid
68	Mabagoda	1636	12	ch	pek	1200	21 bid
69	Ladysmith	1639	30	ch	bro pek	3000	30 bid
70		1642	19	do	pek	1634	31 bid
76	Attiville	1660	10	do	bro pek	1000	27 bid
77		1663	12	do	pek	1200	24 bid
80	A C B	1672	16	ch	bro pek	1600	35 bid
81		1675	11	do	pek	1045	35
83	Mattamagoda	1681	10	cb	bro pek	1000	30
84		1684	10	do	pek	900	28
86		1690	9	do	pek sou	720	22
88	Forest Hill	1696	10	ch	bro pek	910	32 bid
89		1699	11	do	pek	957	30
92	Cairn Hill	1708	15	ch	bro pek	1500	32 bid
93		1711	23	do	pek	2070	31
94		1714	14	do	pek sou	1190	28
96	C	1720	10	hf ch	dust	800	19
97	Monte Chiisto	1723	30	ch	bro pek	3000	39
101	Oonanagalla	1735	31	ch	bro or pek	3100	33 bid
102		1738	20	do	bro pek	1900	35 bid
103		1741	38	do	pek	3420	33 bi
108	Avisawella	1756	35	boxes	bro or pek	700	35
109		1759	27	ch	pek	2295	27
110		1762	22	do	pek sou	1760	25
111		1765	6	do	fans	720	16
112	Marigold	1768	35	hf ch	bro or pek	1925	54
113		1771	42	do	or pek	1974	48
115		1777	17	do	pek sou	816	41
116	Mary Hill	1780	25	hf ch	bro pek	1250	37
117		1783	28	do	pek	1260	31
118		1786	21	do	pek sou	840	27
120	Blinkbonnie	1792	31	hf ch	bro pek	1680	48
121		1795	20	ch	or pek	1700	44
122		1798	23	do	pek	2024	45
123		1801	10	do	pek sou	820	38
127	Bargany	1813	15	hf ch	or pek	750	49 bid
131	Fairfield	1825	30	ch	bro pek	3000	42
132		1828	20	hf ch	bro or pek	1000	62
133		1831	32	ch	pek	2880	39
134		1834	17	do	or pek	1445	42
135	Holmsdale	1837	20	ch	bro or pek	1900	30 bid
136		1840	21	do	pek	1785	30
139	Henhurst	1847	10	ch	or pek	850	31 bid
140		1852	12	do	bro or pek	1140	32
141		1855	28	do	pek	2380	29

Lot		Box.	Pkgs.		Name.	lb.	c.
146	Glenalla	1870	9	ch	bro or pek	900	33 bid
148		1876	17	do	pek	1445	32
149		1879	14	do	pek sou	1120	28
154	Gangwarily	1894	12	ch	sou	960	9
157		4	24	ch	bro pek	1920	33 bid
158		7	18	do	pek	1260	31 bid
159		10	18	do	pek sou	1260	26 bid
160	Walla Valley	13	22	hf ch	bro or pek	1254	46 bid
161		16	26	ch	bro pek	2340	40
162		19	18	do	pek	1530	36
163	Roseneath	22	20	cb	bro pek	2000	34
164		25	13	do	pek	1170	32
165		28	22	do	pek sou	1760	26
166		31	8	do	dust	800	19
167	Annandale	34	16	hf ch	bro or pek	896	56 bid
168		37	22	do	or pek	1122	45 bid
169		40	17	do	pek	952	41
170		43	13	do	pek sou	780	38
173	Kayigam	52	18	ch	bro pek	1710	33 bid
174		55	15	do	or pek	1275	3[illegible]
175		58	14	do	pek	1120	30
176		61	14	do	pek sou		28
177		64	12	hf ch	dust	600	19
179	Oakham	70	12	hf ch	bro pek	720	53
181		76	10	ch	pek	900	37
184	Hanwella	85	15	hf ch	bro pek	825	28 bid
186	S K	91	10	ch	bro pek	1000	25 bid
187		94	18	do	pek	1710	23
190	Ladysmith	103	36	do	bro pek	3312	30 bid
191		106	36	do	pek	2700	31 bid
192		109	22	do	pek sou	1716	22
193		112	13	do	sou	1040	36
194	Columbia	115	23	hf ch	bro pek	1495	36
195		118	17	do	pek sou	884	30
197	Dryburgh	124	20	hf-ch	pek	860	33
203	Lubuduwa	142	7	ch	bro pek	756	33
205		148	8	do	sou	778	27
209	Neuchatel	160	43	ch	or pek	3655	34
210		163	13	do	bro or pek	3300	34
211		166	9	do	pek	765	32
212	Deniyaya	169	14	ch	or pek	1190	37 bid
213		172	19	do	bro pek	1900	36
214		175	14	hf ch	bro or pek	770	49
215		178	17	ch	pek	1700	33
216		181	18	do	pek sou	1800	30
220	Farnbam	193	15	ch	or pek	1125	33
221		196	26	do	bro pek	2340	37
222		199	17	do	pek	1445	33
223		202	15	do	pek sou	1200	30
227	Mount Vernon	214	24	do	pek	2400	44
228		217	27	do	pek A	2726	41
229	Kosgabahena	220	14	ch	bro pek	1540	28
230		223	17	do	pek	1700	24
240	Uggala	252	22	hf-ch	pek sou	1100	out
242	Dikmukalana	259	30	hf ch	bro pek	1500	34
243	Ravana	262	31	ch	bro pek	3255	33
244		265	22	do	pek	1870	34

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.		Name.	lb.	c.
10	Mapitigama	66	3	ch	bro or pek	300	48
14		78	4	do	bro or pek fans	440	34
15		81	6	hf ch	bro tea	450	18

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
4	G F D	2263	7	hf-ch	bro pek	350	28
5		2266	13	do	pek	585	24
6		2269	7	do	pek sou	280	2[illegible]
7		2272	3	do	sou	105	2[illegible]
		2275	1	do	bro pek fans	45	1[illegible]
9		2278	1	do	red leaf	37	1[illegible]
13	Beverley	2290	7	do	fans	525	21
17	St John's Wood	2302	8	do	pek sou	400	29
18		2305	2	do	fans	178	18
22	Drayton	2317	2	ch	sou	160	26
26	Kelaneiya and Braemar	2329	2	do	dust	200	18
27		2332	2	do	sou	200	23
30	Carberry	2341	5	do	pek sou	450	28
31		2344	2	do	bro tea	180	24
32		2347	1	do	dust	140	18
33	G K	2350	5	do	bro tea	450	24
34		2353	3	do	dust	420	16
35	Udapolla	2356	7	do	or pek	630	33
38		2365	4	do	pek sou	340	25
39		2368	2	hf ch	dust	160	19
44	Shrubs Hill	2383	6	ch	pek sou	498	30
46	Uragalla	2389	3	do	bro pek	285	32

Lot.		Box.	Pks.	Name.	lb.	c.
47		2392	4 ch	pek	360	24
48		2395	2 do	pek sou	160	19
49		2398	1 do	bro mix	90	24
50		2401	1 do	unas	85	17
51		2404	1 do	red leaf	75	11
52		2407	1 do			
			1 hf-ch	dust	185	16
53	Kakiriskande	2410	4 ch	bro pek	400	34
55		2416	5 do	pek sou	475	27
61	Holton	2434	8 do	pek sou	680	28
62	A B F	2437	3 do	bro pek	300	32
63		2440	2 do	pek	200	23
64		2443	3 do	pek sou	300	18 bid
73	P G A	2470	4 do	fans	280	13
81	Pine Hill	2494	7 do	pek sou	560	31
4	A	2503	6 do	pek sou	570	24
85		2506	2 do	sou	160	18
86		2509	1 do	dust	150	14
90	Queensland	2521	2 hf-ch	bro pek dust	150	23
92	Yatiyana	2527	7 ch	bro pek	686	18
93		2530	3 do	pek	285	18
94		2533	1 do	pek No. 2	95	15
95		2536	3 do	pek sou	282	14
96	I K V	2539	2 do	bro mix	224	12
97		2542	4 do	pek fans	480	18
99	Doranakande	2548	6 do	pek	570	28
100		2551	6 do	pek sou	540	26
101		2554	1 do	dust	100	16
105	Macaldenia	2566	10 hf-ch	pek sou	500	32
106		2569	3 do	dust	210	20
109	St. Heliers	2578	5 do	dust	415	23
112	Karowkettia	2587	5 ch	bro pek	552	34
113		2590	6 do	pek	601	23
114		2593	1 do	congou	103	18
126	Battawatte	2629	8 do	pek sou	640	31
127		2632	2 do	dust	200	18
128	Galkadua	2635	2 do	bro or pek	228	26
132		2647	2 do	fans	220	23
145	Eriollwood	2686	5 do	pek sou	475	32
150	Gallawatte	2701	5 hf ch	bro or pek	275	26
151		2704	6 ch	pek	510	20
154		2713	6 do	bro pek	510	32
155		2716	11 hf ch	bro or pek	605	41
159	Kitulgalla	2728	2 ch	pek sou	180	20
163	Yuillefield	2740	4 do	pek e	360	30
164		2743	1 hf ch	dust	80	19
169	Mudamana	2758	1 ch	bro pek	90	28
172	Kumaradola	2767	6 do	pek	540	33
173		2770	1 do	bro tea	80	26
174		2773	1 hf-ch	dust	90	20
178	Maragalla	2785	2 ch	bro tea	160	26
179		2788	1 hf ch	dust	90	21
180	Ingurugalla	2791	6 do	bro pek	510	14
181		2794	4 ch	red leaf	360	13
189	D O	2818	2 do	pek sou	140	22
190		2821	2 do	sou	134	21
191		2824	3 do	pek fans	276	20
192	R S	2827	3 do	pek sou	210	22
193		2830	3 do	sou	201	20
194	K M	2833	5 do	bro or pek	500	30
195		2836	6 do	pek	450	29
196		2839	4 do	pek sou	280	26
197		2842	4 do	sou	320	24
198		2845	2 do	dust	300	16
199	A G	2848	2 do	bro pek	164	19
200		2851	1 do	pek	75	25
201		2854	2 do	sou	161	20
202		2857	1 hf ch	sou	40	15
203	E P	2860	5 ch			
			1 hf ch	bro or pek	497	30
204		2863	6 ch			
			1 hf ch	pek	468	28
205		2866	5 ch			
			1 hf ch	pek sou	340	26
206		2869	5 ch	sou	300	24
207		2872	3 do			
			1 hf ch	fans	252	18
208		2875	1 do	dust	55	16
214	Tempo	2893	7 ch	bro pek fans	595	25
219	Penrhos	2908	4 hf ch	fans	200	23
223	Palawatte	2920	6 ch	pek	600	27
224		2923	2 do	pek sou	180	26
225		2926	3 do	sou	150	21
226		2929	1 do	dust	80	18
234	Munukattia Ceylon, in est. mark	2953	7 hf-ch	dust	560	18
235	B G F G	2956	2 ch	unast	190	42
240	Clyde	2971	3 do	dust	420	18
241	Allerton	2974	2 do	dust	240	18
242	Memorakande	2977	3 do	dust	240	18
244	A K	2983	4 do	dust	520	23
245	Ugieside	2986	5 hf ch	dust	400	19
251	Weyagalla	3004	1 ch	sou	83	18
252		3007	3 do	dust	300	21
253	A	3010	6 do	sou	540	18
255	K D A	3016	2 do	bro pek	200	28
256		3019	1 do	pek	100	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
257		3022	1 ch	pek	83	24
258		3025	1 do	pek sou	100	19
259	Palm Garden	3028	5 do	bro pek	550	33
260		3031	5 do	pek	500	27
261		3034	4 do	pek sou	400	22 bid
262		3037	2 do	fans	220	17
263		3040	1 do	congou	85	15
266	Haputelawella	3049	6 hf-ch	pek sou	270	35
271	Hatton	3064	4 ch	pek sou	300	33
272		3067	3 do	dust	450	21
274	V	3073	8 hf-ch	dust	640	18
275	Galkande	3076	6 ch	pek sou	537	20
278	D O	3085	2 do	dust No. 2	320	16
290	Castlereagh	3121	4 hf-ch	dust	280	19
291	D	3124	1 ch	pek sou	80	18
292	U S A	3127	2 do	bro mixed	152	13
301	Dunnottar	3154	1 do	pek fans	100	21
302		3157	3 do	bro pek fans	390	26
303		3160	1 do	bro mixed	100	15
305	Woodend	3166	6 do	bro pek	600	28
308		3175	1 do	dust	260	17
309	Kotua	3178	4 do	bro pek	400	35
310		3181	4 do	pek	400	28
311		3184	2 do	pek sou	190	25
312		3187	1 do	sou	90	20
313		3190	1 do	dust	130	18
317	East Holyrood	3202	4 do	pek	392	40
321	Cobhanwood	3214	1 do	hold glazed hyson No. 1	80	40
325	Galapitakande	3226	7 do	pek sou	630	32
326		3229	2 do	dust	200	21
332	Tonacombe	3247	8 hf-ch	dust	680	21
337	Harrow	3262	3 do	dust	255	21
344	Ugieside	3283	8 ch	dust	600	17
350	Rajawatte	3351	3 hf-ch	dust	240	17
357	Digdola	3322	8 ch	pek	640	31 bid
358		3325	3 do	pk sou	210	28
359		3328	1 do	dust	160	22
362	Strathspey	3337	3 do	bro or pek	318	75
368	C P H, Galle in est. mark	3355	10 hf-ch	bro pek	500	28 bid
372		3367	6 hf ch	pek sou	300	22
373		3370	3 ch	congou	255	16 bid
374		3373	2 hf-ch	congou	90	15
375		3376	1 ch	dust	120	14
376		3379	2 do	fans	200	16 bid
381	Weoya	3394	4 do	dust	600	17
388	D M	3415	5 do	pek	500	25
392	Inverness	3427	3 hf-ch	dust (H)	255	18
394	Fairlawn	3433	9 ch	or pek	675	42
396		3439	8 do	pek sou	600	28
397		3442	3 hf-ch	dust	255	20
398	F L in est mark	3445	3 ch	bro mix	270	14
403	Ambragalla	3460	4 hf-ch	dust	340	17
407	Amblakande	3472	6 ch	pek souchong	480	26
411	Geragama	3484	6 do	fans	510	17
412		3487	4 do	dust	360	17
416		3490	3 do	fans	225	16
417		3502	2 do	dust	170	17
423	Gonapatiya	3520	8 hf-ch	dust	680	25

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	221	2 ch	dust	200	19
2	Suduwella	224	4 do	bro pek	364	26
3		227	8 do	pek	640	25
4		230	3 do	pek sou	198	18
5		233	1 do	bro pek fans	98	15
8	Wadhurst	242	7 do	pek sou	630	31
9		245	2 hf ch	dust	150	20
12	Mossend	254	15 do	pek	600	33
13		257	3 do	pek sou	105	28
14		260	5 do	fans	300	19
18	W K	272	8 do	pek sou	584	36
19		275	4 do	dust	384	18
20		278	1 ch	bro mix	64	12
22	Birnam	284	1 hf-ch	bro pek	41	30
23	Alpolakande	287	8 ch	sou	672	14
30	Ladbroke	308	1 hf ch	dust	82	
31		311	1 do	bro mix	88	1518
38	Perth	332	8 ch	pek	600	30 bid
39		335	4 do	pek sou	300	27
40		338	1 do	pek dust	140	17 bid
44	Kolapatna	350	4 hf ch	pek sou	196	32
45		353	6 do	br ro pe fans	432	30
49	Osborne	365	1 ch	pek sou	95	32
50		368	7 hf ch	fans	490	30
51		371	1 do	dust	96	20
55	Loughton	383	9 do	fans	450	23
57	N B	389	7 ch	pek sou	680	28 bid
60	Koslande	398	3 do	pek sou	270	32
61		401	1 do	fans	110	26
62		404	1 hf ch	dust	80	20

Lot.		Box.	Pkgs.	Name.	lb.	c.
68	Mount Clare	422	7 ch	or pek	665	33
70		428	4 do	pek sou	270	26
71		431	3 do	sou	300	14
72		434	1 do	fans	92	16 bid
84	Brownlow	470	7 hf-ch	bro pek fans	497	30
88	G F R in estate mark	482	3 ch	pek sou	255	25
91	Coslande	491	2 do	pekoe sou	270	33
92		494	1 do	fans	110	26
93		497	1 hf ch	dust	80	20
96	Little Valley	506	2 do	dust	160	18
97		509	3 ch	bro tea	270	13
105	Rookwood	533	8 hf ch	pek dust	688	25
107	Y B K	539	1 do	dust	71	13
115	Natuwakelle	563	3 ch	fans	330	20
116		566	3 do	dust	380	19
122	Callander	584	5 do	pek sou	200	35 bid
138	Maskeliya	632	7 do	br or pek fans	420	36
139		635	5 do	dust	450	19
148	Anamalai	662	2 do	dust	170	16
152	Orangefield	674	5 ch	pek sou	425	14
153	S P A in estate mark	677	6 hf ch	bro pek No 1	300	22
154		680	4 do	do No 2	200	20
155		683	4 do	pekoe	200	18
156		686	5 do	pek sou	225	16
158	X X in estate mark	692	5 ch	sou	425	11
159	L in estate mark	695	6 do	bro mix	462	12
60	R K P	698	4 do	bro pek fans	400	15

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name	lb.	c,
2	Hanwella	1438	4 hf ch	pek sou	180	22
5	Nellicolla-watte	1447	5 ch	pek sou	350	27
6		1450	1 hf ch	sou	40	19
7		1453	1 do	dust	91	16
8		1456	1 do	fans	60	98
9	Maplecroft	1459	10 hf ch	bro or pek	500	33
10		1462	8 do	or pek	360	35
11		1465	9 do	pek	405	32
12		1468	12 do	pek sou	540	28
13		1471	2 do	fans	120	18
14		1474	2 do	dust	140	17
15	A A	1477	2 hf ch	bro tea	100	12
20	Nyanza	1492	4 ch	pek sou	360	26
21		1495	2 do	fans	200	19
25	Carney	1507	5 hf ch	sou	250	20
29	Meddegodde	1519	16 hf ch	pek sou	640	25
31		1522	5 do	sou	175	20
30		1525	5 do	fans	280	18
32		1528	2 do	dust	140	18
35	Koladeniya	1537	5 ch	pek sou	425	20
36		1540	2 do	dust	200	17
37		1543	3 do	bro sou	240	10
38	Oak Lan	1546	6 ch	bro or pek	600	29
39		1549	5 do	pek	475	31
40		1552	4 do	bro pek	420	23
43		1561	5 do	dust	350	18
44	St. Leys	1564	1 hf ch	fans	86	16
45		1567	1 do	red leaf	53	10
46	Paragahakande	1570	6 ch	bro pek	600	26
47		1573	6 do	pek	600	25
48		1576	6 do	pek sou	570	23
49		1579	3 do	bro mix	300	10
50		1582	4 do	red leaf	395	9
57	Sirinewesa	1503	2 ch	dust	300	17
60	Ettie	1612	2 ch	dust	300	15
63	Citrus	1621	5 ch	pek sou	500	18
64		1624	1 do	bro tea	80	9
65		1627	1 do	pek dust	169	16
66	H A	1630	1 ch	fans	96	12
67	Mahagoda	1633	5 ch	bro pek	550	22
71	St. Catherine	16 5	4 ch	or pek	360	35
72		1648	2 do	bro or pek	180	47
73		1651	4 do	pek	320	32
74		1654	3 do	pek sou	225	28
75		1657	1 hf ch	dust	60	18
78	Attiville	1666	6 ch	pek sou	600	17 bid
79		1669	3 do	bro mix	300	10
82	A C B	1678	5 ch	pek sou	400	28
85	Mattamagoda	1687	5 ch	pek No 2	450	24
87		1693	2 do	dust	230	18
90	Forest Hill	1702	3 hf ch	fans	228	18
91	Cairn Hill	1705	6 ch	or pek	540	32
95		1717	6 hf-ch	dust	480	19
98	Monte Christo	1726	4 ch	pek sou	320	26
99		1729	8 hf-ch	fans	480	20
100		1732	6 do	dust	480	18
104	Oonanagalla	1744	7 ch	pek sou	665	23 bid
105	Ferriby	1747	1 ch	sou	85	15
106		1750	4 do	fans	440	14
107		1753	2 do	dust	300	15
114	Marigold	1774	12 hf ch	pek	600	15
119	Mary Hill	1789	4 hf-ch	dust	320	18
128	Bargany	1816	7 ch	pek	665	36 bid
129		1819	7 do	pek sou	560	31 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
130	B Y	1822	2 hf ch	fans	110	20
137	Holmsdale	1843	1 ch	sou	90	15
138		1846	3 do	fans	300	18
142	Newburgh	1858	5 ch	bro pek	510	44
143		1861	7 do	pek	602	36
144		1864	2 do	pek sou	180	34
145		1867	1 hf ch	dust	88	19
147	Glenalla	1873	4 ch	or pek	360	19 bid
150		1882	1 do	dust	145	18
151		1885	1 do	fans	100	14
152		1888	5 do	sou	400	20
153		1891	2 do	red leaf	160	11
154	Gangwarily	1897	2 hf ch	dust	180	16
156		1	6 ch	pek fans	600	15
171	Annandale	46	4 hf-ch	sou	212	28
172		49	4 do	dust	328	18
178	A D L, in estate mark	67	6 ch	pek sou	570	14
180	Oakham	73	11 hf ch	or pek	495	42
182		79	3 ch	pek sou	285	33
183		82	1 hf-ch	pek fans	80	19
185	Hanwella	88	5 hf ch	pek	250	26
188	S K	97	6 ch	pek sou	600	15
189		100	4 do	red leaf	348	8
196	Dryburgh	121	12 hf ch	or pek	480	37
198		127	3 do	fans	171	18
199	S	130	3 hf ch	dust	240	17
200		133	5 do	bro tea	250	17
201	A	136	4 hf ch	dust	320	17
202		139	5 do	bro tea	250	16
204	Labuduwa	145	4 ch	pek	408	28
206		151	1 hf ch	bro mix	59	15
207		154	1 do	dust No. 1	80	17
208		154	1 do	dust No. 2	56	15
217	Deniyaya	184	7 ch	sou	655	23
218		187	2 do	fans	220	18
219	Farnham	190	2 hf ch	bro or pek	230	28
224		205	1 do	bro pek fans	61	18
225		208	1 do	pek fans	63	18
226		211	1 do	dust	79	16
231	Kosgahahena	226	4 ch	pek sou	400	16
232		229	3 do	sou	300	11
233		232	1 ch	fans	100	13
234		233	2 do	dust	310	16
235	Auburn	237	9 hf ch	fans	630	20
236	Blackburn	240	9 hf ch	fans	630	19
237		243	6 do	dust	480	17
238		246	7 ch	sou	500	17
236	Uggala	249	8 hf ch	bro pek	448	out
241	Dikmukalana	256	3 hf ch	or pek	150	30

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, Oct. 5.

"City of Corinth."—JB Ouvah O, 1 barrel sold at 103s ; ditto 1, 2 casks sold at 102s 6d ; ditto 3, 1 cask sold at 58s ; JB Ouvah 1 PB, 1 barrel sold at 89s ; ditto Triage, 1 tierce sold at 42s ; ditto 2, 1 bag sold at 89s.

"Antenor."—Oliver D, in estate mark, 1 barrel sold at 72s ; WHC P, in estate mark, 1 barrel sold at 70s.

"Calchas."—Standard Co., St. Leonards 2, 2 casks and 1 tierce sold at 91s 6d ; S, 5 casks, 1 tierce and 1 barrel sold at 65s ; PB, 1 barrel sold at 85s ; S St. L T, in estate mark, 2 barrels and 2 tierce sold at 23s ; S, 1 barrel and 6 casks sold at 65s ; PB, 1 barrel sold at 85s ; LSD T, in estate mark, 4 barrels sold at 23s.

"Collegian."—Pingarawa PB, 1 tierce sold at 85s.

CEYLON COCOA SALES IN LONDON.

"Sanuki Maru."—KAS & Co., 20 bags sold privately.

"Calchas."—Maragalla RA, 23 bags sold at 94 ; ditto YA, 19 bags sold at 92s 6d ; 1 bag sold at 67s ; ditto B, 4 bags sold at 76s ; 1 bag sold at 66s ; M D, in estate mark, 12 bags sold at 83s ; D, in estate mark, 47 bags sold at 70s.

"Hitachi Maru."—Q, 2 bags sold at 41s ; 2 bags sold at 65s ; Broken, 2 bags sold at 58s ; Black, 1 bag sold at 42s ; B, 26 bags sold at 90s 6d ; 8 bags sold at 69s ; C, 1 bag sold at 55s ; AW, 4 bags sold at 20s ; B, 1 bag sold at 64s ; 2 bags sold at 69s ; C, 1 bag sold at 63s ; Strathellie, 1 bag sold at 45s.

"India."—Meegama A, 19 bags sold at 93s ; 1, 11 bags sold at 76s ; C 1, 1 bag sold at 73s ; B 1, 5 bags sold at 66s 6d ; B, 2 bags sold at 56s.

No. 41 COLOMBO, NOVEMBER 5, 1900. PRICE:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[22,962 lb.

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Battalgalla	40	12	ch	pek sou	960	35
2	Hornsey	43	30	ch	or pek	2850	39 bid
3		46	21	do	pek	1890	36
4		49	15	do	pek sou	1200	37
5		52	12	hf ch	fans	1020	24
6	Bunyan	55	24	do	bro or pek	1440	52 bid
7		58	21	do	or pek	940	45 bid
8		61	17	ch	pek	1360	38
9		64	26	do	pek sou	2470	37
10	Manickwatte	67	18	do	or pek	1530	32
11		70	16	do	bro or pek	1600	31
12		73	20	do	pek	1580	27 bid
13		76	21	do	pek sou	1722	26
16	Oakfield	85	7	ch	bro pek	700	31
17		88	9	do	pek	720	28 bid
18		91	11	do	pek sou	770	25 bid

Messrs. Forbes & Walker

[396,129 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
2	Cooroondoo-watte	3535	10	ch	or pek	1000	37
5	Forest Creek	3544	20	do	bro or pek	2000	56
6		3547	29	do	bro pek	2900	46
7		3550	12	do	or pek	1080	40
8		3553	18	do	pek No. 1	1620	39
9		3556	25	do	do „ 2	2250	35
10	St. Paul's	3559	40	hf ch	pek	2000	40
14	Great Valley Ceylon, in est. mark	3571	40	hf ch	bro or pek	2200	51
15		3574	13	ch	or pek	1105	41
16		3577	42	do	pek	3570	37
17		3580	18	do	pek sou	1350	33
18		3583	10	do	sou	750	21
19	Caledonia	3586	7	ch	bro pek	700	31
20		3589	10	do	pek	1000	22
24	Harrington	1	16	hf ch	bro or pek	800	57
25		4	17	ch	or pek	1615	39 bid
26		7	32	do	pek	3040	34 bid
32	B, in estate mark	25	10	ch	sou	900	20 bid
33		28	9	do	dust	1260	19
34	Holton	31	12	do	bro pek	1140	35
35		34	10	do	pek	800	31
38	C S G	43	70	hf-ch	bro pek	3500	38
39		46	27	ch	pek	2160	34
40		49	12	do	pek sou	960	30
43	S R, in estate mark	58	10	ch	congou	1000	23
45	Broadoak	64	27	do	pek	2430	33 bid
46		67	10	do	bro tea	750	19 bid
48		73	7	do	pek fans	805	19
49		76	7	do	bro pek dust	1050	20
52	Ardlaw and Wishford	85	16	hf ch	bro or pek	912	59
53		88	20	ch	bro pek	1800	40
54		91	13	do	or pek	1079	39 bid
55		94	15	do	pek	1215	39
56	Dunedin	97	20	hf ch	dust	1520	18
57	Wewawatte	100	15	do	bro pek	870	31
64	Ismalle	121	9	ch	sou	765	18
68	St. Martin	133	11	ch	bro pek	1045	33
69		136	15	do	pek	1350	31
72	Naseby	145	34	hf-ch	bro or pek	2040	63 bid
73		148	35	do	or pek	1610	55 bid
74		151	25	do	pek	1150	47
75	Drayton	154	24	ch	or pek	2280	46
76		157	52	do	pek	4420	38
77		160	20	do	pek sou	1700	34
85	Deviturai	184	28	ch	bro pek	2800	36
86		187	29	do	pek	2610	31 bid
87	Loinorn	190	21	ch	or pek	1890	58 bid
89	Kincora	196	6	do	bro pek	810	46
90		199	9	do	pek	1190	40
91		202	14	do	do No 2	900	37
94	Ascot	211	11	do	bro pek	990	34
99	Erlsmere	226	34	hf ch	bro or pek	2040	39 bid
100		229	15	ch	or pek	1275	41 bid
101		232	26	do	pek	1950	36
109	Dunkeld	256	22	hf ch	pek fans	1496	25
110		259	10	ch	pek sou	900	28
111		262	15	hf ch	dust	1350	20
112	Rozelle	265	21	ch	pek sou	1785	26
115	Lucky Land	274	23	hf-ch	bro or pek	1380	41
117		280	20	do	pek	1000	38
118		283	14	do	pek sou	700	35
123	Pallagodde	298	11	ch	bro or pek	1100	39
124		301	22	do	bro pek	2200	49
125		304	17	do	or pek	1530	36
126		307	15	do	pek	1275	34
127		310	9	do	pek sou	810	33
129	Dea Ella	316	23	hf ch	bro or pek	1265	45
130		319	45	do	or pek	2250	34 bid
131		322	33	do	pek	1650	33
132		325	17	do	pek sou	850	30
133	Erracht	328	31	ch	bro pek	3100	31
134		331	20	do	or pek	1600	37
135		334	54	do	pek	4320	29
136		337	10	do	pek sou	800	23
139	Knavesmire	346	41	ch	bro pek	4100	30
140		349	29	do	pek	2465	29
141		352	18	do	pek	1350	28
142	Thedden	355	12	ch	bro pek	1200	38
143		358	12	do	pek	1080	34
146	Tambiligalla	367	17	do	bro or pek	1700	38
147		370	18	do	pek	2520	35
152	Penrhos	385	23	hf-ch	bro or pek	1265	41
153		388	20	do	or pek	960	40
154		391	29	ch	pek	2494	34
155		394	11	do	pek sou	880	30
159	K P W	406	32	hf ch	bro or pek	1920	34
160	K P W	409	20	do	or pek	1000	33
161		412	51	do	pek	2550	31
162		415	15	do	pek sou	750	27
164	Nugagalla	421	24	do	bro pek	1200	39
165		424	43	do	pek	2150	32
168	Quilon	433	43	ch	bro tea	3440	7 bid
169		436	11	hf ch	dust	715	11
170	H G M	439	12	do	bro or pek	720	44
171		442	8	ch	or pek	720	40
172		445	20	do	bro pek	2000	35
173		448	28	do	pek	2520	34
174		451	12	do	pek sou	1020	32
175		454	8	do	bro pek fans	800	28
182	W	475	20	hf ch	bro pek fans	1100	23 bid
183		478	46	do	bro tea	3450	21
184	Carlabeck	481	13	ch	pek sou	1196	35 bid
185		484	14	hf ch	bro pek fans	1050	26
186	Grange Garden	487	30	ch	bro or pek	3000	33
187		490	20	do	pek	2000	30
188	Bramley	493	28	hf-ch	bro tea	1568	25
189		496	51	do	dust	4437	20
193	Queensland	508	8	ch	or pek	720	46
194		511	9	do	pek	765	42
196	Palmerston	517	13	hf ch	bro pek	715	50
197		520	13	do	bro or pek	715	64 bid
198		523	12	ch	pek	1080	47
199	St. Heliers	526	22	hf ch	bro or pek	1210	46
200		529	15	ch	pek	1320	3? bid
201	Patiagama	532	19	hf-ch	bro or pek	1045	53
202		535	10	ch	or pek	850	38 bid
203		538	24	do	pek	1920	36
204	Old Madde-gama	541	12	hf ch	bro or pek	840	39 bid
205		544	14	do	bro pek	980	34 bid
206		547	17	ch	pek	1360	35
207		550	10	do	pek sou	750	29
210	H P Z	559	18	ch	bro pek	1800	34 bid
211		562	39	do	pek	3120	34
212		565	20	do	pek sou	1140	30
215	Yellangowry	574	28	do	or pek	2520	28 bid
216		577	19	do	pek	1710	26 bid
217		580	18	do	pek sou	1620	23 bid
223	Carandon	598	12	do	bro pek	1320	out
224		601	9	do	pek	900	out
225		604	8	do	pek sou	800	out
227	Sirikandura	610	7	do	bro pek	700	36
231	Dunbar	622	18	do	bro or pek	864	61 bid
232		625	30	hf-ch	or pek	1410	44 bid
233		628	27	ch	pek	2025	37 bid
234		631	25	hf-ch	bro pek	1325	57
237	Ingrogalla	640	20	ch	bro pek	2000	38
238		643	18	do	pek	1530	31 bid
239	Wevalakande	646	13	hf-ch	bro pek	728	31
243	Roeberry	658	10	ch	bro pek	980	35 bid
247	Hopton	670	23	do	bro or pek	2300	37 bid
248		673	15	do	or pek	1425	35 bid

Lot.		Box.	Pks.	Name.	lb.	c.
249		676	27 ch	pek	2430	37
250		679	15 do	pek sou	1425	31
252	Coreen	685	37 hf-ch	bro or pek	2146	42 hid
253		688	17 ch	or pek	1496	43 bid
254		691	24 do	pek	2016	35
257	Summer Hill	700	47 do	bro or pek	2867	76
258		703	21 do	or pk No. 2	1911	60
259		706	44 do	pek	3960	50
260		709	27 do	pek sou	2052	43
261		712	24 do	fans	2016	28
266	Waitalawa	727	68 hf-ch	bro pek	3400	48
267		730	74 do	pek	3700	30 bid
269	Augusta	736	9 ch	bro or pek	900	31
270		739	20 do	bro pek	1700	28 hid
271		742	23 do	pek	2070	27 bid
272		745	11 do	pek sou	990	25 bid
273		748	6 do	dust	870	18
274	Choisy	751	21 do	hro pek	2097	51
275	Tillyrie	754	17 hf-ch	twanky	1020	25 bid
277	Marlborough	760	65 hf-ch	bro or pek	3575	42 bid
278		763	14 ch	or pek	1092	35 bid
279		766	43 do	pek	3698	32 bid
280		769	12 do	pek sou	936	28 bid
281	Norwood	772	55 do	pek	4400	36 bid
282	Agra Oya	775	8 do	hro or pek	720	38
283		778	24 do	or pek	1920	34
284		781	22 do	bro pek	2200	32
285		784	28 do	pek	2100	31
286		787	13 do	pek sou	1170	28
289	Tymawr	796	47 do	pek	2115	31 bid
201	Rowley	802	22 do	bro pek	1100	42
292		805	29 do	pek	1450	33
293		808	14 do	pek sou	700	29
295	Glengariffe	814	21 do	bro or pek	1155	39
296		817	17 do	or pek	765	34 bid
297		820	19 do	pek	1767	32
298		823	14 do	pek sou	1120	30
300	P in est. mark	829	21 do	hro or pek	2100	50 hid
301		832	14 do	pek	1120	42
302		835	20 do	pek sou	1600	37
303	Monkswood	838	27 hf-ch	bro pek	1620	69 bid
304		841	35 do	or pek	1925	61 bid
305		844	27 do	pek	2565	50
306		847	11 do	pek sou	935	44
307	Kalupahana	850	7 ch	bro pek	735	33
311	Wkelle	862	8 do	pek	760	28 bid
312		865	12 do	pek sou	1080	24 hid
313	Udaveria	868	40 hf-ch	bro or pek	2320	50 bid
314		871	48 do	pek	2400	47 bid
315		874	36 do	pek sou	1800	40 bid
319	Killarney	886	42 do	bro or pek	2310	56
320		889	30 ch	pek sou	2850	38
322	Cartax	895	18 do	hro or pek	1800	55
323		898	20 do	or pek	1800	41 hid
324		901	19 do	pek	1710	38
325	High Forest	904	40 hf-ch	bro or pek	2800	38
326		907	16 do	pek sou	768	43
327		910	15 do	pek dust	1350	26
328		913	40 do	or pk No. 1	2400	70
329		916	30 do	or pek	1680	50 bid
330		919	23 do	pek	1219	47 bid
331	Adisham	922	68 do	bro or pek	3740	39 bid
332		925	28 do	or pek	1260	49
333		928	11 ch	hro pek	990	39
335		934	10 hf-ch	dust	850	22
337	T L C in est. mark	940	7 ch	congou	700	24
338	Bickley	943	22 hf-ch	bro or pek	1210	55
339		946	27 do	or pek	1890	43
340		949	24 do	pek	1488	40
341		952	20 do	bro or pek	1460	50
342		955	39 do	or pek	2730	39
343		958	37 do	pek	2220	38

[Messrs. Somerville & Co.—205,472 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	H	289	8 ch	dust	848	17
10	Raglan	295	13 ch	pek	1170	26
12	Rahatungoda	301	33 hf ch	bro or pek	1650	56
13		304	29 do	or pek	1450	43
14		307	57 do	pek	2850	43
15	Bope	310	17 hf-ch	hro pek	920	33
16		313	16 do	or pek	800	29
21	F F, in estate mark	328	17 hf ch	bro pek	935	27
32	Narangoda	361	22 ch	bro pek	1980	35
33		364	8 do	bro or pek	800	28
34		367	42 do	pek	3780	30
35		370	15 do	pek sou	1350	28
44	Warakamure	397	49 ch	bro pek	4900	34
45		400	23 do	pek	2185	28
46		403	8 do	pek sou	720	25
47	Ukuwela	406	11 ch	bro tea	990	7
48	Dalukoya	409	13 hf-ch	bro or pek	780	36 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
49		412	22 hf ch	or pek	1210	30 bid
50		415	28 do	pek	1540	27 bid
54	Salawe	427	23 ch	bro pek	2300	33
55		430	15 do	pek	1350	30
56		433	12 do	pek sou	1080	27
60	Gwernet	445	11 ch	bro pek	1100	35
61		448	15 do	pek	1275	30
62		451	12 do	pek sou	960	27
66	Oakham	463	17 hf ch	bro pek	1020	56
67		466	12 ch	pek	1080	56
70	Hangranoya	475	11 ch	bro or pek	1100	52
71		478	26 do	bro pek	2730	33 hid
72		481	19 do	pek	1805	32
74	Mousa Eliya	487	19 ch	bro pek	1995	34
75		490	12 do	or pek	1020	30 hid
76		493	21 do	pek	1995	29
77	Kosgahawela	496	21 ch	bro pek	2100	out
78		499	7 do	pek sou	700	out
79	Roseneath	502	10 ch	pek	892	32
92	Tyspane	541	11 ch	hro or pek	1100	36
93		544	22 do	hro pek	2205	32 hid
94		547	25 do	pek	2125	33
95	Yspa	550	16 ch	pek sou	1360	29
96		553	5 ch	pek dust	700	18
97	Ramhodde	556	21 hf ch	or pek	1155	37
98		559	27 do	pek	1215	34
103	Lower Dickoya	574	33 hf ch	bro pek	1749	28 bid
104		577	8 do	pek	760	27
105	Kurulugalla	580	20 ch	bro pek	2000	31
106		583	14 do	pek	1260	29
108	Columhia	589	35 hf ch	bro or pek	1820	53
109		592	23 do	pek	1104	41
110		595	50 do	or pek	2400	42
111	Amhalawa	598	26 hf ch	bro pek	1300	28 hid
112		601	22 do	pek sou	880	25
113	Monrovia	604	24 ch	bro pek	2400	32
114		607	19 do	pek	1805	30
118	H J S	619	19 hf ch	bro pek	1140	31
119	Yarrow	622	29 do	or pek	1305	32 bid
120		625	26 do	bro or pek	1560	40
121		628	51 do	pek	2995	31 hid
124	G W	637	22 ch	pek sou	1980	25
125	Mahagoda	640	12 ch	pek	1200	20 hid
126	Sadamulla	643	9 ch	hro pek	855	25
127		646	22 do	pek	1980	22
128		649	22 do	pek sou	1870	18
129		652	6 do	pek fans	720	15
131	Holmsdale	658	20 ch	bro or pek	1200	30
132	Endawatte	661	20 ch	or pek	1800	35
133		664	14 do	pek	1260	26
134		667	30 do 1 hf ch	pek sou	2908	20
135		670	44 do	bro pek fans	3300	16
140	Doragalla	685	27 ch	bro or pek	2700	42
141		688	28 do	bro pek	2520	37 bid
142		691	47 do	pek	3760	36
143		694	15 do	pek sou	1200	32
144		697	10 do	bro mix	1250	15
150	Gangwarily	715	24 ch	bro pek	1920	33 hid
151		718	18 do	pek	1260	30 hid
152		721	30 ch	pek	2400	29 hid
158	Mount Vernon	739	28 ch	pek	2800	47
159		742	24 do	pek A	2112	46
160	L	745	14 ch	hro mix	1190	12
163	Hatdowa	754	17 ch	bro pek	1530	32
164		757	16 do	pek	1200	28
165		760	13 do	pek sou	910	25
170	Palulpana	775	13 hf ch	bro pek	715	28
178	Avisawella	799	20 ch	bro pek	2000	31
179		802	21 do	pek	1785	26 hid
180		805	10 do	pek sou	800	21 hid
182	Murraythwaite	811	14 ch	bro pek	1400	34 bid
183		814	14 do	pek	1120	32 bid
186	Carney	823	15 hf-ch	bro pek	750	35
187		826	17 do	pek	765	28
190	Panmure	835	38 ch	pek	3230	34 hid
191	Mahaousa	838	61 ch	hro pek	6405	30
192		841	47 do	pek	3995	28
193		844	21 do	pek sou	1575	21 hid
194	Dikmukalana	847	45 hf ch	bro pek fans	2495	out
195		850	49 do	pek	2450	out
196		853	17 do	pek sou	850	out
197		856	19 do	pek sou	912	out
198		859	16 do	sou	800	out
200	Mousakande	865	11 hf ch	pek sou	990	23 bid

[Mr. E. John.—175,540 lb.]

Not		Box.	Pkgs.	Name.	lb.	c.
1	Mount Everest	701	8 ch	pek sou	720	42
2		704	12 hf-ch	bro pek fan	840	27
5	Kandaloya	713	52 do	bro pek	2340	36 hid
6		716	34 do	or pek	1360	35 hid
7		719	114 do	pek	4560	32
8		722	20 do	pek sou	800	28 hid
11	Kuruwathai	731	16 ch	bro or pek	1340	32 hid
12		734	20 do	pekoe	1700	28 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
15	Wellington	3	23 hf-ch	bro pek	1380	48 bid
16		746	15 ch	pekoe	1425	39
20	Mahanilu	758	9 ch	bro or pek	900	38
21		761	7 do	bro or pek	700	36
22		764	12 do	pek	1080	36
23		767	13 do	pek sou	1131	33
26	G L	776	13 hf-ch	pek dust	975	19
28		782	7 ch	sou	700	16
29	Nahavilla	785	28 do	or pek	2800	44 bid
30		788	44 do	bro pek	4400	42 bid
31		791	8 do	pekoe	800	35 bid
32	Elston	794	29 do	or pek	2900	44
33		797	28 do	pekoe	2380	37
34		800	24 do	pek sou	2160	34
35	Glasgow	803	35 do	bro or pek	2625	49 bid
36		806	16 do	or pek	1040	53
37		809	12 do	pek	1020	42
38		812	13 do	pek sou	1300	39
39		815	15 do	fans	1500	24
40	Bittacy	818	14 do	bro pek	1400	42 bid
41		821	13 do	pekoe	1170	35 bid
44	Brownlow	830	21 hf ch	bro or pek	1134	48
45		833	11 ch	bro pek	1111	36 bid
46		836	12 do	or pek	1104	36 bid
47		839	43 do	pekoe	3741	34
48	Galella	842	12 do	bro pek	1200	38
49		845	15 do	pekoe	1200	32 bid
51	Glentilt	851	25 do	bro pek	2500	51 bid
52		854	20 do	or pek	1900	37
53		857	11 do	pekoe	990	34
54	Mocha	860	26 do	bro or pek	2600	58 bid
55		863	12 do	or pek	1080	55 bid
56		866	20 do	pekoe	1900	47 bid
58	Galoola	872	23 do	bro pek	2300	49
59		875	36 do	pekoe	3240	37
60		878	35 do	pek sou	2800	30
63	Osborne	887	26 do			
			1 hf ch	br or pk No.1	2750	47
64		890	21 do	do No.2	1990	37
65		893	10 do	bro pek	1050	34
66	ohn's	896	25 hf-ch	bro or pek	1450	70
67		899	25 do	or pek	1250	62 bid
68		902	40 do	pek	2080	43
69		905	19 do	pek fans	1292	36
70	Uda	908	8 cb	bro pek	800	23
71		911	12 do	pek	936	24
72	Mahapahagalla	914	30 do	or pek	2700	37
73		917	12 do	pek	1020	34
74		920	13 do	pek sou	1040	26 bid
76	Glassaugh	926	33 hf-ch	or pek	1749	61
77		929	30 do	bro or pek	1950	56 bid
78		932	31 ch	pekoe	2945	43
79		935	7 do	pek sou	700	35
80	Gangawatte	938	19 do	bro or pek	1900	61
81		941	33 do	bro pek	3600	41
82		444	19 do	pek	1710	34
87	Dalhousie	959	13 hf ch	bro pek	715	52 bid
88		962	32 do	pek No. 1	1440	33
89		965	17 do	pek No. 2	765	32
91	Rondura	971	27 ch	bro pek	2700	31
92		974	26 do	or pek	2080	34
93		977	40 do	pekoe	3200	31
94		980	17 do	pek sou	1360	27
96	Agra Ouvah	986	54 hf-ch	bro or pek	3318	63 bid
97		989	63 ch	bro pek	6300	46 bid
98		992	36 do	pek	3492	47
101	Evalgolla	1	18 hf-ch	bro or pek	810	42
103		7	35 do	pek	1225	32 bid
10[illegible]	KeenagahaElla	22	33 do	bro or pek	1650	33 bid
109		25	13 ch	or pek	975	34
110		28	12 do	pekoe	900	33
111		31	10 do	pek sou	700	29 bid
117	New Angamana	49	16 hf-ch	or pek	800	27 bid
122	St John's	64	25 do	or pek	1250	62 bid
123	Whyddon	67	12 ch	or pek	1104	34 bid
124		70	16 do	bro pek	1760	46 bid
125		73	10 do	pek	920	35 bid
129	Morahela	85	13 do	or pek No.1	1079	35 id
130		88	18 do	bro or pek	1800	33
131		91	10 do	or pek No.2	840	34
132		94	12 do	pek	996	32
138	orahel	112	33 ch	bro or pek	3300	34 bid
139		115	18 do	pek e	1512	31
140		18	18 do	or pek No 2	1512	33 bid
142	Y B K	124	13 do			
			1 hf ch	bro tea		12 bid

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
14	Manickwatte	79	2 ch	dust	150	17
15		82	2 do	red leaf	200	12 bid

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Cooroondoo-watte	3532	9 hf ch	bro pek	495	48
3		3538	6 ch	pek sou	600	29
4		3541	4 hf ch	fans	312	22
11	Kotagaloya	3562	3 ch	bro pek	300	37
12		3565	7 do	pek	595	33
13		3568	2 do	pek sou	170	28
	edonia	3592	5 do	pek sou	500	14
22		3595	1 do	red leaf	100	8
23		3598	2 do	dust	200	17
27	Harrington	10	3 ch	pek	270	33
28		13	5 hf-ch	or pek fans	350	27
29		16	2 do	dust	180	17
30	M'Golla	19	2 do	bro mix	160	12
31		22	2 do	fans	200	12
36	Holton	37	8 ch	pek sou	680	28
37	B A	40	3 do	dust	240	17
41	C S G	52	1 do	bro mix	120	18
42		55	4 hf-ch	dust	320	18
47	Broadoak	70	4 do	sou	360	10 bid
50	Y	79	5 do	pek sou	405	12
51		82	2 do	bro tea	162	10
58	Wewawatte	103	19 hf ch	pek	500	30
59		106	1 do	dust	40	16
60	Maldeniya	109	4 do	sou	340	18
61		112	3 do	congou	255	14
62		115	2 do	fans	270	14
63		118	3 do	dust	465	17
65	Ismalle	124	5 ch	congou	425	13
66		127	1 do	fans	135	13
67		130	3 do	dust	465	17
70	St. Martin	139	4 ch	pek sou	350	25
71		142	4 do	fans	240	18
78	Drayton	163	2 do	sou	160	26
79	Mayaya	166	2 ch	bro or pek	216	31
80		169	3 do	bro pek	273	34
81		172	5 do	pek	410	27
82		175	4 do	pek sou	332	24
83		178	2 do	sou	166	15
84		181	1 do	dust	83	17
88	Kinco	193	6 ch	bro or pek	600	57
92		205	5 do	fans	600	36 bid
93		208	1 do	congou	220	14
95	Ascot	214	3 do	or pek	255	28
96		217	6 do	pek	510	27
97		220	3 do	pek sou	255	26
98		123	4 do	bro pek fans	400	20
102	Erlsmere	235	6 ch	pek sou	480	29 bid
103		238	3 hf-ch	dust	252	18
104	Gallawatte	241	5 do	pek fans	350	24
105		244	5 do	dust	425	17
106		247	7 ch	fans	560	13
107		250	6 do	bro fans	480	13
108	D B E	253	7 ch	red leaf	665	10
113	Rozelle	268	6 hf ch	dust	480	18
114		272	12 do	fans	660	19
116	Lucky Land	277	13 do	or pek	650	50
119	B S	286	3 hf-ch	bro or pek	180	28
120		289	2 do	bro pek	100	32
121		292	3 ch	pek	240	27
122		295	7 hf ch	red leaf	350	12
128	Pallagodda	313	7 ch	sou	665	19
137	Erracht	340	3 do	bro pek fans	372	18
138		343	2 do	dust	324	13
144	Thedden	361	5 ch	pek sou	400	27
145		364	1 do	dust	150	18
148	Tembiligalla	373	1 do	pek sou	90	27
149		376	1 do	bropek fans	110	18
150		379	1 do	dust	140	17
151	Penrhos	382	32 box	bro or flowery pek	320	75
156		397	3 hf ch	dust	255	16
157	New Galway	400	11 do	bro pek	660	53
158		403	10 do	pek	550	48
163	K P W	418	5 do	dust	180	18
166	Nugagalla	427	9 do	pek sou	450	25
167		430	5 do	dust	450	18
176	H G M	457	6 do	dust	540	18
177	G T D	460	5 ch	bro pek	500	25
178		463	5 do	pek	450	26
179		466	3 do	pek sou	255	2
180	P B, in estate mark	469	4 hf ch	bro pek	240	14
181	W	472	2 ch	pek sou	180	25
190	Aberfoyle	499	6 hf ch	bro pek	330	37
191		502	4 ch	pek	310	29
192		505	2 do	pek sou	180	26
195	Queensland	514	2 do	unas	200	14
208	Old Madde-gama	553	2 hf ch	fans	190	19
209		556	1 do	dust	100	16
213	H P Z	568	1 hf-ch	dust	80	17
214		571	2 do	fans	50	29
218	Horagaskelle	583	6 do	bro pek	364	28
219		586	9 do	pek	482	22
220		589	10 do	pek sou	532	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
		592	1 do	bro mixed	66	10
		595	1 do	dust	82	15
	Sirikandura	613	7 do			
			1 hf-ch	pek	680	32
		616	5 ch	pek sou	425	26
		619	2 do			
			1 hf-ch	bro pek fans	281	21
235	Dunbar	634	1 ch	pek sou	90	24
236		937	1 do	dust	151	17
240	Wewalakande	649	7 hf-ch	pek	364	21
241		652	7 do	pek sou	350	17
242		655	2 do	red leaf	96	11
244	Roeberry	661	1 ch	bro or pek	99	52
245		664	7 do	pek	630	41
246		667	1 do	pek sou	84	28
251	Hopton	682	5 do	dust	550	18
255	Coreen	694	6 do	pek sou	510	29
256		697	4 hf-ch	dust	328	18
262	Hangrokanle	715	5 ch	bro pek	500	27
263		718	2 do	pek	170	22
264		721	2 do	pek sou	160	17 bid
265		724	1 do	dust	100	17
268	Waitalawa	733	8 hf-ch	pek sou	400	29
276	Alverne	757	6 do	bro pek fans	576	29 bid
287	Agra Oya	790	6 ch	pek sou	540	22
294	Rowley	811	3 hf-ch	dust	150	16
299	Glengariffe	826	8 do	br or pk fans	520	20
308	Kalupahana	853	3 ch	or pek	270	27
309		856	6 do	pek	526	25
310		859	4 do	pek sou	340	22
316	Udaveria	877	3 hf-ch	sou	150	30
317		880	6 do	br pk fans	450	34
318		883	7 do	fans	595	22
321	Killarney	892	5 do	dust	450	18
334	Adisham	931	10 do	bro mixed	550	10
336	Halloowella	937	3 do	pek	118	24

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Mount Everest	707	2 hf-ch	dust	200	18
4		710	3 ch	bro mix	300	14
9	Kandaloya	725	10 hf-ch	fans	500	24
10		728	6 do	dust	300	17
13	Kuruwathai	737	2 do	pek sou	180	19
14		740	2 do	bro tea	170	16
17	Wallington	749	1 do	pek sou	100	33
18		752	1 hf ch	dust	95	17
19	Mahanilu	755	5 ch	or pek	450	38
24		770	4 do	fans	400	29
25	G L	773	8 do	pek sou	640	22
27		779	3 hf-ch	br pek fans	210	18
42	Bittacy	824	7 ch	pek sou	630	31
43		827	7 hf-ch	dust	560	18
50	Galella	838	5 ch	pe sou	400	29
57	Mocha	869	6 hf ch	fans	420	25
61	Galoola	881	2 ch	dust	200	18
62		884	3 do	fans	300	25
75	Mahapahagalla	923	3 hf-ch	dust	240	15
83	Gangawatte	447	7 ch	pek sou	630	26
84		950	3 do	dust	390	18
85		953	3 do	fans	330	21
86	Dalhousie	956	8 hf-ch	or pek	360	47
90		968	6 do	dust	390	25
95	Rondura	983	3 ch	dust	450	23
99	A W	995	6 hf-ch	bro pek	300	12
100		998	4 do	pekoe	180	14
102	Evalgolla	4	11 do	or pek	440	37
104		10	10 do	pek sou	400	23
105		13	3 ch	sou	105	20
106		16	1 hf-ch	fans	50	17
107		19	1 do	dust	55	18
112	Keenagaha Ella	34	6 ch	ou	450	22 bid
113		37	9 hf-ch	bro pek fans	585	23
114		40	4 do	pekfans	340	19
115		43	1 do	dust	90	14
116	New Angamana	46	13 do	bro or pek	650	27 bid
118		52	15 do	pekoe	675	23 bid
119		55	14 do	pek sou	560	23 bid
120		58	3 do	fans	1	16
121		61	1 do	dust	75	16
126	Whyddon	76	3 ch	pek sou	285	31
127		7	2 do	fans	224	20
128		82	1 do	dust	150	1
133	Morahela	97	2 hf-ch	dust	168	15
134		100	3 ch	sou	240	22
136	D, Oya	106	5 do	pek	375	24 bid
137		109	6 do	pek sou	540	18 bid
141	Morahela	121	5 do	sou	400	22 bid

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name	lb.	c.
1	F, in estate mark	268	5 ch	pek sou	345	29
2		2 1	4 hf ch	dust	260	17
3	N	274	5 ch	bro mix	400	10
4		277	8 hf ch	bro mix fans	440	10
5		280	4 do	bro mix dust	320	12
6	Clova Sana	283	8 hf ch	dust	480	16
7		286	9 do	bro pek fans	450	10
9	Raglan	292	5 ch	bro pek	500	27
11		298	1 do	dust	130	14
17	Bope	316	4 hf ch	pek	198	26
18		319	1 do	pek sou	44	18
19		322	2 do	dust	130	16
20	C T A, in estate mark	325	1 ch	red leaf	82	12
22	F F, in estate mark	331	8 hf ch	pek	400	24
23		334	5 do	pek sou	225	19
24		337	1 do	dust	90	15
25		340	2 do	bro pek fans	130	16
26		343	2 do	bro mix	110	15
27	Hanwella	346	13 hf ch	or pek	650	28
28		349	7 do	pek	350	27
29	Bope	352	7 hf ch	bro pek	385	28
30		355	12 do	pek	600	26
31		358	7 do	pek sou	45	18
36	Narangoda	373	3 hf ch	dust	225	16
37		376	2 ch	sou	180	15
41	Homadola	388	2 ch	bro pek	180	32
42		391	5 do	pek	375	18
43		394	1 do	pek sou	70	15
51	Dalukoya	418	12 hf ch	pek sou	600	22
52		421	6 do	dust	360	17
53		424	10 do	pek fans	600	15
57	Salawe	436	3 ch	pek dust	450	17
58	E L B	439	5 ch	pek	460	21
59		442	2 do	sou	140	13
63	Gwernet	454	2 ch	or pek	160	36
64		457	2 do	dust	240	16
65	Oakham	460	14 hf ch	or pek	630	49
68		469	4 ch	pek sou	380	30
69		472	2 hf ch	pek fans	160	17
73	Hangranoya	484	5 ch	pek sou	400	28
80	Maligatenne	505	3 ch	bro pek	275	20
81		508	5 do	pek	443	18
82		511	6 do	pek sou	525	16
83		514	6 do	bro tea	589	9
84	P	517	6 ch	unas	620	15
85	M K S	520	3 ch	bro pek	300	15
86		523	1 do	pek	95	14
87		526	1 do	pek sou	85	13
88		529	3 do	fans	300	10
89		532	1 do	dust	125	12
90		535	4 do	bro mix	340	8
91		538	2 do	bro tea	150	8
99	Rambodde	562	7 hf ch	pek sou	315	30
100		565	4 do	sou	160	27
101		568	1 do	dust	90	17
102		571	4 do	fans	280	24
107	Kurulugalla	586	7 ch	pek sou	630	22
115	Monrovia	610	5 ch	pek sou	500	20
116		613	2 do	bro tea	190	14
117		616	1 do	pek dust	150	17
122	Yarrow	631	12 hf ch	pek sou	540	26
123	Y, in estate mark	634	4 hf ch	dust	320	17
130	Sadamulla	655	1 ch	dust	85	17
136	Endawatte	673	2 ch	dust	300	16
137	F B	676	2 ch	bro mix	170	10
138		679	5 hf-ch	pek fans	400	16
139		682	3 do	dust	270	15
145	Deloongama	700	5 ch	bro pek	550	23
146		703	5 do	pek	500	18
147		706	6 do	pek sou	600	15
148		709	4 do	red leaf	348	9
149		712	3 do	dust	195	17
153	Gangwarily	724	8 ch	pek sou	640	24 bid
161	L	748	4 ch	dust	380	16
162	Hatdowa	751	3 ch	bro or pek	300	30
166		763	3 do	dust	450	17
167		766	4 do	fans	400	18
168		769	1 do	sou	75	18
169	Gonavy	772	7 hf-ch	dust	525	18
171	Patulpana	778	9 hf ch	pek	450	22
172		781	6 do	pek sou	300	18
173		784	1 do	son	50	14
174	Welimaluwa	787	2 hf ch	pek sou	100	16
175	Pitaville	790	5 ch	pek son	425	17
176		793	4 do	pek fans	440	15
177	Dunnottar	796	5 ch	pek No 1	425	38 bid
181	Avisawella	808	3 ch	dust	420	17
184	Murraythwaite	817	3 ch	fans	360	18
185		820	2 do	dust	320	16
188	Carney	829	9 hf-ch	pek sou	450	21 bid
189		832	2 do	dust	100	18
199	Dikmukalana	862	1 hf ch	dust	50	14
201	Mousakande	868	5 hf-ch	dust	400	18

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 42 — Colombo, November 12, 1900. — Price:—12½ cents each 3 copies, 30 cents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

Messrs. Forbes & Walker.

[418,127 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
6	Galkande	976	10 ch	hro pek	1000	27
10	Dambagas-talawa	988	21 ch	bro or pek	2226	54
11		991	34 do	bro pek	3400	41 bid
12		994	29 do	pek	2523	39
13		997	9 do	pek sou	783	33
14		1000	7 do	bro pek fans	945	23
15	Kelaneiya and Braemar	1003	21 ch	bro or pek	2100	3' bid
16		1006	21 do	or pek	2100	29 bid
17		1009	18 do	pek	1800	27 bid
18	K G, in estate mark	1012	51 ch	hro pek	5100	27
19		1015	29 do	pek	2465	25
20		1018	13 do	pck sou	1079	23
24	Nilloomally O B E C, in est. mark	1030	20 ch	hro or pek	2000	35
25		1033	19 do	or pek	1444	35
26		1036	14 do	pek	1176	34
27		1039	16 do	bro pek	1504	30
30	Theydon Bois	1048	12 do	bro or pek	1080	55
31		1051	12 do	or pek	1020	38
32		1054	13 do	pek	1040	36
33		1057	12 do	pek sou	1020	29
35	Mousakellie	1063	42 ch	bro or pek	3990	33
36		1066	24 do	or pek	2040	28 bid
37		1069	9 do	pek sou	765	23 hid
39	Nasehy	1075	24 hf ch	or pek	1104	50
40		1078	26 do	pek	1248	50
41		1081	10 do	fans	770	35
42	Pansalatenne	1084	60 ch	bro pek	6000	34 bid
43		1087	35 do	pek	2870	31
44		1090	20 do	pek sou	1600	27
45	Shruhs Hill	1093	28 ch	bro pek	3024	32 hid
46		1096	15 do	or pek No. 1	1500	38
47		1099	35 do	or pek	3150	36
48		1102	21 do	pek	1890	34
49	Talgaswella	1105	24 ch	or pek	2040	37
50		1108	31 do	pek	2480	33
51		1111	16 do	pek sou	1200	25
54	Tymawr	1120	55 hf-ch	or pek	3025	34
55		1123	75 do	pek	3375	30
56		1126	47 do	pek sou	2115	28
59	Middleton	1135	22 do	bro or pek	1210	68
60		1138	39 ch	bro pek	3705	47 bid
61		1241	20 do	hro pek	2000	48 bid
62		1144	35 do	pek	2800	44
63	Deaculla	1147	51 hf ch	bro pek	2805	46
64		1150	57 ch	pek	3990	36
65		1153	17 do	pek sou	1190	33
66	Gonapatiya	1156	31 hf ch	bro pek	1736	67
67		1159	28 do	or pek	1400	52
68		1162	46 do	pek	2346	46
69		1165	16 do	pek fans	1056	38
70	Erlsmere	1168	29 do	hro or pek	1682	39
71		1171	9 ch	or pek	756	42
72		1174	17 do	pek	1275	35
79	Great Valley Ceylon, in est. mark	1195	24 ch	bro or pek	1320	48
80		1198	15 do	or pek	1275	39
81		1201	30 do	pek	2550	36
82		1204	17 do	pek sou	1275	32
83	Weoya	1207	49 ch	bro pek	4900	35
84		1210	40 do	pek	3400	31
85		1213	28 do	pek sou	2240	25
86		1216	5 do	dust	750	18
87	Clunes	1219	9 ch	bro or pek	990	33
88		1222	26 do	hro pek	2470	33
89		1225	31 do	pek	2790	28
90		1228	12 do	pek sou	1200	24
92	Ruanwella	1234	23 ch	or pek	1955	32
93		1237	12 do	hro pek	1200	35
94		1240	30 do	pek	2700	28
95		1243	10 do	pek sou	900	26
97	Hayes	1249	10 do	bro or pek	1000	56
98		1252	16 do	hro pek	1600	37
99		1255	15 do	or pek	1350	34
100		1258	28 do	pek	2660	30
101		1261	18 do	pek sou	1440	24
102		1264	7 ch	dust	910	19
104	Polatagama	1270	41 ch	bro pek	4100	39
105		1273	13 do	or pek	1170	35
106		1276	50 do	pek	4500	32
107		1279	16 do	pek sou	1440	25
109	Maha Uva	1285	22 hf ch	bro or pek	1320	41
110		1288	19 do	or pek	1064	47
111		1291	31 ch	pek	2790	40
112		1294	9 do	pek sou	720	35
115	Dunkeld	1303	96 hf ch	bro or pek	5760	41
116		1306	21 ch	or pek	1995	36
117		1309	38 do	pek	3420	35
118	Aherdeen	1312	50 ch	bro pek	4750	34 bid
119		1315	64 do	pek	4864	28 bid
120		1318	14 hf ch	bro pek fans	938	22
121	Baloogama	1321	20 ch	bro tea	1817	6 bid
122	Castlereagh	1324	35 ch	bro pek	3325	40
123		1327	13 do	or pek	1040	36
124		1330	18 do	pek	1440	33
126	Marlhorough	1336	22 ch	or pek	1716	35
127		1339	70 do	pek	6160	32
128		1342	22 do	pek sou	1650	28
129	Wallah	1345	25 hf-ch	bro or pek	1450	44 hid
130		1348	21 ch	hro or pek	2100	46
131		1351	18 do	or pek	1476	46
132		1354	24 do	pek No. 1	1968	41
133		1357	19 do	do ,, 2	1710	37
134	Digalla	1360	14 ch	bro or pek	1508	31
135		1363	18 do	bro pek	1633	30
136		1366	29 do	pek	2544	29
137		1369	23 do	pek sou	1903	29½bid
138		1372	11 do	sou	910	1
140	Patiagama	1378	9 ch	sou	807	7 hid
141	A M B	1381	52 do	bro pek sou	4368	11½hid
142	E D P	1384	11 ch	sou	885	22
144	Ardlaw and Wishford	1390	18 hf ch	hro or pek	918	57
145		1393	38 ch	bro pek	3534	38
146		1396	13 do	or pek	1066	46
147		1399	23 do	pek	1840	41
148	Passara Group	1402	19 ch	or pek	1520	40
149		1405	22 do	bro or pek	2200	39
150		1408	27 do	pek	2430	38
151		1411	14 do	pek sou	1260	34
152	Stamford Hill	1414	36 hf ch	bro pek	2160	42
153		1417	30 do	or pek	1440	45
154		1420	31 ch	pek	2790	37
157	O B C, in estate mark Forest Creek	1429	22 ch	hro or pek	2200	50
158		1432	27 do	hro pek	2700	44
159		1435	14 do	or pek	1260	45
160		1438	22 do	pek No 1	1980	37
161		1441	24 do	pek ,, 2	2160	34
163	Cooroondoo-watte	1447	12 hf-ch	hro pek	720	50
164		1450	13 ch	pek	1300	33 bid
165		1453	7 do	pek sou	700	28
166	Ingrogalla	1456	11 do	hro pek	1100	37
167		1459	11 do	pek	935	34
168	Detanagalla	1462	20 hf ch	or pek	1000	53 hid
169		1465	38 do	pek	1900	45
171	Geragama	1471	20 ch	bro pek	1900	[illegible]
172		1474	13 do	pek	1170	27
173		1477	9 do	pek sou	720	24
175	Arapolakan-de	1483	86 ch	bro pek	7740	37
176		1486	64 do	pek	5120	32
177		1489	12 do	pek sou	1080	27
179	Torwood	1495	43 ch	bro pek	3870	33
180		1498	30 do	pek	3240	28
181		1501	14 do	pek sou	1036	26
182		1504	15 do	sou	1200	23
183	Errollwood	1507	15 hf ch	bro or pek	825	47
184		1510	15 ch	or pck	1350	39
185		1513	11 do	do	990	39
186		1516	25 do	pek	2250	38
187		1519	13 hf-ch	or pek faus	715	29
188	Marlborough	1522	12 ch	pek sou	933	28
189	Puspone	1525	23 do	or pek	2185	33
190		1528	23 do	bro pek	2530	33 hid
191		1531	10 do	pek	850	32
195	Anningkan-de	1543	17 ch	bro pek	1700	33
199	Ritulgalla	1555	24 ch	bro pek	2280	27
203	Monkswood	1567	29 do	bro pek	1595	67
204		1570	36 do	or pek	1800	62
205		1573	25 ch	pek	2375	50

Lot.		Box.	Pkgs.	Name.	lb.	c.
206	Tymawr	1576	21 hf-ch	or pek	1050	33 bid
207		1579	21 do	hr or pek	1155	38 bid
208		1582	25 do	pek	1125	32 bid
209		1585	30 do	pek sou	1350	29
213	Augusta	1597	11 ch	pek sou	987	23 bid
215	Holton	1603	16 cb	hro pek	1520	33
217	Lindupatna	1609	14 do	hro or pek	1512	62
218		1612	22 do	hro pek	2200	42
219		1615	17 do	pek	1496	38
224	Nasehy	1630	34 hf-ch	bro or pek	1977	60
225	M P C in est. mark	1633	12 do	pek	1020	18 bid
226	Woodsdale	1636	16 do	bro pek	1600	37 bid
227		1639	10 do	pek	950	39
228		1642	28 do	pek sou	2520	33 bid
229	Carolina	1645	7 do	young hyson	756	50
220		1648	11 do	hyson	1100	40
231		1651	10 do	hyson No. 2	1060	36
233	Broadoak	1657	27 do	pek	2427	33
234	Rowley	1660	20 hf-ch	bro pek	1000	40
235		1663	24 do	pek	1200	35
236	Vogan	1666	10 ch	bro or pek	1250	29
237		1669	42 do	or pek	4200	36
238		1672	85 do	pek	7650	29 bid
239		1675	10 do	pek sou	850	25
241	Inverness	1681	24 hf-ch	or pek	1200	41
242		1684	50 do	bro or pek	3000	36 bid
243		1687	34 ch	pek	3060	32 bid
245	Morankande	1693	18 hf-ch	bro or pek	1008	39
246		1696	18 ch	or pek	1530	33
247		1699	22 do	pek	1980	28
248		1702	12 do	pek sou	1070	25
249	Old Maddegama	1705	12 hf-ch	bro or pek	837	37 bid
250		1708	14 do	bro pek	977	33
251	Harrow	1711	15 do	or pek	825	42
252		1714	21 do	bro or pek	1260	43
253		1717	29 ch	pek	2755	39
255	Knavesmire	1723	24 bf ch	or pek	1200	31
256		1726	31 ch	hro pek	3100	32
257		1729	32 do	pek	2720	29
258		1732	10 do	pek sou	700	21
259		1735	16 hf-ch	dust	1280	20
260		1738	15 ch	pek A	1125	28

[Messrs. Somerville & Co.—216,234 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hanwella	871	16 hf ch	pek	800	28
3	Neboda	877	10 ch	bro or pek	1000	36
4		880	29 do	bro pek	2900	33
6	Kelani	886	42 cb	bro pek	3780	35
7		889	13 do	bro or pek	1430	35
8		892	22 do	pek	1870	33
9		895	9 do	dust	1125	17
10	Ravenscaig	898	27 ch	or pek	2295	33
12		904	20 do	pek	1800	33
15	Nyanza	913	8 ch	hro or pek	800	44
16		916	8 do	bro pek	800	35
17		919	13 do	or pek	1170	35 bid
18		922	19 do	pek	1710	32
22	Gona	934	19 ch	bro pek	1748	34
23		937	15 do	bro or pek	1455	26 bid
24		940	27 do	pek	2160	33
25		943	29 do	pek sou	2175	27 bid
26	Tyspane	946	11 ch	bro or pek	1100	36
27		949	25 do	bro pek	2500	32
28		952	20 do	pek	2465	34
34	Holmsdale	970	11 ch	bro or pek	1045	32
35		973	16 do	bro pek	1440	29
36		976	13 do	pek	1105	30
39	Elchico	985	50 bf ch	pek	2500	28 bid
43	Attiville	997	7 ch	bro pek	700	24
44		1000	11 do	pek	1000	22
52	Kerenvilla	1024	10 ch	hro pek	1000	29
53		1027	15 do	pek	1425	out
57	R K P	1039	15 ch	bro pek	1350	35
61	I P	1051	17 ch	pek sou	1462	21 bid
63		1057	14 hf ch	dust	1204	17
66	Oaklands	1066	9 ch	pek	900	28
68	Henhurst	1072	12 ch	or pek	1020	30
69		1075	26 ch	hro or pek	2470	30
70		1078	46 do	pek	3680	27
71		1081	20 do	sou	2400	15 bid
72		1084	11 hf ch	dust	825	19
75	Lawrenc	1093	9 ch	bro pek	900	37
79		1096	12 do	pek sou	900	34
77	Tavalamtenne	1099	43 bf-ch	bro or pek	2560	31 bid
78		1102	18 do	pek	900	30
81	Depedene	1111	26 hf ch	bro pek	1300	32
83		1117	27 do	pek	1350	28
84		1120	27 do	pek sou	1350	22
93	Labugama	1147	40 hf-ch	bro pek	2000	34
94		1150	18 ch	pek	1710	27
95		1153	15 do	pek sou	1275	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
96	Walasmulle	1156	12 hf cb	unas	1200	27
99	Ladysmith	1165	30 cb	bro pek	3000	24
100		1168	19 do	pek	1634	29 bid
101	Kayigam	1171	19 ch	bro pek	1895	33
102		1174	15 do	or pek	1200	33
103		1177	15 do	pek	1200	30
104		1180	20 do	pek sou	1800	28
105	Annandale	1183	17 hf ch	bro or pek	935	54
106		1186	24 do	or pek	1224	41
107		1189	15 do	pek	795	39
108		1192	13 do	pek sou	741	34
112	Kosgahahena	1204	14 ch	bro pek	1540	2[illegible] bid
113	J M D M	1207	13 cb	bro pek	1300	[illegible]
114		1210	14 do	pek	1330	28
116	Agra Elbedde	1216	20 hf-cb	bro pek	1200	48
117		1219	24 do	or pek	1320	51
118		1222	34 do	or pek	1530	40
119	Maddagedera	1225	18 ch	bro pek	1710	33
120		1228	26 do	or pek	2210	30 bid
121		1231	37 do	pek	2960	29
122		1234	24 do	pek sou	1680	24 bid
123		1237	13 do	hro pek fans	1300	30
125	Ladysmith	1243	36 ch	hro pek	3312	24 bid
126		1246	36 do	pek	2700	30
227		1249	22 do	pek sou	1716	21 bid
128	Dalukoya	1252	13 hf cb	bro or pek	780	33 bid
129		1255	22 do	or pek	1210	32
130		1258	28 do	pek	1540	26
131	Walla Valley	1261	13 bf ch	bro or pek	715	51
132		1264	16 ch	hro pek	1520	36 bid
133		1267	13 do	pek	1150	35
134	Polgahakande	1270	23 cb	bro pek	2185	33
135		1273	18 do	pek	1620	29
137	G B	1279	30 bf ch	dust	1500	19
138	S H	1282	22 ch	or pek	1870	34
139		1285	10 do	pek not bulked	900	27
140		1288	15 do	pek sou	1050	22
141	Broad Oak	1291	6 ch	pek fans	720	14 bid
143	Ettie	1297	19 ch	bro pek	1900	29
144		1300	12 do	pek	1200	26
145		1303	9 do	pek sou	855	22
146	Koladeniya	1306	14 ch	bro pek	1260	28
147		1309	9 do	pek	765	26
150	Great Valley	1318	9 ch	or pek	765	42
151	S H	1321	22 hf ch	pek sou	1100	24
152	Ladrum	1324	13 ch	hro or pek	1300	39
153		1327	20 do	or pek	2000	31
154		1330	19 do	pek	1900	29
155		1333	8 do	pek sou	800	23
156		1336	10 do	pek fans	1000	26
157	Y G	1339	17 ch	pek	1530	29
158	Ossington	1342	20 ch	hro pek	2000	31
159		1345	27 do	pek	2700	25
160		1348	9 do	pek sou	900	22
164	W A	1360	14 ch	or pek	1400	34 bid
165	Eewadugama	1363	11 ch	bro pek	1210	34 bid
166		1366	7 do	pek	700	32 bid
176	Udakellie	1396	39 hf ch	hro pek	2124	30
177		1399	22 ch	or pek	1961	28
178	Hapugasmulle	1402	10 ch	bro pek	1100	32
179		1405	15 do	pek	1350	27
182	Marigold	1414	46 hf ch	hro or pek	2530	55
183		1417	37 do	or pek	1739	47
184		1420	15 do	pek	750	49
185		1423	20 do	pek sou	960	41
192	T, in estate mark	1444	10 ch	pek	850	20 bid
193	Havilland	1447	13 ch	hro or pek	1300	33
194		1450	14 do	or pek	1120	32
195		1453	44 do	pek	3520	27
196		1456	10 do	pek sou	800	24 bid
197	Havilland	1459	8 ch	pek fans	800	16
198		1462	12 do	sou	960	8
207	Black Pearl	1489	11 ch	pek sou	714	out
208	A C B	1492	11 ch	bro or pek	1155	38 bid
210		1498	18 do	pek	1620	32
212	New Valley	1504	32 ch	bro or pek	3200	46
213		1507	34 hf-ch	or pek	1700	44
214		1510	22 ch	pek	1980	36
215		1513	21 do	pek sou	1680	33
217	N I T	1519	13 cb	unas No. 2	1040	17
218	T T	1522	11 ch	sou	935	6
220	A	1528	9 ch	sou	720	5
222	Deniyaya	1534	14 ch	or pek	1190	35

[Mr. E. John.—157,705 lb.]

Not		Box.	Pkgs.	Name.	lb.	c.
6	Harrisland	142	11 ch	bro pek	1045	34
10	Wendura	154	18 do	bro pek	1710	33
11		157	10 do	pek	800	31
15	Nelun	169	10 do	bro pek	950	27
16		172	16 do	pek	1440	20 bid
20	Oonoogaloya	184	14 do	or pek	1260	40 bid
21		187	16 do	bro or pek	1600	48 bid
22		190	33 do	pek	2970	36

Lot.		Box.	Pks.	Name.	lb.	c.
23	Gonavy	193	32 hf ch	or pek	1440	45
24		196	18 do	bro pek	990	45
25		199	34 ch	pek	2550	37
26		202	8 do	pek sou	800	27 bid
28	Glasgow	205	67 do	bro or pek	5025	48 bid
29		211	24 do	or pek	1560	48 bid
30		214	14 do	pek	1190	43
31		217	13 do	pek sou	1235	39
32	Natuwakelle	220	19 do	bro pek	1900	33
33		223	11 do	bro or pek	1100	40
34		226	14 do	pek	1260	32
35		229	10 do	pek sou	900	26
38	Kotuagedera	238	27 do	bro pek	2700	31
39		241	21 do	pek	1890	22
43	Suduganga	253	33 do	or pek	2805	34 bid
44		256	13 do	bro or pek	1170	42
45		259	53 do	pek sou	3975	25
46		262	11 hf-ch	pek fans	825	26
47		265	28 ch	sou	1960	22
48	Little Valley	268	3 do	bro pek	760	33
49		271	10 do	pek	850	29
53	M R	283	10 hf ch	dust	850	19
54	Gingranoya	286	31 do	bro pek	1705	35 bid
55		289	25 do	bro or pek	1250	36 bid
56		292	24 ch	pek	1920	35
57	Osborne	295	25 do	bro or pek	2625	43 bid
58		298	22 do	bro or pek No. 2	1980	37
59		301	12 do	bro pek	1260	33
61		307	13 hf-ch	fans	962	23
63	Eila	313	23 ch	bro or pek	2415	27 bid
64		316	45 do	bro pek	3825	31
65		319	59 do	pek	4720	28 bid
66		322	36 do	pek sou	2700	23 bid
68	Ohiya	328	21 do	bro pek	2310	37
69		331	26 do	pek	2470	37
70		334	18 do	pek sou	1620	34
72		340	26 hf-ch	fans	1690	24
73		343	24 ch	sou	2160	21
75	Mahanilu	349	12 do	bro or pek	1200	39
76		352	8 do	pek	720	37
77	Galella	355	10 do	bro pek	1000	38
78		358	12 do	pek	960	32 bid
83	Melvilla	373	14 hf ch	pek	700	28
88	Bellongalla	388	26 ch	bro pek	2600	25 bid
89		391	20 do	pek	1600	26
90	Lunugalla	394	8 do	dust	1120	15
93	Bokotua	403	16 do	bro or pek	1600	30
94		406	27 do	bro pek	2376	31 bid
95		409	11 do	pek	847	28 bid
98	Rookwood	418	29 hf-ch	flow br or pk	1682	46 bid
99		421	18 do	bro or pek	1152	31 bid
100		424	18 ch	or pek No.1	1620	39
101		427	23 do	pek	1955	34 bid
102		430	14 do	pek	1190	35 bid
103	Uda	433	7 do	bro pek	700	21
104		436	13 do	pek	1014	21
105	Templestowe	439	28 do	bro or pek	2100	40 bid
106		442	20 hf ch	or pek	840	43
197		445	29 ch	pek	2320	36
108		448	18 hf-ch	dust	1350	20
109	Elston	451	38 ch	or pek	3610	44
110		454	17 do	pek	1445	37
111		457	9 hf-ch	dust	765	19
112		460	15 ch	pek sou	1350	33
114	B C	466	30 hf-ch	pek	1440	36 bid
115		469	12 ch	pek sou	1080	33 bid
116	Ferndale	472	27 do	or pek	2430	37
117	Coundon	475	23 hf-ch	bro or pek	1150	41
118		478	18 do	or pek	810	40
119		481	28 ch	pek	2520	36
120		484	20 do	pek sou	1600	27 bid
125	Doonevale	499	100 boxes	bro pek	1000	31 bid
126		502	14 ch	pek	1120	28 bid
129	Brownlow	511	14 do	bro or pek	1302	42
130		514	12 do	bro pek	1200	37
131		517	10 do	or pek	840	33
132		520	34 do	pek	2754	32
133		523	12 do	pek sou	1044	27

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	W H	961	4 hf ch	bro pek	200	24
2		964	8 do	pek	360	24
3		967	5 do	pek sou	200	17
4		970	2 do	sou	71	15
5		973	1 do	bro pek fans	50	23
7	Galkande	979	6 ch	pek	540	26
8		982	4 do	pek sou	360	19
9		985	1 do	dust	120	16
21	K G, in estate mark	1021	10 hf-ch	fans	600	23
22		1024	4 ch	sou	360	14 bid
23		1027	2 do 1 hf ch	dust	371	17
28	Hatherleigh	1042	6 ch	red leaf	480	9
29	W H I	1045	1 hf ch	bro pek	50	28
34	M'Galla	1060	2 do	red leaf fans	190	10
38	Mousakelle	1072	7 do	dust	558	18
52	Talgaswela	1114	5 hf ch	bro pek No. 2	300	23
53	T	1117	2 do	bro mix	180	10
57	B D W G	1129	3 do	dust	270	
58	Northcove	1132	5 ch	sou	500	12
73	Erlsmere	1177	6 do	pek sou	480	28
74		1180	2 hf ch	dust	168	22
75	H, in estate mark	1183	6 hf-ch	young hyson	300	51
76		1186	6 do	hyson No. 1	300	42
77		1189	6 do	do ,, 2	276	37
78		1192	2 do	siftings	135	21
91	Clunes	1231	2 ch	dust	180	20
96	Ruanwella	1246	8 do	dust	600	18
103	Polatagama	1267	4 ch	bro or pek	400	22
108		1282	2 do	dust	300	18
113	Maha Uva	1297	1 hf-ch	pek fans	75	33
114		1300	3 do	dust	255	19
125	Castlereagh	1333	5 ch	pek sou	400	26
139	Digalla	1375	8 hf-ch	dust	662	18
143	Kennington	1387	5 ch	unas	447	10
155	Stamford Hill	1423	6 ch	pek sou	510	29
156		1426	4 hf ch	dust	340	19
170	Detangalla	1468	9 hf ch	pek sou	450	40
174	Arapolakande	1480	5 ch	bro or pek	550	30
178		1492	6 do	dust	690	18
192	Puspone	1534	4 do	pek sou	320	27
193		1537	3 do	bro mix	276	16
194		1540	3 do	dust	435	16
196	Aigburth	1546	2 do	sou	200	18
197	Ookowatte, No. 1	1549	2 ch	pek fans	260	20
198		1552	1 do	dust	100	17
200	St. Leonards-on-Sea	1558	2 ch	bro pek	200	32
201		1561	1 do	pek sou	80	18
202		1564	2 do	or pek fans	220	14
210	Kensington	1588	3 ch	dust	420	17
211		1591	6 do	unast	592	10
212	Torwood	1594	1 do	sou	80	27
214	Poengalla	1600	4 do	dust	360	19
216	Holton	1603	7 do	pek sou	595	27
220	Lindupatna	1618	6 do	pek souchong	528	32
221		1621	4 do	bro pk fans	560	25
222		1624	2 do	br pk No. 2	200	37
223		1627	3 do	pek No. 2	300	29
232	Carolina	1654	2 do	siftings	300	18
240	K	1678	1 do	sou	100	21
244	Inverness	1690	6 hf-ch	dust	510	26
254	Harrow	1720	6 ch	pek sou	540	35
261	K E	1741	6 do	fans	502	8
267	K H L	1759	2 hf-ch	fans	140	19

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Nugalands	127	4 hf ch	bro pek	200	24
2		130	4 do	pek	200	23
3		133	2 do	pek sou	90	19
4		136	1 do	pek fans	45	8
5		139	1 do	bro pek dust	50	13
7	Harrisland	145	8 ch	pek	640	31
8		148	5 do	pek sou	400	27
9		151	3 do	pek sou No. 2	285	22
12	Wendura	160	7 do	pek sou	560	26
13		163	3 do	pek sou No. 2	285	18
14		166	2 hf-ch	dust	172	20
17	Nelun	175	3 ch	sou	270	17
18		178	2 do 2 hf-ch	fans	350	15
19		181	1 ch	dust	125	17
27	F R S	205	6 do	pek sou	600	32
36	Natuwakelle	232	1 do	fans	120	23
37		235	1 do	dust	130	18
40	Kotuagedera	244	1 do	pek sou	90	20
41		247	2 hf-ch	dust	180	19
42		250	4 do	bro pek fans	300	22
50	K P	274	4 do	dust	376	17
51		277	8 do	fans	592	18
52		280	11 do	pek fans	660	17
60	Osborne	304	3 do	pek sou	285	29
62		310	3 hf-ch	dust	285	19
67	Eila	325	2 ch	sou	120	8 bid
71	Ohiya	337	6 hf ch	dust	510	18
74		346	1 ch	unas	105	27
79	Galella	361	6 do	pek sou	480	28
80	W H R	364	4 do	dust	380	22
81		367	3 do	fans	270	5

Lot.		Box.	Pkgs.	Name.	lb.	c.
82	Melvilla	370	12 hf-ch	bro pek	600	35
84		376	3 do	pek sou	150	22
85		379	1 do	bro pek dust	70	20
86	H B P	382	5 do	bro pek	250	29
87		385	5 do	pek	250	19
91	Luuugalla	397	1 ch	bro mix	80	12
92	A A	400	2 do	dust	200	18
96	Bokotua	412	4 do	pek sou	300	27 bid
97		415	1 do	pek dust	140	13
113	W, in est. mark	463	8 do	bro tea	616	11
121	Coundon	487	9 hf-ch	fans	540	27
122		490	9 do	bro pek fans	540	34
123		493	1 do	dust	90	18
124	K T	496	1 ch	sou	90	11
127	Doonevale	505	5 do	pek sou	400	25
128		508	4 hf-ch	bro pek fans	360	18

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name	lb.	c.
2	Hanwella	874	4 hf ch	dust	312	17
5	Neboda	883	4 ch	pek	360	29
11	Ravenscraig	901	9 hf-ch	bro pek	495	36
13		907	2 ch	pek sou	180	22
14		910	4 hf-ch	fans	320	18
19	Nyanza	925	3 ch	pek sou	240	25
20		928	2 hf ch	fans	150	19
21		931	2 ch	red leaf	150	8
37	Homsdale	979	2 ch	sou	170	23
38		982	3 do	fans	300	16
40	Elchico	988	3 hf ch	dust	255	17
41		991	4 do	fans	280	19
42		994	2 do	son	100	17
45	Attiville	1003	4 ch	pek sou	400	18
46		1006	2 do	bro mix	200	7
47	Florida	1009	4 ch	bro pek	400	30
48		1012	5 do	pek	475	24
49		1015	2 do	pek sou	200	17
50		1018	1 do	fans	92	10
51		1021	1 do	red leaf	92	6
54	Kerenvilla	1030	5 ch	pek sou	500	15
55		1033	5 ch	pek fans	500	10
56		1036	2 hf-ch	pek dust	170	17
58	R K P	1042	5 ch	bro or pek	550	31
59		1045	7 do	pek	595	29
60		1048	3 do	dust	375	17
62	I P	1054	2 ch	red leaf	162	11
64	Oaklands	1060	5 ch	bro or pek	550	32
65		1063	4 do	or pek	400	30
67		1069	5 hf-ch	fans	330	16
73	Venture	1087	6 ch	pek	540	36
74		1090	8 do	pek sou	600	31
79	Tavalamtenne	1105	10 hf ch	pek sou	500	26
80		1108	1 do	dust	80	17
82	Depedene	1114	13 hf ch	or pek	650	29
85		1123	8 do	bro pek fans	400	18
86		1126	2 do	dust	160	17
87		1129	8 do	bro pek	400	32
88		1132	5 do	or pek	250	29
89		1135	11 do	pek	550	26
90		1138	8 do	sou	400	20
91		1141	2 do	bro pek fans	100	18
92		1144	1 do	dust	80	16
97	Walasmulle	1159	4 ch	pek fans	480	16
98		1162	3 ch	dust	450	17
109	Annandale	1195	7 hf ch	bro pek	462	33
110	Raxawa	1198	3 hf ch	dust	240	17
111		1201	3 ch	bro pek fans	360	22
115	J M D M	1213	3 ch	peksou	285	23
124	Maddagedera	1240	6 hf ch	dust	480	16
136	G B	1276	5 hf ch	bro tea	250	10
142	A B C	1294	4 ch	bro pek	364	21
148	Koladeniya	1312	6 ch	pek sou	510	19
149		1315	3 do	dust	300	16
161	Ossington	1351	2 ch	bro tea	208	8
162		1354	1 do	dust	166	13
163		1357	1 do	unas	118	12
167	Eewadugama	1369	5 ch	pek sou	400	28 bid
168		1372	1 hf ch	fans	80	16
169		1375	1 do	dust	89	16
170	Kurunegalle est. Co., Lt	1378	1 ch	bro mix	110	6
171		1381	5 hf ch	dust	400	16
172	W O B	1384	2 hf ch	bro pek	120	25
173		1387	2 do	bro pek	110	22
174		1390	3 ch	pek	285	15
175		1393	1 do 1 hf ch	pek sou	200	16
180	Hapugasmulle	1408	4 ch	pek sou	352	20
181		1411	1 do	dust	118	14
186	A A	1426	2 hf ch	bro tea	110	13
187	Bope	1429	3 hf ch	bro pek	165	29
188		1432	6 do	or pek	300	25 bd
189		1435	7 do	pek	350	23 bid
190		1438	2 do	pek sou	90	17 bid
191		1441	2 do	dust	156	16

Lot		Box.	Pkgs.	Name.	lb.	c.
199	Havilland	1465	2 hf ch	dust	180	15
200	Gangwarily	1468	4 ch	sou	240	19
201		1471	3 hf ch	dust	195	16
202		1474	4 ch	fans	360	16
203		1477	1 do	bro mix	70	10
204		1480	6 do	red leaf	390	7
205	Black Pearl	1483	6 hf ch	bro pek	300	33
206		1486	8 do	pek	380	27
209	A C B	1495	6 ch	bro pek	570	33 bid
211		1501	5 do	pek sou	425	26
216	N I T	1516	3 ch	unas No 1	300	20
219	Gampola	1525	3 hf ch	dust	213	13
221	A	1531	8 hf ch	fans	480	9

CEYLON COCOA SALES IN LONDON.

(From Our Commerical Correspondent.)

MINCING LANE, Oct. 12.

"Calchas."—Kumaradola A, 37 bags sold at 93s; B, 3 bags sold at 78s; Kepitigalla, 1 bag sold at 73s; 3 bags sold at 69s; 3 bags sold at 67s 6d; 8 bags sold at 50s; OBEC in estate mark, Mahaberia O F, 6 bags sold at 93s; ditto 1 F, 11 bags sold at 81s 6d; ditto O C, 3 bags soldat 92s 6d; ditto 1 C, 2 bags sold at 84s 6d; ditto G 2, 4 bags sold at 66s; ditto B, 2 bags sold at 68s 6d.

"Clan Matheson."—Polwatte No. 1, 23 bags sold at 97s; ditto No. 2, 4 bags sold at 84s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Calchas."—Kitulmoola Cardamoms Ex., 1 case sold at 3s 5d; ditto AA, 7 cases sold at 2s 7d; ditto A, 4 cases sold at 1s 10d; ditto C, 1 case sold at 1s 3d; ditto D, 1 case sold at 1s 10d; ditto 2, 5 cases sold at 1s 9d; ditto 3, 5 cases sold at 1s 3d; ditto B, 2 cases sold at 1s 4d; ditto S, 2 cases sold at 1s 6d; 1 case sold at 1s 5d; 1 case sold at 1s 9d.

"Awa Maru."—Gallantenne D, 12 cases sold at 1s 7d.

"Barrister."—Gammadua No. 1, Cardamom Seed, 2 cases sold at 1s 10d; ditto No. 2, Cardamoms, 1 case sold at 2s 3d.

"Stentor."—A L Mysore, 3 cases sold at 2s 2d; 1 A L Seeds 2 cases sold at 1s 10d.

"Calchas."—Gonawella Cardamoms N O, 3 cases sold at 2s 6d; ditto No. 1, 10 cases sold at 2s 8d; ditto Splits, 5 cases sold at 1s 7d; ditto N B, 1 case sold at 1s 4d; ditto Seeds, 1 case sold at 1s 8d.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, Oct. 18.

"Shropshire."—Elmshurst A, 13 bags sold at 88s 6d; B, 5 bags sold at 55s.

"Staffordshire."—Elmshurst B, 5 bags sold at 63s.

"Wakasi Maru."—Pansalatenne 1, 6 bags sold at 85s; 2, 1 bag sold at 62s; 1 packet sold at 60s; 1 packet sold at 54s.

"Calchas."—Morakande Estate, No. 1 Cocoa, 34 bags sold at 86s 6d; ditto No. 2 Cocoa, 16 bags sold at 74s.

CYELON COFFEE SALES IN LONDON.

MINCING LANE, Oct. 19.

"Calchas."—Gowrakelle 1,1 cask and 1 barrel sold at 110s 6d; ditto S, 5 casks sold at 65s; ditto PB, 2 tierces sold at 115s; GKE T in estate mark, 1 cask sold at 50s; GKE 1, 1 cask and 1 barrel sold at 52s 6d; ditto S, 1 tierce sold at 47s; ditto PB, 1 tierce sold at 60s; 1 bag sold at 90s.

"Collegian."—Gowrakelle 1, 1 cask sold at 111s; ditto S, 2 casks sold at 65s; ditto PB, 1 tierce sold at 115s.

"Clan Sutherland."—Wiharagalla F, 1 barrel and 1 tierce sold at 109s 6d; ditto 2, 2 casks and 1 tierce sold at 109s; ditto S, 1 tierce sold at 60s; ditto PB, 1 barrel sold at 110s; WHG, 1 tierce sold at 52s.

"Cheshire."—Pita Ratmalie S, 2 casks sold at 60s; ditto PB, 1 tierce sold at 90s; PRM T in estate mark, 1 barrel sold at 46s.

"Orissa."—Pita Ratmalie S, 2 casks and 1 tierce sold at 63s; ditto PB, 1 barrel sold at 100 HM T in estate mark, 1 barrel sold at 44s.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 43 COLOMBO, NOVEMBER 19, 1900. { PRICE :—12½ cents each 3 copies, 30 cents ; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[29,284 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Battalgalla	41	35 ch	or pek	3325	40
2		44	25 do	pek	2250	36
3		47	17 do	pek sou	1360	36
5	Riversdale, in estate mark	53	25 hf ch	bro pek	1375	53
6		56	25 do	pek	1250	45
7		59	25 do	pek sou	1200	40
8	Battalgalla	62	41 ch	or pek	3895	40
9		65	24 do	pek	2160	37
10		68	20 do	pek sou	1600	37
12	Fassifern	74	29 hf ch	bro or pek	1595	52 bid
13		77	43 ch	bro pek	4515	40 bid
14		80	25 do	pek	2125	40
16	B E	86	14 hf ch	dust	1064	10 bid

Messrs. Forbes & Walker.

[588,148 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
6	Bickley	1777	21 hf ch	bro or pek	1575	40 bid
7		1780	36 do	or pek	2520	38 bid
8		1783	35 do	pek	2100	37
9	O B E C, in estate mark Sindumallay	1786	13 ch	or pek	1118	37
10		1789	76 do	bro pek	7600	36
11		1792	83 do	pek	6972	34
12		1795	41 do	pek sou	2952	31
13	C S G	1798	102 hf-ch	bro pek	5100	33 b d
14		1801	50 ch	pek	4000	30
15		1804	25 do	pek sou	2000	26
16		1807	10 do	dust	800	23
18	O B E C, in est. mark, Summer hill	1813	35 ch	bro or pek	2135	76
19		1816	40 do	bro pek	2600	49
20		1819	25 do	or pek	2250	62
21		1822	25 do	pek sou	2025	44
22	Ettapolla	1825	17 hf ch	bro pek	952	27
26	Dotel Oya	1837	26 ch	bro pek	2600	27
27		1840	25 do	pek	2250	23
28		1843	38 do	pek sou	3040	21
31	Palmerston	1852	14 hf ch	bro or pek	770	58 bid
32		1855	11 ch	pek	990	44
37	Theydon Bois	1870	12 hf ch	or pek	1020	37
38		1873	30 ch	pek	2400	34
42	Roeberry	1885	11 do	bro or pek	1100	62
43		1888	20 do	bro pek	2000	50
44		1891	24 do	pek	2208	46
46	P, Roeberry	1897	10 ch	bro or pek	1000	60
47		1900	19 do	bro pek	1900	49
48		1903	27 do	pek	2484	45
49		1906	9 do	pek sou	774	43
50		1909	8 hf ch	dust	800	19
51		1912	19 do	fans	1900	34
52	Queensland	1915	14 do	bro pek	700	62
53		1918	9 ch	pek	765	45
54		1921	8 do	pek sou	720	4
56	Mawiliganga-watte	1927	9 ch	bro or pek	855	40
57		1930	63 do	bro pek	5670	28 bid
58		1933	45 do	pek sou	3150	26
60	Lochiel	1939	22 ch	bro or pek	2354	44
61		1942	18 do	or pek	1620	36
62		1945	8 do	pek	704	33
65	Dunbar	1954	22 hf ch	or pek	1034	38 bid
66		1957	17 ch	pek	1275	32 bid
67		1960	15 hf ch	bro pek	750	40
69	Ketadola	1966	15 ch	bro pek	1503	33
70		1969	15 do	pek	1425	23
77	Yogama	1990	24 ch	bro pek	2400	33
78		1993	13 do	pek	1170	26
79		1996	21 do	pek sou	1680	21
81	Mansfield	2002	61 hf ch	bro pek	3660	51
82		2005	28 ch	pek	2520	40
83		2008	14 do	pek sou	1190	37
84	St. Pauls	2011	25 hf ch	bro pek	1375	55
85		2014	25 do	pek	1250	44
86		2017	25 do	pek sou	1200	39 bid
87	Pine Hill	2020	36 do	bro or pek	2160	46
88		2023	50 ch	or pek	4500	36
89		2026	51 do	pek	4335	35

Lot.		Box.	Pkgs.	Name.	lb.	c.
91	Tonacombe	2032	28 ch	or pek	2520	36
92		2035	14 do	bro or pek	1400	49
93		2038	21 do	bro pek	2100	45
94		2041	55 do	pek	4950	38
95		2044	24 do	pek sou	2160	34
96	Glendon	2047	15 ch	or pek	1200	34
97		2050	19 do	bro pek	1900	31 bid
98		2053	35 do	pek	2975	31
99		2056	15 do	pek sou	1200	26
101	Patiagama	2062	16 hf ch	bro or pek	880	45
102		2065	9 ch	or pek	765	36
103		2068	25 do	pek	2000	32
106	Labookellie	2077	11 do	hyson No. 2	1078	39
107	Maha Uva	2080	65 hf ch	bro or pek	3900	37
108		2083	39 do	or pek	2184	42
109		2086	49 ch	pek	4410	41
110		2089	19 do	pek sou	1520	36
111	Pallagodda	2092	10 do	bro or pek	1000	29
112		2095	23 do	bro pek	2300	41
113		2098	18 do	or pek	1530	36
114		2101	13 do	pek	1040	36
115		2104	10 do	pek sou	900	31
116	Erracht	2107	9 ch	bro or pek	855	33
117		2110	16 do	or pek	1280	32
118		2113	25 do	pek	2000	23 bi
120		2119	9 do	bro pek fans	900	2
122	Highforest	2125	34 hf ch	or pek No. 1	2040	8
123		2128	23 do	or pek	1288	
124		1231	20 do	pek	1060	5
125	Killarney	2134	10 ch	or pek	850	47
126		2137	10 do	pek	850	42
135	Ismalle	2164	12 do	sou	1020	19
138		2173	8 do	dust	960	17
139	Glengariffe	2176	30 hf-ch	bro or pek	1590	31 b
140		2179	13 ch	pek	1209	28
141		2182	16 hf ch	or pek	720	31
142		2185	12 ch	pek sou	936	25
144	Matale	2191	46 hf ch	bro pek	2760	36
145		2194	21 ch	pek	1890	35
146		2197	13 do	pek sou	1170	30
147	Stamford Hill	2200	28 hf ch	bro pek	1680	40
148		2203	20 do	or pek	960	53
149		2206	20 ch	pek sou	1800	35
158	Oodoowera	2233	20 ch	or pek	2000	31 bid
159		2236	26 do	bro pek	2730	26 bid
160		2239	24 do	pek	2112	30
161	D M V	2242	10 do	bro pek	940	24
162		2245	14 do	pek	1022	21
165	Galkande	2254	33 ch	pek	2970	37
166		2257	15 do	pek sou	1200	33
168	Dunbar	2263	20 ch	or pek	1620	36 bid
169		2266	19 do	pek	1425	31 bid
173	Gallaheria	2278	40 ch	bro pek	3600	32 bid
174	Doranakande	2281	7 ch	bro pek	700	34
176		2287	9 do	pek	810	21
177	Nakiadeniya	2290	30 ch	bro pek	2700	31
178		2293	63 hf ch	pek	2928	26
179	Drayton	2296	29 ch	or pek	2755	46
180		2299	46 do	pek	3910	42
181		2302	22 do	pek sou	1870	37
183	Walpita	2308	11 ch	bro pek	1100	38
184		2311	15 do	or pek	1500	31
185		2314	13 do	pek	1235	26
186		2317	16 do	pek sou	1280	22
189	W, in estate mark	2326	7 ch	bro pek	700	34
190	Palmerston	2329	20 hf ch	bro or pek	1100	63
191		2332	19 ch	pek	1710	44
192	Ardlaw and Wishford	2335	17 hf ch	bro or pek	850	58
193		2338	26 ch	bro pek	2314	40
194		2341	13 do	pek	1040	41
195	Chesterford	2344	67 ch	bro pek	6365	33
196		2347	78 do	pek	7410	30
197		2350	45 do	pek sou	4275	24
198	Clyde	2353	46 ch	bro pek	4018	34
199		2356	36 do	pek	3093	33
200		2359	10 do	pek sou	900	24
201		2362	10 do	bro or pek	1150	30
202	Udabage	2365	20 hf-ch	or pek	1100	26
203		2368	45 do	bro pek	2700	26
204		2371	20 do	pek	1000	24
207	M, in estate mark	2380	33 do	bro pek	1815	30
208		2383	16 do	pek	800	28
210	Parsloes	2389	49 ch	bro pek	4900	33 bid
211		2392	25 do	pek	2250	31
214	Middleton	2401	17 hf ch	bro or pek	952	79
215		2404	34 ch	bro pek	3400	50

Lot.		Box.	Pkgs.	Name.	lb.	c.
316		2407	34 ch	pek	2720	44
217	Ellaoya	2410	26 do	bro pek	2340	33
218		2413	15 do	pek	1275	32
219	Gallawatte	2416	18 do	bro pek	1620	29 bid
220		2419	19 hf ch	bro or pek	1045	30 bid
221		2422	32 ch	pek	2720	27
224	Devonford	2431	35 hf ch	bro or pek	2100	67 bid
225		2434	17 cb	or pek	15?0	55
226		2437	12 do	pek	1020	45
227		2440	18 do	pek sou	1620	41
228	Castlereagh	2443	46 ch	bro pek	4370	37
229		2446	17 do	or pek	1360	36
230		2449	27 do	pek	2160	35
233	Marlborough	2458	83 bf ch	bro pek	4648	37
234		2461	18 ch	or pek	1440	33
235		2464	43 do	pek	3784	31
236		2467	11 do	pek sou	880	26
235	Wallaha	2470	24 bf ch	bro or pek	1296	50
238		2473	26 ch	bro pek	2600	41 bid
239		2476	26 do	or pek	2236	43
240		2479	21 do	pek No. 1	1722	41
241		2482	18 do	do ,, 2	1620	39
242	W H R	2485	20 ch	pek sou	1600	36
243		2488	23 hf-ch	dust	1955	18
244	K W	2491	12 ch	bro pek	1200	42
245		2494	14 do	or pek	1332	48
246		2497	18 do	pek	1532	36
251	Weyunga-watte	2512	24 do	bro pek	2400	37
252		2515	23 do	pek	2070	30
253		2518	21 do	pek sou	1680	24
257	Grace Land	2530	16 hf-ch	bro pek	880	23
261	Freds Rube	2542	54 ch	br pek	5400	31 bid
262		2545	38 do	pek	3420	31
263		2548	14 do	pek sou	1400	22
264	Cooroondoo-watte	2551	13 hf-cb	br pek	780	47
265		2554	15 ch	pek	1500	31 bid
266		2557	7 do	pek sou	700	25
269	Mousakelle	2566	26 do	bro or pek	2470	33
270		2569	24 do	or pek	2040	34
279	Woodend	2596	26 do	bro or pek	2600	30
280		2599	39 do	bro pek	3900	30 bid
281		2602	48 do	pek	4320	28
282		2605	15 do	pek sou	1200	25
284	W	2611	15 do	pek	1350	20 bid
285	Dunnottar	2614	13 do	bro or pek	1300	48
286		2617	10 do	bro pek	1000	42
288	Agrakande	2623	28 hf-cb	bro or pek	1540	51 bid
289		2626	36 ch	bro pek	3600	42 bid
290		2629	20 do	pek	2000	38 bid
293	Penrbos	2638	33 bf-cb	bro or pek	1815	39
294		2641	27 do	or pek	1350	37
295		2644	31 ch	pek	2666	34
296		2647	12 do	pek sou	960	27
305	G D T	2674	8 do	bro pek	830	30
306		2677	15 hf-ch	pek	780	21 bid
308	Munukattia, Ceylon in est. mark	2683	15 do	or pek	720	35
309		2686	33 do	bro pek	1914	38
310		2689	18 ch	pek	1620	34
311		2692	8 do	pek sou	720	33
313	Sirikandura	2698	12 do	bro pek	1200	35
314		2701	8 do	pek	720	31
318	S P	2713	26 do 1 hf-ch	pek sou	2529	15
319		2616	6 ch	bro pek fans	760	22
321	Maligatenne	2722	14 do	bro pek	1470	24
322		2725	12 do	pek	1140	19
329	Stratbspey	2746	8 do	bro or pek	840	67
330		2749	15 do	or pek	1425	50
331		2752	18 do	pek	1620	45
336	I N G in est. mark	2767	8 do	pek fans	800	24
341	K in est mark	2782	35 do	bro mix	3500	11
342	Putupaula	2785	12 do	bro or pek	1380	34
343		2788	42 do	br pek	3570	33 bid
344		2791	30 do	pek	2250	29
345		2794	15 do	pek sou	1050	26
352	Noddapara	2815	8 do	pek sou	720	28
353	Talgaswela	2818	12 hf-ch	bro or pek	720	30
354		2821	25 cb	or pek	2125	35 bid
355		2824	28 do	pek	2240	33
356		2827	15 do	pek sou	1125	27
358	B F B	2833	11 do	fans	1210	9 bid
359		2836	17 do	dust	1870	16
362	B F B O	2845	18 do	dust	1980	14
363	Gallawatte	2848	15 do	bro pek	1350	29
364		2851	16 hf-cb	bro or pek	880	31
365		2854	17 cb	pek	1445	29
366		2857	11 do	pek sou	880	26
367		2860	11 do	sou	880	20 bid
371	Ascot	2872	11 do	bro or pek	1100	31
373		2878	35 hf-ch	bro pek	3150	32
374		2881	13 ch	pek	1105	26
375		2884	8 do	pek sou	720	2?
376		2887	13 bf-ch	bro pek fans	845	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
379	Kitulgalla	2896	14 ch	bro pek	1260	31
380		2899	13 do	pek	1040	29
392	Cotta	2935	19 hf-cb	bro or pek	1140	32 bid
398	Gonapatiya	2953	28 do	bro pek	1568	66
399		2956	41 do	or pek	2091	54
400		2959	45 do	pek	2250	47
401		2962	27 do	pek sou	1323	43
404	Degaloya	2971	50 do	br or pk	2500	45 bid
405		2974	72 do	bro pek	3960	35 bid
406		2977	83 do	pek	4150	35
407		2980	29 do	pek sou	1450	31 bid
410	Erlsmere	2989	54 do	bro or pek	3132	33 bid
412		2995	29 ch	pek	2175	32
413		2998	9 do	pek sou	720	27
416	R B Y	3007	10 do	pek sou	800	31 bid
417	Yahaella	3010	12 do	bro pek	1200	32
418		3013	24 do	pek	2166	28
422	Teluda	3025	8 do	br pek	800	26 bid
423		3028	10 do	pek	900	26
426	Dunkeld	3037	70 bf-ch	bro or pek	4200	40
427		3040	16 ch	or pek	1520	37
428		3043	30 do	pek	2700	34
429	Fairlawn	3046	26 bf-ch	bro pek	1300	48
430		3049	17 ch	or pek	1275	35
431		3052	19 do	pek	1615	34
432		3055	16 do	pek sou	1200	26
434	Old Made-gama	3061	11 do	bro or pek	770	43
435		3064	16 do	or pek	1120	35
436		3067	22 do	pek	1760	34
437		3070	11 do	pek sou	880	28
440	Hopton	3079	13 do	bro or pek	1300	32 bid
441		3082	11 do	or pek	990	35
442		3085	26 do	pek	2340	34
443		3088	12 do	pek sou	1140	24
445	H T E in est mark	3094	8 do	sou	720	8 bid
446	Amblangoda	3097	8 do	bro or pek	800	32 bid
448		3103	15 do	pek	1350	33
452	A and H in est mark	3115	13 bf-cb	bro pek	742	25
458	St. Leonards-on-Sea	3133	7 do	bro pek	700	27
459		3136	20 do	pek	1800	23 bid
461		3142	15 do	bro pek fans	1050	15 bid
466	Monkswood	3157	12 bf-ch	br pek	720	60 bid
467	B D W P	3160	26 do	br pek	2340	32 bid
468	W V R A	3163	14 do	bro or pek	770	53

Messrs. Somerville & Co.—

[313,655 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	X Z	1537	12 ch	sou	1020	5 bid
2	Ambalawa	1540	21 hf cb	bro pek	1050	28
3		1543	27 do	pek	1161	23 bid
4		1546	18 do	pek sou	720	out
5	San Cio	1549	18 bf cb	sou	720	9 bid
6	Galpbele A	1552	18 cb	bro or pek	1800	34
7		1555	10 do	bro pek	1000	25 bid
8		1558	20 do	pek	1800	33
11	Do B	1567	21 ch	bro or pek	2100	32
12		1570	12 do	bro pek	1200	29 bid
13		1573	21 do	pek	1890	30
20	Welgampola	1594	18 hf cb	bro pek	1008	28
25	Warakamure	1609	57 ch	bro pek	5700	30
26		1612	28 do	pek	2660	24 bid
27		1615	11 do	pek sou	990	19 bid
28	Avisawella	1618	20 cb	bro pek	2000	26 bid
29		1621	40 do	pek	3400	out
30		1624	21 do	pek sou	1680	16 bid
33	Auburn	1633	21 ch	bro pek	2100	29
34		1636	9 do	pek	774	26
36	Bodava	1642	24 hf ch	bro pek	1320	29
37		1645	9 ch	pek	855	26 bid
38		1648	10 do	pek sou	850	23
42	Glenesk	1660	17 ch	bro pek	1530	30
44		1666	15 do	pek sou	1200	21
47	Dikmukalana	1675	18 hf cb	bro pek fans	990	18
50		1684	16 do	sou	800	8 bid
51	Jak Tree Hill	1687	23 ch	bro pek	2306	34 bid
53		1693	8 do	pek	702	27 bid
64	Ravenscraig	1726	23 ch	or pek	1955	28 bid
65		1729	17 do	pek	1530	30
68	Ravenoya	1738	47 hf-ch	bro pek	2585	32 bid
69		1741	32 do	pek	1600	27 bid
74	Kurulugalla	1756	17 ch	bro pek	1700	27
75		1759	11 do	pek	990	25
76		1762	8 do	pek sou	720	20
80	Horagoda	1774	11 do	bro pek	1100	29 bid
81		1777	19 do	pek	1710	27 bid
82		1780	13 do	pek sou	1170	21 bid
85	Fairfield	1789	20 hf ch	bro or pek	1100	62 bid
86		1792	29 cb	bro pek	2900	3 bid
87		1795	14 do	or pek	1120	39 bid
88		1798	30 do	pek	2700	36

Lot.		Box.	Pkgs.	Name.	lb.	c.
89		1801	14 ch	pek sou	1330	33
90		1804	12 hf ch	fans	840	25
92	Charlie Hill	1810	54 hf ch	bro pek	2700	38
93		1813	20 do	pek	1000	25 bid
97	Ingeriya	1825	57 hf ch	bro pek	2850	29
98		1828	26 do	bro or pek	1560	27
99		1831	47 do	pek	2256	26
100		1834	27 do	pek sou	1242	25
102	Pindenioya	1840	18 ch	bro or pek	1800	34
103		1843	19 do	pek	1520	30 bid
104		1846	18 do	pek sou	1350	27
105		1849	19 do	sou	1805	24
106		1852	13 do	unas	1170	28
109	Doragalla	1861	23 ch	bro or pek	2300	39 bid
110		1864	28 do	bro pek	2520	35 bid
111		1867	49 do	pek	3920	33
112		1870	24 do	pek sou	1680	26
113		1873	10 do	bro mix	1250	15 bid
114	G A	1876	9 ch	pek sou	765	22
116	Lower Dickoya	1882	22 hf ch	bro pek	1166	27 bid
117		1885	10 ch	pek	1000	29
121	Henhurst	1897	11 ch	bro or pek	1045	29
122		1	37 do	pek	3145	23 bid
124		7	32 ch	sou	2720	19
125		10	10 hf ch	dust	750	17
126	Tiddydale	13	18 ch	bro pek	1800	20 bid
127		16	27 do	pek	2430	20 bid
128		19	30 do	pek sou	2700	16
129	Holmsdale	22	18 ch	bro or pek	1800	31
130		25	16 do	bro pek	1440	31
131		28	18 do	pek	1530	30
134	Neboda	37	15 ch	bro or pek	1500	33
135		40	41 do	bro pek	4100	26 bid
137		46	9 do	pek sou	720	23
139	Neuchatel	52	48 ch	or pek	4080	31
140		55	28 do	bro or pek	2940	28 bid
141		58	22 do	pek sou	1760	24
144	Ladysmith	67	20 ch	or pek	2000	22
145		70	22 ch	bro pek	2310	28
146		73	28 do	pek	2464	25 bid
147		76	17 hf ch	fans	1105	21
149	Lyndhurst	82	28 hf ch	bro pek	1540	33
150		85	22 do	pek	990	28
154	Woodthorpe	97	10 ch	bro pek	1000	34 bid
155		100	18 do	pek	1440	30
156		103	20 do	pek sou	1600	27
159	M & B	112	14 hf ch	dust	1064	8 bid
160	Nyanza	115	7 ch	bro or pek	700	40 bid
161		118	10 do	bro pek	1000	31 bid
162		121	15 do	or pek	1350	34
163		124	31 do	pek	2790	32
166	L H	133	16 hf-ch	dust	1216	10 bid
167	Dalukoya	136	20 hf ch	bro or pek	1200	31
168		139	28 do	or pek	1540	29 bid
169		142	34 do	pek	1870	24 bid
170	Rayigam	145	21 ch	bro pek	1995	31 bid
171		148	17 do	or pek	1360	30
172		151	18 do	pek	1440	30
173		154	33 do	pek sou	3036	26
175		160	14 do	dust	1050	17
176	Damblagolla	163	18 ch	or pek	1620	30
177		166	18 do	bro pek	1800	24 bid
178		169	18 do	pek	1530	22 bid
179		172	18 do	pek sou	1440	15 bid
181	Murraythwaite	178	23 ch	bro pek	2300	33 bid
182		181	26 do	pek	2080	30
183		184	12 do	pek sou	960	23
188	Kumaragala	199	13 hf-ch	bro pek	715	32
189		202	11 ch	pek	880	28
190		205	13 do	pek sou	1040	24
195	Primrose	220	9 ch	pek sou	720	26
198	Mt. Vernon	229	41 ch	pek	3977	44
199		232	46 do	pek A	4048	43
200		235	28 do	pek sou	2632	42
201		238	33 hf ch	fans	2640	20
202	Rahatungoda	241	33 hf ch	bro or pek	1650	42
203		244	28 do	or pek	1400	39 bid
204		247	19 do	bro pek	1140	40
205		250	33 do	pek	1650	41
208	S W J	259	8 ch	pek fans	960	10 bid
209	Hangranoya	262	11 ch	bro or pek	1100	40
210		265	25 do	bro pek	2500	31 bid
211		268	15 ch	pek	1350	30
212		271	9 do	pek sou	720	25
215	Killin	280	38 hf ch	bro or pek	1900	28 bid
216		283	13 ch	bro pek	1170	29
217		286	24 do	or pek	2160	26 bid
218		289	16 do	pek	1360	23 bid
222	Agra Elbedde	301	23 hf ch	bro or pek	1380	41 bid
223		[illegible]	30 do	or pek	1500	38 bid
224		307	39 do	pek	1755	44
225		310	24 do	pek sou	1080	40
228	D	319	10 ch	bro pek	1000	30
233	Polgahakande	334	17 ch	bro pek	1615	32
234		337	14 do	pek	1260	28
235		340	30 do	pek sou	2550	24
236	Gona	343	15 ch	bro or pek	1455	24 bid
237	Harangalla	346	20 ch	bro pek	1800	32 bid
238		349	22 do	pek	1870	32
239		352	15 do	sou	1275	24
240	Glenmorgan Nilgiris	355	21 hf ch	bro or pek	1050	31 bid
241		358	39 ch	or pek	3315	27 bid
242		361	10 do	pek fans	1250	24
243	Eewadugama	364	11 ch	bro pek	1210	26 bid
244		367	7 do	pek	700	24 bid
245	Poolbank	370	49 hf-ch	bro pek	2940	39 bid
246		373	9 ch	pek	3900	33
247		376	7 do	bro sou	700	26
249	Mahalla	382	35 f ch	bro pek	1680	33
250		385	14 ch	pek	1120	24
251		388	10 do	pek sou	750	21
253	Ferriby	394	29 ch	bro pek	2610	29 bid
254		397	24 do	pek	1920	25 bid
255		400	12 do	pek sou	900	22
258	Oonankande	409	16 hf-ch	bro pek	800	36
259		412	17 ch	pek	1360	33
260		415	10 do	sou	700	24
261	Mousakande	418	19 hf-ch	bro or pek	1026	28 bid
262		421	12 ch	bro pek	1056	24 bid
263		424	12 do	pek	1140	27
264	Gangwarily	427	29 ch	bro pek	2610	29 bid
265		430	18 do	pek	1350	29
266		483	10 do	pek sou	750	24
268	St Catherine	439	11 ch	or pek	1045	31 bid
269		442	11 do	pek	935	30

[Mr. E. John.—247,143 lb.]

Not		Box.	Pkgs.	Name.	lb.	c.
1	G W	526	14 ch	bro pek	1400	30 bid
2		529	15 do	or pek	1350	29 bid
3		532	22 do	pek	1870	25 bid
4		535	12 do	pek sou	960	23 bid
8	Kandaloya	547	34 hf ch	bro pek	1530	33 bid
9		550	22 do	or pek	880	31 bid
10		553	80 do	pek	3200	31
11	Oonoogaloya	556	22 ch	or pek	1980	40
12		559	15 do	bro or pek	1500	47 bid
13		562	31 do	pek	2790	35
14		565	16 do	pek sou	1360	31
15	Mocha	568	23 do	bro or pek	2300	64
16		571	15 do	or pek	1275	51 bid
17		574	16 do	pek	1440	48
18		577	13 do	pek sou	1040	45
19	Glentilt	580	36 do	bro pek	3600	51
20		583	27 do	or pek	2565	35
21		586	18 do	pek	1620	32
22		589	8 do	pek sou	760	31
25	G K W	598	11 do	pek	825	32
27	Rondura	604	32 do	bro pek	3200	27 bid
28		607	25 do	or pek	2000	32
29		610	44 do	pek	3520	33
30		613	21 do	pek sou	1680	24
32	Agra Ouvah	619	25 hf-ch	bro or pek	1550	63
33		622	51 do	bro pek	3060	46
34		625	16 ch	pek	1536	42
35	Glasgow	628	48 do	bro or pek	3600	48 bid
36		631	22 do	or pek	1430	41 bid
37		634	13 do	pek	1040	42
38		637	10 do	pek sou	1000	41
39	Callander	640	18 hf ch	bro or pek	1080	45 bid
40		643	24 do	or pek	1248	41 bid
41		646	38 do	pek	1824	42
44	Glassaugh	655	24 do	or pek	1248	72
45		658	22 do	bro or pek	1430	45
46		661	23 ch	pek	2185	45
48	Nahavilla	667	21 do	or pek	2100	37
49		670	30 do	bro pek	3000	40
50		673	7 do	pek	700	33 bid
53	M G	682	10 do	unas	920	17
54		685	15 hf-ch	fans	1110	19
55	E	688	8 ch	bro mix	880	7
56	Kadienlena	691	38 do	pek No. 1	3230	30 bid
57	Sumtravalle	694	10 do	unas	1000	8 bid
58	Dickapittia	697	24 do	bro pek	2400	35 bid
59		700	30 do	pek	3000	36
60		703	7 do	pek sou	700	27 bid
61		706	11 hf ch	fans	770	27
62	Troup	709	12 ch	pek sou	1140	31 bid
63		712	7 do	bro mix	700	22
64	Ottery	715	19 do	bro or pek	1805	44 bid
65		718	19 do	or pek	1615	41 bid
66		721	22 do	pek	1870	36
68		727	7 do	bro pek fans	840	32
69		730	9 do	sou	720	26 bid
73	Iona	742	64 hf-ch	bro or pek	3712	58 bid
74		745	38 ch	or pek	3420	41 bid
75		748	40 do	pek	3200	39 bid
77	Mahapahagalla	754	15 do	bro pek	1500	29 bid
78		757	17 do	pek	1445	25 bid
80		763	11 do	bro or pek	1100	36 bid
81		766	16 do	or pek	1440	31
83	Mount Clare	772	9 do	bro or pek	945	33 bi

Lot.		Box.	Pks.	Name	lb.	c.
85		778	16 ch	pek	1520	29
86		781	11 do	pek sou	990	21 bid
90	Rookwood	793	12 do	or pek No 1	1080	48
91		796	28 do	pek	2380	36
92	Ratwatte	799	24 do	bro pek	2400	27
93		802	9 do	bro pek No.2	900	27
94		805	46 do	pek	4140	27
95		808	22 do	pek sou	1760	21
96	Mahanilu	811	9 do	bro pek	900	32 bid
97		814	8 do	pek	720	30 bid
98		817	9 do	pek sou	855	31
99	Little Valley	823	8 do	bro pek	800	36
100		826	17 do	pek	1445	29 bid
101	Maskeliya	832	42 hf ch	bro or pek	2100	51 bid
103		835	24 ch	or pek	2160	36 bid
104		838	31 do	pek	3100	35
105		841	13 hf-ch	bro pek fans	780	19 bid
108	Medenpenne-kanda	847	9 ch	dust	1350	16
109	Mossend	850	24 hf ch	bro or pek	1440	37 bid
110		853	33 do	bro pek	1650	38
111		856	21 do	pek	945	32
113	Osborne	862	37 ch	bro or pek No. 1	3885	38 bid
114		865	33 do	bro or pek No. 2	2970	36
115		868	15 do	bro pek	1575	32
119	Galoola	880	25 do	pek sou	2000	33
120	Glasgow	883	67 do	bro or pek	5022	45 bid
121		886	24 do	or pek	1557	50
122	Kotuagedera	889	27 do	bro pek	2700	29
123		892	20 do	pek	1800	25
124	Brownlow	895	22 hf-ch	bro or pek	1144	47
125		898	22 do	bro pek	1254	37
26		901	12 ch	or pek	1068	36
127		904	35 do	pek	3010	32
128		907	10 hf-ch	bro pek fans	750	19 bid
129	Doonhinde	910	21 ch	bro pek	2310	44 bid
130		913	30 do	pek	3000	41 bid
133	Chapelton	922	10 hf-ch	dust	900	19
137	Lameliere	934	55 ch	bro or pek	3325	43 bid
138		937	31 do	bro pek	2790	35 bid
139		940	57 do	pek	4845	33 bid
143	Warleigh	952	15 do	bro pek	1500	43 bid
144		955	16 do	pek	1360	42 bid
147	Agra Ouvah	964	25 hf-ch	bro or pek	1550	62
148		967	53 do	bro pek	3180	45
149		970	16 ch	pek	1536	41
151		976	22 hf-ch	pek fans	1760	23
154	Dalhousie	985	17 do	bro pek	935	41 bid
155		988	36 do	pek No. 1	1620	30 bid
156		991	20 do	pek No. 2	900	27 bid
158	Eton	977	75 do	bro or pek	4125	57 bid
159		1000	25 ch	or pek	2125	46
160		3	28 do	pek	2800	43
162	Poilakande	9	87 do	bro pek	8700	25 bid
163		12	57 do	pek	5130	23 bid
164		15	12 hf-ch	dust	1020	16

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Battalgalla	50	8 hf ch	fans	680	20
11		71	8 do	fans	680	20
15	Fassifern	83	3 do	dust	210	18

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	E D P	1762	7 hf ch	dust	525	17
17	C S G	1810	2 ch	bro mix	200	16
23	Ettapolla	1828	9 hf ch	pek	504	21
24		1831	4 do	pek sou	224	18
25		1834	1 do	dust	78	16
29	D, in estate mark	1846	9 hf ch	fans	585	18
30		1849	3 do	dust	231	19
33	Palmerston	1858	3 ch	pek sou	240	38
34		1861	3 hf ch	dust No. 1	240	21
35		1864	1 do	do ,, 2	90	17
36		1867	2 do	bro or pek fans	140	36
39	Theydon Bois	1876	6 ch	pek sou	510	25
40	T B, in estate mark	1879	4 hf ch	dust	300	17
41		1882	6 ch	fans	540	25
45	Roeberry	1894	8 do	pek sou	688	40
55	Queensland	1924	2 do	unas	200	17
59	Mawliganga-watte	1936	5 do	dust	500	17
63	Lochiel	1948	1 do	pek sou	85	25
64		1951	2 hf-ch	dust	160	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
68	G, in estate mark	1963	7 hf ch	sou	315	13
71	Ketadola	1972	6 ch	pek sou	570	18
72		1975	4 do	sou	363	13
73		1978	1 do	pek fans	113	10
74		1981	1 do	fans	100	6
75		1984	1 do	dust	154	15
76		1987	1 do	mixed	77	8
80	Yogama	1999	5 ch	fans	500	18
90	Pine Hill	2029	8 do	pek sou	680	33
100	Glenden	2059	8 do	sou	680	23
104	Laboukellie	2071	4 ch	young hyson	440	51
105		2074	2 do	hyson No. 1	184	45
119	Erracht	2116	8 do	pek sou	640	20
121		2122	1 do	dust	179	13
127	Killarney	2140	4 ch	bro mix	400	27
128	B W D	2143	5 do	unas	500	12
129		2146	5 do	red leaf	500	8
130		2149	5 hf ch	dust	400	15
131	B A	2152	5 ch	bro tea	475	6
132	S	2155	1 do	bro pek	95	6
133		2158	1 do	pek	87	8
134		2161	1 do	sou	75	5
136	Ismalle	2167	2 do	congou	160	10
137		2170	4 do	fans	540	14
143	Glengariffe	2188	4 hf ch	dust	320	17
150	Stamford Hill	2209	5 ch	pek sou	425	32
151		2212	3 hf-ch	dust	255	19
152	Boda	2215	8 do	bro pek	440	30
153		2218	4 do	or pek	168	32
154		2221	5 ch	pek	410	24
155		2224	2 do	pek sou	154	18
156		2227	1 do	bro mix	84	12
157		2230	2 hf-ch	fans	150	15
163	D M V	2248	4 ch	pek sou	304	15
164		2251	1 do	bro tea	74	8
167	Galkande	2260	1 do	sou	80	24
170	Dunbar	2269	5 ch	bro pek fans	525	33
171		2272	2 do	pek sou	170	32
172		2275	2 do	dust	244	16
175	Doranakan-de	2284	6 ch	pek	540	23
182	Drayton	2305	2 do	sou	160	32
187	Walpita	2320	5 ch	sou	450	17
188		2323	2 do	fans	220	27
205	Udabage	2374	8 hf ch	pek sou	400	18
206	M, in estate mark	2377	13 hf ch	or pek	650	31
209		2386	10 do	pek sou	500	20
212	Parsloes	2395	5 ch	pek sou	400	24
213		2398	3 hf ch	dust	270	17
222	Gallawatte	2425	5 do	bro or pek	275	25
223		2428	5 ch	pek	425	21
231	Castlereagh	2452	6 do	pek sou	510	30
232		2455	7 do	fans	525	20
247	K W	2500	2 ch	bro tea	200	37
248	A G	2503	1 do	do	90	22
249		2506	1 do	do	90	20
250		2509	2 do	dust	285	17
254	Weyunga-watte	2521	2 ch	bro tea	200	25
255		2524	3 hf ch	dust	255	17
256	Broadoak	2527	4 ch	sou	357	10
258	Grace Land	2533	7 hf-ch	pek	350	19
259		2536	6 do	pek sou	300	14
260		2539	1 do	congou	45	10
267	Cooroondoo-watte	2560	3 do	congou	270	18
268		2563	3 hf-ch	fans	225	17
271	Mousakelle	2572	7 ch	pek sou	595	23
272		2575	4 hf-ch	dust	320	17
273	B F	2578	1 ch			
274		2581	4 hf-ch 2 ch	bro pek	308	withd'n
275		2584	5 hf-ch 4 ch	pek	379	,,
276		2587	9 hf-ch 3 do	pek sou br pk fans	658 171	,, ,,
277		2590	2 do	fans	134	,,
278		2593	2 do	dust	115	,,
283	Woodend	2608	3 ch	dust	390	17
287	Dunnottar	2620	7 do	pek No. 1	595	40
291	Agrakande	2632	6 do	pek sou	600	32 bid
292		2635	1 do	fans	80	24
297	Penrhos	2650	4 hf-ch	fans	300	18
293	O X	2653	2 ch	bro or pek	150	25
299		2656	2 hf-ch 1 box	pek sou	163	13
300		2659	1 do	fans	46	10
301	A	2662	1 hf-ch 1 box	green tea	68	28
302	B	2665	1 ch	green tea	92	23
303	C	2668	1 box	green tea	22	15
304	D	2671	1 hf-ch	green tea	44	12
307	G D T	2680	3 ch	dust	300	10
312	G	2695	12 do	bro pek No. 2	648	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
315	Sirikandura	2704	8 do	pek sou	680	23
316		2707	4 do	hro pek fans	400	22
317		2710	1 do	dust	165	10
320	B B in est. mark	2719	3 hf-ch	dust	285	14
323	Maligatenne	2728	4 ch	pek sou	360	13
324		2731	4 do	fans	400	10
335		2734	1 do	dust	130	12
326	A	2737	4 do	hro pek	400	30
327		2740	2 do	or pek	220	27
328	N in est mark	2743	7 do	dust	630	14
332	Strathspey	2755	5 do	pek sou	450	29
333		2758	2 do	dust	270	23
334		2761	1 do	red leaf	68	10
335	Ingrogalla	2764	5 do	bro pek No. 2	400	28
337	I N G in est. mark	2770	7 do	pek sou	595	23
338		2773	4 do	sou	320	14
339		2776	5 do	br pek dust	600	17
340	B B in est. mark	2779	6 hf-ch	dust	570	17
346	Putupaula	2797	2 ch	sou	124	6
347		2800	2 do	dust	280	16
348	Noddapara	2803	5 hf-ch	hr or pek	250	76
349		2806	5 do	or pek	250	70
350		2809	8 do	pek	400	36
351		2812	1 do	fans	50	22
357	Talgaswela	2830	4 do	dust	320	17
360	B F B	2839	4 ch	unast	384	8
361	B F B B	2842	4 do	unast	380	7
368	Gallawatte	2863	9 hf-ch	pek fans	630	18
369		2866	9 do	bro or pek	495	25
370		2869	6 ch	pek	510	22
372	Ascot	2875	8 do	or pek	680	28
377		2890	6 hf-ch	dust	540	17
378	Kitulgalla	2893	4 ch	hro or pek	400	29
381		2902	6 do	pek sou	480	23
382		2905	3 do	dust	240	18
383		2908	2 do	bro or pk fans	330	28
384	B D W P	2911	2 do	hro pek No. 2	180	6
385		2914	1 do	pek No. 2	80	6
386		2917	1 do	pek sou No. 2	80	6
387		2920	1 hf-ch	dust	85	17
388		2923	1 ch	bro pek No. 2	90	6
389		2926	1 do	pek No. 2	85	6
390		2929	1 do	pek sou No. 2	80	6
391		2932	1 hf-ch	dust	85	17
393		2938	4 ch	fans	440	29
394		2941	1 do	hro pek No. 2	95	6
395		2944	1 do	pek No. 2	85	6
396		2947	1 do	pek sou No. 2	80	6
397		2950	1 hf-ch	dust	85	16
402	watte	2965	4 ch	pek fans	520	17
403		2968	1 hf ch	dust	100	16
408	Kabragalla	2983	3 ch	dust	255	17
409		2986	9 do	bro tea	495	8
411	Erlsmere	2982	8 do	or pek	640	38
414		3001	4 hf ch	dust	320	17
415	G D T	3004	1 ch	dust	100	16
419	Yaha Ella	3016	4 do	pek sou	360	21
420		3019	1 do	pek fans	130	17
421		3022	1 do	dust	100	14
424	Taldua	3031	1 do	pk sou	90	18
425		3034	2 hf ch	dust	155	17
433	Fairlawn	3058	5 do	dust	400	18
438	Old Made gama	3073	5 ch	hro pek fans	400	26
439		3076	3 do	dust	300	18
444	Hopton	3091	4 do	dust	440	18
447	Amblangoda	3100	7 do	or pek	630	35
449		3106	7 do	pek sou	665	23
450		3109	2 do	dust	220	17
451	Cottaganga	3112	1 do	hro pek	100	26
453	Kotagaloya	3118	3 do			
			1 hf ch	pek sou	319	23
454	Poengalla	3120	1 ch	hro pek	100	35
455	Handrokanda	3124	5 do	hro pek	500	25
456		3127	1 do	pek	85	23
457		3130	1 do	pek sou	80	18
460	St. Leonards on Sea	3142	4 do	pek No. 2	360	23
462		3145	6 do	or pek	560	28
463		3148	1 do	pek sou	90	19
464		3151	3 do	dust	330	16
465		3154	1 d	hro mixed	135	8

[Messrs. Somerville & Co.]

Lot,		Box,	Pkgs,	Name	lb.	c.
9	Galphele A	1561	3 ch	pek sou	300	22
10		1564	1 do	fans	150	12 bid
14	Do B	1576	5 ch	pek sou	500	24
15		1579	1 ch	sou	80	14
16		1582	2 do	fans	280	16
16a		1582a	1 do	fans A	140	12
17	S R K	1585	6 do	pek sou	570	25
18		1588	3 ch	dust	450	16
19		1591	2 do	bro tea	200	12
21	Welgampola	1597	11 hf-ch	pek	550	22 hid
22		1600	7 do	pek sou	350	20
23		1603	3 do	sou	150	16
24		1606	5 do	fans	250	18
31	Avisawella	1627	6 ch	sou	480	10
32		1630	3 do	dust	420	16
35	Auhurn	1639	3 do	pek sou	240	20
39	Bodava	1651	1 ch	red leaf	75	5
40		1654	1 do	dust	135	16
41	G L	1657	5 hf ch	dust	350	15
43	Glenesk	1663	6 ch	pek	480	22 hid
45		1669	2 do	hro tea	210	15
46		1672	1 do	dust	170	12
48	Dikmukalana	1678	2 hf ch	pek sou B	100	14
49		1681	8 do	dust	400	17
52	Jak Tree Hill	1690	2 ch	bro or pek	207	45 hid
54		1696	9 do	pek sou	696	24
55		1699	2 hf ch	dust	180	17
56	Nyanza	1702	5 ch	bro pek	475	26
57		1705	7 do	pek	665	21
58		1708	1 do	fans	100	18
59	Beruketiya	1711	4 hf-ch	bro pek	228	33
60		1714	4 do	pek	162	23
61		1717	3 do	bro pek sou	157	18
62		1720	1 do	bro mix	69	12
63	Ravenscraig	1723	7 hf ch	hro pek	385	34
66		1732	1 ch	pek sou	[illegible]	20
67		1735	2 hf-ch	fans	160	16
70	Ravenoya	1744	7 hf ch	pek sou	350	20
71		1747	2 do	sou	70	18
72		1750	3 do	fans	249	25
73	D S, in estate mark	1753	5 hf ch	dust	350	16
77	R G A, in estate mark	1765	3 ch	bro tea	300	9
78		1768	4 do	bro pek fans	520	16
79		1771	2 do	pek dust	28	16
83	Horagoda	1883	1 ch	dust	100	16
84		1786	1 do	con	95	12
91	Fairfield	1807	2 hf ch	dust	190	15
94	Charlie Hill	1816	3 hf ch	pek sou	150	18
95		1819	3 do	pek fans	210	12
101	Ingeriya	1837	3 hf ch	dust	240	17
107	Pindenioya	1855	1 ch	dust	150	16
108		1858	2 do	red leaf	70	6
115	G A	1879	7 ch	sou	420	13
118	H R	1888	2 hf c	hro pek	85	27
119		1891	4 do	pek	183	14
120	Henhurst	1894	8 ch	or pek	580	26 bid
123		4	6 do	bro pek fans	500	23 bid
132	Holmsdale	31	3 ch	pek sou	255	15
133		34	2 do	fans	200	13 bid
136	Neboda	43	5 ch	pek	450	33
138		49	5 hf ch	dust	425	17
142	Neuchatel	61	5 hf ch	dust	100	16
143	C S C, in estate mark	64	3 hf-ch	dust	207	16
148	Lyndhurst	79	10 hf-ch	bro or pok	520	30
151		88	9 do	pek sou	576	22
152		91	11 do	fans	594	22
153		94	2 do	dust	170	16
157	Woodthorpe	106	3 ch	sou	228	17
158		109	2 hf ch	dust	161	16
164	Nyanza	127	4 ch	pek sou	360	23
165		130	3 hf ch	dust	285	16
164	Rayigam	157	2 ch	bro mix	156	16
180	G W	175	2 ch	pek	190	16
184	Murraythwaite	187	3 ch	hro pek fans	360	21
185		190	1 do	dust	160	14
186	Woodcote Nilgiris	193	4 hf ch	or pek	400	25 hid
187		196	6 do	pek	300	20 bid
191	Kumaragala	208	2 ch	sou	152	18
192		211	2 hf ch	dust	107	17
193	Primrose Hill	214	3 ch	bro pek	300	35
194		217	8 do	pek	640	26 bid
196		223	1 do	sou	76	17
197		226	2 hf ch	dust	103	17
206	Rahatungoda	253	7 hf ch	dust	560	17
207	S W J	256	5 ch	sou	425	8 bid
219	Killin	292	2 ch	sou	180	16
220		295	4 do	hro mix	360	11
221		298	5 hf ch	dust	400	16
226	X X	313	2 hf ch	unas	90	32
227		316	5 do	pek dust	400	17
229	D	322	6 ch	pek	570	20
230		325	4 do	pek sou	360	14 bid
231		328	1 do	hro pek fans	90	10 hid
232		331	1 do	hro pek dust	80	14
248	Poolbank	379	3 hf ch	dust	255	15
252	Mahalla	391	2 ch	dust	178	16
256	Ferriby	463	6 ch	fans	660	18
257		406	1 do	dust	150	15
267	St. Catherine	436	5 ch	bro or pek	475	36
270		445	6 do	pek sou	480	24

Lot.		Box.	Pkgs.		Name.	lb.	c.
271		448	1	cb	red leaf	80	10
272		451	1	do	dust	120	14

[Mr. E. John.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
5	G W	538	5	cb	unas	352	10
6		541	4	do	fans	405	15
7		544	2	do	dust	270	16
23	G K W	592	11	bf-cb	bro pek	638	32 bid
24		595	11	do	or pek	550	33
26	Bogawana	601	1	ch	pek	70	32
31	Rondura	616	3	do	dust	450	19
42	Callander	649	7	hf-cb	pek sou	280	33 bid
43		652	8	do	bro pek fans	560	26
47	Glassaugh	664	2	ch	bro mix	200	10
51	Nahavilla	676	8	hf-cb	pek fans	560	21
52		679	7	do	dust	560	17
67	Ottery	724	4	do	pek fans	280	22 did
70		733	5	do	dust	375	18
71	L, in est. mark	736	9	do	pek	468	12
72		739	1	do	bro pek	80	12
76	Iona	751	5	do	dust	375	17
79	Mabapahagalla	760	7	cb	pek sou	560	20
82		769	3	do	pek sou	240	19
84	Mount Clare	775	5	do	or pek	460	28 bid
87		784	2	do	fans	200	15
88		787	2	do	dust	220	16
89	Rookwood	790	10	bf ch	flow br or pek	580	46 bid
99	Mahanilu	820	7	ch	unas	665	11
102	Little Valley	829	4	bf-ch	dust	320	17
107	Pitioya	844	4	ch	sou	272	17
112	Mossend	859	3	bf-ch	dust	210	17
116	Osborne	871	1	ch	pek sou	95	27
117		874	9	bf-ch	fans	630	21
118		877	1	do	dust	95	17
131	Doonhinde	916	6	cb	pek sou	600	34
132		919	3	do	dust	330	17
134	Chapelton	925	8	do	bro mix	640	14
135	W H	928	7	bf-cb	pek sou	336	26
136		931	4	ch	dust	328	18
140	Lameliere	943	4	do	sou	440	6
141	Warleigh	946	10	hf-ch	bro or pek	600	72 bid
142		949	11	do	or pek	605	51 bid
145		958	4	ch	pek sou	320	39
146	Doonevale	961	5	do	pek sou	397	13
150	Agra Ouvah	793	7	do	pek sou	644	37
152		979	7	hf cb	dust	665	18
153	Dalhousie	982	9	do	or pek	405	43
157		914	7	do	fans	420	30
161	Eton	6	1	do	dust	85	17

CYELON COFFEE SALES IN LONDON.

(From Our Commerical Correspondent.)

MINCING LANE, Oct. 26.

"Kanagawa Maru."—S, 3 casks and 1 barrel sold at 61s; ditto PB, 1 cask and 1 tierce sold at 102s; GMT T in estate mark, 1 cask and 1 barrel sold at 49s.

CEYLON COCOA SALES IN LONDON.

"Kanagawa Maru."—Dynevor A, 7 bags sold at 75s 6d; B, 25 bags sold at 72s 6d; C, 13 bags sold at 68s; D, 2 bags sold at 64s.

"Calchas."—Kepitigalla, 1 bag sold at 64s.

"Cheshire."—MA in estate mark, 18 bags sold at 68s.

"Kanagawa Maru."—G, 7 bags sold at 50s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Kanagawa Maru."—Delpotonoya, 1 case sold at 3s 3d; 2 cases sold at 2s 7d; 3 cases sold at 2s; 1 case sold at 1s 3d; 1 case sold at 1s 9d; 1 case sold at 1s 5d; 1 case sold at 1s 2d; 1 case sold at 1s 10d; FA & Co., in estate mark, 3 bags sold at 1s 11d.

"Oronto."—Tonacombe Special, 3 cases sold at 3s 10d; ditto 1, 8 cases sold at 3s 1d; ditto 2, 2 cases sold at 2s 3d; 2 cases sold at 2s 2d; ditto 3, 3 cases sold at 1s 9d.

"Cheshire."—Midlands OO, 2 cases sold at 2s 11d; 2 cases sold at 2s 10d; ditto 1, 10 cases sold at 2s 3d; ditto 2, 4 cases sold at 1s 3d; ditto B & S, 3 cases sold at 1s 1d; ditto Seeds, 1 case sold at 1s 10d; Elkadua O, 1 case sold at 1s 9d; ditto 1, 1 case sold at 1s 4d; ditto 2, 1 case sold at 6d; ditto B & S, 1 case sold at 4d; ditto Seed, 1 bag sold at 1s 7d.

"Barrister."—Midlands O, 2 cases sold at 3d; 1 case sold at 2s 11d; ditto 1, 10 cases sold at 2s 2d; ditto 2, 1 case sold at 1s 2d; ditto B & S, 2 cases sold at 1s 1d; ditto Seeds, 1 case sold at 1s 9d.

OBSERVER PRINTING WORKS.

No. 44 COLOMBO, NOVEMBER 26, 1900. PRICE :—12½ cents each 3 copies, 30 cents ; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[34,462 lb.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	E Eliya	42	10 ch	pek	850	32 bid
2		45	11 do	pek sou	935	22 bid
4	Hornsey	51	33 hf ch	bro or pek	1650	51 bid
5		54	55 ch	or pek	5225	38 bid
6		57	38 do	pek	3420	35
7		60	18 do	pek sou	1440	34
8		63	12 hf ch	fans	1020	21
9	Ovoca	66	29 do	bro or pek	1595	51 bid
10		69	19 do	or pek	855	42 bid
11		72	25 ch	pek	2125	38
12		75	19 do	pek sou	1615	34
14		81	9 do	unas	945	2?
15	Ovoca	84	19 hf ch	or pek	855	39 bid
16		87	19 ch	pek	1615	33 bid
17	Manickwatte	90	24 ch	or pek	1920	25 bid
18		93	21 do	bro or pek	2100	20 bid
19		96	27 do	pek	1998	20 bid
20		99	27 do	pek sou	2214	18 bid
24	W	11	9 ch	pek	720	25 bid

Messrs. Forbes & Walker.

[521,518 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Kosgalla	3169	25 hf ch	bro pek	1250	27
		3172	22 do	pek	990	24
	O B E C, in estate mark Forest Creek	3178	19 ch	bro or pek	1900	48
6		3181	24 do	bro pek	2400	39
7		3184	13 do	or pek	1170	42
8		3187	20 do	pek No. 1	1800	36
9		3190	24 do	pek „ 2	2160	34
10	Glencorse	3193	9 ch	bro or pek	900	44
11		3196	12 do	bro pek	1020	38
12		3199	26 do	or pek	2210	36
13		3202	18 do	pek	1620	35
14		3205	43 do	pek sou	3440	26
15		3208	6 do	bro tea	720	25
17	Hatton	3214	31 ch	bro pek	3255	56
18		3217	43 do	pek	3655	41
20	Ninfield	3223	14 ch	bro or pek	1400	30
21		3226	14 do	bro pek	1260	27
22		3229	30 do	pek	2700	24
31	L G F in estate mark	3256	6 ch	dust	780	19
34	Avoca	3265	15 ch	bro or pek	1575	56 bid
35		3268	25 do	bro pek	2500	42 bid
36		3271	23 do	pek	1955	29 bid
38		3277	6 do	bro pek fans	810	22
39	Kincora	3280	9 ch	bro or pek	900	53
41		3286	18 do	pek	1440	38 bid
42		3289	22 do	do No. 2	1540	34
43		3292	7 do	fans	805	33
47	Rockside	3304	5 ch	dust No. 2	850	18
48		3307	7 do	bro pek fans	840	31
49	Great Valley Ceylon, in est. mark	3310	49 hf ch	bro or pek	2695	46
50		3313	13 ch	or pek	1105	40
51		3316	44 do	pek	3740	33
52		3319	20 do	pek sou	1500	29
53		3322	20 do	dust	1700	22
55	Gallaheria	3328	33 ch	pek	2475	withd'
56	Beaumont	3331	18 do	bro pek	1728	28 bid
57		3334	54 do	or pek	4590	23 bid
58		3337	10 hf ch	fans	880	19
59	Weemalle	3340	8 ch	bro or pek	800	38
60		3343	9 do	or pek	765	38
61		3346	14 do	pek	1260	34
65	Ardlaw and Wishford	3358	16 ch	or pek	1312	42
66		3361	11 do	pek No. 1	737	33 bid
67	S W	3364	13 do	bro mix	1430	19
69	Wyamita	3370	9 ch	bro pek	900	30
73	L B K	3382	9 do	sou	900	11
86	Ireby	3421	30 hf ch	bro pek	1650	54
87		3424	15 ch	pek	1275	46
88		3427	9 do	pek sou	765	38

Lot		Box.	Pkgs.	Name.	lb.	c.
91	O'Bode	3436	13 ch	bro pek	1495	37
92		3439	12 do	or pek	1200	34
93		3442	10 do	pek	950	29 bid
95	Ellaoya	3448	11 ch	bro or pek	1100	44
96		3451	17 do	pek	1445	29
97		3454	22 do	pek sou	1870	24 bid
98	Agraoya	3457	10 ch	bro or pek	900	34
99		3460	19 do	or pek	1520	30
100		3463	15 do	bro pek	1500	31
101		3466	16 do	pek	1200	27
102		3469	8 do	pek sou	720	23
103	Naseby	3472	40 hf ch	bro or pek	2400	54
104		3475	30 do	or pek	1380	52
105		3478	32 do	pek	1536	46
106	New Peacock	3481	18 ch	pek sou	1620	31
107		3484	14 hf-ch	bro mix	700	22
108		3487	27 do	pek fans	2025	23
109	Pendle	3490	29 ch	bro pek	2900	40
110		3493	26 do	pek	2340	35
111		3496	16 do	pek sou	1440	25
115	Bagdad	3508	8 ch	bro mix	800	withd'n.
117	Galkadua	3514	13 do	bro pek	1430	31
118		3517	12 do	pek	1200	24
119		3520	7 do	pek sou	700	21 bid
122	Ruanwella	3529	38 do	or pek	3230	31
123		3532	9 do	bro pek	900	27
124		3535	27 do	pek	2430	29
125		3538	9 do	pek sou	810	21 bid
127	Polatagama	3544	9 ch	bro or pek	855	26
128		3547	55 do	bro pek	5500	38
129		3550	17 do	or pek	1445	28 bid
130		3553	63 do	pek	5670	26
131		3556	29 do	pek sou	2610	20 bid
133	Battawatte	3562	23 ch	bro or pek	2530	38
134		3565	22 do	pek	1980	33 bid
135		3568	10 do	pek sou	800	28
137	High Forest	3574	64 hf ch	or pek No. 1	3840	70
138		3577	26 do	or pek	1456	57
139		3580	20 do	pek	1060	50
140	Queensland	3583	16 hf ch	bro or pek	720	75
141		3586	11 ch	bro pek	1045	45 bid
142		3589	9 do	or pek	765	43
143		3592	20 do	pek	1700	42
148	Theydon Bois	7	10 ch	bro or pek	900	49
149		10	10 do	or pek	850	38
150		13	28 do	pek	2240	32
151		16	9 do	pek sou	765	24
153		22	33 hf ch	bro or pek	1815	35
154	St. Heliers	25	21 ch	pek	1848	33
155		28	20 hf ch	bro pek	1200	67
156	Monkswood	31	24 do	or pek	1320	65
157		34	19 ch	pek	1710	49
158		37	16 do	pek sou	1360	40
160		43	18 hf ch	fans	1260	36
161	Erlsmere	46	34 hf-ch	bro or pek	1972	35
163		52	25 ch	pek	1875	38
166	Carberry	61	25 ch	bro pek	2250	36
167		64	20 do	pek	1800	32 bid
171	A'Bedde	76	23 hf ch	pek dust	2070	19 bid
172	S W	79	7 ch	fans	668	29
173	Halwatura	82	18 ch	bro pek	1710	30
174		85	42 do	or pek	3780	30
175		88	43 do	pek	3655	30
176		91	40 do	pek sou	3200	25
177	Geragama, Inv. No. 52	94	34 ch	bro pek	3400	28
178		97	16 do	pek	1520	24
179		100	16 do	pek sou	1360	22
180	Geragama, Inv. No. 53	103	28 ch	bro pek	2800	27
181		106	28 do	pek	2660	24
182		109	32 do	pek sou	2560	21
183		112	10 hf ch	fans	800	17
185	Geragama, Inv. No. 54	118	31 ch	bro pek	2945	36
186		121	27 do	pek	2295	22 bid
187		124	27 do	pek sou	2160	20
190	A F, in estate mark	133	23 hf ch	pek dust	2070	19 bid
191	Digdola	136	20 ch	bro pek	1900	35
192		139	12 do	pek	1020	29
194	Corfu	145	20 hf ch	bro pek	1100	33
195		148	39 do	pek	1950	32
196		151	16 do	pek sou	720	22
198	P. in estate mark	157	36 ch	bro or pek	3600	44 bid
199		160	21 do	pek	1680	42
200		163	30 do	pek sou	2400	38
203	O O O, in estate mark	172	7 ch	pek sou	702	17

Lot.		Box.	Pkgs.	Name.	lb.	c.
204	Thedden	175	19 ch	hro pek	1900	31 bid
205		178	20 do	pek	1800	30
208	Castlereagh	187	50 do	hro pek	2850	37
209		190	12 do	or pek	960	35
210		193	19 do	pek	1520	34
212	Arapolakande	199	16 ch	young hyson	1520	56
213		202	18 do	hyson No. 1	1620	46
316	Marlhorough	211	91 hf ch	hro or pek	5096	35
217		214	18 ch	or pek	1440	32
218		217	58 do	pek	5046	30 bid
219		220	19 do	pek sou	1425	23 hid
220	Wallaha	223	22 ch	hro or pek	2156	45 hid
221		226	29 do	hro pek	2900	40 hid
222		229	35 do	or pek	2800	40 hid
223		232	24 do	pek	2160	36 bid
224,	W L A, in est. mark	235	24 hf ch	bro tea	1920	21
226	Matale	241	41 hf ch	bro pek	2460	32 hid
227		244	18 ch	pek	1620	29 hid
228		247	9 do	pek sou	810	26
230	A	253	14 ch	bro pek	1400	26
231		256	8 do	pek	800	24
240	Nahakettia, Inv. No. 23	283	32 hf ch	young hyson	1792	47
241		286	26 hf-ch	hyson	1170	39
242		289	26 do	do No. 2	1274	33
248	Lyegrove	307	26 hf-ch	young hyson	1456	48
249		310	24 do	hyson	1080	39
250		313	22 do	hyson No. 2	1078	33
252	Panilkande	319	11 ch	hro pek	1100	30
253		322	1 do	pek	1045	26 hid
256	Stafford	331	18 hf-ch	bro or pek	1170	75
257		334	18 ch	or pek	1710	58 hid
258		337	13 do	pek	1105	51 bid
260	Cooroondoo-watte	343	11 do	pek	1100	31
261	Ingrugalla	346	22 do	hro pek	2200	33
262		349	18 do	pek	1530	29
263	Kincora	352	19 do	unast	1330	23 bid
266	Forest Creek	361	9 do	sou	810	26
267		364	9 do	red leaf	810	20
268		367	20 do	fans	2000	26
270	Bogahagoda watte	373	13 do	bro pek	1300	25
271		376	9 do	pek	855	22
273	Tembiligalla	382	26 do	hro or pek	2470	35
274		385	34 do	pek	3230	34
278	P in est. mark	397	28 do	pek sou	2520	35
279	Shrubs Hill	400	35 do	hro pek	3745	35
280		403	31 do	or pek	2635	30 hid
281		406	29 do	pek	2465	27 hid
282		409	13 do	pek sou	1079	23
283		412	19 hf-ch	br pek fans	1520	17
284	Grange Garden	415	31 ch	bro or pek	3100	32
285		418	29 do	pek	2900	31
290	Opalgalla	433	19 hf-ch	dust	1596	18
291	Cotswold	436	13 ch	bro or pek	1235	37
292		439	19 do	pek	1615	31
293		442	12 do	pek sou	900	26
296	Middleton	451	21 hf-ch	hro or pek	1176	62 bid
297		454	43 ch	bro pek	4085	43 bid
298		457	41 do	pek	3280	41
299		460	13 hf-ch	dust	1040	23
303	W V R A	472	63 do	hro pek	3150	34 bid
305	Kitulgalla	478	12 ch	hro pek	1080	31
306		481	11 do	pek	990	29 hid
310	Ella Oya	493	25 do	hro pek	2250	27 hid
311		496	16 do	pek	1360	25 hid
312		499	25 do	pek sou	2000	22
313	Maha Eliya	502	46 hf-ch	bro or pek	2530	47 bid
314		505	18 ch	or pek	1800	38 hid
315		508	37 do	pek	3330	34 bid
316		511	18 hf-ch	pek sou	1440	21
317	Oodoowera	514	26 ch	hro pek	2727	25 bid
319	C R D	520	11 do	dust	1100	18
320		523	9 do	sou	720	14
321		526	9 do	pek	810	20
324	Halbarawa	535	19 do	bro pek	1900	27
325		538	22 do	pek	1980	23
330	W N	553	21 do	hro tea	1785	12
331		556	12 do	fans	1320	8
333	Harrington	562	14 hf-ch	bro or pek	700	53
334		565	14 do	or pek	1260	39 hid
335		568	26 do	pek A	2340	37 bid
343	H T E in est. mark	592	8 ch	sou	717	11
346	Woodend	601	33 ch	hro pek	3300	27 bid
347		604	39 do	bro pek	3897	27 bid
348		607	42 do	pek	3780	26
349		610	11 do	pek sou	880	22
354	Dunnottar	625	38 do	pek	3230	37 bid
355	Agrakande	628	36 do	or pek	3597	39 hid
356	W G E	631	25 do	pek sou	2348	25 bid
357	Tymawr	634	15 hf-ch	hro or pek	792	65 hid
358	Stamford Hill	637	13 do	br pek	790	48 bid
359	Kanagama	640	11 ch			
			1 box	hr pek	1013	31 bid
360	Roeberry	643	8 ch	dust	800	18 bid
361	Palmerston	646	9 do	or pek	765	50
362		649	13 hf-ch	br pek	715	53
363		652	17 do	bro or pek	884	58 hid
364		655	17 do	pek	1445	45
366	Passara Group	661	22 ch	or pek	1760	37
367		664	31 do	bro or pek	3100	34 bid
368		667	37 do	pek	3326	34
369		670	13 do	pek sou	1167	27 bid
371	Adishane	676	55 hf-ch	bro or pek	3025	38 hid
372		679	28 do	or pek	1260	47
373	Harrow	682	17 hf ch	or pek	935	38 bid
374		685	22 do	hro or pek	1320	42
375		688	32 ch	pek	3040	34
376		691	9 do	pek sou	765	30
378	Cottaganga	697	10 do	pek	900	22 bid
384	Seenagolla	715	40 hf-ch	bro or pek	2200	48 hid
385		718	34 do	pek	1768	43
386	Ca fax	721	18 ch	bro or pek	1800	46 bid
387		724	17 do	or pek	1530	42
388		727	17 do	pek	1530	40
391	Rozelle	736	25 do	pek sou	2125	29
392		739	9 hf-ch	or pk dust	720	20
393	Ganapa a	742	29 ch	or pek	2494	25
394		745	47 do	hro or pek	4230	26
395		748	41 do	pek	3280	26
396		751	12 do	pek sou	900	22
397		754	11 do	bro pk fans	1320	20
399	Kirklees	760	30 hf-ch	bro or pek	2100	37 bid
400		763	15 ch	or pek	1425	44
401	Bandarapolla	766	32 hf-ch	hro pek	1920	37
402		769	26 ch	or pek	2080	33
403		772	47 do	pek	3995	30
404		775	37 dc	pek sou	3145	25

Messrs. Somerville & Co.—

[323,460 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Oolapane	454	13 hf-ch	dust	1040	18
2	Citrus	457	54 ch	bro pek	4860	27
3		460	38 do	pek	3790	24
4		463	15 do	pek sou	1489	19
6	California	469	12 ch	pek	1140	22
7		472	9 do	pek sou	855	16
9	R K P	478	21 ch	hro pek	1890	34
11		484	18 do	pek	1440	32
13	Rothes	490	21 hf ch	bro or pek	1260	45
14		493	17 do	or pek	850	40
15		496	9 ch	pek	792	35
20	Avisawella	511	18 ch	hro pek	1800	27
21		514	18 do	pek	1530	24
22		517	12 do	pek sou	960	18 bid
24	Honiton	523	12 ch	hro pek	1200	27
25		526	16 do	pek	1360	23
26		529	12 do	pek sou	960	18
29	Siriniwasa	538	27 ch	bro pek	2700	33
30		541	29 do	pek	2755	30
31		544	18 do	sou	1710	25
32	Oonanagalla	547	24 ch	or pek	2400	27 bid
33		550	37 do	hro pek	3515	26 bid
34		553	70 ch	pek	5600	24
35		556	10 do	pek sou	850	19
36	Kelani	559	28 ch	hro pek	2520	34
37		562	11 do	bro or pek	1210	32
38		565	26 do	pek	2080	30
39		568	12 do	pek sou	900	24
47	Paradise	592	20 hf ch	hro pek	1100	28
48		595	8 ch	pek	800	24
52	Salewe	607	25 ch	bro pek	2625	28
53		610	18 do	pek	1620	26
54		613	15 do	pek sou	1275	22
56	Mount Vernon	619	33 ch	pek	3036	42
57		622	28 do	pek A	2436	38
58	Hanwella	625	20 hf ch	bro pek	1100	28
63	Yarrow	640	42 hf-ch	or pek	1890	32
64		643	47 do	hro or pek	28 0	33
65		646	89 do	pek	4005	27
66		649	17 do	pek sou	765	20
68	Illukettia	655	8 ch	bro pek	800	30
69		658	7 do	pek	700	20
73	Mora Ella	670	15 hf ch	or pek	720	45
74		673	60 do	bro or pek	3300	36
75		676	40 ch	pek	3600	34
76		679	24 do	pek sou	1920	29
85	adamulle	706	10 ch	bro pek	950	29
86		709	15 do	pek	1425	21
89	Poldua	718	8 ch	pek	720	21
98	Wewatenne	745	17 hf ch	bro pek	935	32
99		748	25 do	pek	1250	27
100		751	31 do	pek sou	1550	21
102	Marigold	757	19 hf ch	pek sou	912	41
103		760	25 do	bro pek fans	1650	38
104		763	20 do	pek dust	1500	28
105	Doragalla	766	15 ch	bro or pek	1500	37

Lot.		Box.	Pkgs.	Name.	lb.	c.
106		769	19 ch	bro pek	1615	32
107		772	34 do	pek	2720	33
108		775	17 do	pek sou	1190	26
109		778	7 do	bro mix	875	15
110	Hanagama	781	25 do	bro or pek	2625	29 bid
111		784	41 do	bro pek	3690	27 bid
112		787	61 do	pek	5490	22 bid
113		790	14 do	pek sou	1260	19
114		793	9 do	sou	765	17
115	Mousa Eliya	796	28 ch	bro pek	2800	31
116		799	17 do	or pek	1445	27 bid
117		802	27 do	pek	2565	25 bid
119	Gona	808	22 cb	pek	1782	26 bid
120		811	19 do	pek sou	1368	23
122	Ravenscraig	817	22 ch	or pek	1870	30 bid
123		820	12 do	pek	1080	26 bid
125	Karangalla	826	9 ch	bro pek	990	34
126		829	9 do	pek	810	27 bid
129	Mabaousa	838	95 cb	bro pek	9975	26
130		841	54 do	pek	4320	23 bid
131		844	28 do	pek sou	2100	20
132	Kelani	847	29 cb	bro pek	2610	34
133		850	7 do	pek fans	805	17
134	Tyspane	853	35 ch	pek	2975	w drawn
137	Ravana	862	22 ch	bro pek	2310	25 bid
138		865	20 do	pek	1700	26
139		868	18 do	pek sou	1440	22
140	Nyanza	871	11 ch	bro pek	1100	32 bid
141		874	8 do	or pek	720	34
142		877	17 do	pek	1615	32
146	Ettie	889	15 ch	bro pek	1500	27
147		892	11 do	pek	1100	23
151	R, in estate mark	904	7 cb	dust	1050	8
152	Holmsdale	907	8 ch	bro or pek	800	29
153		910	9 do	bro pek	810	30
154		913	10 do	pek	850	26
162	Wagnilla	937	15 ch	bro pek	1500	42
163		940	11 cb	or pek	9[illegible]9	34
165	Kurunegalle estate Co. Ltd.	946	43 hf ch	bro or pek	2580	34
166		949	28 do	or pek	1680	21 bid
167		952	23 ch	pek	2300	26 bid
170	Findlater	961	37 cb	bro pek	3700	30 bid
171		964	32 do	pek	2944	30 bid
172		967	14 do	pek sou	1260	23 bid
175	Danawkande	976	7 cb	pek	700	25
183	H J S	1000	13 bf-ch	pek	780	26
184		1003	21 do	pek sou	1260	21
185	Hangranoya	1006	6 ch	fans	720	18
188	Annandale	1015	20 bf-ch	bro or pek	1080	55
189		1018	29 do	or pek	1537	46
190		1021	25 do	pek	1325	37 bid
191		1024	18 do	pek sou	990	33
193	Attiville	1030	12 ch	bro pek	1200	28
194		1033	12 do	pek	1200	21 bid
197	Lower Dickoya	1042	14 ch	bro pek	1400	26 bid
198		1045	11 do	pek	1100	24 bid
199	Mount Temple	1048	23 ch	bro pek	1955	25 bid
200		1051	40 do	pek	3080	24 bid
201	Ladysmith	1054	34 cb	bro pek	3230	24 bid
202		1057	37 do	pek	2775	24 bid
203		1060	22 do	pek sou	1716	20 bid
204	Ritni, in estate mark	1063	35 bf ch	bro or pek	1820	29 bid
206		1069	23 do	or pek	920	32
207		1072	18 do	pek	756	24 bid
211	Glenanore	1084	15 ch	pek sou	1425	19
212		1087	14 hf ch	dust	770	17
213	Illukettia	1090	7 ch	pek sou	700	13
214	Koladenlya	1093	10 cb	bro pek	850	27 bid
215	Mossville	1096	9 ch	bro pek fans	900	18
217		1102	13 bf ch	dust	1170	16
218	Dryburgb	1105	14 cb	bro or pek	1288	30
220		1111	17 do	pek	1241	25 bid
223	Glen Morgan	1120	21 bf-ch	bro or pek	1050	30 bid
224		1123	39 cb	or pek	3315	27 bid
225	Avisawella	1126	20 cb	bro pek	2000	27
226	Mousakande	1129	12 ch	bro pek	1056	26 bid
227	Gangwarily	1122	29 cb	bro pek	2610	31
228	Glenalmond	1135	15 ch	bro pek	1402	31 b d
237	Harangalla	1162	17 cb	bro pek	1530	27 bid
238		11[illegible]5	22 do	pek	1870	28
239		1168	12 do	sou	1020	19
240		1171	11 do	dust	880	17
241		1174	8 do	bro pek fans	800	22
242	Rambodde	1177	33 hf cb	or pek	1815	34
243		1180	36 do	pek	1620	33
248	Uggala	1195	15 hf ch	bro pek	840	16
249		1198	38 do	pek sou	2090	16
252	S W J	1270	8 cb	pek fans	960	9
253	Bargany	1210	34 hf ch	or pek	1700	38 bid
254		1213	14 ch	pek	1330	35 bid
255		1216	15 do	pek sou	1200	29 bid
259	S	1228	10 hf ch	dust	800	18
263	New Valley	1240	35 cb	bro or pek	3500	41
264		1243	17 ch	or pek	1530	38
265		1246	16 do	pek	1600	35
266		1249	16 do	pek sou	1360	33
270	Oaklands	1261	8 do	or pek	760	28
271		1264	10 do	bro or pek	1100	26
272		1267	12 do	pek	1140	24
273		1270	24 do	pek sou	2040	19 bid
275	Allagolla	1276	12 cb	bro pek	1080	28 bid
277		1282	11 do	pek	781	25 bid
278		1285	12 do	pek sou	840	22
279	Laden	1288	13 ch	bro pek	1170	25 bid
280		1291	13 do	pek	1105	23 bid

[Mr. E. John.—280,594 lb.]

Not		Box.	Pkgs.	Name.	lb.	c.
6	Lunugalla	33	8 cb	bro pek	800	22
7		36	20 do	pek	1600	20 bid
12	Kolapatna	51	33 hf ch	bro or pek	1650	46
13		54	31 do	bro pek	1488	42
14		57	25 do	pek	1125	38
17	Kuruwattai	66	15 cb	bro or pek	1500	26 bid
18		69	20 do	pek	1700	24 did
20	D H K	75	19 do	bro tea	1805	14
21	Gonavy	78	42 bf-ch	or pek	1890	44
22		81	22 do	bro pek	1100	44
23		84	37 ch	pek	2775	35
24		87	10 do	pek sou	1050	26
25		90	10 hf ch	dust	750	18
27	Cleveland	96	39 do	flow or pek	2184	53 bid
28		99	40 do	pek	2120	43
31	St. John's	108	25 do	or pek	1250	63
32		111	40 do	pek	2080	40
33	Lameliere	114	35 ch	bro or pek	3325	44 bid
34		117	31 do	bro pek	2790	36 bid
35		120	57 do	pek	4845	32 bid
37	Koslande	126	33 hf-ch	bro pek	1815	46
38		129	25 cb	pek	2250	34
42	Uda	141	7 do	bro pek	700	19
43		144	13 do	pek	938	22
44	Templestowe	147	43 do	bro or pek	3225	43 bid
45		150	25 hf ch	or pek	1125	42
46		153	41 ch	pek	3280	35
47		156	10 do	pek sou	800	34
48		159	10 do	fans	820	34
49	Glasgow	162	58 do	bro or pek	4350	42 bid
50		165	27 do	or pek	1755	49
51		168	18 do	pek	1530	40
52		171	14 do	pek sou	1400	39
53	Ottery	174	23 do	bro or pek	2185	44 bid
54		177	17 do	or pek	1445	43
55		180	28 do	pek	2380	38
57		186	7 do	bro pek fans	770	34
58		189	12 do	sou	960	32
63	Bittacy	204	17 do	bro pek	1700	42
64		207	11 do	pek	990	40
66	Coslande	213	33 hf-ch	bro pek	1815	46
67		216	25 ch	pek	2250	35
71	Kandaloya	228	39 hf-ch	bro pek	1755	35
72		231	18 do	or pek	720	32
73		234	79 do	pek	3160	31
74		237	22 do	pek sou	830	26
77	Mocha	246	35 ch	bro or pek	3500	61
78		249	14 do	or pek	1190	55
79		252	35 do	pek	3150	45
80		255	10 do	fans	750	31
81	Wbyddon	258	18 do	bro pek	1980	38 bid
82		261	12 do	or pek	1128	36
83		264	8 do	pek	736	34
87	Oonoogaloya	276	15 do	or pek	1350	37
88		279	14 do	bro or pek	1400	45
89		282	27 do	pek	2430	35
90		285	10 do	pek sou	850	29
91		288	9 do	bro or pek No.2	1080	26
92		291	7 do	dust	980	18
93	Vincit	294	22 do	bro pek	1980	31 bid
94		297	18 do	pek	1620	24 bid
95		300	11 do	pek sou	990	19 bid
96		303	11 do	bro pek fans	1210	22
98	Glassaugh	309	31 bf cb	or pek	1643	62
99		312	26 do	bro or pek	1690	45
100		315	25 ch	pek	2375	43
101	West Hall	318	24 hf-cb	dust	2160	16
103	Osborne	324	25 ch	bro or pek No. 1	2625	44 bid
104		327	23 do	bro or pek No. 2	2070	36 bid
105		330	10 do	bro pek	1050	32
109	Glentilt	342	31 do	bro pek	3100	44 bid
110		345	25 do	or pek	2375	34
111		348	15 do	pek	1350	32
112		351	18 bf cb	fans	1440	16 bid
113	Kuruwathai	354	16 ch	bro or pek	1340	27 bid
114		357	20 do	pek	1700	27
115	Gangawatte	360	26 bf-ch	bro or pek	1300	50

Lot.		Box.	Pkgs.	Name.	lb.	c.
116		363	17 ch	bro pek	1700	33 bid
117		366	17 do	pek	1530	31
118	Brownlow	369	45 hf-ch	bro or pek	2340	42 bid
119		372	28 ch	bro pek	2380	34
120		375	39 do	pek	3393	29 bid
121		378	9 do	pek sou	801	25 bid
123	Galloola	384	24 do	bro pek	2400	40 bid
124		387	35 do	pek	3150	31 bid
125		390	28 do	pek sou	2240	30 bid
132	Gangawatte	411	26 hf-ch	bro or pek	1300	47 bid
133		414	16 ch	bro pek	1600	37
134		417	17 do	pek	1530	31
135		420	9 do	fans	990	22
136	Glassaugh	423	27 hf ch	or pek	1431	61
137		426	23 cb	bro or pek	1495	45
138		429	23 do	pek	2300	42 bid
139		432	8 hf cb	dust	720	21
140	Mahapahagalla	435	11 ch	bro pek	1100	27 bid
141		438	15 do	or pek	1350	30
142		441	9 do	pek	765	28
143	Elston	444	30 do	or pek	2850	40
144		447	40 do	pek	3600	35
145		450	43 do	pek sou	3870	32
146		453	16 do	bro pek	1760	47
147		456	19 do	pek	1710	36
148		459	13 do	pek	1105	35
149	Alpiakande	462	16 do	sou	1344	17
150	Mount Everest	465	23 hf-cb	bro or pek	1265	64 bid
151		468	29 do	or pek	1450	50
152		471	40 cb	pek	4000	45
153		474	8 do	pek sou	780	39
155	Bellongalla	480	15 do	pek	1200	26
156	Lunugalla	483	7 do	pek sou	700	16
157	Eilandu	486	20 do	bro pek	2000	31 bid
158		489	23 do	pek	2700	29 bid
161	Ferndale	498	23 do	pek No. 1	2070	32 bid
162		501	20 do	pek No. 2	1800	30 bid
165	Eladuwa	510	16 do	pek	1440	26 bid
168	Ottery	519	19 do	bro or pek	1805	40 bid
169		522	19 do	or pek	1615	42
170	Mount Clare	525	14 do	bro or pek	1400	34
171		528	11 do	or pek	1067	29
173		534	19 do	pek	1805	26
174		537	11 do	pek sou	990	21 bid
176	Callander	543	18 hf-ch	bro or pek	1080	46
177		546	24 do	or pek	1248	41
179	Dalbousie	552	36 do	pek No. 1	1620	31
180		555	20 do	pek No 2	900	27 bid
181	Mossend	558	33 do	bro pek	1650	36 bid
182	Iona	561	64 do	bro or pek	3712	54 bid
183		564	38 ch	or pek	3420	41 bid
185	Doonhinde	570	21 do	bro pek	2310	42 bid
186		573	30 do	pek	3000	41
187	G W, in estate mark	576	14 do	bro pek	1400	26 bid
188		579	15 do	or pek	1350	26 bid
189		582	22 do	pek	1870	22 bid
190		585	12 do	pek sou	960	17 bid
191	Maskeliya	588	71 hf ch	bro or pek	3550	47 bid
192		591	44 ch	or pek	3960	37 bid
193		594	8 do	pek sou	800	28
195	Oakwell	600	9 do	bro pek	1062	42 bid
196		603	16 do	pek	1600	42
202	Lameliere	621	31 do	bro pek	2790	36 bid
203	Natuwakelle	624	26 do	bro pek	2600	30 bid
204		627	17 do	bro or pek	1700	34 bid
205		630	25 do	pek	2250	28
206		633	14 do	pek sou	1170	24 bid

SMALL LOTS.

E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	E Eliya	48	2 hf ch	fans	150	17
13	Ovoca	78	3 ch	dust	270	15
21	Manickwatte	2	3 ch	dust	210	11
22		5	5 do	red leaf	450	17 bid
23	W	8	4 hf ch	bro or pek	200	30 bid
25		14	1 ch	pek	85	21

[Messrs. Forbes & Walker.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Bogatodowa	3166	7 hf cb	dust	525	18
4	Kosgalla	3175	4 hf ch	pek sou	200	20
16	Glencorse	3211	2 ch	dust	350	15
19	Hatton	3220	8 do	pek sou	640	37
23	Ninfield	3232	8 do	pek sou	640	20
24		3235	4 do	sou	320	15
25		2338	3 do	fans	315	17
26	T	3241	6 ch	green tea fans No. 1	510	17 bid
27		2244	5 ch	green tea fans No. 2	425	14 bid
28	Tennehena	3247	1 ch	bro pek	63	29
29		3250	1 do	pek	104	18
30	L G F, in estate mark	3253	6 cb	sou	600	15
37	Avoca	3274	8 do	pek sou	680	33
40	Kincoora	3283	8 ch	bro pek	640	46 bid
44	Rockside	3295	7 do	sou	560	23
45		3298	4 bf ch	bro mix	180	13
46		3301	5 cb	dust	675	17
54	Galleheria	3325	7 ch	bro pek	630	withd'n
62	Weemalle	3349	2 do	pek sou	180	23
63		3352	2 hf ch	bro tea	170	14
64		3355	1 ch	red leaf	90	10
68	S W	3367	5 hf ch	dust	400	16
70	Wyamita	3373	8 ch	pek	680	27
71		3376	3 do	pek sou	270	21
72		3379	1 bf ch	dust	80	16
74	L B K	3385	4 do	dust	400	16
75	G E	3388	3 ch	bro pek	330	28
76		3391	3 do	pek	300	23
77		3394	1 do 1 hf-cb	pek sou	158	16
78	K DA	3397	1 cb	bro pek	110	26
79		3400	1 do	pek	100	22
80		3403	1 do	pek sou	33	17
81	Palm Garden	3406	5 ch	bro pek	550	29
82		3409	4 do	pek	400	22
83		3412	3 do	pek sou	300	18
84		3415	1 do	fans	110	17
85		3418	1 do	dust	185	13
89	Irehy	3430	5 hf ch	fans	350	35
90		3433	7 do	dust	595	21
94	O'Bode	3445	3 ch	pek sou	255	24
112	Pendle	3499	4 do	pek sou No 2	360	23
113		3502	4 bf cb	bro mix	200	20
114		3505	6 do	pek fans	450	17
116	Galkadua	3511	2 ch	bro or pek	240	29
120		3523	1 do	fans	110	17
121		3526	1 do	dust	164	13
126	Ruanwella	3541	6 ch	dust	450	18
132	Polatagama	3559	4 ch	dust	600	16
136	Battawatte	3571	2 do	dust	200	16
144	Queensland	3595	2 ch	sou	200	11
145		3598	2 bf cb	bro pek dust	150	19
146		1	1 do	or pek dust	75	26
147	F B	4	6 ch	unas	570	11
152	Theydon Bois	19	5 hf cb	fans	325	23
159	Monkswood	40	6 do	dust	540	17
162	Erlsmere	49	8 ch	or pek	640	37
164		55	8 do	pek sou	640	28
165		58	2 hf cb	dust	164	18
168	Carbery	67	5 do	pek sou	450	22
169	G K	70	6 ch	bro tea	540	18
170		73	3 do	dust	420	18
184	Geragama, Inv. No. 53	115	3 hf ch	dust	270	16
188	Geragama, Inv. No. 54	127	5 do	fans	400	16
189		130	3 ch	dust	240	16
193	Digdola	142	4 do	pek sou	340	23
197	Corfu	154	5 hf-cb	bro pek fans	350	19
201	P, in estate mark	166	8 hf ch	unas	320	28
202	Pambagama	169	1 ch	pek	80	19
206	Thedden	181	7 ch	pek sou	560	23
207		184	3 do	dust	450	17
211	Castlereagh	196	6 hf ch	fans	420	18
214	Arapolakande	205	5 ch	hyson No. 2	475	43
215		208	2 hf-ch	siftings	170	18
225	G A	238	1 ch	bro pek	80	27
229	Matale	350	5 hf ch	dust	400	17
232	A	259	5 ch	pek sou	475	19
233		262	2 do	sou	190	15
234		265	1 do	dust	150	15
236	Nahakettia, Inv. No. 22	271	5 hf ch	young hyson	290	44 bid
237		274	5 do	hyson	225	37
238		277	5 do	do No. 2	245	32
239		280	1 do	twanky	20	17
243	Nahakettia Inv No 23	292	4 do	twanky	276	17
244	Lyegrove	295	8 hf-cb	young hyson	464	44 bid
245		298	7 do	hyson	336	36 bid
246		301	8 do	hyson No. 2	400	32
247		304	1 do	twanky	55	17
251		316	2 do	twanky	170	17
254	Dunedin	325	1 do	bro pek	66	35
255	Hope	328	1 ch	pek	93	32
259	Stafford	340	1 hf-ch	fans	75	20
264	Kincoora	355	3 cb	or pek	270	34
265		358	1 do	dust	180	13
269	Bogahagoda-watte	370	6 do	bro or pek	630	28
272		379	5 do	pek sou	475	18
275	Tembiligalla	388	2 do	pek sou	180	23
276		391	1 do	bro pek fans	125	21
277		394	1 do	dust	150	17

Lot.		Box.	Pks.	Name	lb.	c.
285	Grange Garden	421	4 ch	pek sou	400	23
287		424	3 do	fans	300	18
288	S	427	2 do	bro pek	112	26
289	Opalgalla	430	3 do	red leaf	180	8
294	Cotswold	445	2 hf ch	dust	170	17
295		448	2 do	sou	150	12
300	K W J in est mark	463	2 ch	bro tea	200	16
301		466	2 do	pek fans	240	16
302		469	5 hf-ch	bro or pk fans	300	32
304	Kitulgalla	475	3 ch	br or pek	315	29
307		484	6 do	pek sou	480	22
308		487	3 do	br or pek fans	300	21
309		490	3 hf-ch	dust	240	17
318	Grange Garden	517	4 do	dust	340	17
322	Allerton	529	5 ch	dust	[illegible]	17
323	B B B in est mark	532	7 do	dust	560	16
326	Halbarawa	541	8 do	pek sou	610	19
327		544	1 do	dust	162	13
328		547	1 hf-ch	sou	[illegible]42	[illegible]
332	W N	559	5 do	dust	[illegible]	[illegible]
336	Harrington	571	2 ch	pek B	180	30
337		574	6 hf ch	or pek fans	420	28
338		577	2 do	dust	180	17
339	St. John's Wood	580	8 do	bro pek	440	31
340		583	8 do	pek	360	28
341		586	5 do	pek sou	250	27
342		589	1 do	dust	80	16
350	Kotua	613	5 ch	bro pek	500	27
351		616	4 do	pek	400	22
352		619	2 do	pek sou	193	18
353		622	1 do	dust	130	16
365	Palmerston	658	4 hf-ch	pk sou	320	38
370	Passara Group	673	3 do	fans	222	19
377	Harrow	694	2 do	fans	160	30
379	Monkswood	700	1 do	fans	60	31
380	M'Golla	703	4 ch 1 hf-ch	pek sou	486	28
381	A P K	706	1 ch	hyson	84	43
382		709	1 do	hyson No. 2	81	36
383	Oakham	712	8 hf-ch 1 box	br pek	506	51
389	C	730	3 ch	bro tea	276	25
390		733	4 do	bro tea No. 2	344	22
398	Ganapalla	757	5 do	dust	430	17

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Bokotua	18	4 ch	hro or pek	400	28 bid
2		21	6 do	bro pek	510	28
3		24	3 do	pek	225	24
4		27	3 do	pek sou	225	22
5		30	1 do	pek dust	145	16
8	Lunugalla	39	8 do	pek sou	640	15
9		42	3 do	dust	420	16
10	Ullandapitiya	45	12 hf-ch	pek	600	28 bid
11		48	1 do	hro mix	50	23
15	Kolapatna	60	7 do	pek sou	343	25
16		63	8 do	br or pe fans	476	20
19	Kuruwattai	72	3 ch	pek sou	255	17
26	Gonavy	93	3 do	congou	270	24
29	Cleveland	102	9 hf ch	pek sou	450	37
30		105	3 do	fans	240	26
36	Lameliere	123	4 ch	sou	440	10
39	Koslande	132	4 do	pek sou	360	25
40		135	3 do	fans	330	25
41		138	2 do	dust	160	17
56	Ottery	183	2 do	pek fans	240	21
59		192	5 hf ch	dust	375	17
60	Theresia	195	3 ch	hro pek fans	315	33
61		198	7 hf ch	dust	560	18
62		201	1 ch	sou	75	33
65	Bittacy	210	7 do	pek sou	630	35
68	Coslande	219	4 do	pek sou	360	25
69		222	3 do	fans	230	25
70		225	2 do	dust	160	17
75	Kandaloya	240	12 hf ch	fans	600	20
76		243	8 do	dust	400	16
84	Whyddon	267	4 ch	pek sou	368	22
85		270	2 do	hro pek fans	234	26
86		273	1 do	dust	145	16
97	Vincit	306	2 do	dust	300	15
102	Albion	321	2 do	red leaf	180	9
106	Oshorne	333	5 hf-ch	fans	570	28
107		336	2 ch	pek sou	190	34
108		339	1 hf ch	dust	97	17
122	G K	381	1 ch	or pek	75	30
126	Galloola	393	2 do	dust	200	16
127		396	2 do	fans	200	29
128	P P P	399	3 do	bro pek	319	
129		402	3 do	pek	275	24
130		405	5 do	pek sou	427	22
131		408	1 do	dust	130	19

Lot.		Box.	Pkgs.	Name.	lb.	c.
154	Bellongalla	477	6 ch	bro pek	600	27
159	Eilandu	492	2 do	bro mix	214	8
160		495	2 do	dust	[illegible]	16
163	Eikaduwa	504	7 do	or pek	605	35
164		507	5 do	bro pek	550	28
166		513	6 do	pek sou	540	21
167		516	1 do	mix	130	9
172	Mount Clare	531	5 do	or pek	460	30
175		540	2 do	dust	240	15
178	Callander	549	7 hf-ch	pek sou	280	32
184	Nanuoya	567	4 ch	sou	296	18
194	Maskeliya	597	7 hf-ch	dust	630	17
197	Oakwell	606	3 ch	pek sou	235	38
198		609	2 do	fans	160	18
199		612	1 do	pek dust	93	16
200	Farm	615	3 do	dust	225	16
201	D, in est. mark	618	5 do	pek sou	394	12 bid
207	Natuwakelle	636	3 do	sou	240	20
208		639	2 do	dust	270	16
209		642	3 do	unas	360	18

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name	lb.	c.
5	California	466	6 ch	bro pek	570	30
8		475	1 do	dust	116	16
10	R K P	481	5 ch	bro pek	550	27
12		487	8 do	pek sou	609	22
16	Rothes	499	7 ch	pek sou	595	27
17		502	7 do	bro pek	392	25
18		505	2 hf-ch	dust	170	16
19		508	1 do	bro mix	45	8
23	Avisawella	520	3 ch	dust	420	17
27	Honiton	532	1 ch	sou	80	9
28		535	2 do	dust	250	17
40	Kahatagala	571	4 ch	bro pek	360	32
41		574	1 do	bro or pek	110	24
42		577	3 do	pek	240	26
43		580	2 do	pek sou	150	22
44	J P E	583	3 ch	bro pek	270	31
45		586	3 do	pek	240	25
46		589	2 do	pek sou	150	21
49	Paradise	593	7 ch	pek sou	665	20
50		601	7 hf ch	dust	595	17
51		604	3 ch	unas	300	19
55	Salawe	616	3 ch	pek dust	450	17
59	Hanwella	628	6 hf ch	pek sou	270	18
60		631	6 do	dust	453	16
67	Y, in estate mark	652	4 hf ch	dust	340	15
70	Illukettia	661	5 ch	pek sou	500	15
71		664	1 do	sou	90	10
72		667	1 do	hro mix	90	8
77	F, in estate mark	682	7 ch	pek sou	609	25
78		685	8 hf ch	dust	584	19
79	F A, in estate mark	688	2 hf-ch	bro or pek	116	30
80		691	3 ch	or pek	306	28
81		694	2 do	pek	174	23
82		697	2 hf ch	dust	222	17
83		700	1 ch	pek sou	100	20
84		703	1 hf ch	sou	70	10
87	Sadamulle	712	3 ch	pek sou	300	13
88	Poldua	715	6 ch	bro pek	600	27
90		721	2 do	sou	160	14
91		724	1 do	fans	100	12
92		727	1 hf ch	dust	73	15
101	Wewatenne	754	5 hf ch	pek dust	320	18
118	Mousa Eliya	805	3 ch	bro pek fans	420	16
121	Ravenscraig	814	10 hf ch	bro pek	550	31 bid
124		823	3 hf ch	fans	240	18
127	Karangalla	832	7 ch	pek sou	[illegible]	22
128		835	2 hf ch	dust	180	17
135	St. Leys	856	2 hf ch	fans	170	16
136		859	2 do	red leaf	118	7
143	Nyanza	880	3 ch	pek sou	270	21
144		883	1 do	dust	100	17
145		886	1 do	red leaf	66	9
148	Ettie	895	5 ch	pek sou	475	18
149	R, in estate mark	898	2 ch	pek	170	10 bid
150		901	2 hf ch	pek sou	112	14
155	Holmsdale	916	1 ch	sou	85	18
156		919	1 do	fans	100	17
157		922	1 do	dust	100	21
158	L E, in estate mark	925	3 ch	bro pek	255	20
159		928	2 do	pek	180	18
160		931	1 hf ch	dust	75	15
161	W H	934	2 hf ch	red leaf	114	5
164	Wagmilla	943	4 ch	pek	360	29
165	Kurunegalle estate Company, Ltd.	955	5 ch	pek sou	500	20
169		958	3 hf ch	dust	240	17
173	Findlater	970	4 hf-ch	dust	400	17

Lot.	Box.	Pkgs.	Name.	lb.	c.
174 Danawkanda	973	5 ch	rc pek	542	28 bid
		1 hf ch			
176	979	5 ch	pek sou	550	22
		1 hf ch			
177	982	2 ch	fans	220	18
178	985	1 do	con	80	13
179	988	1 do	bro tea	100	5
180	991	1 do	dust	140	16
181 S L G	994	8 ch	sou	680	17
182	997	2 do	red leaf	170	8
186 Hangranoya	1009	5 ch	sou	400	18
187	1012	2 do	bro tea	160	9
192 Annandale	1027	8 hf-ch	dust	584	16
195 Attiville	1036	4 ch	pek sou	00	16 bid
196	1039	2 do	mi6	250	5 bid
205 Ritni, in estate mark	1066	12 hf ch	bro pek	600	27 bid
208	1075	6 do	pek sou	240	20
209	1078	2 do	fans	148	15
210	1031	1 do	dust	75	16
216 Mossville	1099	3 ch	red leaf	270	8
219 Dryburgh	1108	8 ch	or pek	672	31 bid
221	1114	8 do	pek sou	536	21
222	1117	7 hf ch	fans	504	18
229 Glenalmond	1138	7 ch	pek	560	30
230	1141	4 do	pek sou	280	24
231	1144	1 do	dust	152	15
232 Ahamad	1147	5 do	bro pek	500	27
233	1150	6 do	pek	600	20
234	1153	6 do	pek sou	540	18
235	1156	2 ch	fans	200	6
236	1159	3 do	red leaf	260	5
244 Rambodde	1183	8 hf-ch	pek sou	360	25
245	1186	4 do	sou	160	22
246	1189	1 do	dust	90	16
247	1192	5 do	fans	350	19
250 Uggala	1201	2 hf ch	pek fans	124	8
251 S W J	1204	5 ch	sou	425	6
256 B Y	1219	2 hf ch	dust	170	15
257	1222	3 ch	fans	300	15
258	1225	1 hf ch	red leaf	80	8
260 S	1231	10 hf-ch	bro tea	500	14
261 A	1234	5 hf ch	dust	400	17
262	1237	7 do	bro tea	350	13
267 N I T	1252	2 hf-ch	dust	180	16
268	1255	3 ch	unas No 1	300	17
269	1258	7 do	unas No 2	560	14
274 Oaklands	1273	6 hf ch	dust	450	18
276 Allagolla	1279	2 ch	or pek	140	31
281 Laden	1294	7 ch	pek sou	595	18

CYELON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Nov. 2.

"Sado Maru."—S, 1 cask and 1 barrel sold at 55s ; GMT T in estate mark, 1 tierce sold at 43s.

No Cardamom or Cocoa sales this week,

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 45 | Colombo, December 3, 1900. | Price:—12½ cents each 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[10,188 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Mapitigama	46	9 ch	bro pek	810	29
3		49	14 do	pek	1092	27
4		52	11 do	pek sou	858	21
7	Battalgalla	61	33 ch	or pek	3135	34
8		64	21 do	pek	1890	32
9		67	10 do	pek sou	800	26 bid

Messrs. Forbes & Walker

[755,056 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Udapolla	781	12 ch	bro pek	1260	24 bid
3		784	16 do	pek	1440	26
6	Drayton	793	36 ch	or pek	3420	44
7		796	61 do	pek	5185	38
8		799	19 do	pek sou	1615	33
13	Carolina	814	9 ch	hyson	954	36
17	Yatiyana	826	9 ch	bro pek	909	out
19		832	9 do	pek	819	out
22	V, in estate mark	841	15 ch	pek sou	1350	23
23		844	9 do	dust	720	17
27	Panawatte	856	30 ch	bro pek	3150	28
29		862	15 do	pek	1395	25
30		865	14 do	pek sou	1120	21
32		871	8 do	dust	1160	17
33	Holton	874	12 ch	bro pek	1140	32
34		877	16 do	pek	1360	30
35		880	18 do	pek	1530	27
36		883	13 do	pek sou	1105	23
38	Igalkande	889	25 ch	bro pek	2250	28 bid
39		892	19 do	pek	1710	26 bid
40		895	11 do	pek sou	990	24
42	Ismalle	901	2 ch	sou	810	18
45		910	5 do	dust	750	16
46	Pansalatenne	913	41 ch	bro pek	4560	27 bid
47		916	38 do	pek	3116	25 bid
48		919	22 do	pek sou	1760	19 bid
51	Glengariffe	928	52 hf ch	bro or pek	2600	31 bid
52		931	23 do	or pek	1035	33 bid
53		934	32 ch	pek	2880	30 bid
54		937	21 do	pek sou	1575	25 bid
55		940	19 hf ch	fans	1235	23
57	Dehiowita	946	16 ch	bro pek	1600	21
58		949	23 do	pek	1840	17
59		952	11 do	pek sou	825	16
60		955	19 do	sou	1520	13
62		961	8 do	fans	1040	15
63	Haputelle-wella	964	25 hf ch	bro pek	1375	40
64		967	20 do	pek	1000	38
67	L G F, in estate mark	976	19 ch	sou	2090	15
68		979	17 do	dust	2380	16
69	S R, in estate mark	982	16 ch	congou	1600	20
72	Ardlaw and Wishford Inv. No. 28	991	20 hf ch	bro or pek	1000	52
73		994	32 ch	bro pek	2861	37 bid
74		997	25 hf ch	or pek	1075	40
75		1000	22 ch	pek	1738	35
	Ardlaw and Wishford, Inv. No. 29	1003	27 ch	pek	1782	33
77	Ouvahkellie	1006	25 ch	pek sou	2250	34
8		1009	16 do	dust	1280	22
82	Weyunga-watte	1021	19 ch	bro pek	1900	30 bid
83		1024	18 do	pek	1620	26 bid
84		1027	18 do	pek sou	1440	24
87	Avanna	1036	14 ch	bro pek	1400	out
88		1039	9 do	pek	810	17
89		1042	8 do	pek sou	720	out
90		1045	21 do	bro pek dust	1680	18 bid
92	Choisy	1051	12 ch	or pek	1140	41
93		1054	30 do	bro pek	3000	42 bid
94		1057	25 do	pek	2125	38
95		1060	11 do	pek sou	880	33
96	E D P	1063	11 ch	sou	825	21
97	Elkadua	1066	35 ch	bro or pek	3500	28 bid
98		1069	47 do	or pek	3760	29 bid
99		1072	52 do	pek	4160	27 bid
100		1075	41 do	pek sou	3280	24 bid
101	O B E C, in estate mark Nilloomally	1078	39 ch	bro or pek	3900	32
102		1081	18 do	bro pek	1692	29
103		1084	26 do	or pek	1976	30
108	T'Villa	1099	20 ch	bro or pek	2000	26
109		1102	11 do	bro pek	990	22
110		1105	30 do	pek	2700	19
111		1108	10 do	pek sou	800	16
112		1111	12 do	sou	960	14
114	Aberfoyle	1117	19 hf ch	bro pek	1140	34
115		1120	14 ch	pek	1260	31
117	Patiagama	1126	19 ch	bro pek	1045	46
118		1129	10 do	or pek	850	37
119		1132	27 do	pek	2160	33
120		1135	10 do	pek sou	800	30
122	Dea Ella	1141	28 hf ch	bro or pek	1540	36 bid
123		1144	43 do	or pek	2150	29 bid
124		1147	38 do	pek	1900	26
127	Battawatte	1156	23 ch	bro or pek	2530	31 bid
128		1159	21 do	pek	1090	29 bid
131	Erracht	1168	15 ch	bro or pek	1425	30
		1171	22 do	or pek	1760	25 bid
		1174	18 do	pek	1350	24
		1177	19 do	pek sou	1520	21
135		1180	13 do	bro or pek fans	1300	22
137	Maha Uva	1186	34 hf ch	bro or pek	2040	35
138		1189	58 do	or pek	3248	38
139		1192	67 ch	pek	6030	37
140		1195	18 do	pek sou	1440	33
142		1201	14 hf ch	dust	1120	20
143	Hayes	1204	13 ch	bro or pek	1365	43
144		1207	18 do	bro pek	1980	29
145		1210	24 do	or pek	2280	28
146		1213	44 do	pek	4180	22 bid
147		1216	16 do	pek sou	1440	20
148	Dunkeld	1219	85 hf ch	bro or pek	5100	34 bid
149		1222	19 ch	or pek	1805	33 bid
150		1225	35 do	pek	3150	29 bid
151	D V	1228	23 do	dust	2760	17
152	Beaumont	1231	18 ch	bro pek	1725	28
153		1234	54 do	or pek	4587	25
154	Errollwood	1237	26 hf ch	bro or pek	1430	45 bid
155		1240	20 ch	or pek	1900	37 bid
156		1243	33 do	pek	2970	35
157		1246	11 do	pek sou	1023	28 bid
158		1249	10 hf-ch	dust	800	17
159	Middleton	1252	25 do	bro or pek	1400	64
161		1258	40 ch	bro pek	3800	41
162		1261	49 do	pek	3920	36
163	Tymawr	1264	33 hf ch	bro or pek	1980	37
164		1267	60 do	or pek	3300	35
165		1270	80 do	pek	4000	32
166		1273	53 do	pek sou	2650	29
167		1276	15 do	dust	1350	17
170	Broadoak	1285	6 ch	pek fans	71	13 bid
171	Kelaneiya	1288	33 do	bro or pek	3300	26 bid
172		1291	27 do	or pek	2700	27 bid
173		1294	22 do	pek	2200	23 bid
175		1300	12 do	dust	960	17
176	Putupaula	1303	6 ch	bro or pek	750	28
177		1306	47 do	bro pek	4230	32
178		1309	41 do	pek	3075	26
179		1312	17 do	pek sou	1190	21 bid
181	Irex	1318	42 ch	bro pek	3780	25 bid
182		1321	35 do	pek	2800	23
183		1324	18 do	pek sou	1440	19
185	H G M	1330	30 do	bro pek	2850	27 bid
186		1333	28 do	pek	2464	25 bid
187		1336	15 ch	pek sou	1275	23 bid
189	Udaba	1342	30 hf ch	bro or pek	1625	27
190		1345	30 do	or pek	1486	25 bid
191		1348	28 do	pek	3187	23
192	Galkanda	1351	21 ch	bro pek	2100	23 bid
193		1354	18 do	pek	1620	18
194		1357	10 do	pek sou	900	16
196	Dammeria	1363	6 ch	bro or pek	720	35
197		1366	24 do	or pek	2160	36
198		1369	55 do	bro pek	6050	33 bid
199		1372	35 do	pek	3150	33
200		1375	19 do	pek sou	1710	24
201	D M	1378	11 ch	bro pek	1210	24
202		1381	13 do	pek	1300	22
203	Pallagodde	1384	13 do	bro or pek	1300	27
204		1387	23 do	bro pek	2300	38
205		1390	20 do	or pek	1800	32 bid
206		1393	14 do	pek	1190	29

Lot.		Box.	Pkgs.	Name.	lb.	c.
207		1396	16 ch	pek sou	1440	29
208		1399	14 hf ch	dust	1190	18
209	Dammeria	1402	64 ch	bro pek	5940	31 bid
210		1405	50 do	or pek	5000	35
211		1408	42 do	pek	3780	33
212		1411	20 do	pek sou	1800	25
213	Massena	1414	7 ch	bro or pek	700	46
215		1420	11 do	pek	1045	32
216		1423	8 do	pek sou	720	22
219	Seenagolla	1432	40 hf ch	bro or pek	2200	57
220		1435	31 do	or pek	1612	48
223	Queensland	1444	10 ch	bro pek	900	40 bid
224		1447	9 do	or pek	765	40
225		1450	11 do	pek	935	38
226		1453	8 do	pek sou	720	32
228	Theydon Bois	1459	17 ch	pek	1360	27
229		1462	9 do	pek sou	765	23
230	Macaldeniya	1465	21 hf ch	bro pek	1155	40
231		1468	21 do	or pek	1050	32
232		1471	22 do	pek	1100	35
235	St. Heliers	1480	22 do	bro or pek	1210	31 bid
236		1483	13 ch	pek	1144	30
237		1486	9 hf ch	dust	720	19
239	Knavesmire	1492	51 ch	bro pek	5100	25
240		1495	34 do	pek	2720	24
241		1498	19 do	pek sou	1330	21
242		1501	13 hf-ch	dust	1040	17
243		1504	18 ch	pek	1350	23
244	Knavesmire	1507	42 do	bro pek	3990	25 bid
245		1510	29 do	pek	2320	25
246		1513	14 do	pek	1050	24
247	Adisham	1516	57 hf-ch	bro or pek	3135	34 bid
248		1519	29 do	or pek	1305	36 bid
249		1522	10 ch	pek	700	35
250		1525	12 do	bro pek	1020	25 bid
251		1528	8 do	unas No. 1	720	18
254	Harrow	1537	12 hf ch	bro or pek	720	40
255		1540	19 ch	pek	1805	35
259	Campion	1552	11 do	bro pek	1152	49
260		1555	10 do	pek	900	40
262	Galaha	1561	35 ch	bro pek	3500	27
265	Dartry	1570	15 ch	pek sou	993	22
266		1573	11 do	pek	933	27
271	Penrhos	1588	21 hf ch	bro or pek	1197	39
272		1591	17 do	or pek	850	35
273		1594	23 ch	pek	1955	33
274		1597	10 do	pek sou	800	25
276	Vogan	1603	18 ch	bro or pek	2250	24
277		1606	65 do	or pek	6175	30 bid
278		1609	117 do	pek	10530	25 bid
279		1612	21 do	pek sou	1785	2[illegible]
280		1615	34 hf ch	dust	2890	16
281	K P W	1618	41 do	bro or pek	2460	31
282		1621	56 do	bro pek	3080	25 bid
283		1624	75 do	pek	3750	25
284		1627	25 do	pek sou	1250	21
286	Tempo	1633	17 ch	bro pek	1700	33 bid
287		1636	12 do	or pek	1080	31 bid
288		1639	29 do	pek	2175	26 bid
289		1642	21 do	pek sou	1470	23
290		1645	19 do	sou	1235	20
294	Clyde	1657	41 ch	bro pek	3608	27 bid
295		1660	31 do	pek	2666	25
296		1663	10 do	pek sou	900	21
298		1669	11 do	bro or pek	1265	26
299	A	1672	12 do	sou	1080	16 bid
300	Daranakande	1675	7 do	bro pek	700	27
302		1681	11 do	pek sou	990	16 d
303	Castlereagh	1684	35 ch	br pek	3325	34 bid
304		1687	13 do	or pek	1040	35
305		1690	24 do	pek	1920	31
307	Carlabeck	1696	14 do	pek sou	1288	34
308		1699	12 hf-ch	bro pek fans	936	25
309	Torwood	1702	42 ch	bro pek	3780	25 bid
310		1705	24 do	pek	1824	24 bid
311		1708	15 do	pek sou	1140	22
315	Marlborough	1720	75 do	bro or pek	4200	32 bid
316		1723	18 do	or pek	1350	30 bid
317		1726	50 do	pek	4000	27 bid
318		1729	19 do	pek sou	1444	22 bid
319	Weyungawatte	1732	30 do	bro pek	2850	31
320		1735	20 do	pek	2165	27
321		1738	26 do	pek sou	1050	24
324	Broadoak	1747	33 do	bro pek	3630	22
325		1750	22 do	pek	1980	18
326		1753	38 do	sou	2964	10
327		1756	28 do	pek fans	3080	16
328		1759	17 do	br pk dust	2720	16
330	Arapolakande	1765	72 do	bro pek	6480	29 bid
331		1768	44 do	pek	3520	27
332		1771	9 do	pek sou	810	22
334	Poonagalla	1777	18 do	or pek	1800	32 bid
335	P G A	1780	10 do	sou	750	17 bid
338	Maha Eliya	1789	13 do	or pek	1797	35 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
339		1792	37 ch	pek	3327	35
340	Poyston	1795	18 do	pk sou No. 2	1620	18
343	Dunbar	1804	15 hf-ch	bro or pek	750	53
344		1807	24 ch	or pek	1944	32 bid
345		1810	33 do	pek	2475	36
346		1813	15 hf-ch	bro pek	750	35
350	Great Valley, Ceylon, in est. mark	1825	47 ch	bro or pek	2585	37 bid
351		1828	23 do	or pek	1955	33 bid
352		1831	40 do	pek	3400	32
353		1834	20 do	pek sou	1600	24
354	Choisy	1837	14 do	or pek	1330	40
355		1840	38 do	bro pek	3800	41 bid
356		1843	35 do	pek	2975	37
357		1846	15 do	pek sou	1200	34
358	Harrington	1849	26 do	pek A	2235	36
359	A C B	1852	31 hf-ch	pek dust	2480	17 bid
360	Yelatenne	1855	25 ch	br pek	1450	33 bid
361		1858	24 hf-ch	pek	1200	38
362		1861	24 do	pek sou	1080	31 bid
365	S F D	1870	20 do	pek dust	1700	17 bid
368	Obbanwood	1879	14 ch	bold glazed hyson	1120	32
370	Sindumallay	1885	56 do	bro pek	5264	29 bid
371		1888	42 do	pek	3360	28
372		1891	42 do	pek sou	2772	24
373	Agrakande	1894	45 do	or pek	4500	40 bid
374		1897	38 hf-ch	bro or pek	2090	45 bid
375		1900	19 ch	pek	1900	35 bid
378	Dunnottar	1909	13 do	bro or pek	1300	44 bid
379		1912	12 do	bro pek	1200	34 bid
381	Ugieside	1918	9 do	bro mix	765	8 bid
383	Forest Creek	1924	20 do	bro or pek	2000	46
384		1927	35 do	br pek	3500	36 bid
385		1930	16 do	or pek	1440	35 bid
386		1933	18 do	pek No. 1	1620	33 bid
387		1936	33 do	pek No. 2	2970	32
389	Galkanda	1942	42 do	pek	3570	30 bid
390		1945	25 do	pek sou	2000	28
397	Agra Oya	1966	9 hf-ch	dust	810	17
8		1969	11 do	fans	825	18
400	Ascot	1975	63 ch	bro pek	5670	26 bid
401		1978	13 hf-ch	br pek fans	845	22
402	Devonford	1981	42 hf-ch	bro or pek	2310	59 bid
403		1984	23 ch	or pek	2070	50 bid
404		1987	14 do	pek	1190	42
405		1990	8 do	pek sou	720	43
406	Rowley	1993	17 do	bro pek	850	35
407		1996	16 do	pek	800	32
408	Deaculla	1999	60 hf-ch	br pek	3300	37
409		2002	43 ch	pek	3010	33
410		2005	20 do	pek sou	1400	26
411	W V R A	2008	33 hf-ch	br or pk	1650	31 bid
413	Nugalla	2014	30 do	bro pek	1500	30
414		2017	60 do	pek	3000	25
415	Corfu	2020	30 do	bro pek	1650	29 bid
416		2023	26 do	or pek	1300	36
417		2026	40 do	pek	2000	31
418		2029	18 do	pek sou	810	22
420	Penrhos	2035	33 hf-ch	bro or pek	1815	35
421		2038	26 do	or pek	1248	34 bid
422		2041	32 ch	pek	2720	32
423		2044	14 do	pek sou	1120	22
425	Ireby	2050	40 hf-ch	bro pek	2200	52
426		2053	20 ch	pek	1700	44
427	Loinorn	2056	20 do	or pek	1800	67
428	Nahalma	2059	29 do	sou	2726	16
429	St. H in est. mark	2062	18 do	pek sou	1620	28 bid
430	Sirikandura	2065	9 do	bro pek	900	29
431		2068	8 do	pek	700	26
432		2071	9 do	pek sou	723	21
434	Darrawella	2077	17 hf-ch	br pek	1020	22 bid
435		2080	31 ch	pek	3195	20 bid
438	B	2089	15 hf-ch	pek fans	1125	14 bid
439		2092	10 do	pek dust	800	19
441	Harrington	2098	19 do	bro or pek	9[illegible]	52
442		2101	19 ch	or pek	1710	38
443		2104	34 do	pek A	3060	34
444	Cooroondoowatte	2107	21 hf-ch	bro pek	1260	39
445		2110	14 ch	pek	1400	25 bid
446		2113	14 do	pek sou	1400	22
454	P in est. mark	2137	14 hf-ch	bro or pek	700	55
456	Middlesberg	2143	8 ch	or pek	800	36 bid
457	Madulkelle	2146	17 do	bro or pek	1700	26
458		2149	27 do	bro pek	2700	26
459		2152	34 do	pek	2890	23
460		2155	10 do	pek sou	850	19
461	Chesterford	2158	24 do	fans	2160	21
463		2164	14 do	bro tea	1330	16
464		2167	22 hf-ch	dust	1760	17
465	Madulkalle	2170	14 ch	bro pek	1400	27 bid
466		2173	9 do	pek	810	24 bid
467		2176	7 do	dust	700	17
468	Glendon	2179	25 do	or pek	2000	31

Lot		Box.	Pkgs.	Name.	lb.	c.
469		2182	28 ch	bro pek	2800	29 bid
470		2185	56 do	pek	4760	27
471		2188	34 do	pek sou	2720	21
472	G	2191	10 do	sou	900	16
473		2194	10 do	dust	1020	16
481	Ganapalla	2218	11 ch	or pek	946	29
482		2221	23 do	bro or pek	2070	25
483		2224	24 do	pek	1920	24
496	Old Madegama	2263	12 hf-ch	bro or pek	840	36
497		2266	24 do	pek	1920	31
498		2269	15 do	pek sou	1200	23
501	Talgaswela	2278	26 ch	pek	2080	26
502		2281	10 do	pek sou	750	22
503		2284	19 do	or pek	1615	32
505	St. Leonards	2290	8 do	or pek	720	32
506		2293	9 do	pek	810	26

Messrs. Somerville & Co.—[270,616 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	D S	1297	11 ch	pek sou	990	18 bid
2		1300	13 hf ch	dust	1040	17
3	Narangoda	1303	30 ch	bro pek	27 0	25 bid
4		1306	56 do	pek	5040	22 bid
5		1309	19 do	pek sou	1675	21
7		1315	11 do	bro or pek	1100	24
9	Doragalla	1321	23 hf ch	bro or pek	1265	35
10		1324	14 ch	bro pek	1190	31 bid
11		1327	25 do	pek	1875	30
12		1330	11 do	pek sou	770	24
14	Blinkbonnie	1336	31 hf-ch	bro pek	1860	44
15		1339	20 ch	or pek	1760	40
16		1342	23 do	pek	2924	38
18	Kallebokka	1348	35 do	bro pek	3500	30 bid
18a		1348a	35 do	bro pek	3500	30 bid
20		1354	2 do	bro or pek	2754	35 bid
21	Mahatenne	1357	8 ch	bro or pek	800	31
22		1360	36 do	bro pek	3600	25 bid
23		1363	25 do	pek	2375	21 bid
27	Warakamure	1375	38 ch	bro pek	3800	23 bid
27a		1375a	37 do	bro pek	3700	23 bid
29		1381	38 do	pek	3610	21 bid
30		1384	14 do	pek sou	1260	18
31	Avisawella	1387	22 ch	bro pek	2200	25
32		1390	24 do	pek	2040	19 bi
33		1393	19 do	pek sou	1520	17
35	Ambalawa	1399	42 hf ch	bro pek	2016	23
36		1402	15 do	pek fans	900	17
39	D C	1411	12 hf ch	or fans	900	20
40	Dalveen	1414	9 ch	bro pek	810	27
41		1417	11 do	pek	880	25
45	Mary Hill	1429	29 hf ch	bro pek	1595	25 bid
46		1432	35 do	pek	1750	22 bid
47		1435	22 do	pek sou	1100	21 bid
4	Nillicollaywatte	1441	31 hf ch	bro pek	2170	26
50		1444	28 ch	pek	2520	25
51		1447	19 do	pek sou	1482	22
52	Glenalla	1450	12 ch	bro or pek	1200	28
53		1453	20 do	pek No. 1	1700	25
54		1456	13 do	pek No. 2	1040	22
58		1468	9 ch	bro or pek	900	28
59		1471	11 do	bro pek	935	26
60		1474	11 do	pek No 1	935	25
61		1477	13 do	pek No 2	1105	22
64	Forest Hill	1486	16 ch	bro pek	1440	25 bid
65		1489	19 do	pek	1615	24
67	Mousakande	1495	27 hf ch	bro or pek	1404	21
70	Dikmuklana	1504	16 hf-ch	dust	800	16
71	Mattamagoda	1507	11 ch	bro pek	1100	27
72		1510	12 do	pek	1080	24
74		1516	9 do	pek sou	765	20
77	Yspa	1525	21 ch	pek sou	1680	23
78		1528	7 do	pek dust	980	17
79	Ladysmith	1531	20 ch	pek	1560	21 bid
80		1534	20 do	pek sou	1700	19
81		1537	20 do	sou	1500	17
82		1540	18 do	or pek fans	2070	17
83	Columbia	1543	24 hf ch	bro or pek	1200	50
84		1546	36 do	pek	1512	35
89	Mount Temple	1561	25 ch	bro pek	2000	22 bid
90		1564	29 do	pek	2320	20 bid
91		1567	24 do	pek sou	2040	18
95	Fairfield	1579	24 ch	bro pek	2400	37 bid
96		1582	20 do	bro or pek	1000	60
97		1585	7 do	or pek	1360	39
98		1588	37 do	pek	3330	35
99	Ambalawa	1591	12 ch	pek	960	20
100		1594	10 do	pek sou	750	18
101	Roseneath	1597	28 ch	bro pek	2800	28
102		1600	14 do	pek	1260	26
103		1603	26 do	pek sou	2080	21
104	Harangalla	1606	19 do	bro pek	1710	29 bid
105		1609	27 do	pek	2295	26 bid
106		1612	9 ch	sou	765	21
107	Farnham	1615	23 ch	bro pek	2162	28 bid
108		1618	15 do	or pek	1140	30 bid
109		1621	14 do	pek	1190	28
110		1624	13 do	pek sou	1040	25
112	Dalukoya	1630	16 hf ch	bro or pek	960	28
113		1633	21 do	or pek	1155	26 bid
114		1636	28 do	pek	1540	20 bid
121	Attabahena	1657	16 hf-ch	bro pek	800	30
124	F F, in estate mark	1666	21 hf-ch	bro pek	1155	27
133	Bollagalla	1693	32 ch	bro pek	3200	30
134		1696	25 do	pek	2000	33
135		1699	19 do	pek sou	1520	21
136	Kosgahawella	1702	10 ch	bro pek	1000	30 bid
139		1711	7 do	fans	700	out
141	Dumbarton	1717	15 ch	bro pek	1500	28
142		1720	20 do	or pek	2095	34
143		1723	34 do	pek	3094	21
144		1726	14 do	pek A	1022	20
145		1729	9 do	pek B	810	19
146		1732	7 do	pek sou	700	14
147	Romania	1735	17 ch	bro pek	1772	23
149		1741	15 hf ch	pek	780	20
153	Hatdowa	1753	23 ch	bro pek	2185	26 bid
154		1756	20 do	pek	1500	22 bid
155		1759	17 do	pek sou	1190	21
157	Blinkbonnie	1765	11 hf ch	fans	715	31
158		1768	9 do	dust	765	27
159	S R K	1771	11 ch	pek	1012	28
160		1774	12 do	pek sou	1140	23
163	Waverley	1783	26 ch	pek sou	2548	35
166	Dryburgh	1792	12 ch	pek	876	25
168	Hangranoya	1798	10 ch	bro or pek	950	38
169		1801	26 do	bro pek	2470	26 bid
170		1804	13 do	pek	1040	27
171		1807	9 do	pek sou	720	22
172	Mt Vernon	1810	31 ch	pek	2883	41
173		1813	26 do	pek A	2236	36
174		1816	25 do	pek sou	2200	31
176	Gona	1822	18 ch	bro pek	1710	28 bid
177		1825	31 do	bro or pek	3162	24
178	Oakham	1828	29 hf ch	or pek	1305	39
179		1831	34 do	bro pek	2040	44
180		1834	27 ch	pek	2430	35
181		1837	8 do	pek sou	760	27
183	Tientsin	1843	9 ch	pek sou	1615	35
184		1846	6 do	dust	840	25
185	Depedene	1849	40 hf ch	bro pek	2 00	27
186		1852	18 do	or pek	900	24
187		1855	40 do	pek	2000	22
188		1858	30 do	pek sou	1500	18
193	Murraythwaite	1873	22 ch	bro pek	1980	29 bid
194		1876	20 do	pek	1600	23 bid
195	Kurunegalle Estate Co, mark	1879	32 hf ch	bro or pek	1920	28 bid
196		1882	13 do	or pek	715	29
197		1885	17 ch	pek	1700	23 bi
200	Doragalla	1894	19 ch	bro or pek	1900	34
201		1897	20 do	bro pek	1800	32
202		1	33 do	pek	2640	33
204		7	7 do	bro mix	910	17
205	Depedene	10	14 hf ch	bro pek	700	27
207		16	14 do	pek	700	21
208	Kellebokka	19	40 ch	pek	3600	31
211	Kurulegalla	28	32 ch	bro pek	3200	22 bid
212		31	21 do	pek	1890	19 bid
213		34	8 do	pek sou	760	16
216	Kananke	43	13 ch	bro or pek	1430	26 bid
217		46	24 do	bro pek	2160	25
218		49	40 do	pek	3600	20 bid
219	Mary Hill	52	19 hf ch	bro pek	1045	29 bid
220		55	25 do	pek	1250	27 bid

[Mr. E. John.—218,591 lb.]

Lot		Box.	Pkgs.	Name.	lb.	c.
3	G T	651	12 ch	pek	1080	18
5		657	9 do	sou	810	23
6	N	660	15 hf ch	dust	1275	18
7	Suduganga	663	25 do	bro pek	1375	32
8		666	14 ch	pek	1120	28
9		669	11 do	pek sou	935	25
10	Galella	672	22 do	bro pek	2200	37
11		675	26 do	pek	2080	34
12		678	9 do	pek sou	720	27
13	Templestowe	681	40 do	bro or pek	3000	38 bid
14		684	21 hf-ch	or pek	882	42
15		687	34 ch	pek	2720	28 bid
16		690	12 hf ch	dust	900	18
17	Glentilt	693	29 ch	bro pek	2900	40 bid
18		696	23 do	or pek	2185	35
19		699	13 do	pek	1170	33
20	Helbeck	702	30 hf-ch	bro or pek	1650	43 bid
21		705	30 ch	bro pek	3000	40 bid
22		708	20 do	pek	1800	out

Lot.		Box.	Pkgs.		Name.	lb.	c.
23	Poilakande	711	58	ch	bro pek	5800	24 bid
24		714	45	do	pek	4050	22 bid
25	Ben Nevis	717	33	bf ch	bro pek	1914	40 bid
26		720	22	do	or pek	990	47
27		723	26	ch	pek	2340	35
30	Agra Ouvah	732	27	hf-ch	bro or pek	1674	61
31		735	60	do	bro pek	3600	41
32		738	18	ch	pek	1728	38
33	Glasgow	741	47	do	bro or pek	4700	41 bid
34		744	30	do	or pek	2010	56
35		747	20	do	pek	1700	41
36		750	16	do	pek sou	1600	37
37	Rondura	753	30	do	bro pek	3000	24
38		756	19	do	or pek	1615	34
39		759	48	do	pek	3340	31
40		762	21	do	pek sou	1680	22
41	Agra Ouvah	765	29	hf-ch	bro or pek	1793	60
42		768	66	do	bro pek	3960	40
43		771	19	ch	pek	1824	38
44	Gingranoya	774	82	boxes	bro or pek	1640	36 bid
45		777	24	hf ch	bro pek	1200	28 bid
46		780	29	ch	pek	2320	28 bid
47	Wadhurst	783	14	do	or pek	1400	32 bid
48		786	13	do	pek	1235	33
49		789	14	do	pek sou	1260	25 bid
52	Iona	798	34	hf ch	bro or pek	1972	49 bid
53		801	18	ch	or pek	1620	38
54		804	20	do	pek	1600	36
57	Eila	813	41	do	bro or pek	4510	25 bid
58		816	33	do	bro pek No. 1	3135	26 bid
59		819	43	do	bro pek	3655	26 bid
60		822	35	do	pek sou	2800	18 bid
61	Mount Clare	825	10	do	bro or pek	1000	32
63		831	19	do	pek	1767	18 bid
76	Glassaugh	870	33	hf-ch	or pek	1749	64
77		873	30	do	bro or pek	1950	44
78		876	28	ch	pek	2800	46
79	Gangawatte	879	28	do	bro pek	2800	31
80		882	25	do	pek	2250	29
81		885	12	do	pek sou	1080	25
82		888	7	do	dust	910	16
85	Tebuwana	897	42	do	bro pek	3780	out
86		900	24	do	pek	1824	20 bid
87		903	15	do	pek sou	1140	20 bid
89	Kataboola	909	10	do	pek sou	850	15
90	Brownlow	912	45	hf-ch	bro or pek	2385	36
91		915	25	ch	bro pek	2075	32 bid
92		918	27	do	pek	2322	26 bid
93		921	9	do	pek sou	801	26
94		924	12	hf-ch	bro pek fans	840	18
95	Little Valley	927	10	ch	bro pek	950	27 bid
96		930	47	do	pek	3995	24 bid
97	Kadienlena	933	45	hf ch	bro pek fans	2925	20 bid
98	Myraganga	936	53	ch	bro pek	4770	26 bid
99		939	50	do	bro or pek	4750	26 bid
100		942	77	do	pek	6160	24 bid
101		945	54	do	pek sou	4050	24
102	Maryland	948	7	do	bro pek	735	23 bid
103		951	7	do	pek	700	18 bid
104	Keenagaha Ella	954	35	hf-ch	bro or pek	1750	30 bid
105		957	24	ch	or pek	1800	27 bid
106		960	11	do	pek	825	23 bid
107		963	10	do	pek sou	750	20 bid
108		966	10	do	sou	750	16
109		969	13	hf ch	bro pek fans	780	20
113	Evalgolla	981	36	do	bro or pek	1440	32 bid
114		984	67	do	pek	2010	22 bid
119	F	999	15	ch	bro or pek	1500	35 bid
120	Ferndale	2	14	do	bro or pek	1427	35 bid
121		5	10	do	or pek	922	29 bid
122		8	31	do	pek No. 1	2770	23 bid
123		11	29	do	pek No. 2	2688	22 bid
125		17	6	do			
			1	hf-ch	dust	816	17
126	Eton	20	35	do	bro or pek	1925	49 bid
127		23	12	ch	pek	1200	39
128	G F R, in estate mark	26	10	do	bro or pek	1900	36 bid
129		29	37	do	bro pek	3515	27 bid
130		32	26	do	pek	2340	22 bid
131		35	9	do	pek sou	765	20
137	N B	53	15	do	pek sou	1350	31 bid
139	Lunugalla	59	7	do	bro pek	700	20 bid
140		62	17	do	pek	1360	20 bid
142	Templestowe	68	32	do	bro or pek	2400	38 did
143		71	23	hf ch	or pek	1035	42
144		74	25	ch	pek	2125	30 bid
145		77	9	do	pek sou	720	24

SMALL LOTS.

E. Benham & Co.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Mapitigama	43	6	ch	bro or pek	588	38
5		55	2	do	sou	160	17
6		58	3	do	bro or pek fans	345	30
10	Battalgalla	70	6	ch	fans	510	18

[Messrs. Forbes & Walker.

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Udapolla	778	7	ch	or pek	630	27
4		787	4	do	pek sou	340	22
5		790	2	do	dust	160	1
9	Drayton	802	2	ch	sou	160	2
10	D V	805	1	do	bro mix	112	
11		808	5	do	fans	600	1
12	Carolina	811	5	ch	young hyson	515	44
14		817	6	do	hyson No. 2	630	32
15		820	3	do	siftings	300	12
16	Yatiyana	823	2	ch	or pek	201	20
18		829	5	do	bro pek	425	24
20		835	6	do	pek sou	534	15
21		838	1	do	do No. 2	90	10
28	Panawatte	859	7	ch	or pek	581	28
31		868	4	do	fans	400	10
37	Holton	886	6	ch	dust	480	16
41	Igalkande	898	1	ch	dust	120	17
43	Ismalle	904	3	ch	congou	255	14
44		907	3	do	fans	405	14
49	Pansalatenne	922	3	ch	fans	360	20
50		925	2	do	dust	300	16
56	Glengariffe	943	5	hf-ch	dust	400	17
61	Dehiowita	958	5	ch	bro pek fans	600	14
65	Haputele-wella	970	8	hf-ch	pek sou	360	28
66		973	4	do	fans	320	18
70	T C L, in estate mark	985	5	ch	congou	500	14
71	D	988	4	ch	sou	320	8
79	Sunnycroft	1012	3	ch	bro tea	360	10
80	Dromoland	1015	4	hf ch	bro pek fans	260	19
81		1018	3	ch	dust	240	17
85	Weyunga-watte	1030	1	ch	bro tea	100	19
86		1033	2	hf ch	dust	170	17
91	Avanna	1048	5	ch	bro pek fans	325	26
104	A B F	1087	4	do	bro pek	400	28
105		1090	4	do	pek	400	19
106		1093	4	do	pek sou	400	15
107		1096	1	do	congou	90	8
113	T'Villa	1114	4	ch	fans	460	16
116	Aberfoyle	1123	4	do	pek sou	400	23
121	Dea Ella	1138	7	hf ch	bro or flowery pek	420	36
125		1150	14	do	pek sou	672	21
126		1153	9	do	fans	540	23
129	Battawatte	1162	8	ch	pek sou	640	23
130		1165	2	do	dust	200	17
136	Erracht	1183	2	ch	dust	296	10
141	Maha Uva	1198	4	hf ch	pek fans	280	20
160	Middleton	1255	9	do	bro or pek	504	62
168	Wewawatte	1279	12	hf ch	bro pek	696	26
169		1282	8	do	pek	400	21
174	Kelaneiya	1297	5	ch	sou	500	18
180	Putupaula	1315	2	do	dust	160	16
184	Irex	1327	6	do	dust	600	16
188	H G M	1339	7	hf ch	dust	616	16
195	Galkanda	1360	2	ch	dust	240	16
214	Massena	1417	4	do	bro pek	400	34
217		1426	1	hf ch	fans	60	18
218		1429	1	do	dust	85	15
221	Seenagolla	1438	5	do	pek sou	260	39
222		1441	4	do	dust	340	17
227	F B	1456	4	ch	unas	400	8
233	Macaldeniya	1474	12	hf ch	pek sou	600	23
234		1477	2	do	dust	150	17
238	S D H, in estate mark	1489	6	ch	bro or pek	600	31
252	Adisham	1531	7	do	unas No. 2	595	15
253	Harrow	1534	9	hf-ch	or pek	495	36
256		1543	6	ch	pek sou	540	28
257		1546	2	hf ch	fans	160	20
258	T M R, in est. mark	1549	4	ch	bro or pek	393	41
261	Campion	1558	6	hf ch	bro or pek	326	71
263	Galaha	1564	7	ch	pek	630	23 bid
264		1567	4	do	pek sou	358	22
267	Eildon Hall	1576	6	hf ch	bro pek	360	36
268		1579	10	do	bro or pek	550	44
269		1582	6	ch	or pek	630	36
270		1585	2	do	pek	180	32
275	Penrho	1600	2	hf ch	pek dust	180	16

Lot.		Box.	Pkgs.	Name.	lb.	c.
285	K P W	1630	7 hf ch	dust	630	17
291	Tempo	1648	8 do	bro pek fans	440	22
292		1651	5 do	dust	425	15
293	A G	1654	2 ch	red leaf	180	5
297	Clyde	1660	4 ch	dust	620	16
301	Doranakande	1678	6 ch	pek	540	23
306	Castlereagh	1693	6 hf-ch	fans	420	16
312	Torwood	1711	7 ch	sou	560	16
313	A G	1714	2 do	broken tea	180	14
314		1717	2 do	dust	240	17
322	Weyungawatte	1741	2 do	broken tea	200	16
323		1744	2 hf-ch	dust	170	16
329	Arapolakande	1762	5 ch	bro or pek	575	24 bid
333		1774	3 do	dust	315	16
336	P G A	1783	4 hf ch	dust	340	18
337		1786	3 ch	bro mixed	138	7
341	Peyston	1798	6 do	dust	480	16
342		1801	4 do	fans	280	17
347	Dunbar	1816	10 do	br pk fans	600	27
348		1819	4 do	pek sou	308	22
349		1822	1 do	dust	147	16
363	Yelatenne	1864	3 hf ch	bro pek fans	210	30
364		1867	3 do	fans	249	17
366	Cobbanwood	1873	2 ch	young hyson	200	38
367		1876	2 do	hyson	180	34
369	A T	1882	2 do	hyson	190	20
376	Agrakande	1903	5 do	pek sou	500	33
377		1906	1 hf-ch	fans	85	26
380	Ugieside	1915	4 do	dust	320	17
382		1921	6 9h	fans	570	12
388	Nahakettia	1939	5 hf ch	young hyson	287	out
391	Galkanda	1948	1 ch	sou	80	16
392	S G	1951	5 do	pk sou	500	11
393	Handrokande	1954	5 do	bro pek	500	23 bid
394		1957	2 do	pek	170	20
395		1960	1 do	pek sou	80	15
396		1963	1 do	dust	100	16
399	B and D	1972	3 do	unast	300	15 bid
412	East Holywood	2011	6 do	sou	564	10
419	Corfu	2032	6 hf ch	br pek fans	450	16
424	Penrhos	2047	3 do	fans	231	16
433	Sirikandura	2074	2 ch	br pek fans	200	20
436	Darrawella	2083	4 do	pek sou	364	12
437		2086	1 do	dust	150	14
440	Y	2095	3 do	dust	390	15
447	Bogatodowa	2116	1 do	bro pek	90	16
448		2119	1 do	pek	80	10
449		2122	6 hf ch	pek dust	450	16
460	Kudu	2125	10 box	bro pek	50	20
451		2128	10 ch	pek	50	20
452		2131	2 do	pekoe (in 1 lb. pkt.)	170	20
453		2134	4 hf-ch	pekoe (in ½ lb. pckt.)	169	20
455	P in est. mark	2140	10 do	bro pk fans	500	42
462	Chesterford	2161	2 ch	congou	130	14
480	C in est. mark	2215	1 do	or pek	83	26
484	Ganapalla	2227	9 do	pek sou	675	20
485		2230	4 do	bro pek fans	480	17
486		2233	2 hf ch	dust	168	18
491	W in est. mark	2248	1 ch	pek sou	81	20
492	Bambragalla	2251	10 hf-ch	bro or pek	600	32 bid
493		2254	9 do	or pek	450	30 bid
494		2257	7 do	pek	350	23 bid
495		2260	4 do	pek sou	200	23
499	Old Madegama	2272	2 ch	pek fans	160	23
500		2275	2 hf-ch	dust	200	18
504	Talgaswela	2287	4 do	bro pek No. 2	240	23
507	St. Leonards	2296	1 ch	or pek fans	110	16
508		2299	2 do	bro mixed	220	10 bid

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
6	Narangoda	1312	4 ch	dust	300	16
8		1318	1 do	sou	100	12
13	Doragalla	1333	5 cb	bro mix	650	17
17	Blinkbonnie	1345	8 cb	pek sou	656	31
24	Mahatenne	1366	4 ch	pek sou	360	21
25		1369	2 do	dust	200	16
26		1372	1 do	red leaf	65	8
34	Avisawella	1396	4 ch	dust	560	16
37	San Cio	1405	2 ch	bro mix	160	8
38		1408	6 hf ch	dust	384	10
42	Dalveen	1420	2 ch	pek fans	200	20
43		1423	4 do	con	400	16
44		1426	1 hf ch	dust	85	16
48	Mary Hill	1438	4 hf-ch	dust	320	16
55	Glenalla	1459	4 ch	sou	320	16
56		1462	1 do	dust	150	15
57		1465	2 do	red leaf	160	8
62		1480	5 do	sou	375	16
63		1483	1 do	red leaf	90	8

Lot		Box.	Pkgs.	Name.	lb.	c.
66	Forest Hill	1492	4 hf ch	fans	296	15
69	Dikmukalana	1501	1 hf-ch	pek sou	50	15
73	Mattamagodda	1513	6 ch	pek No 2	540	20
75		1519	3 do	fans	300	10
76		1522	2 hf ch	dust	150	16
85	Columbia	1549	6 hf ch	dust	384	20
86	Galatotta	1552	5 ch 1 hf ch	bro pek	550	17
87		1555	2 ch	pek	200	14
88		1558	1 do	pek sou	80	11
92	K G	1570	2 ch	sou	170	8
111	Farnham	1627	2 ch	sou	120	15
115	T G T	1639	3 hf ch	bro pek	165	25
116		1642	2 do	pek	100	18
117		1645	3 do	pek sou	150	15
118		1648	1 do	bro sou	60	10
119		1651	1 do	unas	50	8
120		1654	2 do	fans	150	15
122	Attabahena	1660	14 hf-ch	pek	672	18
123		1663	8 do	pek sou	384	14
125	F F, in estate mark	1669	11 hf ch	pek	550	18 bid
126		1672	5 do	pek sou	225	20
127		1675	2 do	bro pek fans	130	15
128		1678	1 do	bro mix	55	13
129	Yala	1681	3 ch	bro pek	300	25
130		1684	5 do	pek	440	19
131		1687	4 do	pek sou	320	12 bid
132		1690	1 do	bro mix	110	8
137	Kosgahawella	1705	5 ch	pek	500	9
138		1708	5 do	pek sou	500	9
140		1714	1 do	pek dust	160	8
148	Romania	1738	6 ch	or pek	540	24
150		1744	3 hf ch	pek sou not hooped	150	16
151		1747	7 do	sou	315	12
152	Hatdowa	1750	3 ch	bro or pek	315	26
156		1762	5 do	fans	500	18
161	S R K	1777	4 ch	dust	600	16
162		1780	3 do	bro tea	300	10
164	Dryburgh	1786	11 hf-ch	bro or pek	539	28 bid
165		1789	11 do	or pek	473	29 bid
167		1795	4 do	fans	280	14 bid
175	Mt. Vernon	1819	5 ch	bro mix	460	18
182	Oakham	1840	5 hf ch	pek fans	400	17
189	Depedene	1861	10 do	bro pek fans	500	19
190		1864	3 do	dust	240	16
191	Napier	1867	1 ch	mix	84	16
192	Wagnilla	1870	1 ch	or pek	90	27
198	Kurunegalla estate Co, Limited	1888	5 ch	pek sou	500	18
199		1891	5 hf ch	dust	400	16
203	Doragalla	4	8 ch	pek sou	640	27
206	Depedene	13	9 hf ch	or pek	450	25
209	Kallebokka	22	2 ch	pek sou	220	19
210		25	8 hf ch	dust	640	16
214	K G A, in estate mark	37	4 ch	bro pek fans	520	16
215		40	2 do	pek dust	260	16
221	Mary Hill	58	12 hf ch	pek sou	600	22 bid
222		61	3 do	dust	240	17

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	645	4 ch	dust	420	17
2	G T	648	3 do	bro pek	300	24
4		654	5 hf-ch	dust	475	17
28	Ben Nevis	726	7 ch	pek sou	609	29
29		729	4 hf ch	dust	348	17
50	Wadhurst	792	1 ch	bro mix	100	8
51		795	3 hf ch	dust	225	10
56	Caledonia	810	1 ch	bro mix	94	14
62	Mount Clare	828	6 do	or pek	582	26
64		834	6 do	pek sou	510	17
65		837	2 do	fans	210	15
66	Riseland	840	2 hf ch	pek	132	11
83	Gangawatte	891	4 ch	fans	440	16
84	Acrawatte	894	8 do	pek sou	680	15
88	Tebuwana	906	7 do	sou	560	13
110	Kecnagaha Ella	972	5 hf-ch	pek fans	400	21
111		975	2 do	dust	180	15
112	Evalgolla	978	17 do	or pek	595	34
115		987	19 do	pek sou	665	17
116		990	4 do	sou	120	14
117		993	1 do	fans	50	10
118		996	1 do	dust	55	18
124	Ferndale	14	5 ch	pek sou	447	21
132	G F R, in estate mark	38	5 do	dust	650	16
133		41	5 do	fans	525	16
134	L, in est. mark	44	1 hf ch	bro pek	60	18
135		47	2 do	pek	110	11
136		50	3 do	dust	216	16
141	Lunugalla	65	3 ch	pek sou	240	55

CYELON COFFEE SALES IN LONDON.

(From Our Commerical Correspondent.)

MINCING LANE, Nov. 9.

"Cheshire."—GA Ouvah O, 1 tierce sold at 88s; ditto 1, 1 cask sold at 88s; ditto 2, 12 casks and 1 tierce sold at 80s; GA Ouvah 3, 8 casks and 1 barrel sold at 61s; ditto 1 PB, 1 cask sold at 84; ditto triage, 1 cask sold at 50s; ditto, 2 bags sold at 70s.

CEYLON COCOA SALES IN LONDON.

"Duke of Devonshire."—DB in estate mark, Mahawatte, 1 bag sold at 55s.

CEYLON CARDAMOMS SALES IN LONDON.

"Shropshire."—Nawanagalla 1, 3 cases sold at 3s 5d; ditto 2, 7 cases sold at 2s 6d; ditto 4, 2 cases sold at 1s 5d; ditto Seed, 1 case sold at 2s.

"Cheshire."—Nawanagalla 1, 1 case sold at 3s 5d; ditto 2, 2 cases sold at 2s 5d; ditto 3, 1 case sold at 1s 4d; ditto 4, 2 cases sold at 1s 5d.

"Kanagawa Maru."—Katooloya Ex., 7 cases sold at 2s 6d; ditto A, 9 cases sold at 1s 10d; ditto B, 5 cases sold at 1s 2d; Katooloya C, 6 cases sold at 1s 1d; ditto D, 1 case sold at 1s 11d.

"Prometheus."—Elkadua O, 1 case sold at 2s 3d; ditto 2, 1 case sold at 8d; ditto B & S, 1 case sold at 8d; ditto Seeds, 2 cases sold at 8d; Midlands O, 2 cases sold at 3s 1d; ditto 1, 7 cases sold at 1s 2d; ditto 2, 1 case sold at 1s 2d; ditto B & S, 1 case sold at 10d; ditto Seed, 1 case sold at 10d.

"Duke of Portland."—F in estate mark, F No. 2, 4 cases sold at 1s 2d.

"Orotava."—Cottaganga B, 7 cases sold at 1s 8d.

"Orestes."—Warriagalla Mysore A, 2 cases sold at 2s 5d; ditto B, 4 cases sold at 1s 9d.

No. 46 COLOMBO, DECEMBER 10, 1900. PRICE :—12½ cents each 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[40,905 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Battalgalla	44	27 ch	or pek	2565	34 bid
2		47	19 do	pek	1710	34
3		50	10 do	pek sou	800	28
4	Anchor in est. mark	53	16 hf-ch	bro or pek	960	50
6		59	14 ch	pek	1100	36
7		62	17 do	pek sou	1615	30 bid
8	Ovoca	65	21 hf cb	bro or pek	1050	47 bid
10		71	17 ch	pek	1530	35
11		74	15 do	pek sou	1275	29 bid
12		77	12 do	unas	1200	18
13	Vanickwatte	80	24 ch	or pek	1920	18 bid
14		83	21 do	bro or pek	2100	23
15		86	27 do	pek	1993	20 bid
16		89	27 do	pek sou	2214	17
17	Lesmoir	92	13 cb	or pek	1170	out
18		95	18 do	bro pek	1800	out
19		98	24 do	pek	2160	19 bid
20	Riversdale, in est mark	1	30 hf ch	bro pek	1650	47 bid
21		4	52 do	pek	2600	37 bid
22		7	34 do	pek sou	1428	30 bid
23	Hornsey	10	20 do	bro or pek	1000	45 bid
24		13	33 ch	or pek	3135	34 bid
25		16	20 do	pek	1800	34
26		19	10 do	pek sou	800	27

Messrs. Forbes & Walker

[697,330 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	W N	2302	20 ch	bro tea	1700	9
4	Clarendon	2311	29 hf ch	bro pek	1827	51
5		2314	21 do	or pek	1 34	48
6		2317	19 do	pek	1805	40
7		2320	11 do	pek sou	1100	33
10	Dambagastalawa	2329	22 ch	bro or pek	2332	40 bid
11		2332	28 do	bro pek	2940	32 bid
12		2335	26 do	pek	2288	30 bid
13		2338	8 do	pek sou	704	27
14		2341	6 do	bro pek fans	828	24
15	Hatton	2344	22 cb	bro pek	2310	45
16		2347	32 do	pek	2720	35
19	Glencorse	2356	8 ch	bro pek	720	33 bid
20		2359	20 do	or pek	1700	31 bid
21		2362	18 do	pek	1620	27 bid
22		2365	32 do	pek sou	2560	24
23		2368	7 do	bro tea	700	23
25	Carendon	2374	13 ch	bro pek	1300	24 bid
26		2377	9 do	pek	900	24 bid
27		2380	9 do	pek sou	900	18 bid
29	M'Golla	2386	14 ch	bro mix	1120	1'
31	Nilloomally Inv. No. 11, O B E C, in est. mark	2392	30 cb	bro or pek	3000	28
32		2395	37 do	pek	3034	22
33		2398	22 do	pek sou	1672	19
36	H G M	2407	30 hf ch	bro or pek	1800	34
37		2410	8 ch	or pek	720	34
38		2413	11 do	bro pek fans	990	17 bid
39	Gallawatte	2416	13 ch	bro pek	1170	22 bid
41		2422	28 do	pek	2380	20 bid
42		2425	12 do	pek sou	960	18 bid
47	Agra Oya	2440	19 ch	pek	1425	21 bid
48		2443	10 do	pek sou	900	18 bid
49	B D W G	2446	63 hf ch	bro pek	3150	31 bid
50		2449	39 do	pek	1950	26 bid
51		2452	14 do	pek sou	700	22 bid
53	Middleton	2458	24 do	bro or pek	1344	60 bid
54		2461	41 ch	bro pek	4180	41 bid
55		2464	50 do	pek	4000	34 bid
56		2467	9 hf ch	dust	720	19 bid
57	Elkadua	2470	25 ch	bro or pek	2500	26 bid
58		2473	31 do	or pek	2480	26 bid
59		2476	42 do	pek	3360	25 bid
60		2479	28 do	pek sou	2240	21 bid
61	Ascot	2482	13 ch	pek	1170	21 bid
63		2488	12 hf ch	fans	804	11 bid
66	Monkswood	2497	25 do	bro pek	1500	69
67		2500	30 do	or pek	1650	69
68		2503	26 ch	pek	2340	52
69	Gonapatiya	2506	20 hf ch	bro pek	1100	60 bid
70		2509	30 do	or pek	1500	47
71		2512	29 do	pek	1421	41
72		2515	12 do	pek fans	792	34
75	St. H.	2524	15 ch	pek	1590	13
76	Bandara Eliya	2527	41 hf ch	or pek	1927	41 bid
77		2530	39 do	bro or pek	1950	51
78		2533	56 do	pek	2520	38
79		2536	39 do	pek sou	1677	31
80		2539	12 do	pek fans	720	25 bid
82	Wallaha	2545	39 hf ch	bro or pek	1950	45 bid
83		2548	32 ch	bro pek	3200	35 bid
84		2551	33 do	or pek	2640	36 bid
85		2554	27 do	pek	2484	34 bid
88	Labookelle	2563	9 cb	hyson No. 2	900	35
92	Ingurugalla	2575	11 hf ch	bro tea	935	14
96	Tempo	2587	11 cb	bro pek	1100	28 bid
97		2590	10 do	or pek	900	27 bid
98		2593	22 do	pek	1650	23 bid
99		2596	15 do	pek sou	1050	21
100		2599	12 do	sou	780	16 bid
102	Stamford Hill	2605	50 hf cb	bro pek	2900	37
103		2608	28 do	or pek	1344	43
104		2611	38 ch	pek	3420	30 bid
105		2614	10 do	pek sou	850	28
111	Igalkande	2632	25 ch	bro pek	2247	26 bid
112		2635	19 do	pek	1707	23 bid
113	Elfindale	2638	10 ch	bro pek	1000	10 bid
114		2641	13 do	pek	1235	13
115	A F	2644	40 hf ch	young hyson	2400	36 bid
116		2647	38 do	hyson	2185	31 bid
117		2650	12 do	hyson No. 2	720	28 bid
118	Carberry	2653	11 ch	bro pek	990	29
119		2656	8 do	pek	720	26
124	Holton	2671	14 ch	bro pek	1330	27 bid
125		2674	16 do	pek	1360	23 bid
126		2677	11 do	pek sou	935	16 bid
127	Kelaneiya and Braemar	2680	33 ch	bro or pek	3297	23 bid
128		2683	27 do	or pek	2397	23 bid
129	Maldeniya	2686	14 cb	bro pek	1330	23 bid
130		2689	20 do	pek	1800	19 bid
131		2692	15 do	pek sou	1275	17
132		2695	8 do	fans	801	14
133	Matale	2698	42 hf-ch	bro pek	2520	23 bid
134		2701	18 ch	pek	620	30
135		2704	9 do	pek sou	810	21
139	Now Galway	2716	13 hf ch	pek	1	
141	Ragland	2722	8 ch 1 hf cb	pek	760	out
145	L N S, in estate mark	2734	9 ch	fans	722	6
146	Nahalma	2737	29 ch	bro pek	2784	29 bid
147		2740	41 do	pek	3608	21 bid
148		2743	15 do	pek sou	1305	17 bid
150	Udabage	2749	37 hf ch	bro or pek	2035	22
151		2752	34 do	pek	1700	21
152		2755	27 do	or pek	1350	19 bid
153		2758	30 do	pek sou	1500	16
154	M, in estate mark	2761	36 hf ch	bro or pek	1980	24
155		2764	20 do	pek	1000	21
157	P, in estate mark	2770	38 ch	bro or pek	3800	42 bid
158		2773	21 do	pek	1680	41
159		2776	31 do	pek sou	2480	34 bid
160	K P W	2779	60 hf ch	bro pek	3300	24 bid
161		2782	60 do	bro or pek	3000	21 bid
162		2785	93 do	pek	4650	19 bid
163		2788	35 do	pek sou	1750	16 bid
165	Tambiligalla	2794	27 ch	bro or pek	2565	28
166		2797	34 do	pek	3230	20
170	Avanna	2809	21 do	bro pek dust	1677	16
171	S Roeberry	2812	17 ch	bro pek	1700	37
172		2815	11 do	bro pek	1100	55
173		2818	16 do	pek	1472	35
175	R Roeberry	2824	26 ch	bro pek	2600	38
176		2827	14 do	bro or pek	1400	53
177		2830	32 do	pek	2944	37
179		2836	11 hf-ch	fans	1100	25
180	Palmerston	2839	14 do	bro or pek	770	52
181		2842	12 do	pek	1080	35
183	St. Heliers	2848	52 do	bro or pek	1375	29

Lot		Box.	Pkgs.	Name.	lb.	c.
184		2851	19 ch	pek	1672	29
185		2854	9 do	pek sou	810	21
186	Tbeydon Bois	2857	15 ch	or pek	1275	31
187		2860	9 do	bro or pek	810	38
188		2863	20 do	pek	1600	22 bid
189		2866	14 do	pek sou	1190	15
191	Queensland	2872	10 do	bro pek	897	36 bid
192	Tonacombe	2875	31 ch	or pek	2790	31 bid
193		2878	21 do	bro or pek	2100	40
194		2881	29 do	bro pek	2900	35
195		2884	58 do	pek	5220	27
196		2887	18 do	pek sou	1620	21
197		2890	12 hf-ch	pek	1020	16
198	Chesterford	2893	45 ch	bro pek	4275	30
199		2896	44 do	pek	4180	22 bid
200		2899	24 do	pek sou	2280	22
201	Ardlaw and Wishford	2902	14 ch	bro or pek	1288	46
202		2905	9 do	bro pek	783	34
203		2908	10 do	or pek	820	37
204		2911	11 do	pek No.	726	29 bid
205		2914	12 do	pek	912	27
206	S W	2917	10 ch	bro mix	990	13
207	Polatagama	2920	47 ch	bro pek	4700	34 bid
208		2923	12 do	or pek	1080	27 bid
209		2926	67 do	pek	6030	22 bid
210		2929	17 do	pek sou	1530	17 bid
213	Ruanwella	2938	29 ch	or pek	2465	20
214		2941	13 do	bro pek	1300	22 bid
215		2944	25 do	pek	2250	21 bid
218	Weoya	3953	38 ch	bro pek	3800	26
219		2956	18 do	or pek	1620	24
220		2959	37 do	pek	3145	21 bid
221		2962	17 do	pek sou	1360	17 bid
223	Clunes	2968	14 ch	or pek	1120	29
224		2971	22 do	bro pek	2 90	23 bid
225		2974	13 do	bro or pek	1430	23
226		2977	26 do	pek	2340	21 bid
227		2980	10 do	pek sou	1000	17
229	Kirklees	2986	33 ch	pek	3135	36
230		2989	32 do	pek sou	2560	25
232		2995	8 hf ch	dust	720	16
233	High Forest	2998	43 do	or pek No. 1	2580	66
234		3001	29 do	or pek	1624	60
235		3004	27 do	pek	1404	48
236	Letchmey	3007	13 hf-cb	dust	1105	16
238	Killarney	3013	75 do	bro or pek	4125	52
239		3016	70 ch	pek sou	6300	29
241	Ganapalla	3022	21 ch	or pek	1806	25
242		3025	11 do	bro or pek	1133	22
243		3028	11 do	bro pek	880	23
244		3031	16 do	pek	1280	23
247	Aberdeen	3040	60 ch	bro pek	5559	26 bid
248		3043	95 do	pek	7125	23 bid
249		3046	29 do	sou	1943	18 bid
250	Inverness	3049	27 ch	bro or pek	3024	35
251		3052	13 do	or pek	1300	38 bid
252		3055	36 do	pek	3240	28 bid
253		3058	5 do	dust	800	15
254	Tillyrie	3061	14 cb	twanky	1568	out
255	Dickella	3064	23 do	bro or pek	2415	21 bid
256		3067	24 do	bro pek	2184	23 bid
257		3070	44 do	pek	3740	20 bid
258		3073	32 do	pek sou	2560	16 bid
259		3076	10 do	sou	850	8
261	Beaumont	3082	30 do	bro pek	2970	23 bid
262		3085	31 do	or pek	2635	19 bid
264	Hentleys	3091	20 hf-ch	bro pek	1060	23
266		3097	13 ch	pek	1066	19 bid
269	Pine Hill	3106	44 hf-cb	bro or pek	2640	42
270		3109	65 ch	or pek	5850	28 bid
271		3112	62 do	pek	5270	24 bid
272		3115	24 do	pek sou	1920	23
273		3118	9 hf-ch	dust	810	16
277	Kincora	3130	13 cb	pek	1040	33
278		3133	19 do	pek No. 2	1330	32
280	Great Valley, Ceylon in est. mark	3139	47 do	bro or pek	2533	32 bid
281	A S M	3142	41 hf-ch	young hyson	2460	47
282		3145	40 do	hyson	2240	37
283		3148	12 do	hyson No. 2	720	33
286	Munukattia, Ceylon, in est mark	3157	22 do	or pek	1012	27 bid
287		3160	37 do	bro pek	2146	35
288		3163	20 do	pek	1600	28
289		3166	9 do	pek sou	810	20
290	C S G	3169	100 do	bro pek	5000	23 bid
291		3172	46 ch	pek	3680	22 bid
292		3175	22 do	pek sou	1760	19 bid
295	Wyamita	3184	9 do	bro pek	900	out
296		3187	8 do	pek	720	out
299	Mawiliganga-watte	3196	15 do	bro or pek	1425	35

Lot.		Box	Pkgs.	Name.	lb.	c.
300		3199	85 ch	bro pek	7650	22 bid
301		3202	32 do	pek sou	2240	20
202		3205	7 do	dust	728	15
305	Degaloya	3214	85 hf-cb	bro pek	4675	[illegible]9 bid
306		3217	60 do	bro or pek	3000	34 bid
307		3220	102 do	pe	5100	30 bid
308		3223	34 do	pek sou	1700	22 bid
309	Ingoya	3226	22 ch	bro tea	1980	10 bid
310	S V in est. mark	3229	15 do	dust	1200	15
312		3235	7 do	pek fans	742	18
313	M A in est. mark	3238	23 hf-ch	dust	1840	14
314	B G	3241	15 do	bro pek	750	30
316		3247	23 do	pek sou	1035	17
320	Memorakande	3259	16 hf-ch	dust	1280	16
322	Relugas	3265	7 cb	dust	1135	16
323	Tymawr	3268	19 hf-ch	bro or pek	1140	43
324		3271	33 do	or pek	1815	36
325		3274	38 do	pek	1900	31
326		3277	38 do	pek sou	1900	28
327	Ella Oya	3280	16 ch	br pek	1600	30
328		2383	15 do	pek	1275	21 bid
329		3286	15 do	pek sou	1200	19 bid
330		3289	12 do	fans	7.0	14 bid
331	Erlsmere	3292	34 hf-ch	bro or pek	1972	34
332		3295	11 ch	or pek	880	32 bid
333		3298	24 do	pek	1872	30
338	Agra Oy	3313	30 do	or pek	2 00	25 bid
339		3316	23 do	bro pek	2300	27
340		3319	9 do	bro or pek	810	31
341	H G M	3322	22 do	bro pek	2090	20
342		3325	39 do	pek	3432	21
343		3328	16 do	pek sou	1360	18
344		3331	32 hf-cb	bro pk fans	1430	14
345	P in est. mark	3334	10 ch	pek sou	900	33 bid
346	W H	3337	18 do	pek sou	1620	27 bid
347	Dollawella	3340	17 hf-ch	bro pek	1017	out
348		3343	31 cb	pek	3092	out
349	Mansfield	3346	48 hf-ch	bro pek	2880	45
350		3349	26 ch	pek	2340	31 bid
351		3352	13 do	pek sou	1105	25 bid
352		'	10 bf-ch	dust	90	16
353	Nakiadeniya	3358	28 ch	br pek	2.20	23 bid
354		3361	27 do	pek	2160	21 bid
355		3364	12 dc	br pek fans	1230	17
356	C P H, Galle in est mark	3367	10 do	br pek	1300	25 bid
357		3370	15 do	pek	1350	19 bid
258		3373	10 do	pek sou	900	15
360	B	3379	15 bf-ch	bro pk fans	1122	12
367	Forest Creek	3400	20 cb	bro or pek	2000	47
368		3403	34 do	br pek	3400	37
369		3406	35 do	br pek	3500	39
370		3409	15 do	or pek	1350	40
371		3412	21 do	pek No. 1	1890	33
372		3515	30 do	pek No. 2	2700	29
373	Madulkelle	3418	14 do	br pek	1397	27
374		3421	9 do	pek	807	22 bid
375	St. Pauls	3424	30 hf ch	br pek	1650	48
376		3427	52 do	pek	2600	36 bid
377		3430	34 do	pek sou	1428	30 bid
378	Coreen	3433	36 bf-cb	bro or pek	2052	31 bid
379		3436	23 cb	or pek	1978	36 bid
380		3439	27 do	pek	2268	30 bid
381		3442	10 do	pek sou	760	24 bid
383	Amblakanda	3448	21 do	bro pek	2100	23 bid
384		3451	18 do	pek	1440	22 bid
385		3454	14 do	pek sou	1120	16 bid
387	Queensland	3460	15 hf-ch	bro or pek	705	56
388		3463	8 cb	bro pek	720	39
389		3466	16 do	pek	1280	30
392	Bandara Eliya	3475	30 do	bro or pek	1500	57
393		3478	27 do	or pek	1215	46
394		3481	39 do	pek	1638	37 bid
395		3484	24 do	pek sou	1008	35
398	Passara Group	3493	17 ch	or pek	1 60	32
399		3496	29 do	bro or pek	2900	32
400		3499	39 do	pek	3150	29
401		3502	14 do	pek sou	1260	22
402	Elteb	3505	27 do	bro pek	2700	29 bid
403		3508	28 do	pek	2520	27 bid
404		3511	26 do	pek sou	2340	22 bid
405		3514	9 do	dust	900	18
406	Geragama	3517	33 do	br pek	2850	21 bid
407		3520	26 do	pek	2 40	17 bid
408		3523	19 do	pek sou	1615	14 bid
409		3526	33 do	bro pek	2970	22
410		3529	25 do	pek	21 5	16 bid
411		3532	18 do	pek sou	1440	14 bid
412		3535	36 do	bro pek	34.0	21 bid
413		3538	25 do	pek	2250	16 bid
414		3541	30 do	pek sou	2550	14 bid
415	Dooroomadella	3544	27 do	bro pek	2430	14 bid
416		3549	10 do	pek	850	14 bid
417		3550	21 hf-cb	bro or pek	1050	out

Lot		Box.	Pkgs.	Name.	lb.	c.
425	Robgill	3574	12 cb	pek sou	1080	25
426		3577	12 do	dust	1200	16 bid
427	Erlsmere	3580	54 hf-ch	bro or pek	3132	27 bid
428	Adisham	3583	56 do	bro or pek	3080	35 bid
429		3586	31 do	or pek	1395	36 bid
430		3589	18 do	pek	1310	30 bid
431		3592	12 do	pek sou	1020	28
432		3595	13 do	bro mixed	715	10
433		3598	9 do	dust	810	15
434	Pallagodda	1	11 ch	bro or pek	1100	25
435		4	34 do	bro pek	3400	37
436		7	27 do	or pek	2430	32
437		10	18 do	pek	1530	31
238		13	20 do	pek sou	1800	31
439	Gampah	16	40 do	bro or pek	4400	33 bid
440		19	23 do	or pek	2185	33 bid
441		22	58 do	pek	4930	37
442		25	32 do	pek sou	2580	25 bid
444	Carfax	31	17 do	bro or pek	1700	50
445		34	22 do	or pek	1980	34 bid
446		37	21 do	pek	1890	32
447	B P C	40	40 hf-ch	dust	3000	1[illegible] bid
448		43	11 ch	sou	990	11

Messrs Somerville & Co.—

[292.460 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
						27 bid
1	Lawrence	64	12 ch	bro pek	1200	18 bid
2		67	24 do	pek sou	1800	29
3	Rayigam	70	25 do	bro pek	2375	25
4		73	19 do	or pek	1520	25
5		76	23 do	pek	1760	22
6		79	20 do	pek sou	1800	30
7	Oonakande	82	23 hf ch	bro pek	1150	27
8		85	23 do	pek	1035	19
9		88	18 ch	sou	1260	12 bid
11	Mousakanda	94	16 do	pek	1440	20 bid
12	Ayisawella	97	20 ch	bro pek	2000	17 bid
13		100	28 do	pek	2380	14 bid
14		103	18 do	pek sou	1440	22 bid
15	Ferriby	106	23 do	bro pek	2 70	21
16		109	22 do	pek	1760	17
17		112	13 do	pek sou	975	22 bid
21	Bodava	124	17 hf-ch	bro pek	935	24
22		127	8 ch	pek	760	19
23		130	9 do	pek sou	720	20 bid
26	Wilpita	139	20 do	bro pek	2000	19 bid
27		142	12 do	pek	1200	52
32	Marigold	157	46 hf ch	bro or pek	2530	44
33		160	39 do	or pek	1833	33
35	Moraella	166	19 hf ch	or pek	1045	28
36		169	14 ch	pek	1260	24
37		172	9 do	pek sou	720	51
38	Annandale	175	15 bf ch	bro or pek	795	41
39		178	24 do	or pek	1200	34
40		181	22 do	pek	1078	29
41		184	22 do	pek sou	1100	25 bid
46	Karangalla	199	12 ch	bro pek	1260	21
47		202	12 do	pek	1080	18
48		205	9 do	pek sou	810	38 bid
49	Agra Elbedde	208	27 hf ch	bro or pek	1620	41
50		211	30 do	or pek	1500	36
51		214	42 do	pek	1890	40
52	Mt Vernon	217	29 do	pek	2668	36
53		220	22 do	pek A	1848	30
54	R K P	223	13 do	bro pe0	1170	22
55		226	8 do	bor or pek	880	29
56		229	14 do	pek	1120	30
59	Kelani	238	30 ch	bro pek	2700	23 bid
60		241	16 do	bro or pek	1700	25
61		244	30 do	pek	2400	22
62		247	12 ch	pek sou	900	16
63		250	6 do	dust	720	25 bid
64	Harrangalla	253	15 do	bro pek	1350	28
65		256	26 do	pek	2080	18 bid
66		259	10 do	sou	800	17
67		262	10 hf-ch	dust	750	20
68		265	7 ch	bro pek fans	700	18 bid
69	Mahaousa	268	65 ch	bro pek	6500	19 bid
,,		,,	64 do	do	6400	16 bid
70		271	62 do	pek	4960	13 bid
71		274	79 do	pek sou	5925	23 bid
72	Eewadugama	277	7 do	bro pek	770	20 bid
76	Newburgh	289	11 do	bro pek	1012	24 bid
77		292	13 do	pek	975	25 bid
80	Mary Hill	301	29 hf ch	bro pek	1595	20 bid
81		304	35 do	pek	1750	17 bid
82		307	22 do	pek sou	1100	25 bid
83	Kallebokka	310	35 ch	bro pek	3500	24 bid
84		313	27 do	bro or pek	2754	25 bid
85	Dalukoya	3 6	21 hf ch	or pek	1155	20 bid
86		319	28 do	pek	1540	24
91	Polgahakande	334	24 do	bro pek	2400	20 bid
92		337	16 do	pek	1440	16 bid
93		340	17 hf-cb	pek sou	1445	16
94		343	5 do	dust	700	23 bid
95	Koladeniya	346	35 do	bro pek	1750	19 bid
96		349	16 do	pek	1280	12 bid
97		352	17 do	pek sou	1275	29
114	Rayigam	403	21 ch	bro pek	1995	26
115		406	16 do	or pek	1280	23 bid
116		409	18 do	pek	1440	22
117		412	15 do	pek sou	1350	25 bid
119	Beausijour	418	13 do	bro pek	1170	22
120		421	13 do	pek		14 bid
123	I P	430	2 ch	pek sou	1810	16
124		433	28 bf ch	dust	2436	22 bid
125	Mourovia	436	41 do	bro pek	4100	19 bid
126		439	36 do	pek	3420	
127		442	20 do	pek sou	2000	3
138	Thia Sholah	475	16 hf ch	bro or pek	880	29
139		478	16 do	pek	848	33
140	Ladrum	481	16 do	bro pek	1600	25
141		484	19 do	o pek	1900	22
142		487	19 do	pek	1900	16
143		490	13 do	pek sou	1300	24 bid
144	Mary Hill	493	19 bf ch	bro pek	1045	19 bid
145		496	25 do	pek	1250	20 bid
147	Mt Temple	502	23 ch	bro pek	1955	13 bid
148		505	40 do	pek	3080	22 bid
149		508	26 do	or pek	2210	15 bid
150		511	8 do	or pek fans	920	12 bid
151		514	9 do	bro tea	855	18 bid
152	Ladysmith	517	35 do	bro pek	3150	17 bid
153		520	18 do	pek	1260	14 bid
154		528	18 do	pek sou	1260	25 bid
155	Oonanagalla	526	24 do	bro or pek	2100	24 bid
156	Galphele A	529	28 do	bro or pek	2800	23 bid
159		538	14 do	pek	1120	23 bid
163	Galphele B	550	29 do	bro or pek	2900	23 bid
164		553	10 do	or pek	900	25
166		559	20 do	pek	1600	23 bid
170	Avisawella	571	24 do	pek	2040	17 bid
171	Neboda	574	15 do	bro or pek	1500	30
172		577	44 do	bro pek	4400	23 bid
73		580	8 do	pek	720	24
176	Neuchatel	589	48 do	or pek	4080	28
177		592	29 do	bro or pek	3045	25 bid
178		595	23 do	pek sou	1810	22
180	Fairfield	601	25 ch	bro pek	2500	39
181		604	20 bf cb	bro or pek	1000	56
182		607	15 ch	or pek	1200	33
183		610	37 do	pek	3145	33
184		113	14 do	pek sou	1330	25 bid
185		116	11 hf ch	fans	770	17
187	Hanwella	622	16 do	or pek	800	24
188		625	16 do	pek	800	19 bid
194	Nyanza	643	8 ch	bro pek	800	35
195		646	9 do	or pek	810	33
196		649	13 do	pek	1300	31
199	Havillaland	658	16 do	sou	1280	8
201		664	17 do	pek fans	1700	12 bid
203	G A	670	18 do	dust	1440	16
204	Lower Dikoya	673	13 do	bro or pek	702	24 bid
205		676	22 ch	bro pek	2[illegible]0[illegible]	21 bid
206		679	10 do	pek	1000	18 bid
207	Columbia	682	46 hf ch	or pek	2070	33 bid
208		685	11 do	bro pek	715	35
217	Batooloya	712	15 hf ch	bro pek	840	14 bid
220		721	12 cb	pek A	1200	12 bid
221		724	18 do	pek s0u	1776	out
222	G W	727	10 do	pek	830	out
223		730	11 do	pek sou	935	20 bid
224	Rambodde	733	18 hf ch	bro or pek	1080	36
225		736	36 do	or pek	1620	32
228		745	19 do	pek sou	855	22
230	Ambalawa	751	28 do	bro pek	1344	19 bid
231		754	9 ch	pek	765	17 bid
232		757	9 do	sou	720	15 bid
233	Yarrow	760	48 bf ch	bro or pek	2880	27 bid
234		763	58 do	or pek	2610	24 bid
235		766	116 do	pek	5220	22 bid

[Mr. E. John.—208,747 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Gingranoya	80	11 ch	pek sou	935	22
3		86	11 hf ch	dust	935	17
4	Poilakande	89	39 ch	bro pek	3900	23
5		92	24 do	pek	2160	9
6	Bittacy	95	14 do	bro pek	1400	37 bid
7		98	12 do	pek	1080	25
11	St. John's	110	25 hf-ch	bro or pek	1450	61
12		113	36 do	pek	1872	39
16	Ottery	125	15 ch	bro or pek	1425	34 bid
17		128	11 do	or pek	935	39
18		131	20 do	pek	1600	32
19		134	10 do	sou	750	24
20	Glasgow	137	28 do	fans	2660	23
21	Dalhousie	140	18 hf cb	bro pek	900	40 bid
23		146	45 do	pek No. 1	2025	26 bid

Lot.		Box.	Pkgs.	Name	lb.	c.
26	Agra Ouvah	125	23 hf ch	hro or pek	1426	58
27		158	50 do	hro pek	3000	34 hid
28		161	16 ch	pek	1536	37
29	Glasgow	164	56 do	hro or pek	4180	44 hid
30		167	31 do	or pek	2170	53
31		170	23 do	pek	1955	38 bid
32		173	17 do	pek sou	1615	39
33	N D	176	9 do	pek No 2	810	17
34	Eton	179	25 hf ch	hro or pek	1375	44 hid
35		182	12 ch	pek	1200	35 hid
37	Mahanilu	188	16 do	or pek	1312	33
38		191	32 do	hro or pek	3200	29 hid
39		194	15 do	pek	1305	26 bid
40		197	10 do	pek sou	850	24
41		200	16 hf-ch	hr pek fans	1120	26
42	Syston	203	35 ch	bro pek	3325	24
43		206	26 do	pek	2080	20
44		209	17 do	pek sou	1360	20
47	G F R, in estate mark	218	20 do	hro pek	1900	27 bid
48	Mahapahagalla	221	16 do	hro pek	1600	24 hid
49		224	22 do	pek	1870	20 hid
52	Y	233	8 do	red leaf	720	8
53	Elston	236	19 do	or pek	1710	45
54		239	20 do	pek	1700	34
55		242	32 do	pek sou	2880	29
56		245	16 hf-ch	dust	1360	17
57	Kadienlena	248	25 ch	congou	2375	10
58	Cabin Ella	251	9 do	or pek	720	33
59		254	12 do	hro or pek	1200	32 hid
60		257	15 do	pek	1200	26
62	Gansarapolla	263	36 hf-ch	bro pek	1980	27 bid
63		266	11 ch	or pek	880	27 bid
64		269	25 do	pek	2125	21 bid
65		272	18 do	pek sou	1530	18 bid
66	Kotuagedera	275	52 do	bro pek	4680	28
67		278	38 do	pek	3040	20 hid
69	Rookwood	284	8 do			
			1 hf-ch	hro or pek	859	out
70		287	12 ch	pek sou	864	20
72	Brownlow	293	58 hf-ch	bro or pek	3074	31 hid
73		296	27 ch	hro pek	2268	36
74		299	47 do	pek	3995	28
75		302	10 do	pek sou	850	19
76	M G	305	9 do	unas	900	17
77		308	16 do	fans	1280	21
79	Kadien Lena	314	20 hf-ch	dust	1500	16
82	Kotuagedera	323	12 do	bro pek fans	840	17
83	G L	326	10 ch	pek sou	800	15
87	Iona	338	34 hf ch	bro or pek	1970	49
88		341	38 ch	or pek	3420	46 hid
89	New Angamana	344	10 do	hro or pek	1000	29
90		347	11 do	or pek	1000	22 hid
91		350	11 do	pek	1000	17 hid
92		353	13 do	pek sou	1040	16 bid
93	Eladuwa	356	16 do	pek	1440	22
94	Maskeliya	3 9	35 hf ch	hro or pek	1750	37 bid
95		362	35 ch	or pek	3150	35
96		365	50 do	or pek	2700	37
97		368	31 do	pek	3100	36 hid
98	MK, in est. mark	371	6 do	dust	900	16
100	Natuwakelle	377	26 do	hro pek	2600	25 hid
101		380	13 do	pek sou	1170	21 hid
102	B K	383	31 hf-ch	dust	2790	19
107	Mocha	398	28 ch	hro or pek	2800	57
108		401	14 do	or pek	1190	51
109		404	29 do	pek	2610	41 hid
110		407	20 do	pek sou	1600	38
111	Myraganga	410	53 do	bro pek	4770	34
112		413	50 do	bro or pek	4750	24 hid
113		416	77 do	pek	6160	24
114	Callander	419	25 hf ch	bro or pek	1450	40
119	Eton	434	35 do	hro or pek	1925	45 hid
120		437	37 ch	or pek	3145	43
121		440	55 do	bro or pek	3025	44 hid
123	Poilakande	446	58 do	hro pek	5800	20 bid
124		449	45 do	pek	4050	18 hid
125	Wadhurst	452	14 do	pek sou	1200	24
126	Glassaugh	455	27 hf ch	or pek	1431	60
127		458	25 do	bro or pek	1495	46
128		461	21 ch	pek	2100	40 hid
129		464	10 do	pek sou	950	39
130	Gingranoya	467	82 boxes	hro or pek	1640	out
131	Ferndale	470	10 ch	or pek	922	31 bid
132	Maryland	473	7 do	pek	700	16

SMALL LOTS.

E. Benham & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
5	Anchor, in estate mark	56	14 ch	or pek	630	46
9	Ovoca	68	15 hf ch	or pek	675	43

[Messrs. Forbes & Walker.

Lot		Box.	Pkgs.	Name	lb.	c.
2	W H I	2305	6 hf ch	hro pek	300	20
3		2308	11 do	pek	495	17
8	Clarendon	2323	3 ch	sou	240	24
9		2326	2 hf ch	pek dust	160	15
17	Hatton	2350	6 ch	pek sou	480	26
18	Glencorse	2353	5 ch	bro or pek	500	28 hid
24		2371	1 do	dust	170	12
25	M'Golla	2383	2 ch	sou	190	17
30		2389	2 do	red leaf fans	190	7
34	Nillomallay Inv. No. 11, O B E C, in est. mark	2401	4 ch	sou	280	17
35		2404	3 hf ch	dust	270	14
40	Gallawatte	2419	12 do	hro or pek	660	22 hid
43		2428	5 do	dust	425	15
44		2431	6 do	pek fans	420	15
45	Gallawatte	2434	6 do	hro or pek	330	20
46		2437	3 do	pek	255	15
52	B D W G	2455	3 hf ch	dust	270	17
62	Ascot	2485	8 ch	pek sou	40	18
64		2491	7 do	do No. 2	630	15
65		2494	4 hf ch	dust	380	15
73	C N N	2518	9 ch	pek sou	675	22
74		2521	2 do	bro tea	150	19
81	Pandara Eliya	2542	3 hf ch	dust	255	19
86	Lahookellie	2557	3 ch	young hyson	336	43
87		2560	3 do	hyson No. 1	300	39
91	Lochiel	2572	7 ch	pek	560	withd'n
93	Ingurugalla	2578	3 ch	red leaf	270	
101	Tempo	2602	7 ch	hro pek fans	665	18
106	Stamford Hill	2617	5 hf ch	dust	425	16
120	Carberry	2659	2 ch	pek sou	180	17
121		2662	3 do	hro tea	270	14
122	G K	2665	4 ch	hro tea	360	15
123		2678	2 do	dust	280	15
136	Matale	2707	4 hf-ch	fans	280	16
137		2710	3 do	dust	240	16
138	New Galway	2713	11 do	hro pek	660	56
140		2719	1 do	pek sou	50	29
142	L N S, in est. mark	2725	1 do	hro pek	37	25
143		2728	1 do	dust	63	15
144		2731	3 ch	pek sou	252	8
149	Nahalma	2746	6 hf ch	dust	480	16
156	Udahage M, in estate mark	2767	12 do	or pek	660	23
164	K P W	2791	6 do	dust	510	17
167	Tamhiligalla	2800	2 ch	pek sou	190	19
168		2803	1 do	hro pek fans	115	18
169		2806	1 do	dust	150	15
174	S Roeberry	2821	7 ch	pek sou	612	33
178	R Roeberry	2833	7 ch	pek sou	620	32
182	Palmerston	2845	2 hf ch	pek sou	160	31
190	T B, in estate mark	2869	2 ch	fans	180	16
211	Polatagama	2932	6 ch	hro pek fans	600	18
212		2935	4 do	dust	600	14
216	Ruanwela	2947	7 ch	pek sou	630	16
217		2950	5 hf ch	dust	375	15
222	Weoya	2965	3 ch	dust	450	16
228	Clunes	2983	2 hf ch	dust	180	16
231	Kirklees	2992	3 ch	pek fans	330	24
237	Letchmey	3010	7 hf-ch	pek fans	525	20
240	Killarney	3019	5 do	fans	400	17
245	Ganapalla	3034	3 ch	pek sou	225	14
246		3037	2 hf ch	dust	168	16
260	Dickdella	3079	5 hf-ch	dust	435	15
263	Beaumont	3088	5 do	fans	445	15
265	Hentleys	3094	10 do	or pek	460	25
267		3100	7 ch	pek sou	504	16
268		3103	5 hf-ch	fans	355	17
274	Pine Hill	3121	1 do	sou	58	10
275	Kincora	3124	6 ch	hro or pek	600	42
276		3127	6 do	hro pek	480	40
279		3136	5 do	fans	600	35
281	A S M	3151	9 hf-ch	siftings	628	out
285	Handrokande	3154	5 ch	bro pek	497	22
293	C S G	3178	2 do	hro mixed	200	8
294		3181	6 hf-ch	dust	480	16
297	Wyamita	3190	4 ch	pek sou	320	14
298		3193	1 hf ch	dust	80	16
311	S V in est. mark	3232	3 do	hro mixed	300	10
315	B G	3241	12 hf ch	pek	600	20
317		3250	3 do	red leaf	135	7
318		3253	2 do	dust	140	16
319		3256	5 do	congou	225	12
321	Poengalla	3262	6 do	dust	540	15
336	Ookoowatte	3307	1 ch	dust	105	16
337		3310	2 do	pek fans	260	17
359	C P H, Galle in est mark	3376	4 do	congou	340	12

Lot	Box.	Pkgs.	Name	lb.	c.
361 Mount Pleasant	3382	4 hf-ch	bro pek	220	29
362	3385	4 do	pek	200	18
363	3388	4 do	pek sou	180	13
364	3391	2 do	fans	120	10
365	3394	1 do	dust	85	14
366	3397	1 do	unast	55	11
382 Coreen	3445	6 do	dust	468	18
386 Amblakanda	3457	4 ch	dust	400	15
390 Queensland	3469	3 do	sou	270	6
391	3472	3 hf-ch	br pek dust	225	18
396 BandaraEliya	3487	8 do	pek fans	480	32
397	3490	1 do	dust	85	24
418 East Holyrood	3553	1 do	bro or pek	34	36
419 West Holyrood	3556	1 do	or pek	39	35
420 Forres	3559	1 box	bro or pek	5	42
421 Eildon Hall	3562	1 ch	or pek	100	29
423 Rajawatte	3568	2 ch	bro mixed	190	12 bid
424	3571	4 hf-ch	dust	320	16
443 R E	28	3 ch	bro mixed	252	15

[Messrs. Somerville & Co.]

Lot,	Box.	Pkgs,	Name	lb.	c,
10 Oonankande	91	5 hf-ch	dust	300	16
18 Ferriby	115	1 ch	sou	80	10
19	118	4 do	fans	420	15
20	121	1 do	dust	155	15
24 Bodava	133	1 ch	dust	140	15
25	136	1 do	red leaf	72	6
28 Wilpita	145	6 ch	pek sou	545	14
29	148	1 do	fans	100	12
30	151	1 do	dust	150	12
31	154	1 do	red leaf	95	7
34 Marigold	163	13 hf ch	pek	650	44
42 Annandale	187	10 do	sou	460	20
43 S F D	190	5 ch	con colinda packages	535	12
44	193	7 hf ch	dust	588	14
45	196	1 ch	red leaf colin̄a dia packages	142	10
57 R K P	232	8 ch	pek sou	600	21
58	235	3 do	dust	360	16
73 Eewadugama	280	5 ch	pek	500	27 bid
74	283	4 ch	pek	320	21
75	286	1 do	dust	110	14
78 Newburgh	295	7 ch	pek sou	525	19 bid
79	298	2 hf-ch	dust	160	15
98 Koladeniya	355	5 ch	dust	550	16
99	358	3 hf ch	bro tea	165	9
100	361	2 ch	sou	140	7
101 Patulpana	364	9 hf ch	pek	450	18
102	367	7 do	pek sou	350	14
103	370	12 do	bro pek	660	19 bid
104	373	1 do	sou	55	12
105 P P	376	2 hf ch	bro pek	100	25
106	379	4 do	pek	220	17
107	382	2 do	pek sou	100	13
108 W S	385	2 hf ch	bro or pek	100	44
109	388	5 do	bro pek	300	31
110	391	1 do	bro pek	50	28
111	394	5 ch	pek	500	26
112	397	5 do	pek sou	450	22
113	400	1 hf ch	dust	73	15
118 K, in estate mark	415	1 ch	bro pek	105	24
121 Beausejour	424	4 ch	pek sou	300	14 bid
122	427	2 do	fans	200	17
128 Monrovia	445	3 ch	dust	480	16
131 A	454	2 ch	bro pek	200	21
132 B	457	1 ch	pek	90	23
133 C	460	2 ch	bro or pek	190	25
134 D	463	2 ch	bro pek	170	23
135 L	466	2 ch	bro pek	200	23
136 R	469	1 ch	bro pek	102	25
137	472	4 do	bro pek fans	242	15
146 Mary Hill	499	12 hf-ch	pek sou	600	20 bid
157 Galphele A	532	6 ch	or pek	540	27
158	535	1 ch	bro pek	90	31
160	541	3 do	pek sou	270	18
161	544	1 do	sou	80	13
162	547	2 do	fans	300	12 bid
165 Do B	556	1 ch	bro pek	80	21
167	562	5 do	pek sou	450	18
168	565	1 do	sou	80	18
169	568	2 do	fans	300	12 bid
174 Neboda	583	7 ch	pek sou	560	19
175	586	3 hf ch	dust	255	15

Lot	Box	Pkgs	Name	lb	c
179 Neuchatel	598	4 hf ch	dust	400	15
186 Fairfield	619	2 hf ch	dust	190	15
189 Hanwella	628	3 hf-ch	pek sou	135	14
190 Bope	631	10 hf ch	bro pek	550	22 bid
191	634	11 do	or pek	550	22 bid
192	637	11 do	pek	550	20
193	640	6 do	bro sou	270	15
197 Nyanza	652	3 ch	pek sou	270	25
198	655	1 do	dust	100	17
200 Havilland	661	2 hf ch	dust	180	14
209 W, in estate mark	688	1 ch	bro pek	110	22
214	703	4 ch	red leaf	340	19
215	706	3 do	sou	240	16
216 Batocloya	709	3 ch	bro or pek	420	13
210	691	1 ch	bro pek	100	13
211	694	3 do	pek sou	285	8
212	697	1 ch 1 hf ch	dust	200	10
213 Allakolla	700	4 hf ch	dust	400	17
218	715	6 ch	or pek	612	19
219	718	7 do	pek	630	19
226 Rambodde	739	15 hf ch	pek No. 1	675	27
227	742	13 do	pek No. 2	585	27
229	748	3 do	fans	210	16
236 Yarrow	769	12 hf ch	pek sou	540	19
237 Y, in estate mark	772	6 hf ch	dust	510	14

[Mr. E. John.]

Lot.	Box.	Pkgs.	Name.	lb.	c.
2 Gingranoya	83	9 hf ch	fans	630	17
8 Bittacy	101	6 ch	pek sou	540	30
9 D G M	104	10 hf-ch 1 ch	or pek	520	51
10 Great Western	107	1 do	pek	79	28
22 Dalhousie	143	10 hf ch	or pek	450	40
24	149	13 do	pek No. 2	585	21
25	152	8 do	bro pek fans	520	18
36 Eton	185	1 do	dust	85	16
45 Syston	212	1 ch	dust	150	15
46	215	1 do	fans	120	14
50 W H	227	4 hf ch	pek sou	192	25
51	230	3 do	dust	258	16
61 Cabin Ella	260	7 ch	pek sou	560	23
68 Iona	281	3 hf ch	bro or pek fans	240	18
71 Rookwood	290	6 ch	pek dust	528	16
78 EK, in est. mark	311	3 do	bro mix	270	10
80 Kotuagedera	317	3 do	pek sou	270	15
81	320	3 hf ch	dust	270	17
84 G L	329	7 do	dust	525	16
85 A G	332	2 hf ch	bro pek	104	23
86	335	3 ch	pek	246	19
99 Pitioya	374	3 do	sou	240	18
122 Eton	443	1 hf ch	dust	85	16

CEYLON COFFEE SALES IN LONDON

(From Our Commerical Correspondent.)

MINCING LANE, Nov. 16.

"Kanagawa Maru."—OBEO in estate mark, Kondesalle, Ceylon O F, 13 bags sold at 87s.

"Prometheus."—Craig 1, 1 cask sold at 91s; ditto 2, 2 casks sold at 70s; ditto P, 1 bag sold at 105s; ditto T, 1 barrel sold at 44s; JMK in estate mark, 1 tierce sold at 49s; 25 bags sold at 42s; ditto P, 3 bags sold at 44s.

"Orissa."—T, 1 cask sold at 47s; 1 bag sold at 67s; 3 bags sold at 55s; 2 bags sold at 49s; 1 bag sold at 38s.

"Derbyshire."—Triage, 1 cask and 1 barrel sold at 47s; ditto 2, 1 bag sold at 64s; BGT in estate mark, 1 barrel sold at 45s.

No Cocoa or Cardamom sales this week.

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALE.

No. 47. COLOMBO, DECEMBER 17, 1900. PRICE:—12½ cents each 3 copies, 30 eents; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[13,750 lb.]

Lot.		Box.	Pkgs,	Name.	lb.	c.
2	Battalgalla	48	26 ch	or pek	2470	30 bid
3		51	20 do	pek	1800	26 bid
4		54	13 do	pek sou	975	26
6	Horns-	60	20 bf ch	bro or pek	900	51 bid
7		63	27 ch	or pek	2565	35
8		66	19 do	pek	1710	33 bid
9		69	15 do	pek sou	1200	25 bid
10	Ovoca	72	21 bf ch	bro or pek	1050	49

Messrs. Forbes & Walker

[723,111 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Trewardena	46	10 ch	bro pek	1000	13
2		49	13 do	pek	1170	14
		52	9 do	pek sou	765	9
13	Rockside	82	7 cb	bro pek fans	840	26
14	Naseby	85	43 hf-ch	bro or pek	2537	54
15		88	25 do	or pek	1150	64
16		91	32 do	pek	1536	47
17		94	17 do	pek sou	850	43
18	Ingrogalla	97	28 ch	bro pek	2800	31
19		100	22 do	pek	2870	24
20	Grange Garden	103	21 ch	bro or pek	2100	24
21		106	29 do	pek	2900	22
22	Lindupatna	109	16 ch	bro or pek	1680	48 bid
23		112	23 do	bro pek	2346	37 bid
24		115	21 do	pek	1848	36 bid
29	Harrington	130	14 hf ch	bro or pek	700	64
30		133	13 do	or pek	1170	38
31		136	21 do	pek	1890	34
34	O B E C, in est. mark, New Market	145	46 ch	bro pek	5060	43
35		148	20 do	or pek	1880	40
36		151	25 do	pek	2300	35
37		154	10 do	pek sou	940	29
39	Great Valley Ceylon, in est mark	160	60 hf ch	bro or pek	3300	35 bid
40		163	17 do	or pek	1415	32 bid
41		166	62 do	pek	5270	31
42		169	34 do	pek sou	2550	21 bid
43		172	12 do	sou	1020	15 bid
44		175	10 do	dust	850	18
45	O B E C, in est. mark, Summer Hill	178	35 do	bro or pek	2100	86
46		181	20 do	or pek	1740	60
47		184	22 do	pek	1980	54
48		187	20 do	pek sou	1600	44
49	Shrubs Hill	190	49 ch	bro pek	5243	28 bid
50		193	51 do	or pek	4437	30
51		196	43 do	pek	3655	27
52		199	17 do	bro pek	1819	28 bid
53	O B E C, in est. mark Sindumally	202	85 ch	bro pek	7735	27 bid
4		205	66 do	pek	4620	22 bid
55		208	32 do	pek sou	1920	18 bid
56		211	28 do	fans	2940	out
57		214	22 ch	dust	1716	15 bid
58	Elfindale	217	25 ch	bro pek	2500	21 bid
59		220	26 do	pek	2340	22 bid
60		223	21 do	pek sou	1890	15 bid
65	Locbiel	238	24 hf ch	dust	2010	18
66	Weyungawatte	241	25 ch	bro pek	2500	31
67		244	23 do	pek	2185	24 bid
68		247	20 do	pek sou	1500	21
75	Y	268	9 ch	pek sou	729	12
76	Kelaneiya and Braemar	271	22 ch	bro or pek	2200	27
77		274	19 do	or pek	1900	23
78		277	14 do	pek	1400	20
82	Middleton	289	23 hf ch	bro or pek	1265	54 bid
83		292	35 ch	bro pek	3325	39
84		295	41 do	pek	3280	35
86	Tymawr	301	17 hf ch	bro or pek	1020	37 bid
87		304	20 do	or pek	1100	36
88		307	22 do	pek	1100	34
89		310	21 do	pek sou	[illegible]050	27
92	Erlsmere	319	26 hf-ch	bro pek	14[illegible]6	28
93		322	15 ch	pek	[illegible]	27
96	Ascot	331	63 ch	bro pek	6070	20 bid
97	Pansalatenne	334	48 ch	bro pek	4800	20
98		337	29 do	pek	3120	17
99		340	25 do	pek sou	1875	15
101	Maldeniya	346	13 cb	bro pek	1300	27
102		349	12 do	pek	1020	21
108	Matale	367	45 hf ch	bro pek	2475	25
109		370	17 ch	pek	1530	24
110		373	11 do	pek sou	990	20
111	Glengariffe	376	31 hf cb	bro or pek	1550	35
112		379	18 do	or pek	774	29 bid
113		382	31 ch	pek	2728	21 bid
114		385	12 do	pek sou	900	17 bid
115		388	11 hf ch	bro or pek fans	715	19 bid
117	Chesterford	394	41 ch	bro pek	3895	30
118		397	35 do	pek	3325	19 bid
119		400	24 do	pek sou	2280	17 bid
120	Queensland	403	8 ch	bro pek	720	40
121		406	11 do	or pek	935	34
122		409	11 do	pek	880	29
124	Macaldeniya	415	20 hf ch	bro pek	1200	30
125		418	17 do	or pek	850	27 bid
126		421	22 do	pek	1100	26 bid
130	Dunbar	433	34 ch	or pek	2754	33
132		439	34 do	pek	2550	34
133		442	15 hf cb	bro pek	750	39
136	Drayton	451	24 ch	or pek	2280	39 bid
137		454	45 do	pek	3825	39
138		457	18 do	pek sou	1530	30
150	Errollwood	493	17 do	bro or pek	935	46
151		496	11 ch	or pek	1045	34 bid
152		499	14 do	pek	1330	
154	Malvern	505	60 hf ch	bro pek	3300	
155		508	35 ch	pek	2450	27 bid
156		511	15 do	pek sou	1050	22
157		514	15 hf ch	dust	1200	
158	Ella Oya	517	17 ch	bro pek	1530	25 bid
159		520	25 do	pek	2125	22
160		523	16 do	pek sou	1280	9
161	E L I N T, in est. mark	526	18 ch	bro pek	1782	21
162		529	48 do	pek	4416	19 bid
163		532	53 do	pek sou	4770	16 bid
164	Maligatenne	535	10 ch	bro pek	10[illegible]0	23
165		538	10 do	pek	9[illegible]	17
171	O B E C, in est. mark Forest Creek	556	54 hf ch	pek dust	3510	33
172		559	38 do	dust	323[illegible]	19
173	F I T	562	26 ch	pek sou	2340	17 bid
174	K P W	565	73 hf ch	bro pek	4015	25
175		568	48 do	bro or pek	2880	22 bid
176		571	47 do	pek	2350	20 bid
177		574	22 do	pek sou	1100	18
183	Vogan	592	89 ch	bro pek	8900	30 bid
184		595	115 do	pek	9775	21 bid
185		598	19 do	pek sou	1520	17 bid
186		601	9 do	bro pek fans	1125	17 bid
191	Clyde	616	42 ch	bro pek	3696	31 bid
192		619	43 do	pek	3698	22 bid
193		622	17 do	pek sou	1360	18 bid
194		625	7 do	bro or pek	805	23 bid
199	Ireby	640	30 hf-ch	bro pek	1653	52
200		643	15 ch	pek	1275	41
201		646	10 do	pek sou	850	38
204	Knavesmire	655	28 hf-ch	or pek	1400	27
205		658	50 ch	bro pek	4750	23
206		661	36 do	pek	2880	22
207		664	19 do	pek	1425	22
208		667	15 hf ch	dust	1200	16
209		670	23 ch	pek sou	1610	19
210	Ardlaw and Wishford	673	19 hf ch	bro or pek	988	43
211		676	20 ch	bro pek	1660	33 bid
212		679	10 do	or pek	750	35
213		682	11 do	pek	868	26 bid
214	S W	685	11 do	fans	1287	15 bid
216	Patiagama	691	17 hf ch	bro or pek	850	47
217		694	9 ch	or pek	765	36
218		697	21 do	pek	1785	23
219		700	17 do	pek sou	1360	19
221	Palmerston	706	16 hf ch	bro or pek	880	51
222		709	16 ch	pek	1440	49
223	Kirklees	712	30 do	or pek	2850	26 bid

Lot.		Box	Pkgs.	Name	lb.	c.
118		827	22 ch	bro pek	1936	26 bid
119		830	40 do	pek	3160	24 bid
120		833	11 hf-ch	dust	1031	15
121	Troup	836	22 ch	pek sou	1980	21 bid
123	G B	842	8 do	bro pek	800	out
124		845	10 do	pek	800	19 bid
126		851	14 hf ch	fans	980	19 bid
128	Kuruwattai	857	14 ch	bro or pek	1050	22 bid
129		860	23 do	pek	1955	21 bid
132	Iona	869	28 hf ch	bro or pek	1563	47
133		872	13 ch	or pek	1170	37 bid
134		875	12 do	pek	960	33 bid
136	Wendura	881	13 do	bro pek	1248	26
137		884	9 do	pek	720	21
142	Waragalande	899	13 do	bro or pek	1300	25
143		902	24 do	bro pek	2400	17 bid
144		905	22 do	pek	1980	17 bid
145		908	15 do	pek sou	1350	18
147	Cabin Ella	914	10 do	bro or pek	1000	35
148		917	11 do	or pek	880	27 bid
150		923	10 hf ch	dust	750	15
151		926	15 do	fans	1050	16
155	Chapelton	938	8 do	dust	720	16
157	St. John's	944	25 do	or pek	1250	58
158		947	29 do	pek	1508	38
159		950	14 do	pek faus	952	30
163	Agra Ouvah	962	36 bf ch	bro or pek	2232	52
164		965	64 do	bro pek	3840	33 bid
165		968	21 cb	pek	2016	38
167		974	30 bf ch	pek fans	2400	17
168		977	9 do	dust	855	15
169	Glasgow	980	40 cb	bro or pek	3000	40 bid
170		983	20 do	or pek	1300	51
171		986	15 do	pek	1275	40
172		989	17 do	pek sou	1581	40
178	Ferndale	7	11 do	or pek	990	26 bid
179		10	8 do	pek No. 1	720	21 bid
180		13	12 do	pek No 2	1080	20 bid
188	Morahela	37	25 do	or pek No. 2	2025	25 bid
189		40	22 do	bro or pek	2200	21 bid
190		43	18 do	pek	1458	20 bid

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
1	G E G	45	4 ch	bro pek	400	14 b d
5	Battalgalla	57	8 do	fans	680	15

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Trewardene	55	2 ch	sou	180	12
5		58	1 do	fans	100	8
6		61	2 do	bro mix	180	7
7	B G F G	64	2 ch	red leaf No. 1	200	16
8		67	3 do	do No. 2	255	15
9		70	1 do	unas	65	38
10	Rockside	73	8 ch	sou	640	22
11		76	6 do	bro mix	510	15
12		79	5 do	dust	675	17
25	Lindupatna	118	8 ch	pek sou	672	25 bid
26		121	5 do	bro pek fans	675	21
27		124	2 do	bro pek No. 2	200	32
28		127	4 do	pek No. 2	352	21
32	Harrington	139	7 ch	pek	630	23
33		142	5 hf ch	or pek fans	350	23
38	O B E C, in estate mark, New Market	157	2 cb	dust	290	14
61	Elfindale	226	5 do	sou	500	10
62		229	5 do	fans	500	10
63		232	2 do	dust	200	23
64	Lochiel	235	3 ch	pek sou	246	17
69	Weyunga-watte	250	2 ch	bro tea	200	16
70		253	2 hf cb	dust	170	16
79	C R D	280	5 ch	pek	450	20
80		283	3 do	sou	240	15
85	Middleton	298	6 bf ch	dust	460	18
91	Erlsmere	316	4 ch	or pek	320	32
94		325	6 do	pek sou	480	21
100	Pansalatenna	343	2 ch	dust	300	13
103	Maldenia	352	8 do	pek sou	672	out
104	Ismalle	355	7 ch	sou	595	12
105		358	2 do	congou	170	10
106		361	3 do	fans	330	10
107		364	4 do	dust	690	14
123	Queensland	412	2 ch	son	190	8
127	Macaldeniya	424	13 hf ch	pek sou	650	20
128		427	2 do	dust	160	16
129	Dunbar	430	10 do	bro or pek	500	46

Lot.		Box.	Pks.	Name	lb.	c.
131		436	11 bf ch	bro pek fans	660	26
134		445	3 ch	pek sou	228	27
135		448	1 do	dust	136	19
139	Drayton	460	1 do	sou	80	19
153	Errollwood	502	6 ch	pek sou No. 2	690	20
166	Maligatenne	541	3 ch	pek sou	270	15
167		544	1 do	do No. 2	90	13
168		547	4 do	unas	400	11
169		550	2 do	fans	220	12
170		553	1 do	dust	150	12
178	K P W	577	6 hf ch	dust	510	16
187	O O R, in estate mark	604	1 ch	bro pek	74	19
188		607	1 hf-cb	pek	42	16
189		610	1 do	pek sou	54	10
190		613	1 do	dust	57	14
195	A	628	6 ch	sou	540	13
196	B, in estate mark	631	4 ch	pek	400	18
197		634	3 do	pek sou	240	15
198		637	6 do	dust	516	9
202	I B Y	649	1 cb	bro tea	95	26
203	F	652	4 bf ch	dust	339	14
215	D	688	8 do	pek dust	688	10
220	Patiagama	703	2 do	dust	170	14
229	Clunes	730	5 bf cb	dust	450	17
230		733	3 do	bro pek fans	135	9
237	Erracht	754	2 ch	or pek No. 1	160	35
241		766	3 do	bro or pek fan	327	17
242		769	1 do	dust	176	11
247	Maha Uva	784	6 hf ch	dust	480	16
248		787	3 do	pek fans	210	27
249	N, in estate mark	790	5 ch	dust	475	10
250	A, in estate mark	793	3 ch	dust	285	9
257	B W D	814	3 ch	unast	300	10
258		817	3 do	red leaf	300	8
259		820	3 hf-ch	dust	240	14
264	Fairlawn	835	4 do	dust	320	17
265	P	838	6 ch	dust	570	10
266	C	841	5 do	dust	475	9
267	Munukattia, Ceylon, in est. mark	844	1 do	sou	95	13
272	Wattawella	859	4 hf-cb	fans	300	15
273		862	5 do	dust	475	15
275	Bogahagoda-watte	868	6 cb	bro or pek	630	20
276		871	4 do	bro pek A	380	26
277		874	6 do	bro pek	600	20
278		877	6 do	pekoe A	570	19
279		880	5 do	pek	475	16
285	Walpita	898	6 do	sou	540	13
286		901	1 do	dust	110	13
292	B B in est. mark	919	5 hf-ch	dust	450	10
293		922	6 do	pk dust	540	10
297	Rosehaugh	934	12 do	young hyson	660	43
298		937	13 do	hyson	650	39
300		943	2 do	siftings	150	11
304	Castlereagh	955	6 ch	pek sou	480	19
305		958	6 hf-cb	fans	420	15
309	Torwood	970	9 do	bro pek fans	540	16
312	Arapolakande	979	6 cb	hyson No. 2	600	33
313		982	2 do	siftings	240	12
317	Mawaliganga-watte	994	3 do	dust	300	14
320	Degaloya	1003	5 hf-ch	dust	425	15
321		1006	10 do	bro tea	550	8
330	Weyunga-watte	1033	3 cb	bro tea	300	15
331		1036	3 hf ch	dust	255	15
336	Tembiligalla	1051	1 ch	pek son	95	21
337		1054	1 do	bro pk fans	120	13
338		1057	1 do	dust	150	15
339	Kotua	1060	4 do	pek	400	17
340		1063	3 do	pek sou	285	15
341		1066	1 do	sou	95	10
342		1069	1 do	dust	120	13
349	Augusta	1090	3 do	sou	285	13
350		1093	4 bf-ch	dust	580	15
351		1096	1 do	dust No. 2	175	15
354	B D W P	1105	6 ch	pek sou	480	21
355		1108	4 do	sou	300	17
359		1120	1 do	bro pek No. 2	90	12
360		1123	1 do	pek No. 2	80	12
361		1126	1 do	pk sou No. 2	80	8
363		1132	5 do	fans	550	20
367	Gallawatte	1144	7 do	pek sou	560	20
370	Halbrawe	1153	2 do	pek	100	18
371		1156	6 do	pek sou	480	15
372		1159	1 do	dust	162	12
373		1162	2 hf ch	red leaf	112	7
381	B in est mark	1186	9 do	pek dust	675	15
382	D in est mark	1189	6 do	pek dust	450	15
386	Zulu Land	1201	7 do	dust	560	15

Lot.		Box.	Pkgs.	Name	lb.	c.
387		1204	9 bf ch	fans	450	18
388		1207	1 do	bro mixed	71	12
392	G T D	1219	10 cb	br pk fans	650	10
393		1222	2 bf-ch	dust	180	14
407	Cooroondoo-watte	1264	5 do	fans	400	15
410	Ellamulla	1273	10 bags	red leaf	500	6
411	Rosebaugh	1276	1 ch	young hyson	90	41
412		1279	1 do	hyson	80	37
413		1282	2 do	hyson No. 2	160	33
414	Harrow	1285	13 bf ch	or pek	606	34
417		1294	6 ch	pek sou	510	23
418		1297	3 hf-ch	fans	225	22
423	Pine Hil	1312	1 ch	sou	55	16
428	Penrbos	1327	2 hf-ch	pek dust	194	13
429		1330	2 do	fans	156	16
435	Polatagama	1348	2 do	dust	300	13
444	U R	1375	5 ch	bro tea No. 1	550	9
445		1378	4 hf cb	bro tea No. 2	320	9
454	B A	1405	1 cb	bro pek	88	20
455		1408	1 do	or pek	79	23
458	Arapolakande	1417	5 do	hyson No. 2	500	33
459		1420	1 do	siftings	120	11
464	Amblangoda	1435	4 do	dust	440	14
	kande	1246	3 cb	pek sou	270	17
159		1249	1 do	red leaf	100	7
162	Charlie Hill	1258	1 hf ch	pek sou	50	9
163		1261	4 do	bro pek fans	280	8
168	N I T	1276	2 bf ch	dust	170	14
169		1279	2 do	fans	130	14
170		1282	6 ch	unas No 1	600	11
171		1285	8 do	unas No 2	640	10
175	Meddegodda	1297	4 hf ch	fans	200	17
176	Romania	1300	5 cb	bro pek	530	18 bid
177		1303	1 do	or pek	98	20 bid
178		1306	5 do	pek	410	10 bid
179		1309	5 do	pek sou	500	14
184	Kerenvilla	1324	6 ch	bro pek	600	23
186		1330	5 do	pek sou	500	14
187		1333	2 do	pek fans	200	8
188		1336	2 do	red leaf	200	6
189	P T N, in estat mark	1339	3 hf cb	bro pek	168	17
191		1345	2 do	pek fans	124	8
192		1348	2 do	pek dust	180	12
196	Ravenscraig	1360	1 ch	pek sou	90	14
197		1368	5 bf-cb	fans	400	16
201	Killin	1375	3 ch	bro mix	285	8
202		1378	4 bf-cb	dust	328	15
209	Roseneath	1399	7 cb	pek	630	25
213	Auburn	1411	5 ch	pek sou	400	16
227	California	1453	7 cb	bro pek	658	24
243	Annandale	1501	6 hf cb	bro pek	378	27

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
4	Venture	784	5 ch	red leaf	400	7
8	Blinkbonnie	796	8 cb	pek sou	656	33
9	Horagoda	799	6 cb	bro or pek	600	27
10		802	7 do	or pek	630	30
12		808	7 ch	pek sou	630	18
13		811	1 do	dust	100	14
15	Welgampola	817	11 bf ch	pek	550	19
16		820	8 do	pek sou	400	16
17		823	5 do	sou	250	14
21	Salawe	835	5 ch	unas	525	16
22		838	3 do	dust	465	16
23	Mahatenne	841	3 cb	bro or pek	300	34
26		850	3 do	pek sou	270	17
27		853	1 do	dust	100	16
34	S R K	874	3 cb	bro tea	300	9
38	Carney	886	4 bf ch	sou	200	9
39		889	2 do	dust	100	17
43	Holmsdale	901	1 cb	pek sou	90	18
44		904	4 do	fans	400	15
45		907	2 do	dust	200	14
53	Labuduwa	931	5 cb	pek	507	21
57	Mukuluway	943	4 hf-ch	bro pek	200	42
58		946	6 do	pek	282	26
59		949	9 do	sou	432	18
60		952	2 do	fans	116	12
61	Beruketiya	955	3 ch	bro pek	336	29
62		958	4 do	pek	368	22
63		961	1 bf ch	pek fans	79	16
68	Hurstpierpoint	976	6 cb	bro pek	630	25
69		979	5 do	pek	470	15
70		982	2 do	pek sou	192	8
71		985	1 do	dust	140	12
73	H J S	991	7 bf cb	pek	420	22
77	Mary Hill	1003	14 bf-cb	pek sou	560	18
78		1006	4 do	dust	300	13
83	Cburcb Hill	1021	3 hf cb	or pek	150	22
84		1024	4 do	bro pek	200	15
85		1027	3 do	pek sou	135	11
86		1030	1 do	dust	55	12
87		1033	1 do	fans	45	10
92	Kananka	1048	6 ch	sou	480	13
102	Labugama	1078	8 bf-cb	fans	520	14
104	Kelani	1084	10 cb	sou	650	15
105	Harankaha tenne	1087	8 hf-ch	bro pek	440	26
106		1090	10 do	pek	500	20
107		1093	5 do	pek sou	245	18
108		1096	3 do	fans	158	12
109		1099	3 do	bro tea	159	9
110		1102	1 do	dust	79	14
111	P, in estate mark	1105	2 ch	bro tea	220	15
114	Alakolawewa	1114	10 bf ch	pek	500	35
115		1117	11 do	pek sou	506	33
116		1120	4 do	bro pek fans	264	33
117		1123	4 do	pek dust	300	17
121	Lyndburst	1135	8 hf ch	pek sou	336	17
122		1138	2 do	pek dust	170	16
124	Monte Christo	1144	4 cb	pek fans	480	15
125		1147	3 bf ch	dust	240	14
130	Mora Ella	1162	7 do	bro pek fans	420	17
131		1165	4 do	dust	320	16
132	G T	1168	2 cb	red leaf	170	8
133		1171	4 hf ch	pek dust	360	13
149	Mousa Eliya	1219	3 ch	pek sou	285	16
150		1222	2 do	bro pek fans	260	14
151		1225	1 do	dust	175	13
155	Hangranoya	1237	4 ch	pek sou	320	20
158	Paragaha					

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	476	2 ch	dust	200	13
3	Perth	482	5 do	pek	375	21 bid
4		485	4 do	pek sou	300	20
5		488	4 bf ch	pek dust	300	17
13	Bowhill	512	1 ch	dust	150	15
24	Gonavy	545	7 do	pek sou	665	21
30		563	4 hf cb	or pek	200	27
31		566	1 do	bro pek	55	27
32		569	4 ch	pek	300	21
33		572	1 do	pek sou	100	22
37	Wbyddon	584	3 do	pek sou	276	23
38		587	2 do	bro pek fans	226	17
39		590	2 do	dust	234	16
49	Gangawatte	620	6 do	fans	660	18
50		623	3 do	dust	390	16
56	Dickapittia	641	3 do	sou	300	16
59	Suduganga	650	7 do	pek sou	595	18
67	HS, in est. mark	674	4 do	bro mix	452	9
71	Gonavy	686	7 do	pek sou	630	21
73		692	3 do	congou	255	17
76	Ottery	701	4 do	pek fans	420	24
92	Mount Clare	749	6 do	bro or pek	600	29 bid
93		752	5 do	or pek	485	26 bid
96		761	2 do	sou	224	8
97		764	2 do	fans	200	15
98		767	1 do	dust	105	12
99	Warleigb	770	11 bf-cb	bro or pek	660	32
100		773	12 do	or pek	660	56
103		782	2 cb	pek sou	160	35
104		785	6 bf cb	fans	480	25
106	St. Andrews	791	3 cb	bro tea	300	8
107		794	1 do	red leaf & dust	90	15
108	A T	797	1 do	unas	100	9 bid
109		800	1 do	unas	90	8 bid
110		803	6 do	unas	480	8 bid
111		806	2 do	unas	200	8 bid
112		809	1 do	pek sou	80	8 bid
125	G B	848	7 bf-ch	dust	595	15
127		854	4 ch	bro mix	340	9
130	Kuruwathai	863	2 do	pek sou	160	13
131		866	2 do	bro tea	220	14
135	Iona	878	2 hf cb	dust	150	17
138	Wendura	887	6 ch	pek sou	480	17
139		890	4 do	pek sou No. 2	400	16
140		893	1 bf-cb	dust	85	17
141	L, in est. mark	893	1 do	pek	55	13
146	Waragalande	911	3 ch	dust	390	13
149	Cabin Ella	920	6 do	pek	480	33
152		929	6 bags	red leaf	300	7
153	Birnham	932	1 ch	pek	62	25
154		935	2 do	or pek	132	34
156	Chapelton	941	8 bf-cb	bro mix	640	9
166	Agra Ouvah	971	6 ch	pek sou	540	35
176	Oakwell	1	2 hf-ch	fans	148	15
177		4	1 do	pek dust	85	14
181	Peru	16	5 ch	bro pek	525	29
182		19	2 do	or pek	180	33
183		22	4 do	pek No. 1	340	28
184		25	8 do	pek No. 2	610	23
185		28	5 do	pek sou	420	20
186		31	1 do	pek fans	125	15
187	Tbe Farm	34	4 do	dust	340	14

CEYLON CARDAMOMS SALES IN LONDON.

(From Our Commerical Correspondent.)

MINCING LANE, Nov. 23.

"Cheshire."—M in estate mark, Kobo Mysore O, 2 cases sold at 3s 4d; ditto 1, 6 cases sold at 2s 9d; ditto 2, 3 cases sold at 2s; ditto 3, 2 cases sold at 1s 8d.

"Wakasa Maru."—M in estate mark, Malabar, 8 cases sold at 1s 8d.

"Glaucus."—Mar Lodge 1, 5 cases sold at 2s 6d; 3 cases sold at 2s 8d; Cardamoms, 1 case sold at 3s 1d; ditto 2, 8 cases sold at 2s; Mar Lodge 3. 6 cases sold at 1s 6d; ditto S, 4 cases sold at 1s 7d; Cardamom Seed, 1 bag sold at 2s 9d; Mar Lodge, 1 case sold at 3s 1d; Cardamom Seed, 1 bag sold at 2s 9d.

"Derbyshire."—Mousakande Mysore, Cardamms No. 1. 2 cases sold at 2s 10d; ditto 2, 3 cases sold at 1s 11d.

"Prometheus."—Pingarawa, Cardamom Ex. 1 case sold at 3s; ditto AA, 2 cases sold at 2s 5d; ditto A, 4 cases sold at 1s 8d; ditto B, 1 case sold at 1s 3d; Pingarawa, Cardamoms Ex. 1 case sold at 1s 3d; ditto AA, 3 cases sold at 2s 8d; ditto A, 4 cases sold at 1s 8d; ditto B, 1 case sold at 1s 8d.

OBSERVER PRINTING WORKS.

No. 48. COLOMBO, DECEMBER 24, 1900. { PRICE :—12½ cents each 3 copies, 30 cents ; 6 coppies ½ rupee.

COLOMBO SALES OF TEA

LARGE LOTS.

E. Benham & Co.

[32,895 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	F, in estate mark	46	10 cb	pek	750	25 bid
2	Battalgalla	49	30 cb	or pek	2850	31 bid
3		52	24 do	pek	2160	34
4		55	12 do	pek sou	900	25 bid
5		58	9 hf ch	fans	765	12 bid
6	Anchor, in estate mark	61	19 do	bro or pek	1140	45 bid
8		67	13 ch	pek	1040	28 bid
9		70	20 do	pek sou	1900	26 bid
10		72	10 hf cb	pek fans	700	14
13	Ovoca	82	14 do	hro or pek	700	54
15		88	14 ch	pek	1190	30 bid
16		91	12 do	pek sou	1020	30
17		94	9 do	unas	900	15
20	Torrington	3	28 ch	bro pek	2520	13 bid
21		6	27 do	bro or pek	2565	13 bid
22		9	33 do	pek	2475	13 hid
23		12	26 do	pek sou	1820	11 bid
24	Anchor, in estate mark	15	9 ch	or pek	765	49
25		18	10 do	bro or pek	1050	40 bid
26		21	14 do	pek	1120	28 hid
27		24	17 do	pek sou	1615	26 bid
28		27	6 do	unas	720	14

Messrs. Forbes & Walker

[641,598 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Ketadola	1486	15 ch	bro pek No. 1	1500	20
3		1489	16 do			
			1 do	pek	1613	13 bid
6	Ettapolla	1498	16 bf ch	hro pek	896	18
10	Galkande	1510	21 ch	pek	1785	33
11		1513	14 do	pek sou	1120	26
13	Kotagaloya	1519	7 ch	hro pek	770	34
14		1522	16 do	pek	1520	26
16	Doranakande	1528	7 ch	bro pek	700	27
18		1534	8 do	pek sou	720	15
19	Glencorse	1537	10 ch	or pek	800	34
23		1549	14 do	pek sou	1120	22
26	Ninfield	1558	23 ch	bro or pek	2300	22
27		1561	11 do	bro pek	1[illegible]00	18
28		1564	36 do	pek	3240	17
38	Tonacombe	1594	69 ch	bro pek	6555	40
39		1597	39 do	pek	3510	31
40		1600	18 do	pek sou	1620	26
44	H G M	1612	10 do	pek sou	850	13
45		1615	12 hf ch	bro pek fans	780	out
47	Pansalatenne	1621	48 ch	hro pek	4800	18
48		1624	34 do	pek	2720	15
49		1627	28 do	pek sou	2240	12
52	Thedden	1636	32 ch	bro pek	3200	28 bid
53		1639	28 do	pek	2520	31
54		1642	10 do	pek sou	800	19
56	Kosgalla	1648	28 hf ch	bro pek	1400	16 bid
57		16[illegible]1	22 do	pek	990	15 bid
61	Villehena	1663	27 ch	bro pek	2[illegible]00	20 bid
62		1666	15 do	pek	1500	19
66	Pendle	167[illegible]	23 ch	hro pek	2300	36 bid
67		1681	25 do	pek	2250	34 bid
68		1684	15 do	pek sou	1350	24 bid
72	Harrington	1696	18 hf ch	bro or pek	900	50
73		1699	12 ch	or pek	1080	35 bid
74		1702	16 do	pek	1440	33
78	Handrokan-de	1714	9 ch	bro pek	900	18 bid
80	Sirikandura	1720	8 ch	bro pek	800	27
81		1723	9 do	pek	810	22
85	Yatiyana	1735	10 ch	bro pek	990	27
86		1738	10 do	pek	940	16
88	Combawella	1744	12 ch	bro pek	1200	out
89		1747	11 do	or pek	1000	17 bid
90		1750	12 do	pek	1020	14 bid
91		1753	12 do	pek sou	1000	13 bid
92	New Peacock	1756	10 ch	pek sou	900	20
93		1759	15 hf ch	bro mix	750	16
94		1762	30 do	pek fans	2250	19 bid
95	Irex	1765	42 ch	bro pek	3780	20 bid
96		1768	41 do	pek	3280	18 bid
97		1771	14 do	pek sou	1120	14 hid
103	Carandon	1789	13 ch	bro pek	1297	19 bid
104		1792	9 do	pek	897	17 bid
105		1795	9 do	pek sou	897	14 bid
106	A S M	1798	30 ch	young hyson	3000	35 bid
107		1801	74 do	bysun	6290	31 bid
108	B V H, in est. mark	1804	31 ch	young hyson	3100	35 bid
109		1807	75 do	hyson	6375	31 bid
110	Ardlaw and Wishford	1810	22 ch	pek	1694	33
111	Madulkelle	1813	22 do	bro pek	2[illegible]00	27
114	Lucky Land	1822	18 ch	hro or pek	1980	31 bi
115		1825	10 do	or pek	950	42 bid
116		1828	15 do	pek	1275	35
117		1831	9 do	pek sou	810	30
119	Dunkeld	1837	8 ch	pek	760	23
120		1840	20 hf ch	pek fans	1360	18
121		1843	12 do	dust	1080	16
122	Non Pariel	1846	17 bf ch	pek	891	36
123		1849	27 do	bro pek	1526	39
124		1852	24 do	pek sou	1105	27
127	Kirklees	1861	39 ch	pek	3705	23 bid
128		1864	29 do	pek sou	2320	19 bid
130	Battawatta	1870	28 do	bro pek	2800	25 bid
131		1873	22 do	pek	1980	23 bid
134	Dammeria	1882	37 ch	or pek	3330	30
135		1885	8 do	bro or pek	960	28
136		1888	32 do	bro pek	3520	30 bid
137		1891	14 do	pek	1260	29
138		1894	15 do	pek sou	1350	21
139		1897	18 hf-ch	bro pek fans	1440	19
140	Carfax	1900	22 ch	or pek	1977	36
141	Queensland	1903	15 hf ch	bro or pek	705	54
142		1906	8 ch	bro pek	720	38
143		1909	17 do	pek	1445	32
144		1912	9 do	pek sou	765	24 bid
147	Theydon Bois	1921	14 ch	or pek	1260	33
148		1924	29 do	pek	2320	26
149		1927	12 do	pek sou	1020	19
152	Palmerston	1936	14 hf ch	bro or pek	728	65
153		1939	12 do	bro pek	720	49
154		1942	12 ch	pek	1080	49
158	Doorooma-della	1954	21 hf ch	bro or pek	1047	12
159	Good Hope	1957	68 ch	bro pek	6120	26
160		1960	14 do	pek	1120	24
161		1963	10 do	hro pek fans	1000	21
162	Middleton	1966	22 hf cb	hro or pek	1210	58
163		1969	36 ch	bro pek	3420	40
164		1972	44 do	do	4180	38
165		1975	42 do	pek	3360	33 bid
166	Devonford	1978	33 hf ch	hro or pek	1815	61
167		1981	14 ch	or pek	1260	55
168		1984	13 do	pek	1105	50
171	K G, in est. mark	1993	48 ch	bro pek	4800	out
172		1996	25 do	pek	2125	16 bid
173		1999	9 do	pek sou	747	13 bid
178	Talagala-kande	2014	9 ch	pek	900	16
182	Kincoora	2026	21 do	pek No. 2	1470	18 bid
183	Naseby	2029	44 hf ch	bro or pek	2640	55
184		2032	28 do	or pek	1316	58
185		2035	21 do	pek	1008	47
186		2038	10 do	fans	780	36
187		2041	8 do	dust	752	25
188	Dollawella	2044	17 do	bro pek	1014	out
189		2047	31 do	pek	30[illegible]9	15
191	Udaveria	2053	9 do	fans	765	17
194	O B E C, in est. mark, Forest Creek	2062	19 ch	hro or pek	1900	60
195		2065	33 do	hro pek	3300	41
196		2068	13 do	or pek	1170	39 bid
197		2071	19 do	pek No. 1	1710	35 hid
198		2074	24 do	pek ,, 2	2160	33
199	Yogama	2077	19 ch	bro pek	1900	out
200		2080	14 do	pek	1260	out
201		2083	19 do	pek sou	1520	15
202	Freds Ruhe	2086	45 ch	bro pek	4950	23 bid
203		2089	31 do	pek	3100	22
204		2092	11 do	pek sou	1100	17
209	Castlereagb	2107	33 do	bro pek	3135	30 bid
210		2110	11 do	or pek	880	34
211		2113	16 do	pek	1280	29
213	Weyunga-					

Lot		Box.	Pkgs.	Name	lb.	c.
	watte	2119	25 ch	bro pek	2375	29
214		2122	25 do	pek	2250	26
215		2125	19 do	pek sou	1425	21
221	Doomba	2143	8 ch	fans	960	20 bid
222		2146	9 do	dust	1350	15
223	V O A	2149	12 do	bro tea	1200	8 bid
224	Beaumont	2152	23 do	bro pek	2277	24
225		2155	43 do	or pek	3698	19
227	Kumaradola	2161	13 do	bro pek	1430	28 bid
228		2164	12 do	or pek	1080	33
229		2167	9 do	pek	810	22
232	Maragalla	2176	26 ch	bro pek	2860	28 bid
233		2179	24 do	or pek	2160	34
234		2182	18 do	pek	1620	28
237	K W	2191	9 hf ch	dust	702	16
241	Loinorn	2203	18 cb	or pek	1620	62 bid
242	Parsloes	2206	55 do	bro pek	5500	29
243		2209	23 do	pek	2070	25
255	Arlford	2245	23 hf ch	or pek	1157	28 bid
256	Ingrogalla	2248	19 cb	bro pek	1900	33
257		2251	21 do	pek	1785	27
260	Holton	2260	14 do	bro pek	1327	22 bid
261	Rowley	2263	16 hf ch	bro pek	800	32
262		2266	20 do		1000	26
263	Putupaula	2269	52 do	bro pek	4420	23 bid
264		2272	33 do	pek	2475	21 bid
265		2275	18 do	pek sou	1260	18
267	Dunbar	2281	20 hf-ch	or pek	960	38
268		2284	20 ch	pek	1500	36
273	Bandara Eliya	2299	45 bf ch	or pek	2070	41 bid
274		2302	36 do	bro or pek	1800	61
275		2305	59 do	pek	2478	34 bid
276		2308	40 do	pek sou	1680	30 bid
279	B E	2317	34 do	unast	1802	22 bid
280	Waitalawa	2320	14 do	dust	1257	15
282	C S G	2326	90 do	bro pek	4500	28
283		2329	50 ch	pek	4000	26
284		2332	32 do	pek sou	2560	20
285	Cooroodoo-watte	2335	12 do	br pek	720	47
286		2338	13 do	pek	1300	26
287		2341	7 do	pek sou	700	20
289	Dunnottar	2347	60 do	pek	5100	29
291		2353	7 do	bro pk fans	910	16
297	Hatton	2371	23 do	br pek	2415	47
298		2374	26 do	pek	2340	35
299		2377	5 do	dust	750	15 bid
300	B in est. mark	2380	7 do	pek dust	1135	13
301	K P W	2383	23 bf-ch	bro or pek	1380	24
302		2386	33 do	bro pek	1815	22
303		2389	40 do	pek	2000	18 bid
309	Carberry	2407	7 ch	br pek fans	770	13 bid
312	G K	2416	13 do	bro tea	1170	17
314	Vogan	2422	89 do	bro pek	8897	28 bid
315		2425	19 do	pek sou	1517	16 bid
316	Clyde	2428	50 do	bro pek	4400	32
317		2431	9 do	bro or pek	1035	23 bid
318		2434	42 do	pek	3528	26
319		2437	13 do	pek sou	1040	18 bid
321	Nahalma	2443	35 do	bro pek	3360	22 bid
322		2446	52 do	pek	4576	18 bid
323		2449	29 do	pek sou	2523	14 bid
324		2452	23 hf-cb	bro pk fans	1288	14 bid
326	Ireby	2458	40 do	br pek	2200	54
327		2461	10 cb	pek	850	42
328	Burythorpe	2464	23 do 1 hf-ch	bro or pek	2326	30 bid
329	Ambragalla	2467	57 do	or pek	2565	29 bid
330		2470	62 do	bro or pek	2860	20 bid
331		2473	31 cb	pek	2263	18 bid
332		2476	49 do	pek sou	3822	14 bid
334	Stafford	2482	12 hf-ch	bro or pek	720	60 bid
335		2485	11 cb	or pek	1045	53 bid
336		2488	12 do	pek	1020	49 bid
339	Mawaliganga-watte	2497	85 do	br pek	7647	22
340	Bickley	2500	35 hf-ch	or pek	2345	38 bid
341		2503	10 do	bro pek	750	32 bid
342		2506	13 do	bro or pek	975	44 bid
343		2509	38 do	pek	2280	36 bid
344	Cotswold	2512	18 hf-ch	bro or pek	1260	39
345		2515	29 ch	pek	2320	24 bid
346		2518	9 do	pek sou	720	17 bid
347	W V R A	2521	13 hf-ch	fans	1040	14 bid
349		2527	20 do	bro or pek	1000	12 bid
359	Middleton	2557	15 hf-ch	bro or pek	810	64
360		2560	29 ch	bro pek	2900	44
361		2563	34 do	pek	3060	35
362	C N N	2566	15 do	fans	1125	19
365	Rowley	2575	27 hf-ch	bro pek	1350	32
366		2578	27 do	pek	1350	26
367	Talgaswella	2581	13 do	bro or pek	780	26
369		2587	38 ch	or pek	3230	29
370		2590	39 do	pek	3120	27
371		2593	22 do	pek sou	1650	19
374	Lubukelle	2602	11 do	young hyson	1045	42
375		2605	9 do	hyson	900	35
376		2608	27 do	hyson No. 2	2403	32

Lot.		Box.	Pkgs.	Name.	lb.	c.
379	Weemalla	2617	8 ch	bro or pek	800	28
380		2620	9 do	or pek	765	34
381		2623	15 do	pek	1350	29
385	P in est mark	2635	10 do	pek sou	960	18
386	Shrubs Hill	2638	21 do	bro pek	2247	31 bid
387		2641	48 do	or pek	4080	33
388		2644	18 do	pek	1584	27 bid
389		2647	14 do	pek sou	1120	19 bid
390		2650	23 hf-ch	bro pek fans	1771	18
391	Penrhos	2653	19 do	bro or pek	1045	35
392		2656	16 do	or pek	768	34
393		2659	18 cb	pek	1440	31
394		2662	10 do	pek sou	760	22
395	Bandarawella	2665	19 do	or pek	1824	27 bid
396		2668	24 do	bro pek	2400	24
397		2671	19 do	pek	1634	22 bid
398		2674	16 do	pek sou	1504	18 bid
399		2677	15 do	sou	1125	16 bid
400		2680	9 do	fans	990	13 bid
401	Vogan	2683	71 do	br pek	6745	28 bid
402		2686	87 do	pek	7395	22
403		2689	12 do	pek sou	960	16
404		2692	6 do	br pek fans	750	13 bid
405		2695	12 bf-ch	dust	1020	14
406	Kalupabana	2698	7 cb	bro pek	770	31
427	Seenagolla	2761	24 bf-cb	bro or pek	1368	52
428		2764	16 do	pek	800	47
429	Ruanwella	2767	25 do	or pek	2125	25 bid
430		2770	30 do	bro pek	2850	25 bid
431		2773	35 do	pek	3150	21 bid
432		2776	10 do	pek sou	900	17 bid
434	Clunes	2782	11 do	bro or pek	1210	26 bid
435		2785	9 do	or pek	720	26 bid
436		2788	17 do	bro pek	1615	23 bid
437		2791	25 do	pek	2250	20 bid
440	High Forest	2800	52 hf-ch	or pk No. 1	3120	69
441		2803	30 do	or pek	1650	61
442		2806	27 do	pek	1323	55
443	Polatagama	2809	43 cb	bro pek	4300	35 bid
444		2812	11 do	or pek	935	28
445		2815	49 do	pek	4410	25 bid
446		2818	16 do	pek sou	1440	16 bid
449	High Forest	2827	50 bf-ch	or pk No. 1	3000	69
450		2830	29 do	or pek	1595	60
451		2833	24 ch	pek	1176	51
452	Maha Uva	2836	35 bf-ch	bro or pek	2100	37
453		2839	30 do	or pek	1680	33 bid
454		2842	37 ch	pek	3330	33
455		2845	11 do	pek sou	880	23
460	Erlsmere	2860	14 do	bro pek	784	40
462		2866	14 do	pek	1050	34
465	Pambagama	2875	73 do	br pek	6716	13 bid
466		2878	78 do	pek	6240	12 bid
467		2881	40 do	pek sou	3200	9 bid
468		2884	9 do	bro pek fans	900	9 bid
469		2887	12 do	dust	960	12 bid
470	Panilkande	2890	14 do	br pek	1400	34 bid
471		2893	11 do	pek	1045	26 bid
474	Rockwood	2902	9 do	hyson	828	31 bid
475		2905	31 do	hyson No. 1	2635	28 bid
476		2908	12 do	hyson No. 2	888	22 bid

[**Mr. E. John**.—171,343 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Lunugalla	49	9 ch	bro pek	900	21 bid
3		52	21 do	pek	1680	17 bid
6		61	15 do	bro mix	1350	out
7	Vincit	64	41 hf cb	bro pek	2050	2[illegible]
8		67	18 cb	pek	1620	out
9		70	12 do	pek sou	1080	out
10		73	26 bf cb	br pek fans	1560	15
13	Mossend	82	18 do	bro or pek	990	41
14		85	29 do	or pek	1450	33 bid
15		88	18 do	pek	810	33 bid
17	Gingran Oya	94	34 do	bro or pek	1870	31 bid
18		97	18 do	or pek	900	31 bid
19		100	24 ch	pek	1920	25 bid
25	Bittacy	118	13 do	bro pek	1300	41
26		121	10 do	pek	900	34
28		127	11 bf ch	dust	880	16
30	Poilakande	133	58 ch	bro pek	5800	22
31		136	45 do	pek	4050	17 bid
32	Bowhill	139	23 do	bro pek	2300	26
33		142	10 do	pek	900	22
34		145	8 do	pek sou	720	19
35	Oonoogaloya	148	16 do	or pek	1440	38
36		151	42 do	pek	4200	28
37	Glassaugh	154	29 hf-ch	or pek	1537	65
38		157	20 do	bro or pek	1300	49
39		160	20 cb	pek	2000	43 bid
40	Kotuagedera	163	24 do	bro pek	2280	21 bid
41		166	24 do	pek	1920	18
42	Nahavilla	169	31 do	or pek	2790	30
43		172	35 do	bro pek	3500	33
44		175	8 do	pek	720	24
46		178	11 do	pek sou	880	22

Lot.		Box.	Pkgs.		Name	lb.	c.
46	Ratwatte	181	21	ch	bro pek	2100	23
47		184	15	do	bro pe No.2	1500	23
48		187	30	do	pek	2700	23
49		190	17	do	pek sou	1360	16
50	Elston	193	14	do	or pek	1260	44
51		196	27	do	pek	2295	34
52		199	18	do	pek sou	2520	28
54	Little Valley	205	24	do	bro pek	2250	29
55		208	40	do	pek	3400	16 bid
56		211	13	hf-ch	dust	1040	14
57	Rondura	214	40	ch	bro pek	4000	22 bid
58		217	24	do	or pek	2040	28
59		220	60	do	pek	4800	21 bid
60		223	30	do	pek sou	2400	19 bid
61		226	7	do	dust	1050	15 bid
62	Callander	229	31	hf ch	or pek	1612	40
63		232	48	do	pek	2304	31 bid
67	Dalhousie	244	31	do	pek	1395	24 bid
68		247	16	do	pek No. 2	720	23 bid
70	Cleveland	253	47	do	flow or pek	2585	48 bid
71		256	46	do	pek	2438	39 bid
74	Mocha	265	24	ch	bro or pek	24 0	48 bid
75		268	13	do	or pek	1105	45 bid
76		271	20	do	pek	1800	40
77		274	20	do	pek sou	1600	42
79	Poilakande	280	25	do	bro pek	2500	22
80		283	16	do	pek	1410	22
81	P K T	286	12	hf-ch	dust	1080	15
82	Bellongalla A	289	12	ch	bro pek	1200	24 bid
83		292	25	do	pek	2000	18 bid
86	Maryland	301	7	do	bro pek	735	21 bid
87		304	7	do	pek	700	17
88	Evalgolla	307	23	hf-ch	bro or pek	1035	23 bid
89		310	26	do	or pek	1040	27
90		313	87	do	pek	3045	19 bid
102	Myraganga	349	51	ch	bro pek	4590	19 bid
103		352	55	do	bro or pek	5225	18 bid
104		355	67	do	pek	5360	18 bid
105		358	56	do	pek sou	3920	15 bid
107		364	56	hf-ch	pek fans	3640	15 bid
108	M	367	14	do	bro pek fans	770	out
110	Theresia	373	16	ch	pek sou	1360	23 bid
114	Natuwakelle	385	31	do	bro pek	2790	21 bid
115		388	18	do	bro or pek	1800	22 bid
116		391	21	do	pek	1890	16 bid
117		394	13	do	pek sou	1170	18
124	Bellongalla B	415	14	do	pek	1120	18 bid
128	G F R, in est. mark	427	10	do	bro or pek	1000	25 bid
129		430	20	do	bro pek	1900	22
130		433	20	do	pek	1800	20
132	Gangawatte	439	7	do	bro or pek	700	51
133		442	11	do	bro pek	1100	31
134		445	14	do	pek	1260	28
138	Brownlow	457	47	hf ch	bro or pek	2397	34
139		460	22	ch	bro pek	1700	34
140		463	32	do	pek	2720	27
141		466	13	hf-ch	bro pek fans	9 6	15
142	G B	469	14	do	fans	980	17 bid
143	Glassaugh	472	26	do	or pek	1378	69
144		475	20	ch	bro or pek	1300	48
145		478	20	do	pek	2000	50
146	Kotuagedera	481	26	do	bro pek	2470	18 bid
147		484	15	do	pek	1000	18
148	Morabela	487	30	do	bro or pek	2880	25 bid
149		490	27	do	or pek No. 2	1998	20 bid
150		493	20	do	or pek No.1	1600	26 bid
151	B C	496	23	do	pek sou	2070	30
152	C P T	499	18	do	pek sou	1530	12 bid

Messrs. Somerville & Co.—

[278,002 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Dartry	1504	13	ch	pek sou	1235	10 bid
2	Siriniwasa	1507	16	do	bro pek	1600	33
3		1510	22	do	pek	1980	24 bid
4		1513	12	do	pek sou	1080	19 bid
5		1516	19	do	bro or pek	1995	20
6		1519	5	do	dust	775	out
14	Ravenoya	1543	8	ch	bro pek	800	29
15		1546	21	do	pek	1680	27
19	Hapugasmulla	1558	18	ch	bro pek	1980	20 bid
20		1561	21	do	pek	1890	18 bid
27	P	1582	11	ch	unas	1086	7
28	Ossington	1585	10	ch	bro pek	1000	17
29		1588	16	do	pek	1600	15
42	Oonankande	1627	23	hf ch	pek	1035	26
43	Citrus	1630	26	ch	bro pek	2340	21
44		1633	32	do	pek	3200	16 bid
45		1636	16	do	pek sou	1600	15 bid
49	Agra Elbedde	1648	24	hf ch	bro or pek	1440	40
49a		1648a	27	do	bro or pek	1620	37 bid
50		1651	20	do	or pek	1000	41
51		1654	29	do	pek	1305	38
52		1657	26	do	pek sou	1040	34
54	Mahalla	1663	46	hf ch	bro pek	2208	26
55		1666	16	ch	pek	1280	16 bid
56		1669	16	do	pek sou	1280	15
58	Dryburgh	1675	10	ch	bro or pek	900	27
61		1684	13	do	pek	949	21
64	J M D M	1693	12	ch	bro pek	1200	23
65		1696	15	do	pek	1425	18 bid
66		1699	9	do	pek sou	837	16
67		1702	10	do	fans	1130	14 bid
69	Nyanza	1708	25	hf ch	bro pek	1375	33 bid
70		1711	10	ch	or pek	900	33 bid
71		1714	18	do	pek	1800	30
75	Oaklands	1726	7	ch	or pek	700	26
76		1729	9	do	pek	855	21
77	Rothes	1732	14	hf ch	bro or pek	810	41
78		1735	14	do	or pek	700	43
79		1738	8	ch	pek	720	32
85	Damblagolla	1756	18	ch	bro pek	1800	25 bid
86		1759	18	do	pek	1530	21 bid
87		1762	18	do	sou	1440	16 bid
88	Beausijour	1765	15	ch	bro pek	1350	23 bid
89		1768	12	do	pek	960	19 bid
91		1774	8	do	bro pek fans	800	15 bid
93	D B G	1780	10	hf ch	dust	800	15
95	G B	1786	32	hf ch	dust	1600	15 bid
96	Narangoda	1789	37	ch	bro pek	3290	24 bid
97		1792	66	do	pek	5900	19 bid
98		1795	21	do	pek sou	1890	16
100		1801	20	do	bro or pek	1960	18 bid
103	Hatdowa	1810	19	ch	bro pek	1805	23 bid
104		1813	16	do	pek	1280	19 bid
105		1816	10	do	pek sou	750	16
109	Karangalla	1828	8	ch	bro pek	840	19 bid
114	Ranasingha-patna	1843	44	ch	or pek	3784	24 bid
115		1846	37	do	bro or pek	3700	23 bid
116		1849	54	do	pek	3996	20 bid
117		1852	46	do	pek sou	3772	16 bid
120	Waverley	1861	20	ch	pek sou	1900	31
121	W V Y	1864	10	ch	pek	1050	15
122	R K P	1867	15	ch	bro pek	1275	28
124		1873	11	do	pek	880	24
127	Dartry	1882	25	hf ch	fans	1750	15
128		1885	19	do	dust	1520	14
129	Woodthorpe	1888	13	ch	bro pek	1300	28 bid
130		1891	21	do	pek	1680	25
131		1894	24	do	pek sou	1920	16 bid
134	Kelani	4	26	ch	bro pek	2210	23 bid
135		7	18	do	bro or pek	1800	23 bid
136		10	21	do	pek	1680	22
137		13	15	do	pek sou	1050	17
138	Jhk Tree Hill	16	24	ch	bro pek	2401	27 bid
139		19	10	do	pek	900	23 bid
140		22	14	do	pek sou	1120	16 bid
144	Hanwella	34	16	hf ch	pek	800	19
147	Murraythwaite	43	23	ch	bro pek	2300	32
148		46	26	do	pek	2080	24
149		49	13	do	pek sou	1040	17
152	Wavena	58	14	ch	pek sou	1120	14 bid
153	Polgahakande	61	30	ch	bro pek	2850	20 bid
154		64	23	do	pek	1955	16 bid
155		67	21	do	pek sou	1680	14 bid
156	Neboda	70	18	ch	bro or pek	1800	22 bid
157		73	45	do	bro pek	4500	22 bid
161	Neuchatel	85	32	ch	or pek	2720	28
162		88	22	do	bro or pek	2310	23 bid
163		91	15	do	bro or pek	1575	27
164		94	16	do	pek sou	1280	17
165	Mt Temple	97	8	ch	or pek fans	920	12
168	Hangranoya	106	9	ch	bro or pek	855	44
169		109	14	do	bro pek	1400	26
170		112	11	do	pek	935	26
172	Rahatungoda	118	22	hf-ch	bro pek	1320	36
173	W, in estate mark	121	13	ch	or pek	1171	18 bid
714		124	15	do	or pek	1455	20 bid
175		127	9	do	pek	852	8 bid
146	Salawe	130	18	ch	bro pek	1890	22
177		133	11	do	pek	990	21
178		136	8	do	pek sou	720	17
181	Paradise	145	37	hf ch	bro pek	2035	23
182		148	12	ch	pek	1200	20
183		151	10	do	pek sou	950	17
192	Raglan	178	9	ch	bro pek	855	18 bid
193		181	15	do	pek	1350	17 bid
201	Mt. Vernon	205	20	ch	pek	1860	44
202		208	19	do	pek A	1653	43
203		211	32	hf ch	dust	2560	16
204	Fairfield	214	14	ch	pek sou	1330	27
211	Annandale	235	16	hf-ch	or pek	832	41
212		238	16	do	pek	848	37
215	Kumaragalla	247	19	hf ch	bro pek	1045	30
216		250	17	do	pek	1360	20 bid
217		253	19	do	pek sou	1520	16
225	Old Maddegama	277	14	¾ ch	bro or pek	980	29 bid
226		280	26	do	pek	2080	26
227		283	12	do	pek sou	960	20 bid

Lot.		Box.	Pkgs.	Name	lb.	c.
230	Kurunegalla estate Co., Limited	292	22 hf ch	bro or pek	1320	28
232		298	14 ch	pek	1400	20
239	Meetiagoda	319	7 ch	bro pek	700	24
241		325	9 do	pek sou	900	11
243	Mousakande	331	22 ch	pek sou	1980	12 bid
245	Venture	337	14 ch	pek	1260	22 bid
246		340	13 do	pek sou	975	19
251	Blinkbonnie	355	17 ch	or pek	1530	38
252	Primrose Hill	358	7 ch	bro pek	700	27
253		361	12 do	pek	960	20 bid
254		364	13 do	pek sou	1040	15 bid
257	Ravenscraig	373	25 hf ch	bro pek	1375	23 bid
258	Yarrow	376	4 hf ch	or pek	1800	35
259		379	42 do	bro or pek	2730	24
260		382	83 do	pek	3735	23
261		385	24 do	pek sou	1200	19
263	Hangranoya	391	24 ch	bro pek	2400	25 bid
264	Illukettia	394	7 ch	bro pek	700	24
268	Attiville	406	23 ch	bro or pek	2300	out
269		409	25 do	pek	2495	14 bid
270		412	15 do	pek sou	1500	12 bid
271		415	7 do	bro mix	815	7
272	Mary Hill	418	24 hf ch	bro pek	1200	26 bid
273		421	28 do	pek	1260	19 bid
274	Sadamulla	424	10 ch	bro pek	960	20
275		427	18 do	pek	1710	16

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
7	Anchor, in est. mark	64	14 hf-ch	or pek	630	47
11		76	2 do	dust	190	12
12		79	2 ch	unas	240	12 bid
18	Ovoca	97	9 hf ch	pek fans	585	24
19		100	2 do	dust	180	14

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Ardross	1483	7 hf-ch	dust	560	13
4	Keta dola	1492	4 ch	pek sou	380	12
5		1495	2 do	sou	180	10
7	Ettapolla	1501	8 hf ch	pek	448	15
8		1504	4 do	pek sou	200	13
9		1507	1 do	dust	76	13
12	Galkande	1516	1 ch	sou	80	18
15	Kotagaloya	1525	8 do	pek sou	680	20
17	Doranakande	1531	5 ch	pek	450	19
20	Glencorse	1540	6 ch	bro pek	510	33
21		1543	5 do	bro or pek	500	35
22		1546	7 do	pek	630	29
24		1552	2 do	bro tea	220	24
25		1555	1 do	dust	165	12
29	Ninfield	1567	8 ch	pek sou	640	15
30		1570	8 do	sou	640	12
31		1573	4 do	fans	474	17
35	Dooroomadella	1585	8 ch	bro pek	656	26 bid
36		1588	8 do / 1 hf-ch	pek	685	18 bid
37		1591	1 ch / 1 hf ch	pek sou	116	14 bid
46	H G M	1618	6 do	dust	528	15
50	Passalatenne	1630	1 ch	fans	120	17
51		1633	2 do	dust	300	15
55	Thedden	1645	2 ch	bro pek fans	260	33
58	Kosgalla	1654	12 hf ch	pek sou	600	14 bid
59		1657	2 do	unas	100	16
60		1660	4 do	dust	280	14
63	Villehena	1669	6 ch	pek sou	540	16
64		1672	5 hf ch	sou	250	14
65		1675	2 do	dust	160	14
69	Pendle	1687	1 ch	sou No. 2	90	20 bid
70		1690	3 hf ch	bro mix	150	14 bid
71		1693	6 do	pek fans	450	16 bid
75	Harrington	1705	2 ch	pek	180	32
76		1708	6 hf ch	or pek fans	420	32
77		1711	4 do	dust	360	17
79	Handrokande	1717	2 ch	pek	170	17
82	Sirikandura	1726	7 ch	pek sou	595	16
83		1729	3 do / 1 do	bro pek fans	378	21
84		1732	1 do	dust	117	12
87	Yatiyana	1741	5 ch	pek sou	475	13
98	Irex	1774	2 do	dust	200	15
99	L A	1777	6 do	bro pek	630	18
100		1780	3 do	pek	300	14
101		1783	4 ch	pek sou	392	10
102		1786	1 hf ch	dust	75	13
112	Madulkelle	1816	4 ch	pek	340	20
113		1819	3 do	dust	300	15
118	Lucky Land	1834	2 hf-ch	pek fans	180	21
125	Non Pareil	1855	6 do	bro pek fans	338	34
126		1858	12 do	bro pek dust	115	22
129	Kirklees	1867	3 ch	pek fans	330	21
132	Battawatte	1876	8 do	pek sou	640	17
133		1879	2 do	dust	200	15
145	Queensland	1915	1 ch	bro pek dust	75	21
140	Theydon Bois	1918	6 ch	bro or pek	570	41
150	T B, in estate mark	1930	4 ch	congou	320	12
151		1933	3 do	fans	285	17
155	Palmerston	1945	3 ch	pek sou	240	34
156		1948	3 hf ch	dust No. 1	225	25
157		1951	2 do	dust No. 2	180	17
174	K G, in estate mark	2002	6 hf ch	fans	360	15
175		2005	2 ch / 1 hf ch	sou	235	4
176		2008	1 ch / 1 hf ch	dust	255	14
177	Talagalakande	2011	6 ch	bro pek	660	26
179		2017	4 do	pek sou	380	14
180	Kincora	2020	3 do	or pek	270	38
181		2023	3 do	pek	210	28
190	Udaveria	2050	8 hf ch	bro pek fans	600	29
192		2056	4 do	sou	200	22
193		2059	3 do	bro mix	171	11
205	W A	2095	3 ch	bro pek	330	26
206		2098	2 do	pek	200	18
207		2101	2 do	pek sou	200	13
208		2104	2 do	dust	300	12
212	Castlereagh	2116	5 hf ch	dust	400	14
216	Weyungawatte	2128	3 ch	bro tea	285	16
217		2131	3 do	dust	255	13
226	Beaumont	2158	8 hf ch	fans	664	14
230	Kumaradola	2170	2 ch	bro tea	160	16
231		2173	1 do	dust	150	13
235	Maragalla	2185	5 ch	bro tea	400	16
236		2188	2 do	dust	280	12
238	K W	2194	5 hf ch	bro tea	500	14
239	C T L	2197	5 do	dust	425	19
240		2200	2 do	congou	100	13
243	Parsloes	2212	4 ch	pek sou	320	22
245		2215	3 do	dust	270	15
246	New Galway	2218	8 hf ch	bro pek	480	56
247		2221	11 do	pek	605	44
248		2224	2 do	pek sou	100	37
249	Alton	2227	1 do	bro pek	69	35
250	D	2230	3 ch	sou	260	6
251	B	2233	2 hf ch	bro pek	122	21
252		2236	1 do	pek	58	17
253		2239	1 do	sou	51	12
254		2242	4 do	dust	332	18
266	Dunbar	2278	7 hf-ch	bro or pek	350	57
269		2287	6 do	bro pek	306	31
270		2290	3 ch	bro pek fans	324	31
271		2293	1 do	pek sou	85	26
272		2296	1 do	dust	93	18
277	Bandara Eliya	2311	11 hf ch	pek fans	660	30
278		2314	3 do	dust	240	24
281	W H I	2323	4 do	pek sou	160	17
288	B G M	2344	5 ch	fans	575	20
290	Dunnottar	2350	6 do	sou	510	18
292		2356	6 do	pek fans	600	17
293		2359	2 do	bro mixed	200	8
294		2362	2 do	dust	260	14
295	Peak Shadow	2365	2 do	bro pek	200	14
296		2368	3 do	pek	225	17
304	K P W	2392	8 hf-ch	pek sou	400	17
305		2395	3 do	dust	255	14
306	Carberry	2398	6 ch	br pek	510	33
307		2401	2 do	pek	180	25
308		2404	5 do	pek sou	450	21
310		2410	2 do	pek fans	180	18
311		2413	3 do	bro tea	270	8 bid
213	G K	2419	4 do	dust	560	16
320	Clyde	2440	4 do	dust	608	11 bid
325	Nahalma	2455	8 hf-ch	dust	640	15
333	E G	2479	1 ch	br pek	77	16
337	Stafford	2491	1 hf-ch	dust	90	18
338	Debatagama	2494	5 do	dust	400	12
348	W V R A	2524	4 do	broken tea	320	12
350	Ookoowatte	2530	4 ch	pk fans	520	16
351		2533	1 hf-ch	dust	105	12
363	C N N	2569	3 ch	pek sou	225	24
364		2572	1 do	bro tea	70	16
368	Talgaswela	2584	8 hf-ch	bro pk No. 2	480	20
372		2596	4 do	dust	320	12
373	P G	2599	4 ch			

Lot.		Box.	Pkgs.	Name.	lb.	c.
			1 hf-ch	pek sou	443	20
377	Labukelle	2611	6 ch	bro hyson	660	13
378		2614	3 hf-ch	twanky	255	8
382	Weemalla	2626	2 ch	pek sou	180	17
383		2620	2 hf ch	bro tea	170	10
384		2532	1 ch	red leaf	90	7
407	Kalupahana	2701	3 do	or pek	300	26
408		2704	6 do	pek	651	17
409		2707	1 do	pek son	85	12
410		2710	2 do	bro mixed	207	9
411		2713	1 do	dust	170	9
412	Kotua	2716	1 do	dust	120	10
416	T in est mark	2728	1 do	dust	85	12
417	Ugieside	2731	6 do	dust	480	15
418		2734	6 do	bro mixed	510	14
419		2737	7 do	fans	665	8 bid
420	O F in est. mark	2740	3 do	hr pek	283	18
421		2743	5 do	pek	442	13
422		2746	2 do	pek dust	191	11
423	H in est. mark	2749	2 do	young hyson	170	out
424		2752	7 do	hyson No. 1	595	out
425		2755	5 do	hyson No. 2	425	out
426		2758	1 do	hyson siftings	116	8 bid
433	Ruanwella	2779	7 do	dust	560	12
438	Clunes	2794	5 do	pek sou	500	14
439		2797	3 hf-ch	dust	270	14
447	Polatagama	2821	2 ch	bro pk fans	200	16
448		2824	2 do	dust	300	12
456	Maha Uva	2848	2 hf-ch	fans	140	19
457		2851	8 do	dust	640	13
458		2854	1 ch	congou	105	14
459	Erlsmere	2857	10 hf-ch	bro or pek	500	47
461		2863	6 ch	or pek	480	43
463		2869	2 do	pek sou	160	27
464		2872	1 hf-ch	dust	86	13
472	Panilkande	2896	8 ch	pek sou	680	20
473	Rookwood	2899	9 hf-ch	young hyson	522	33 bid
477		2911	2 ch	siftings	163	7 bid

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name	lb.	c.
7	Siriniwasa	1522	1 ch	con	92	16 bid
8	J K	1525	2 ch	bro pek	180	30
9		1528	5 ch	pek	400	16
10		1531	2 do	pek sou	150	14
11		1534	1 do	sou	70	9
12		1537	2 do	fans	180	9
13		1540	3 do	red leaf	210	7
16	Ravenoya	1549	7 ch	pek sou	504	17 bid
17		1552	1 hf ch	dust	80	14
18		1555	3 do	fans	150	17
21	Hapugasmulla	1564	1 ch	dust	160	12
22	Maligatenne	1567	2 ch	bro pek	211	16
23		1570	4 do	pek	395	12
24		1573	4 do	pek sou	374	8
25		1576	3 do	bro tea	286	6
26		1579	1 do	dust	121	8
30	Ossington	1591	4 ch	pek sou	400	14
38	Glenalla	1615	6 ch	sou	480	9
39		1618	1 do	dust	140	14
40		1621	1 do	fans	75	9
41		1624	1 do	red leaf	75	6
47	F, in estate mark	1642	5 ch	pek sou	500	39
48		1645	5 hf ch	dust	385	16
53	X X	1660	6 hf ch	dust	480	15
57	Mahalla	1672	2 ch	dust	294	14
59	Dryburgh	1678	11 hf ch	bro or pek	539	25 bid
60		1681	6 ch	or pek	486	29
62		1687	5 do	pek sou	365	16
63		1690	5 hf ch	fans	350	16
68	J M D M	1705	2 ch	dust	296	15
72	Nyanza	1717	5 ch	pek sou	450	19
73		1720	2 do	dust	250	15
74	Oaklands	1723	6 ch	bro or pek	600	22
80	Rothes	1741	4 ch	bro sou	340	20
81		1744	5 hf ch	bro tea	300	18
82		1747	1 do	dust	85	15
83		1750	7 do	unas	350	13
84		1753	1 do	bro mix	44	9
90	Beausejour	1771	5 ch	pek sou	375	15 bid
92	D B G	1777	3 ch	bro mix	300	7 bid
94	G B	1783	4 hf-ch	bro tea	200	10 bid
99	Narangoda	1798	4 hf ch	dust	340	14
101		1804	3 ch	sou	285	10
103	Hatdowa	1807	1 ch	bro or pek	105	18
106		1819	2 do	dust	300	14
107		1822	4 do	fans	400	13 bid
108		1825	9 do	sou	675	11
110	Karangalla	1831	7 ch	pek	630	14
111		1834	7 do	pek sou	630	12 bid
112		1837	1 do	sou	105	11
113		1840	2 hf ch	dust	170	13
118	Ranasingha patna	1855	3 hf-ch	dust	340	14

Lot.		Box.	Pkgs.	Name.	lb.	c.
119		1858	2 ch	red leaf	200	8
123	R K P	1870	6 ch	bro or pek	600	22
125		1876	5 do	pek sou	350	15
126	Dartry	1879	4 ch	bro tea	432	11
132	Woodthorpe	1897	3 ch	sou	228	12
133		1	2 hf ch	dust	171	13
141	Jak Tree Hill	25	2 ch	or pek	180	25 bid
142		28	3 do	bro or pek	300	36 bid
143		31	3 hf ch	dust	271	13 bid
145	Bope	37	10 hf-ch	bro pek	550	23
146		40	11 do	or pek	570	23
150	Murraythwaite	52	5 ch	fans	600	16
151		55	1 do	dust	170	11 bid
158	Neboda	76	7 ch	pek	630	18 bid
159		79	5 do	pek sou	640	16
160		82	4 hf ch	dust	340	14
166	F A, in estate mark	100	1 ch	pek sou	83	21
167		103	3 do	dust	240	14
171	Hangranoya	115	3 ch	pek sou	240	18
179	Salawe	139	2 ch	unas	220	11
180		142	2 do	pek dust	310	13
184	Paradise	154	3 ch	unas	300	13
185		157	2 do	dust	320	13
186	D, in estate mark	160	1 ch	bro pek	140	out
			1 hf-ch			
187		163	2 ch	pek	159	out
188		166	1 do	dust	120	out
			1 hf ch			
189	A P	169	1 hf ch	pek fans	50	out
191	Fairlawn	175	2 hf ch	dust	170	15
194	Raglan	184	1 ch	dust	143	11
195	H R	187	2 hf-ch	bro pek	76	19
196		190	4 do	pek	180	16
197		193	1 do	dust	40	13
198	B G E	196	8 ch	pek	680	11
199		199	8 ch	sou	512	10
200		202	2 hf ch	dust	140	11
205	Poonkandy	217	4 ch	bro or pek	424	28 bid
206		220	7 do	pek	665	18 bid
207	B C	223	1 hf ch	bro pek	40	17
208		226	1 do	pek sou	48	12
209		229	1 ch	dust	95	11
210	Annandale	232	10 hf ch	bro or pek	570	55
213		241	11 do	pek sou	594	31
214		244	7 do	dust	525	13 bid
218	Kumaragalla	256	3 hf-ch	sou	228	10
219		259	1 do	dust	83	12
220	T O L	262	1 hf-ch	bro pek	46	19
221		265	1 do	pek	35	16
222		268	1 ch	pek sou	80	12
223		271	1 hf ch	dust	80	12
224		274	1 do	red leaf	34	7
228	Old Maddegama	286	4 ½ ch	dust	380	16
229	W H	289	1 ch	red leaf	110	7
230	Kurunegalla Estates, Co., Limited	295	12 hf ch	or pek	660	23 bid
233		301	1 do	pek sou	100	11
234		304	3 do	dust	240	14
235	Halloowella	307	7 ch	pek sou	490	out
236		310	7 do	sou	546	out
237		313	3 do	dust	435	22
238		316	3 do	red leaf	252	7
240	Meetiagoda	322	3 ch	pek	300	13
242		328	1 do	sou	100	10
247	W, in estate mark	343	2 hf ch	bro pek	110	14
248		346	1 ch	pek	105	15
249		349	2 do	pek sou	160	10
250		352	1 do	dust	125	12
255	Primrose Hill	367	2 ch	sou	152	10
256		370	1 do	dust	82	13
262	Y, in estate mark	388	6 hf ch	dust	480	11
265	Illukettia	397	6 ch	pek	600	13
266		400	4 do	pek sou	400	10
267		403	1 do	sou	90	8
276	Sadamulla	430	5 ch	pek sou	500	12

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	46	1 ch	dust	105	12
4	Lunugalla	55	3 do	dust	420	14
5		58	3 do	pek sou	240	10
11	Vincit	76	5 hf ch	dust	425	16
12		79	4 do	red leaf	300	9
16	Mossend	91	4 do	dust	240	16
20	Melville	103	9 do	bro pek	450	29
21		106	10 do	pek	500	17
22		109	5 do	pek sou	250	15
23		112	1 do	bro pek dust	70	17
24	Bittacy	115	6 do	bro or pek	360	41
27		124	3 ch	pek sou	300	28
28		130	3 hf ch	fans	165	29

Lot.		Box.	Pkgs.		Name.	lb.	c.
53	Elston	202	2	ch	congou	200	15
64	Callander	235	8	hf ch	pek sou	320	29
65		238	9	do	bro pek fans	630	25
66	Dalhousie	241	7	do	or pek	315	44
69		250	6	do	bro pek fans	390	24
72	Cleveland	259	13	do	pek sou	650	31 bid
73		262	5	do	fans	400	20
78	EK, in est. mark	277	1	ch	bro mix	95	8
84	Bellongalla A	295	2	do	fans	200	12
85		298	2	do	dust	280	14
98	K T	337	1	do	sou	90	9
99		340	2	do	bro pek	160	20
100		343	1	do	pek	90	15
101		346	1	do	pek sou	80	12
106	Myraganga	361	6	do	dust	480	14
109	M	370	6	hf ch	pek	270	14 bid
111	Theresia	376	2	ch	bro pek fans	220	35
112		379	7	hf ch	dust	560	17
113		382	1	ch	sou	85	21
118	Natuwakelle	397	2	do	sou	170	13
119		400	5	do	dust	500	14
120	Ullandapitiya	403	1	hf ch	or pek	50	36
121		406	2	do	bro pek	110	20
122		409	2	do	pek	100	20
123	Bellongalla B	412	4	do	bro pek	400	24
125	H B P	413	6	do	bro pek	300	15
126		421	5	do	pek	250	14
127	A A	424	1	ch	dust	105	24
131	W H R	436	4	do	dust	400	20
135	Gangawatte	448	3	do	pek sou	270	25
136		451	2	do	dust	260	14
137		454	4	do	fans	440	23
153	M	502	1	do	pek	95	36

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Nov. 30.

"Kanagawa Maru."—OBEC in estate mark, Delmar 1, 1 tierce sold at 48s 6d; ditto 2, 1 cask sold at 48s 6d; ditto PB, 1 barrel sold at 48s 6d; ditto T, 1 barrel sold at 37s.

"Orissa."—Nayabedda S, 1 barrel and 4 casks sold at 63s; ditto PB, 1 cask sold at 90s; NBT in estate mark, 1 tierce sold at 50s.

"Kawachi Maru."—Nayabedda S, 2 casks sold at 55s; ditto PB, 1 barrel sold at 80s; NBT in estate mark, 1 barrel sold at 45s; NBP in estate mark, 1 barrel and 2 casks sold at 42s 6d.

"Derbyshire."—Nayabedda 2, 1 barrel and 6 casks sold at 63s 6d; ditto PB, 1 cask sold at 94s; NBT in estate mark, 1 barrel sold at 50s; NB 2, 1 cask sold at 42s; Nayabedda S, 1 tierce sold at 37s; 1 barrel sold at 45s; Gonakelle F, 1 tierce and 1 barrel sold at 107s; ditto PB, 1 barrel sold at 104s.

"Kawachi Maru."—Size O, BH, 1 tierce and 1 barrel sold at 45s.

CEYLON COCOA SALES IN LONDON.

"Banca."—B & B in estate mark, 10 bags sold at 84s; 2 ditto, 1 bag sold at 61s.

"Prometheus."—North Matale, 3 bags sold at 60s 6d; KK, 1 bag sold at 59s.

"Ceylon."—Meegama A, 34 bags sold at 95s; I, 11 bags sold at 70s; B1, 5 bags sold at 60s; B, 2 bags sold at 64s 6d.

"Kawachi Maru."—2, 2 bags sold at 65s 6d.

"Alcenaus."—2, 8 bags sold at 69s; Broken, 8 bags sold at 68s.

"Derbyshire."—Asgeria A, 21 bags sold at 85s 6d.

"Kawachi Maru."—Warriapolla, 11 bags sold at 95s 6d; 1 bag sold at 81s; 5 bags sold at 74s 6d; 2 bags sold at 69s; 6 bags sold at 60s; Suduganga, 7 bags sold at 95s 6d; 3 bags sold at 75s; 3 bags sold at 74s; 7 bags sold at 70s; 3 bags sold at 65s; 2 bags sold at 44s.

"Glaucus."—GWM, 18 bags sold at 68s 6d.

CEYLON CINNAMON SALES IN LONDON.

"Derbyshire"—R&Co, London, Plantation Cinnamon Ceylon, 6 bales sold at 11½d; 12 bales sold at 10½d.

"Clan Macnab"—12 bales sold at 11½d; ditto 3, 8 bales sold at 9½d; ditto 4, 8 bales at 9d; 1 FPA, 2 bales sold at 11d; ditto 2, 1 bale sold at 10d; ditto 3, 2 bales sold at 9½d; ditto 4, 1 bale sold at 9d; AH Mahawatte Plantation 2, 2 bales sold at 8½d; ditto 3, 1 bale sold at 8d; ditto 4, 1 bale sold at 6½d.

"Calchas" BB&Co, 446 in estate mark, E. Plantation 1900, 24 bales sold at 10½d; 24 bales sold at 11½d; 51 bales sold at 10½d.

"Prometheus"—DB&Co, 459 in estate mark, 50 bales sold at 11d; 5½ bales sold at 10½d.

"Kawachi Maru"—VB Ekelle, 54 bales sold at 11½d.

"Duke of Devonshire"—B Mahawatte Plantation, 6 bales sold at 9d; ditto G, 4 bales sold at 6½d; 1 bale sold at 6d; ditto M, 2 bales sold at 9½d; Ekelle Plantation, 26 bales sold at 9½d; 3 bales sold 9d; G Mahawatte Plantation, 10 bales sold at 8d; 8 bales sold at 7½d.

"Cheshire"—ASGP in estate mark, Kadirane, 18 bales sold at 1s 7d; 6 bales sold at 1s 8d; 7 bales sold at 1s 7d; 20 bales sold at 1s 6d; 5 bales sold at 1s 5d; 10 bales sold at 1s 3s; 8 bales sold at 1d; 30 bales sold at 10½d; 4 bales sold at 10d; 11 bales sold at 9d; 1 bale sold at 10d; 12 bales sold at 9½d.

"Derbyshire"—FSK Kaderane, 8 bales sold at 1s 5d; 2 bales sold at 1s 2d; 6 bales sold at 1s 5d; 3 bales sold at 1s 4d; 2 bales sold at 1s 2d; 2 bales sold at 1s; 6 bales sold at 1s 4d; 3 bales sold at 1s 3d; 2 bales sold at 1s 2d; 4 bales sold at 1s; 4 bales sold at 11d; 7 bales sold at 10d; 2 bales sold at 9d; 6 bales sold at 1s 2d; 3 bales sold at 1s; 1 bale sold at 10d; 1 bale sold at 8d.

"Kawachi Maru"—FS WS, in estate mark, Kaderane, 4 bales sold at 1s 6d; 5 bales sold at 1s 5d; 7 bales sold at 1s 3d; 1 bale sold at 11½d; 5 bales sold at 10d; 6 bales sold at 9½d; 4 bales sold at 9d; 1 bale sold at 10d FS WS, in estate mark, North Kadirane, 5 bales sold at 1s 3d; 6 bales sold at 1s 5d; 4 bales sold at 1s 4d; 10 bales sold at 1s 3d; 1 bale sold at 1s 2d; 2 bales sold at 11d; 5 bales sold at 10d; 6 bales sold at 9½d; 2 bales sold at 9d; 1 bale sold at 10d. FS WS, in estate mark, Jaela, 3 bales sold at 1s 4d; 4 bales sold at 1s 2d; 6 bales sold at 1s 1d; 4 bales sold at 9d; 1 bale sold at 10d. FS WS, in estate mark, Kadirane, 6 bales sold at 3¾d.

"Pindari"—FSWS in estate mark, North Kaderane, 6 bales sold at 1s 4d.

"Stentor"—FSWS in estate mark, North Kaderane, H V, 1 bale sold at 1s 1d.

"Senator"—625 Ekelle Plantations, 3 bales sold at 1s 2d; 10 bales sold at 1s 1d.

"Clan Fraser"—FS K, Kaderane, 2 bales sold at 1s 4d.

"Calchas"—CHdeS, Kandevatte, 29 bales sold at 11½d; 32 bales sold at 10½d; 6 bales sold at 10d; 11 bales sold at 9½d; 4 bales sold at 9d. CHdeS Ratmalana, 13 bales sold at 11½d; 11 bales sold at 10½d; 5 bales sold at 9½d; 2 bales sold at 9d. CHdeS Morrotto, 9 bales sold at 1s; 6 bales sold at 10½d; 1 bale sold at 11d; 4 bales sold at 9d. CHdeS, TPW, in estate mark, 1 bale sold at 3d; 4 bales sold at 10½d; 3 bales sold at 9½d; 1 bale sold at 9d.

"Clan Matheson"—CHdeS, Salawa, 9 bales sold at 11½d; 9 bales sold at 10½d; 5 bales sold at 9½d; 5 bales sold at 9d; 1 bale sold at 1s; 1 bale sold at 11d; 1 bale sold at 10d.

"Wakasa Maru"—CHdeS, Rustoom, 20 bales sold at 1s; 14 bales sold at 10½d; 6 bales sold at 9½d; 2 bales sold at 9d. CHdeS, Kootarevalle, 13 bales sold at 11½d; 12 bales sold at 10½d; 5 bales sold at 9½d.

"Glaucus"—CHdeS, Kaderane, 17 bales sold at 1s; 16 bales sold at 11d; 8 bales sold at 10 d; 7 bales sold at 9d. CHdeS, Rustoom, 11 bales sold at 11½d; 18 bales sold at 10½d; 6 bales sold at 10d; 4 bales sold at 9½d; 2 bales sold at 9d. CHdeS, Koottarawelle, 6 bales sold at 11½d; 9 bales sold at 10½d; 7 bales sold at 9½d; 1 bale sold at 9d; 1 bale sold at 11½d; 2 bales sold at 10½d; 1 bale sold at 10d; 1 bale sold at 9d.

"Kawachi Maru"—CHdeS, Salawa, 6 bales sold at 11½d; 18 bales sold at 10½d; 5 bales sold at 9½d; 3 bales sold at 9d; CHdeS, Kandevelle 9 bales sold at at 11½d; 17 bales sold at 10½d; 12 bales sold at 9½d; 1 bale sold at 10d; 1 bale sold at 9d. CHdeS, Ratmalana, 6 bales sold at 11½d; 9 bales sold at 10½d; 10 bales sold at 9½d; 4 bales sold at 9d; 6 bales sold at 1s; 8 bales sold at 10½d.

No. 1. COLOMBO, JANUARY 7, 1901. PRICE :—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[23,509 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	47	17 hf cb	bro or pek	765	50 bid
2		50	20 do	or pek	1900	35
3		53	14 do	pek	1260	30 bid
4		56	11 do	pek sou	825	26
6	Riversdale, in est. mark	62	41 bf-cb	bro pek	2255	53
7		65	65 do	pek	3250	36
8		68	38 do	pek sou	1520	29
9	Manickwatte	71	54 do	or pek	2484	29
10		74	42 do	bro or pek	2394	26 bid
11		77	29 ch	pek	2146	21
12		80	27 do	pek	1998	19
13		83	25 do	pek sou	2000	17

Messrs. Forbes & Walker.

[855,205 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
9	Uragalla	2938	8 cb	pek	760	20
1	St. Pauls	2974	41 hf cb	bro pek	2255	54
22		2977	65 do	pek	3250	35 bid
23		2980	38 do	pek sou	1520	29
24	Udapolla	2983	9 cb	or pek	810	24
25		2986	14 do	bro pek	1400	23
26		2989	20 do	pek	1800	24
29	Sirikandura	2998	7 cb			
			1 hf cb	bro pek	749	28
34	Drayton	3013	34 cb	or pek	3230	41
35		3016	60 do	pek	5100	38
36		3019	15 do	pek sou	1275	37
38	O B E C, in estate mark Summer Hill	3025	25 ch	bro or pek	1475	80
39		3028	18 do	or pek No. 1	1620	60
40		3031	27 do	pek	2403	48 bid
41		3034	26 do	pek sou	2080	42
42	Munukattia Ceylon, in est, mark	3037	22 hf ch	or pek	1012	31
43		3040	37 do	bro pek	2146	35
44		3043	22 do	pek	1680	29
45		3046	10 do	pek sou	900	24
46	Nillomally, O B E C, in est. mark	3049	52 ch	bro or pek	4992	24
47		3052	25 do	or pek	1850	24
48		3055	22 do	pek	1716	22
52		3067	22 bf cb	fans	1540	out
54	Harrington	3073	19 do	bro or pek	950	61
55		3076	16 ch	or pek	1440	38
56		3079	24 do	pek	2160	35
59	Madulkelle	3088	11 cb	bro or pek	2100	31
60		3091	21 do	or pek	1575	24
61		3094	15 do	bro pek	1500	22
63		3100	12 do	sou	960	15
65	S R, in estate mark	3106	13 cb	congou	1300	14
66	New Peacock	3109	30 hf ch	pek fans	2247	18
67	X Y Z	3112	17 cb	bro pek	1700	17
69		3118	17 do	pek sou	1338	15
79	Maldeniya	3148	22 cb	bro pek	2090	24
80		3151	24 do	pek	2160	20
81		3154	18 do	pek sou	1530	15
82	Matale	3157	36 bf ch	bro pek	2160	23
83		3160	19 cb	pek	1710	26
84		3163	9 do	pek sou	810	22
88	A	3175	15 cb	bro pek	1500	23
89		3178	9 do	pek	900	13
92	Walton	3187	39 cb	bro pek	4290	30
93		3190	36 do	or pek	3236	30
94		3193	27 do	pek	2430	28
97	Pendle	3202	23 ch	bro pek	2297	32 bid
98		3205	15 do	pek sou	1347	23 bid
102	E D P	3217	15 ch	sou	1050	13
103		3220	15 bf ch	dust	1125	14
105	Kakiriskande	3226	19 ch			
			1 hf cb	pek	1860	17
108	V, in estate mark (packed in 2 oz. lead)	3235	18 ch	pek sou	1620	11 bid
110		3241	12 do	dust	960	14
111	Dambagastalawa	3244	19 ch	bro or pek	1995	54
112		3247	27 do	bro pek	2835	35
113		3250	22 do	pek	1980	34
114		3253	8 do	pek sou	720	28
119	Marlborough	3268	15 ch	or pek	1140	32 bid
120		3271	39 do	pek	3120	24 bid
121		3274	22 do	pek sou	1716	21 bid
122	Sembawatte	3277	17 ch	bro tea	1530	8 bid
123	Mawlligangawatte	3280	10 cb	bro or pek	1000	36
124		3283	49 do	bro pek	4410	24
125		3286	34 do	pek sou	2550	22
127	Marlborougb	3292	15 ch	or pek	1125	31 bid
128		3295	37 do	pek	3071	26 bid
129		3298	19 do	pek sou	1482	20 bid
130	Weyungawatte	3301	29 ch	bro pek	2900	28
131		3304	27 do	pek	2430	26
132		3307	22 do	pek sou	1760	22
138	Wallaba	3325	19 ch	bro or pek	1805	51 bid
139		3328	33 do	bro pek	3300	41 bid
140		3331	29 do	or pek	2320	42 bid
141		3334	18 do	pek	1620	37 bid
142	Forres	3337	30 hf cb	bro or pek	1807	54 bid
143		3340	20 do	bro pek	1245	38 bid
144		3343	30 do	or pek	2557	40 bid
145		3346	20 do	pek	1725	37 bid
155	Sarnia	3376	16 cb	or pek	1360	30 bid
156		3379	47 do	bro pek	4250	28 bid
157		3382	36 do	pek	3024	23 bid
158		3385	13 do	pek sou	975	21 bid
160	Galapitakande	3391	18 ch	or pek	1710	38
161		3394	17 do	bro pek	1700	34
162		3397	51 do	pek	4590	26
163		3400	8 do	pek sou	720	19
165	Glendon	3406	25 cb	or pek	2000	31
166		3409	33 do	bro pek	3300	25
167		3412	49 do	pek	4165	22
168		3415	24 do	pek sou	2040	17
169	G	3418	10 cb	sou	800	17
170	Allagalla	3421	20 cb	bro mix	1500	15
171		3424	34 bf cb	dust	2890	15
172		3427	57 do	fans	3135	16
173	Poyston	3430	13 ch	pek sou No. 2	1170	15
176	N	3439	10 cb	bro tea	1000	7
177		3442	19 do	pek fans	2470	14
183	Kenmare	3460	27 cb	bro or pek	3186	40 bid
184		3463	29 do	bro or pek	3712	31
185		3466	27 do	bro tea	2538	37
186	Palm Garden	3469	9 ch	bro pek	990	28
187		3472	7 do	pek	700	21
191	Queensland	3484	14 hf cb	bro or pek	700	63
192		3487	12 ch	bro pek	1140	36
193		3499	20 do	pek	1700	33
196	Tbeydon Bois	3499	11 ch	or pek	990	32
197		3502	24 do	pek	1920	28
198		3505	10 do	pek sou	850	23
201	T, Roeberry	3514	45 cb	bro pek	4500	36
202		3517	25 do	bro or pek	2500	48
203		3520	20 do	pek	1840	30
204		3523	10 do	pek sou	860	25
205	St. Heliers	3526	14 bf ch	bro or pek No. 1	742	43
206		3529	32 do	bro or pek	1760	27 bid
207		3532	22 ch	pek	1936	24
209	Chesterford	3538	54 cb	bro pek	5130	29
210		3541	60 do	pek	5400	23
211		3544	39 do	pek sou	3510	19
112	Ardlaw and Wisbford	3547	14 cb	bro or pek	1302	50
213		3550	25 do	bro pek	2100	36
214		3553	16 do	or pek	1296	37
215		3556	24 do	pek	1872	31
217	Matale	3562	23 hf ch	bro pek	1265	26
218		3565	18 do	pek	1620	24
219		3568	10 do	pek sou	900	21
223	Ismalie	2580	5 cb	dust	750	14
243	Dunbar	40	16 bf ch	bro or pek	800	60
245		46	28 cb	or pek	2268	38
246		49	28 do	pek	2100	38
250	X Y Z	61	18 ch	bro pek	1800	16
251		64	10 do	pek	800	15
252		67	37 do	pek sou	2960	13
263	Errollwood	100	15 do	bro or pek	825	63
264		103	12 cb	or pek	1140	43
265		106	13 do	pek	1235	39
266		109	9 do	pek sou	900	30
267		112	12 hf-ch	or pek fans	780	22
268	Devonford	115	20 do	bro or pek	1100	66

Lot.		Box.	Pkgs.	Name.	lb.	c.
269		118	12 ch	pek sou	1020	42
271	Kitulgalla	124	13 cb	bro pek	1170	23
272		127	10 do	pek	900	22
273		130	9 do	pek sou	765	21
276	Monkswood	139	25 hf ch	bro pek	1500	63
277		142	32 do	or pek	1760	56
278		145	25 ch	pek	2250	52
279		148	22 do	pek sou	1761	43
280		151	15 hf-ch	fans	1050	35
281	Tymawr	154	17 do	bro or pek	1020	38
282		157	21 do	or pek	1155	36
283		160	29 do	pek	1470	32
284		163	20 do	pek sou	1000	30
285	Nella Oolla	166	12 hf ch	bro pek fans	720	18
288	Good Hope	175	36 ch	bro pek	3240	25
290	Kitulgalla	181	12 hf cb	bro or pek	720	27
291		184	8 ch	bro pek	720	24
292		187	10 do	pek	900	20
293		190	9 do	pek sou	720	19
296	Ella Oya	199	18 do	bro pek	1620	31
297		202	16 do	pek	1360	24
298		205	20 do	pek sou	1600	19
299		208	10 hf ch	dust	800	15
300	Agraoya	211	23 ch	or pek	1840	29
301		214	15 do	bro pek	1500	27
302	Agraoya	217	7 do	bro pek	700	15
303		220	18 do	bro mix	1620	11
306	Agraoya	229	19 ch	pek	1425	25
307		232	13 do	pek sou	1170	20
308	Ellaoya	235	11 ch 1 hf ch	bro pek	1030	29
309		238	13 ch 1 hf ch	pek	1143	23
310		241	34 ch	pek sou	1920	21
312		247	12 do 1 bf cb	bro or pek	1255	32
316	Nahakettia	259	60 do	young hyson	3300	35 bid
317		262	40 do	hyson	1800	30 bid
318		265	32 do	hyson No. 2	1568	28 bid
321	Lyegrove	274	20 hf ch	young hyson	1100	37 bid
322		277	15 do	hyson	705	32 bid
323		280	18 do	hyson No. 2	936	30 bid
326	Bandara Eliya	289	38 hf ch	or pek	1710	49
327		292	43 do	bro or pek	2150	65
328		295	50 do	pek	2100	43
329		298	59 do	pek	2478	38
330		301	26 do	pek sou	1092	31
331		304	40 do	do	1680	33
332	H G M	307	14 do	bro or pek	840	33
333		310	9 ch	or pek	900	28
334		313	18 do	bro pek	1710	24
335		316	29 do	pek	4265	23
336		319	17 do	pek sou	1360	22
337	Pine Hill	322	50 hf-cb	bro pek	3000	40
338		325	62 ch	or pek	4960	34
339		328	70 do	pek	5250	30
340		331	16 do	pek sou	1120	24
341	Adisham	334	36 hf-ch	bro or pek	1980	22 bid
342		337	18 do	or pek	810	34
343		340	16 do	pek	1120	26
344		343	13 do	bro pek	1105	15 bid
345		346	9 do	unast No. 1	855	10
346		349	10 do	unast No. 2	850	8
347		352	36 do	bro or pek	1980	23 bid
348		355	30 do	or pek	1359	33 bid
349		358	18 do	pek	1260	26 bid
350		361	19 do	pek sou	1330	23
351		364	13 do	br pek	1105	22 bid
352	Harrow	367	15 do	or pek	780	44
353		370	20 do	bro or pek	1200	43
354		373	25 ch	pek	2375	33
356	Knavesmire	379	20 hf-ch	or pek	1000	25 bid
357		382	40 ch	br pek	3800	25 bid
358		385	35 do	pek	2800	28
359		388	27 do	pek sou	2025	23
360		391	14 hf-ch	dust	1120	15
361		394	20 ch	sou	1400	19
362	Palmerston	397	16 hf-ch	bro or pek	864	63
363		400	20 ch	pek	1740	47
365	Tonacombe	406	19 do	or pek	1710	34
366		409	58 do	bro pek	5800	37
367		412	35 do	pek	3150	32
368		415	13 do	pek sou	1170	25
369		418	9 do	dust	765	15
370	Kincora	421	7 ch	bro or pek	700	36
371		424	0 do	bro pek	720	50
372		427	17 do	pek	1445	36
373		430	18 do	pek No. 2	1350	28
374		433	7 do	fans	805	37
378	Mansfield	445	63 bf-ch	bro pek	3780	40
379		448	27 do	pek	2430	30
380		451	19 ch	pek sou	1615	21
382	Cooroodoowatte	457	12 bf-cb	br pek	720	47

Lot.		Box.	Pkgs.	Name	lb.	c.
383		460	14 ch	pek	1400	27
384		463	7 do	pek sou	700	22
385	Dickella	466	26 do	bro or pek	2756	24 bid
386		469	24 do	br pek	2[illegible]60	25 bid
387		472	42 do	pek	3402	24 bid
388		475	48 do	pek sou	3403	18 bid
389		478	20 do	sou	1600	14 bid
391	Labookelle	484	32 do	young hyson	[illegible]	31 bid
392		487	33 do	hyson	3366	33
394	Arapolakande	493	43 do	young hyson	4035	32 bid
395		496	40 do	hyson	3600	29
396		499	12 do	hyson No. 2	1200	26
398	Carlabeck	505	14 do	pek sou	1260	32
399		508	8 do	bro pek fans	1120	16
400	Torwood	511	59 do	bro pek	5310	23
401		514	31 do	pek	2356	22
402		517	19 do	pek sou	1444	16
403	Weyungawatte	520	26 do	bro pek	2600	30
404		523	25 do	pek	2250	25
405		526	22 do	pek sou	1700	22
408	Galapitakande	535	18 do	or pek	1530	38
409		538	18 do	br pek	1710	33
410		541	39 do	pek	3510	26 bid
411		544	8 do	pek sou	720	20
413	Amblakande	550	25 do	br pek	2500	23
414		553	25 do	pek	2000	22
415		556	21 do	pek sou	1680	18
417	Geragama	562	9 do	bro pek	810	20
418		565	10 do	pek	850	16
419		568	11 do	pek sou	880	15
420		571	7 do	bro pek	700	21
421		574	8 do	pek	720	17
422		577	9 do	pek sou	720	15
423		580	23 do	bro pek	2300	22 bid
424		583	24 do	pek	2040	21
426		589	21 do	bro pek	2100	24 bid
427		592	36 do	pek	2880	21
429		598	11 hf-ch	fans	770	11
430		601	11 do	dust	935	14
431		604	9 ch	br pek	900	23
432		607	9 do	pek	720	17
438	Rockside	625	6 do	dust	804	14
439		628	9 do	br pek fans	1080	22
445	Dunkeld	646	53 hf-cb	bro or pek	3180	36
446		649	13 ch	or pek	1235	34
447		652	21 do	pek	1890	32
448	Killarney	655	25 hf-ch	bro or pek	1375	46
449		658	10 ch	pek	850	32
450		661	30 do	pek sou	2700	29
451	Morankande	664	34 hf-ch	bro or pek	1904	26
452		667	28 ch	or pek	2380	33
453		670	30 do	pek	2700	24
454		673	32 do	pek sou	1980	18
456	Galkadua	679	13 do	bro pek	1430	22
457		682	14 do	pek	1400	22
458		685	9 do	pek sou	900	19
462	Dunkeld	697	68 hf ch	bro or pek	4080	36
463		700	15 ch	or pek	1425	34
464		703	27 do	pek	2430	32
466	Pallagodde	709	13 do	bro or pek	1300	24
467		712	18 do	bro pek	1800	35
468		715	15 do	or pek	1350	30
469		718	11 do	pek	935	26
470		721	11 do	pek sou	990	25
471	Deaella	724	38 hf-ch	bro or pek	2090	37
472		727	46 do	or pek	2300	25
473		730	48 do	pek	2400	23
474		733	19 do	pek sou	855	21
476		739	13 do	dust	1040	15
477	Dammeria	742	20 ch	or pek	2000	30
478		745	25 do	bro pek	2500	30
479		748	17 do	pek	1530	30
480		751	13 do	pek sou	1170	19
481		754	8 hf-ch	br pek fans	800	14
482	Pallagodda	757	12 ch	bro or pek	1200	25
483		760	18 do	bro pek	1800	36
484		763	15 do	or pek	1350	30
485		766	11 do	pek	935	27
486		769	8 do	pek sou	720	26
487		772	15 hf-ch	dust	1275	15
488	Kirklees	775	37 do	bro or pek	2035	35
489		778	28 ch	or pek	2660	35
491	Battawatte	784	26 do	bro or pek	2600	29
492		787	21 do	pek	1890	18 bid
495	Corfu	796	36 hf-ch	br pek	1620	28
496		799	41 do	pek	2050	24
499	Hensleys	808	23 do	bro pek	1219	24
501		814	19 ch	pek	1520	23
502		817	13 do	pek sou	936	16
507	K P W	832	33 hf-ch	bro pek	1815	23
508		835	37 do	bro or pek	2220	26
509		838	40 do	pek	2000	23
510		841	20 do	pek sou	1000	18
512	Vogan	847	29 do	br pek	3190	33
513		850	51 do	or pek	4590	32
514		853	131 do	pek	11135	22
515		856	38 ch	pek sou	3040	16

Lot.		Box.	Pkgs.		Name.	lb.	c.
516		859	12	hf ch	dust	1020	13
517		862	6	ch	bro pk fans	750	15
518	Broadoak	865	11	do	bro pek	968	16
519		868	9	do	pek	765	12
520		871	10	do	pek sou	800	8
521		874	23	hf-ch	pek fans	2630	12
522		877	10	cb	dust	1550	13
523	Anningkande	880	20	do	bro pek	2000	24
524		883	16	do	pek	1520	16
525	Deaculla	886	57	hf-ch	br pek	3315	48
526		889	39	do	pek	2730	36
527		892	18	do	pek sou	1260	26
528		895	10	do	dust	800	14
529	Gonapatiya	898	27	do	bro pek	1431	58
530		901	30	do	or pek	1440	45
531		904	34	do	pek	1632	42
532		907	23	do	pek sou	1104	38
533	Middleton	910	10	hf-ch	bro or pek	1176	61
534		913	37	ch	bro pek	3515	41
535		916	43	do	pek	3440	38
536		919	13	hf-cb	dust	975	16
537	C R D	922	11	ch	sou	880	12
538	Elloya	925	22	do	pek sou	1870	15 bid
539	W V R A	928	13	do	fans	1040	14
540	Ascot	931	63	do	bro pek	5670	[illegible]
541	Gonapatiya	934	19	hf-ch	pek fans	1273	36
542		937	10	do	dust	870	17
543	Errolwood	940	26	do	bro or pek	1430	42
545	Gallawatte	946	10	ch	bro pek	900	24
546		949	19	bf-cb	br or pk	1045	27
547		952	27	cb	pek	2160	26
548		955	10	do	pek sou	860	22
552	Woodend	967	18	do	bro pek	1800	25 bid
553		970	25	do	pek	2250	20 bid
554		973	10	do	pek sou	800	17 bid
556	Penrhos	979	29	bf-ch	bro or pek	1595	45
557		982	18	do	or pek	864	35
558		985	31	ch	pek	2511	30
559		988	9	do	pek sou	720	26
562	Nugagalla	997	29	hf-ch	bro pek	1450	33
563		1000	69	do	pek	3450	22
564		1003	19	do	pek sou	950	17
566	K P W	1009	35	do	br pek	1925	24
567		1012	29	do	bro or pek	1740	25
568		1015	29	do	pek	1450	23
569		1018	20	do	pek sou	1000	17
571	Waitalawa	1024	82	do	bro pek	4100	36
572		1027	118	do	pek	5900	23
573		1030	19	do	pek sou	950	18
574		1033	9	do	dust	810	15
575	P in est. mark	1036	35	ch	bro or pek	3500	46 bid
576		1039	18	do	pek	1440	36 bid
577		1042	23	do	pek sou	1840	26 bid
579	Penrhos	1048	20	hf-cb	bro or pek	1100	39
580		1051	16	do	or pek	768	34
581		1054	21	cb	pek	1680	29
586	Tempo	1069	18	do	br pek	1800	34
587		1072	14	do	or pek	1260	26
588		1075	30	do	pek	2250	23
589		1078	14	do	pek sou	980	19
590		1081	18	do	sou (some 2 oz lead)	1170	15
591		1084	17	do	pro pk fgs (pkd in 2 oz ld)	935	19
593	Clyde	1090	57	do	bro pek	5016	31
594		1093	55	do	pek	4510	26
595		1096	15	do	pek sou	1260	19
596		1099	8	do	bro or pek	920	18 bid
598	Burythorpe	1105	24	do	bro or pek	2326	22 bid
599	Devonford	1108	33	bf cb	bro or pek	1815	62
600	Mawiliganga-watte	1111	11	ch	bro or pek	1100	35
601		1114	63	do	br pek	6300	24
602		1117	50	do	pek sou	3750	22
604	Forest	1123	8	hf-ch	dust	701	15
607	Ugieside	1132	9	do	fans	855	9
608	Yaha Ella	1135	11	ch	bro pek	1100	22 bid
609		1138	12	do	pek	1080	22
612	Bargany	1147	2	do	or pek	2340	35
613		1150	21	do	pek	1680	22
614		1153	23	do	pek sou	1840	20
618	Memorakande	1165	13	hf-cb	dust	1010	14
620	Dunnottar	1171	10	cb	bro or pek	1000	33
621		1174	9	do	br pek	900	29 bid
622	Talgaswella	1177	17	do	or pek	1445	35
623		1180	15	do	pek	1200	26
624		1183	10	do	pek sou	750	19
632	Maha Uva	1207	30	hf-ch	bro or pek	1800	31
633		1210	21	do	or pek	1176	33 bid
636		1219	34	ch	pek	3060	33
638	Caragaha-watte	1225	34	do	bro or pek	1870	31 bid
639		1228	18	hf-cb	or pek	890	28 bid
640		1231	24	ch	pek	1920	25 bid
641		1234	13	do	pek sou	1235	14 bid
642	Weemalla	1237	9	do	bro or pek	900	27
643		1240	10	do	or pek	850	22
644		1243	16	ch	pek	1620	23 bid
649	Cobbanwood	1258	10	do	hyson No. 2	800	20 bid

Messrs. Somerville & Co.—

[311,612 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	S	433	16	bf ch	sou	800	12
2		436	9	do	dust	720	14
8	Clon	454	9	ch	pek (colindia packages)	900	22
9	D	457	10	ch	bro pek	1000	25
15	Mahatenne	475	19	ch	bro pek	1900	24
16		478	22	do	pek	2090	21
22	Theberton	496	17	ch	bro or pek	1700	25
23		499	18	do	bro pek	1620	28
24		502	17	do	pek	1445	23
30	Ambalawa	520	31	hf cb	bro pek	1488	23
31		523	8	do	pek	720	20
34	Mattamagoda	532	11	ch	bro pek	1100	23
35		535	13	do	pek	1170	20
37		541	14	do	pek sou	1120	16
40	Lonach	550	60	bf cb	bro pek	3000	27
,,	,,		60	do	bro pek	3000	27
41		553	47	ch	pek	3760	26
42		556	25	do	pek sou	2000	18
45	Bodava	565	30	bf ch	bro pek	1650	24
46		568	11	cb	pek	1045	24
47		571	15	do	pek sou	1200	21
50	Carney	580	14	bf cb	bro pek	700	25
51		583	26	do	pek	1170	22
55	Doragalla	595	20	ch	bro pek	1800	36 bid
56		598	27	do	pek	2160	30
57		601	14	do	pek sou	1190	24
58		604	6	do	bro or pek fans	720	23
61	St. Catherine	613	8	do	or pek	763	28
62		616	10	do	pek	853	24
63		619	10	do	pek sou	753	18
65	Nellicolay-watte	625	26	hf ch	bro pek	1762	24
66		628	30	ch	pek	2530	22
67		631	19	do	pek sou	1482	17
76	S F D	658	21	bf ch	con	1050	13
78	Lower Dickoya	664	8	ch	bro pek	800	23
79		667	9	do	pek	900	22
80		670	7	do	pek sou	700	16
82	Citrus	676	16	cb	bro pek	1440	20
83		679	18	do	pek	1800	16
84		682	8	do	pek sou	780	11
85		685	8	do	dust	1200	11
88	Hanagama	694	18	ch	bro or pek	1890	22
89		697	26	do	bro pek	2340	22
90		700	44	do	pek	3960	19
91		703	12	do	pek sou	1080	13 bid
93	Wallasmulle	709	8	ch	pek fans	960	15
94		712	7	do	dust	1120	14
95	Rambodde	715	14	hf ch	bro or pek	770	36
97		721	26	do	pek	1170	30
98		724	26	do	pek sou	1196	23
101	Kosgabahena	733	11	ch	bro pek	1200	20
102		736	22	do	pek	2200	16
107	Labugama	751	17	bf ch	bro pek	850	27
108		754	22	cb	pek	2090	19
110	Kelani	760	15	ch	bro pek	1275	28
111		763	6	do	dust	720	15
117	Depedene	781	20	hf ch	bro pek	1000	26
119		787	32	do	pek	1600	22
120		790	41	do	pek sou	2050	16
121		793	20	do	bro pek fans	1100	19
123	Forest Hill	799	14	ch	bro pek	1190	22 bid
124		802	15	do	pek	1230	18
125	Oonankande	805	15	bf cb	bro pek	750	33
126		808	13	ch	sou	910	16
143	Nyanza	850	12	hf ch	bro pek	720	21
144		862	9 / 1	cb / bf cb	pek	965	17
146	Nyanza	868	28	bf cb	bro pek	1624	40
147		871	12	ch	or pek	1080	37
148		874	22	do	pek	2200	33
151	Dikmukalana	883	21	bf-ch	or pek	1050	22 bid
152		886	35	do	pek A	1750	19 bid
153		889	35	do	pek B	1750	16
154		892	42	do	bro pek fans	2310	16
157	Horagoda	901	14	ch	pek	1330	22
160	Galphele A	910	22	ch	bro or pek	2200	24 bid
163		919	12	do	pek	960	23 bid
166	do B	928	18	do	bro or pek	1800	24
169		937	12	do	pek	960	22
172	Kurulugalla	946	31	ch	bro pek	3100	17 bid
173		949	28	ch	pek	2520	16
175	K G A, in estate mark	955	13	ch	bro pek	1300	15
180	Gwernet	970	15	bf cb	bro pek	900	27
181		973	25	ch	pek	2000	27
182		976	16	do	pek sou	1200	20

Lot		Box.	Pkgs.	Name	lb.	c.
183		979	16 hf ch	or pek	800	30
185	Ranasingha patana	985	29 hf ch	or pek	1421	29 bid
186		988	22 do	bro or pek	1232	29 bid
187		991	14 ch	pek	1036	24 bid
188		994	10 do	pek sou	820	18 bid
189	Rayigam	997	28 do	bro pek	2660	28 bid
190		1000	21 do	or pek	1680	25 bid
191		1003	19 do	pek	1520	21 bid
192		1006	16 do	pek sou	1440	20
194		1012	37 do	bro pek	3515	27 bid
195		1015	27 do	or pek	2160	22 bid
196		1018	21 do	pek	1680	19 bid
197		1021	16 do	pek sou	1440	19
198		1024	8 hf ch	dust	800	15
199	Annandale	1027	19 hf ch	or pek	988	41
200		1030	22 do	pek	1144	37
201		1033	13 do	pek sou	715	30
202	New Valley	1036	26 ch	bro or pek	2600	46
203		1039	19 do	or pek	1710	38
204		1042	15 do	pek	1350	34
205		1045	17 do	pek sou	1360	32
207	N I T	1051	9 ch	unas No 2	720	10
208	Selvawatte	1054	22 hf ch	bro pek	1210	18 bid
209		1057	11 ch	pek	880	18
213	Yspa	1069	28 ch	pek sou	2240	18
214		1072	9 do	pek dust	1260	14
215	Neboda	1075	17 ch	bro or pek	1700	24
216		1078	46 do	bro pek	4600	23
217		1081	8 do	pek	720	21
220	Oolapane	1090	11 hf ch	dust	880	14
223	Farnham	1099	14 ch	or pek	1064	30
224		1102	23 do	bro pek	2070	32
225		1105	13 do	pek	1131	28
226		1108	13 do	pek sou	1040	25
232	Harangalla	1126	23 ch	bro pek	2070	26 bid
233		1129	13 do	pek	2400	30
234		1132	14 do	sou	1120	19 bid
235		1135	11 hf ch	dust	825	15
237	Rahatungoda	1141	20 hf ch	bro or pek	1000	55
238		1144	20 do	or pek	1000	40
239		1147	32 do	pek	1600	35
240	Hangranoya	1150	14 ch	bro or pek	1330	40
241		1153	28 do	bro pek	2800	27
242		1156	18 do	pek	1530	25
247	Kosgama	1171	28 ch	bro pek	2800	17
248		1174	24 do	pek	1920	17
253	Lower Dickoya	1189	8 ch	bro or pek	800	23
254		1192	9 do	bro pek	900	20
255		1195	9 do	pek	855	18
256		1198	9 do	pek sou	900	7
258	Old Maddegame	1204	10 ¾ ch	bro pek	750	27
259		1207	15 do	pek	1200	23 bid
260		1210	9 do	pek sou	720	19
261	Kelani	1213	26 ch	bro pek	2210	26 bid
262		1216	10 do	bro or pek	1000	24
263		1219	13 do	pek	1040	23
264		1222	10 do	pek sou	800	20
268	Harangalla	1234	11 ch	or pek	990	31
269		1237	12 do	bro or pek	1140	27 bid
270		1240	34 do	pek	2720	30
271		1243	18 do	sou	1440	20
272		1246	16 hf ch	dust	750	15
273	Attiville	1249	10 ch	bro pek	1000	19
274		1252	11 do	pek	1100	15
275		1255	8 do	pek sou	800	13
277	Mt. Vernon	1261	41 ch	pek	3813	42
278		1264	34 do	pek A	2890	38
279		1267	21 do	pek sou	1953	35
280		1270	25 hf ch	fans	1550	28 bid
284	Columbia	1282	23 hf-ch	bro or pek	1150	40 bid
285		1285	24 do	or pek	1080	35 bid
286	C M, in estate mark	1288	26 hf ch	or pek	1284	25 bid
287	R K P	1291	14 ch	bro pek	1190	27
288		1294	10 do	pek	800	25
290	Murraythwaith	1300	23 ch	bro pek	2200	29
291		1303	24 do	pek	1920	24
292	Theberton	1306	19 do	bro or pek	1900	24
293		1309	14 do	bro pek	1260	27
294		1312	16 do	pek	1360	27
299	Meddegodda	1327	67 hf ch	bro or pek	3015	20 bid
300		1330	30 do	or pek	1200	29
301		1333	84 do	pek	2940	22

[Mr. E. John.—268,840 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Allington	520	10 ch	bro pek	1000	25
2		523	10 do	pek	900	23
3		526	9 do	pek sou	810	19
5	Oonoogaloya	532	12 do	bro or pek	1200	47
6		535	15 do	or pek	1350	44
7		538	19 do	pek	1710	37

Lot.		Box.	Pkgs.	Name	lb.	c.
9		544	6 ch	dust	840	14
10		547	9 do	bro or pek No. 2	1080	27
12	Poilakande	553	54 do	bro pek	5400	23
13		556	36 do	pek	3240	20
14	Wadhurst	559	11 do	or pek	1100	35
15		562	9 do	pek	855	31
18	Kandaloya	571	76 hf-ch	bro pek	3420	26
19		574	22 do	or pek	880	24
20		577	176 do	pek	7040	23
21		580	18 do	pek sou	720	19
22		583	16 do	fans	800	17
24	Perth	589	21 ch	bro or pek	2100	23
25		592	39 do	bro pek	3276	23
26		595	16 do	pek	1200	25
29	Uda	604	9 do	bro pek	846	10 bid
30		607	19 do	pek	1406	11
31		610	10 hf ch	pek dust	840	15
32	Eila	613	83 ch	bro pek	7055	22 bid
33		616	47 do	pek	3995	21 bid
34		619	12 do	dust	1440	14
36	Koslande	625	29 hf-ch	bro pek	1595	31 bid
37		628	22 ch	pek	1980	30
41	Mocha	640	13 do	bro or pek	1300	59
42		643	14 do	or pek	1190	48
43		646	20 do	pek	1800	42
44		649	11 hf-ch	fans	825	29
45	Templestowe	652	39 ch	bro or pek	2925	43
46		655	30 hf-ch	or pek	1260	43
47		658	33 ch	pek	2640	37
48		651	9 hf ch	fans	738	32
49	Coslande	664	29 do	bro pek	1595	34 bid
50		667	22 ch	pek	1980	30
54	Mahanilu	679	15 do	or pek	1500	34 bid
55		682	28 do	pek	2576	29
56		685	14 do	pek sou	1218	22
57		688	11 hf-ch	fans	770	23 bid
59	G F R, in est. mark	694	9 ch	bro or pek	900	26 bid
60		697	25 do	bro pek	2375	27
61		700	9 do	pek	810	22
62		703	9 do	pek sou	765	17
64		709	8 do	fans	880	16
65	Brownlow	712	32 hf ch	bro or pek	1664	49
66		715	21 ch	bro pek	1785	36
67		718	30 do	pek	2400	32
69	Elston	724	14 do	or pek	1330	42 bid
70		727	20 do	pek	1800	34
71		730	10 hf ch	dust	850	16 bid
72		733	19 ch	pek sou	1805	31
73	Gangawatte	736	11 do	bro pek	1100	36
74		739	22 do	pek	1980	33
75		742	10 do	pek sou	900	28
76		745	9 do	sou	810	16
77	S G	748	8 do	bro pek	760	23 bid
78		751	15 do	pek	1200	23
79		754	10 do	pek sou	850	17
81	Brownlow	760	36 hf ch	bro or pek	1872	33 bid
82		763	18 ch	bro pek	1458	32
83		766	26 do	pek	2184	33
84		769	9 do	pek sou	774	17
85	Nahavilla	772	20 do	or pek	1800	29
86		775	35 do	bro pek	3500	30
88	H	781	26 do	sou	1690	12 bid
89		784	18 do	bro mix	1800	10 bid
90	Lynford	787	12 do	bro tea	1200	7
94	Syston	799	32 do	bro pek	3200	20 bid
95		802	27 do	pek sou	2214	20
96		805	18 do	pek	1440	17
99	Little Valley	814	14 do	bro pek	1330	27 bid
100		817	16 do	pek	1360	24
102	Cabin Ella	823	10 do	bro or pek	1100	38
103		826	8 do	pek No. 1	800	31
104		829	22 do	pek No. 2	2200	26 bid
105	Kataboola	832	11 hf-ch	pek fans	825	18
107	Glasgow	838	42 ch	bro or pek	3360	45
108		841	20 do	or pek	1340	55
109		844	14 do	pek	1190	46
110		847	15 do	pek sou	1425	42
111	Agra Ouvah	850	40 hf ch	bro or pek	2480	46 bid
112		853	27 ch	bro pek	2700	38
113		856	22 do	pek	2112	40
115	Dalhousie	862	18 hf ch	bro pek	909	51
116		865	39 do	pek No. 1	1755	31
117		868	31 do	pek No. 1	1395	30
118		871	20 do	pek No. 2	900	22
120	Ben Nevis	877	15 ch	bro pek	1575	35 bid
121		880	17 hf ch	or pek	816	45
122		883	26 ch	pek	2340	32
125	Agra Ouvah	892	31 hf ch	bro or pek	1860	45 bid
126		895	45 do	or pek	2610	38
127		898	24 ch	pek	2256	40
128	Glasgow	901	36 do	bro or pek	2880	46
129		904	17 do	or pek	1190	51
130		907	11 do	pek	957	6
131		910	13 do	pek sou	1235	45
132		913	30 do	fans	2850	17

Lot.		Box.	Pkgs.	Name.	lb.	c.
133	N D	916	8 ch	pek No. 2	720	37
134	Morahela	919	29 do	pek	2291	21
135		922	20 do	bro or pek	1920	23 bid
136		925	11 do	bro or pek	1656	23 bid
137		928	24 do	or pek No. 2	1920	21 bid
146	Ottery	955	14 do	bro or pek	1470	42 bid
147		958	13 do	or pek	1040	45
148		961	20 do	pek	1700	34 bid
150	Elston	967	11 do	bro pek	1210	47
151		970	12 do	pek	1140	38
152		973	19 do	pek	1615	36
153		976	16 do	or pek	1440	40
154		979	20 do	pek sou	1800	33
156	Alplakande	985	24 do	sou	2160	10
157	Gangawatte	988	12 do	bro or pek	1200	57
158		991	20 do	pek	1800	32
159		994	8 do	fans	880	25 bid
160	Gansarapolla	997	22 hf ch	dust	1650	14 bid
161	Kataboola	1000	10 ch	pek sou	950	22
162	Heatherly	3	12 do	young hyson	1068	32 bid
165		12	13 do	hyson No. 2	1040	23 bid
168	Glentilt	21	36 do	bro pek	3600	36 bid
169		24	29 do	or pek	2610	36
170		27	19 do	pek	1615	32
173	Maskeliya	36	44 hf ch	bro or pek	2200	39
174		39	16 ch	or pek	1280	33 bid
175		42	26 do	pek	2600	24 bid
176		45	15 hf ch	bro pek fans	900	20
177		48	8 do	dust	720	14
179	Keenagaha Ella	54	16 do	bro pek fans	960	14 bid
182	Orange Field	63	11 ch	bro pek	1100	out
184		69	14 do	pek	1260	16
185		72	8 do	pek sou	750	13
188	Evalgolla	81	25 hf ch	bro or pek	1125	24
189		84	20 do	pek sou	800	17
193	Mount Clare	96	15 ch	bro or pek	1500	28
194		99	12 do	or pek	1164	26
195		102	38 do	pek	3534	21
196		105	15 do	pek sou	1275	17
197	Gingran Oya	108	30 hf ch	bro or pek	1650	23 bid
198		111	22 ch	bro pek	1980	32
199	Lunugalla	114	21 do	pek	1680	15
200	Rondura	117	28 do	bro pek	2300	24 bid
201		120	20 do	or pek	1700	30
202		123	46 do	pek	3680	27
203		126	15 do	pek sou	1200	20

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
5	Hornsey	59	5 hf ch	fans	425	15
14	Manikwatte	86	3 ch	dust	225	14
15		89	1 do	red leaf	62	6

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	I K V	2914	2 ch	bro mix	224	7
2		2917	5 do	pek fans	600	15
3	Maligatenne	2920	4 ch	bro pek	420	20
4		2923	3 do	pek	300	18
5		2926	1 do	sou	95	10
6		2929	1 do	fans	120	17
7		2932	1 do	dust	130	12
8	Uragalla	2935	7 ch	bro pek	665	26
10		2941	5 do	pek sou	450	14
11		2944	1 do	bro mix	80	14
12		2947	1 do	bro fans	80	11
13		2950	1 do	dust	125	14
14		2953	1 do	unas	100	12
15		2956	1 hf-ch	pek sou	50	14
16		2959	1 do	dust	80	14
27	Udapolla	2992	5 ch	pek sou	400	16
28		2995	3 hf ch	dust	240	14
30	Sirikandura	3001	7 ch 1 hf ch	pek	696	20
31		3004	5 ch 1 hf ch	pek sou	490	17
32		3007	2 ch	bro pek fans	220	20
33		3010	3 do	red leaf	255	8
37	Drayton	3022	2 do	sou	160	25
49	Nillomally, O B E C in est. mark	3058	5 ch	bro pek	450	21
50		3061	8 do	pek sou	608	18
51		3064	3 do	sou	210	14
53		3070	5 hf ch	dust	450	14
57	Harrington	3082	2 ch	pek	180	26
58		3085	4 hf ch	or pek fans	280	25
62	Madulkelle	3097	6 ch	pek	510	19
64		3103	3 hf ch	dust	240	13
68	X Y Z	3115	6 ch	pek	540	14
70		3121	2 do	fans	240	14
85	Matale	3166	4 do	sou	400	14
86		3169	3 hf ch	fans	210	18
87		3172	6 do	dust	480	14
90	A	3181	4 ch	pek sou	285	13
91		3184	2 do	sou	190	9
95	Walton	3196	7 ch	bro tea	560	16
96		3199	2 do	dust	300	14
99	Pendle	3208	1 ch	pek sou No. 2	87	18
100		3211	3 hf ch	bro mix	147	6 bid
101		3214	6 do	pek fans	447	15
104	Kakiriskande	3223	4 ch	bro pek	400	30
106		3229	5 do	pek sou	475	16
107		3232	1 hf ch	dust	75	13
109	V, in estate mark	3238	1 ch	bro mix	110	16
115	Dambagastalawa	3256	5 do	bro pek fans	675	16
116	D G F	3259	2 ch	bro pek	216	22
117		3262	3 do	pek	300	20
118		3265	1 do	pek sou	95	18
126	Mawiliganga-watte	3289	3 ch	dust	300	14
133	Weyunga-watte	3310	2 ch	bro tea	200	13
134		3313	3 hf ch	dust	255	14
146	Kennington	3349	3 ch	dust	345	14
147		3352	5 hf ch	unas	432	8 bid
148	F R A	3355	1 ch	pek	110	16
149		3358	6 hf ch	dust	510	13
150		3361	1 ch	red leaf	77	6
151	Labookelle	3364	1 do	bro or pek	109	26
152		3367	1 do 1 hf-ch	or pek	144	35
153		3370	3 ch	pek	291	29
154		3373	6 do 1 hf ch	pek sou	597	22
159	Sarnia	3388	7 do	dust	560	13
161	Galapitakande	3403	3 do	dust	300	14
174	Poyston	3433	4 do	dust	320	14
175		3436	3 do	fans	210	16
178	Mahayaya	3445	1 ch	bro or pek	106	22
179		3448	2 do	bro pek	180	18
180		3451	3 do	pek	243	14
181		3454	3 do	pek sou	213	12
182		3457	1 do	sou	80	10
188	Palm Garden	3475	4 ch	pek sou	400	16
189		3478	1 do	fans	100	12
190		3481	1 do	dust	158	11
194	Queensland	3493	5 ch	pek sou	425	27
195		3496	2 hf ch	bro pek dust	150	14
199	Theydon Bois	3508	6 ch	dust	570	13
200	T B, in estate mark	3511	2 ch	fans	190	16
203	St Heliers	3535	7 hf ch	dust	574	15
216	Ardlaw and Wishford	3559	7 ch	pek sou	539	24
220	Ismalle	3571	7 ch	sou	360	10
221		3574	4 do	congou	340	7
222		3577	2 do	fans	270	10
224	B A K, in est. mark	3583	5 hf ch	bro pek	275	29
225		3586	5 do	pek	2[illegible]0	17
226		3589	4 do	pek sou	200	13
227		3592	1 do	bro pek fans	50	10
228		3595	1 do	pek fans	60	9
229		3598	1 do	bro tea	45	8
230		1	1 do	bro pek dust	80	13
231		4	1 box	golden tips	3	R3·00
232	New Market	7	6 ch	bro pek	540	30
233		10	8 do	or pek	680	26
234		13	5 do	pek	350	24
235	G E	16	4 ch	bro pek	410	26
236		19	3 do 1 hf ch	pek	358	19
237		22	2 ch 1 hf ch	pek sou	255	16
238		25	1 do	congou	50	10
239		28	1 do	fans	66	11
240	S K M	31	1 ch	bro pek	94	24
241		34	1 do	pek	88	19
242		37	1 hf-ch	pek sou	55	16
244	Dunbar	43	12 do	bro pek	624	37
247		52	3 ch	pek sou	207	25
248		55	11 hf ch	bro pek fans	616	30
249		58	1 ch	dust	106	14
253	X Y Z	70	2 do	fans	240	14
254		73	4 do	dust	600	13
261	A, in estate mark	94	8 ch	sou	680	17
262	D, in estate mark	97	8 hf ch	dust	660	15

Lot.		Box.	Pkgs.	Name.	lb.	c.
270	K W D	121	4 hf ch	bro pek fans	300	20
274	Kitulgalla	133	3 do	dust	240	14
275		136	3 ch	bro or pek fan2	330	14
286	Nella Oolla	169	3 hf ch	dust	240	13
287		172	7 ch	red leaf	560	7
289	Good Hope	178	7 do	pek sou	560	18
294	Kitulgalla	193	3 hf ch	dust	248	13
295		196	4 ch	bro or pek fans	400	14
304	Agraoya	223	4 do	pek No. 2	340	12
305		226	1 do	bro mix	100	12
311	Ellaoya	244	6 hf ch	dust	454	13
313		520	7 do	bro pek fans	416	17
314		253	3 ch	unas No. 1	250	17
315		256	3 do	do ,, 2	240	12
319	Nahakettia	268	4 hf ch	hyson No. 3	176	18 bid
320		271	4 do	twanky	328	9 bid
324	Lyegrove	283	3 do	hyson No. 3	120	20 bid
325		286	2 do	twanky	148	9 bid
355	Harrow	376	8 ch	pek sou	680	26
364	Palmerston	403	2 do	pek son	160	35
381	Mansfield	454	5 hf-ch	dust	450	14
390	Dickella	481	8 do	dust	640	13 bid
393	Labookelle	490	3 do	twanky	255	8
397	Arapolakande	502	3 ch	siftings	360	10
406	Weyunga-watte	529	3 do	bro tea	300	19
407		532	3 hf ch	dust	255	13
412	Galapitakande	547	2 ch	dust	200	13
416	Amblakande	559	3 do	bro pek fans	300	15
425	Geragama	586	8 do	pek sou	640	16
428		595	2 do	pek sou	160	16
433		610	2 do	pek sou	160	16
434		613	7 hf-ch	fans	490	10
435		616	7 do	dust	595	13
436	Rockside	619	5 ch	sou	400	23
437		622	3 do	bro mixed	255	12
440	Mattakelle	631	2 do	fans	120	8
441	W H I	634	7 hf-ch	bro pek	350	19
442		637	11 do	pek	500	19
443		640	4 do	pek sou	160	18
444		643	6 do	sou	210	11
455	Galkadua	676	3 ch	bro or pek	360	24
459		688	1 do	fans	110	10
460		691	1 do	congou	110	10
461		694	1 do	dust	133	11
465	K	706	1 do	sou	100	9
475	Deaella	736	7 hf-ch	fans	420	14
490	Kirklees	781	5 do	dust	425	14
493	Battawatte	790	7 ch	pek sou	560	15
494		793	2 do	dust	200	14
497	Corfu	802	12 hf-ch	pek sou	540	20
498		805	8 do	bro pk fans	440	16
500	Hen leys	811	15 do	or pek	675	29
503		820	3 do	pek dust	258	13
511	K P W	844	1 do	dust	85	12
544	B and D	943	3 ch	unast	300	14
549	Doteloya	958	2 hf ch	young hyson	100	22
550		961	3 do	hyson	120	14 bid
551		964	7 do	hyson No. 2	315	18
555	Woodend	976	2 ch	dust	260	15
560	Penrhos	991	1 do	fans	80	16
561		994	1 do	pek dust	190	12
565	Nugagalla	1006	5 hf-ch	dust	450	12
570	K P W	1021	6 do	dust	510	15
578	P in est. mark	1045	7 do	unast	420	16 bid
582	Penrhos	1057	9 ch	pek sou	675	21
583		1060	2 do	bro mixed	160	7
584		1063	2 hf-ch	fans	160	15
585		1066	1 ch	pek dust	72	12
592	Tempo	1087	4 do	dust (pkd 2 oz lead)	340	13
597	Sunny Croft	1002	5 do	bro tea	550	8
603	Mawiliganga-watte	1120	5 do	dust	475	14
605	Ugieside	1126	5 hf-ch	dust	400	12
606		1129	7 ch	bro mixed	595	10
610	Yaha Ella	1141	4 do	pek sou	360	19
611		1144	1 do	pek fans	130	10
615	Bargany	1156	6 hf-ch	fans	330	16
616		1159	2 do	dust	170	12
617		1162	1 ch	fans	66	5
619	Poengalla	1168	6 hf-ch	dust	450	12
625	Talgaswela	1186	8 do	bro pk No. 2	480	16
626	I G	1189	1 ch	pek sou	70	19
627	R	1192	1 do	bro pek	67	23
628		1195	2 do	pek No. 1	128	20
629		1198	1 do	bro pek fans	90	14
630		1201	1 do	pek rou	60	18
631	I	1204	1 do	br pek	84	26
634	Maha Uva	1213	2 hf-ch	fans	140	14
635		1216	6 do	dust	480	12
637		1222	8 ch	pek sou	640	21
645	Weemalle	1246	3 do	pek sou	270	18
646		1249	3 do	hro tea	255	8
647	Cobhanwood	1252	1 do	young hyson	100	30 bid
648		1255	1 do	hyson	90	out

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name	lb.	c.
3	A	439	6 hf-ch	dust	480	14
4		442	8 do	sou	400	12
10	D	460	6 ch	pek	570	16
11		463	5 do	pek sou	4?0	15
12		466	1 do	bro pek dust	[illegible]	11
13		469	1 do	con	80	8
14	Mahatenne	472	5 ch	or pek	500	33
17		481	3 do	pek sou	270	15
18		484	2 do	dust	200	14
19	W A A	487	11 hf-ch	pek	550	19
20	Radage	490	2 do	bro pek	100	20
21		493	1 do	pek	50	17
25	Theberton	505	2 ch	pek sou	180	20
26		508	3 do	bro or pek fans	300	20
27		511	1 do	pek fans	100	15
28		514	1 do	pek dust	100	13
29	D	517	2 ch	bro mix	144	6
32	Ambalawa	526	8 hf ch	pek sou	640	15
33	San Cio	529	8 ch	sou	640	14
36	Mattamagoda	538	3 ch	pek No 2	240	12
38		544	2 ch	bro pek fans	200	10
39		547	1 hf ch	dust	80	11
40	Dryburgh	559	9 hf-ch	bro pek	468	26
43		562	7 ch	pek	539	22
48	Bodava	574	1 ch	dust	160	11
49		577	4 do	fans	480	15
52	Carney	586	13 hf ch	pek sou	650	18
53		589	4 do	sou	200	9
54		592	1 do	dust	100	14
59	Doragalla	607	4 ch	bro mix	520	16
60	St. Catherine	610	6 ch	bro or pek	603	33
64		622	3 do	dust	233	14
68	Nellicolay-watte	634	1 hf ch	sou	36	9
69		637	4 do	dust	330	14
70		640	3 do	bro pek fans	187	15
71		643	2 do	fans	132	13
77	S F D	661	7 hf-ch	dust	588	13
81	Lower Dickoya	673	3 hf ch	dust	840	12
86	H A	683	2 ch	bro tea	196	out
87		691	1 do	fans	100	5
92	Hanagama	706	7 ch	sou	560	9
96	Rambodde	718	9 hf ch	or pek	405	36
99		727	3 do	dust	270	12
100		730	2 do	fans	140	17
103	Kosgahahena	739	4 ch	pek sou	400	10
104		742	3 do	sou	285	8
105		745	2 do	fan	200	9
106		748	1 do	dust	150	11
109	Labugama	757	7 ch	pek sou	595	16
112	Ahamad	766	4 ch	bro pek No 1	400	22
113		769	5 do	bro pek	500	18
114		772	6 do	pek	600	17
115		775	6 do	pek sou	540	14
116		778	1 do	fans	90	8
118	Depedene	784	10 hf ch	or pek	500	24
122		796	3 do	dust	255	12
127	Oonankande	811	1 ch	red leaf	53	5
133	A A	829	6 hf ch	bro tea	330	11
134	Hanwella	832	5 ch	bro pek	520	19
135		835	2 do	or pek	160	19
136		838	4 do	pek	360	18
137		841	3 do	pek sou	225	16
138		844	1 do	dust	94	11
139	Bope	847	1 ch	or pek	78	21
140		850	1 do	pek	90	19
141		853	1 do	pek sou	75	15
142		856	2 hf ch	dust	200	11
145	Nyanza	865	1 ch	dust	100	13
149		877	6 ch	pek sou	510	22
150		880	4 do	fans	400	15
155	Horagoda	895	5 ch	bro or pek	500	30
156		898	6 do	or pek	540	26 bid
158		904	5 do	pek sou	450	20
159		907	1 do	dust	100	11
161	Galphele A	913	5 ch	or pek	450	26
162		916	1 do	bro pek	90	[illegible]
164		922	2 do	pek sou	170	18
165		925	1 do	fans	150	14
167	do B	931	5 do	or pek	450	26
168		934	1 do	bro pek	100	13
170		940	3 do	pek sou	270	18
171		943	3 do	fans	450	13
174	Kurulugalla	952	7 ch	pek sou	630	11
176	K G A, in estate mark	958	4 ch	pek	360	12
177		961	5 do	pek sou	450	11
178	Batgodde	964	1 ch	bro pek	111	32
179		967	1 do	pek	92	29
184	Gwernet	982	4 hf ch	dust	320	14
193	Rayigam	1009	6 hf ch	dust	600	14
206	N I T	1048	3 ch	unas No. 1	300	8
270	Selvawatte	1060	1 hf c	fans	50	14
211		1663	1 do	dust	49	11
212	Westward Ho	1066	1 hf ch	dust	85	12

Lot		Box	Pkgs.	Name	lb.	c.
218	Neboda	1084	8 ch	pek sou	640	20
219		1087	3 hf-ch	dust	255	12
221	Oolapane	1093	5 hf ch	fans	300	12
222	Farnham	1096	8 hf ch	bro or pek	472	27
227		1111	3 ch	bro pek fans	384	21
228		1114	2 hf ch	dust	186	12
229	Daluk Oya	1117	4 ch	bro pek	400	20
230		1120	3 do	pek	240	18
231		1123	3 do	pek sou	225	14
236	Harangalla	1138	6 ch	bro pek fans	600	20
243	Hangranoya	1159	5 ch	pek sou	400	16
244	A K	1162	5 ch	bro pek	500	15
245		1165	3 do 1 hf ch	pek	350	15
246		1168	3 ch	sou	300	11
249	Kosgama	1177	9 ch	pek sou	675	10
250		1180	6 ch	bro tea	600	15
251		1183	4 do	pek	320	16
252		1186	2 do	pek sou	160	13
257	Old Maddegama	1201	5 ¾ ch	bro or pek	375	37
265	Kahatagala	1225	6 ch	bro pek	510	25
266		1228	4 do	pek	320	22
267		1231	3 do	pek sou	240	18
276	Attiville	1258	3 ch	bro mix	300	5
289	R K P	1297	4 ch	pek sou	320	18
295	Theberton	1315	1 ch	pek sou	90	20
296		1318	3 do	bro or pek fans	300	20
297		1321	1 do	pek fans	100	15
298		1324	1 do	dust	100	12
302	Meddegodda	1336	9 hf ch	pek sou	360	18
303		1339	4 do	dust	220	13

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Allington	529	2 ch	dust	240	12
8	Ooonoogaloya	541	8 do	pek sou	680	26
11		550	2 do	fans	268	18
16	Wadhurst	565	7 do	pek sou	630	20
17		568	1 hf ch	dust	85	15
23	Kandaloya	566	10 do	dust	500	13
27	Perth	598	7 ch	pek sou	525	18
28		601	3 hf ch	pek dust	225	14
35	Eila	622	5 ch	fans	500	15
38	Koslande	631	2 do	pek sou	180	23
39		634	2 do	fans	220	19
40		637	2 do	dust	160	13
51	Coslande	670	2 do	pek sou	180	23
52		673	2 do	fans	220	19
53		676	2 do	dust	160	14
58	Mahanilu	691	7 hf ch	dust	630	12
63	G F R, in est. mark	706	4 ch	dust	520	14
68	Brownlow	721	7 hf-ch	bro pek fans	455	19
80	S G	757	5 do	dust	375	13
87	Nahavilla	778	6 ch	pek	540	24
91	W H	790	7 hf ch	bro pek	371	10
92		793	6 do	pek	270	16
93		796	6 do	pek sou	288	17
97	Syston	808	1 ch	dust	150	14
98		811	1 do	fans	120	13
101	Little Valley	820	4 hf ch	dust	300	15
106	Katahoola	835	5 ch	pek dust	400	13
114	Dalhousie	859	9 hf-ch	or pek	405	47
119		874	7 do	bro pek fans	455	23
123	Ben Nevis	886	8 ch	pek sou	688	25
124		889	4 hf ch	dust	348	14
138	Morahela	931	5 ch	sou	3?0	16
139		934	9 do	sou	684	16
140		937	3 hf-ch	dust	252	13
141	A T	940	1 ch	unas	100	7
142		943	1 do	unas	90	7
143		646	6 do	unas	480	6
144		949	2 do	unas	200	5
145		952	1 do	unas	80	6
149	Ottery	964	3 hf-ch	dust	240	14
155	W H R	982	5 ch	dust	550	15
163	Heatherly	6	4 do	young hyson No. 2	332	26
164		9	6 do	hyson	480	26 bid
166		15	4 do	green tea fans	324	8 bid
167		18	2 do	green tea dust	230	8
171	Glentilt	30	7 do	pek sou	665	22
172		33	8 hf-ch	bro mix	480	12
178	Doonevale	51	6 ch	bro pek fans	570	6
180	Keenagaha Ella	57	6 do	pek fans	480	13
181		60	1 hf ch	dust	95	10
183	Orange Field	66	5 ch	bro pek	525	15
186	Evalgolla	75	3 boxes	or pek	120	23
187		78	4 boxes	pek	140	20
190		87	1 hf ch	fans	55	14
191		90	1 ch	dust	60	13
192	Peru	93	1 do	bro pek	105	27
204	Rondura	129	2 do	dust	300	12
205	F L	132	6 do	sou	600	19

CEYLON COFFEE SALES IN LONDON.

(From Our Commerical Correspondent.)

MINCING LANE, Dec. 7.

"Lancashire."—Middlemarch, 3 bags sold at 44s; 4 bags sold at 37s; 2 bags sold at 45s.

"Kawachi Maru".—GA Ouvah 1, 1 barrel sold at 77s; ditto 2, 3 casks and 1 tierce sold at 67s; ditto 3, 1 barrel, 1 tierce and 3 casks sold at 63s 6d; GA Ouvah 1 PB, 1 cask sold at 75s; ditto Triage, 1 tierce sold at 45s; 1 bag sold at 37s.

CEYLON CARDAMOMS SALES IN LONDON.

"Workman."—Knuckles Group, Madukelle, Mysore A, 4 cases sold at 2s 2d; ditto B, 4 cases sold at 1s 4d; ditto Seed, 1 case sold at 2s 3d.

"Cowrie."—OBEC in estate mark, Nilloomally Mysore O, 3 cases sold at 1s 4d.

"Alcinous."—Duckwari A 1, 2 cases sold at 4s 2d; ditto B 1, 4 cases sold at 3s 3d; ditto C 1, 7 cases sold at 2s 4d; ditto D 1, 3 cases sold at 1s 5d; ditto A Splits, 1 case sold at 3s 5d; ditto E Splits, 4 cases sold at 1s 5d; 3 cases sold at 1s 7d.

"Lancashire."—Tonacombe Special, 3 cases sold at 4s 2d; 1 case sold at 4s 3d; Tonacombe 1, 2 cases sold at 3s 3d; 6 cases sold at 3s 4d; Gammaduwa 1, 1 case sold at 3s 4d; ditto 2, 2 cases sold at 2s 7d; ditto 3, 3 cases sold at 1s 10d; ditto Seeds, 1 case sold at 2s 9d.

"Alcinous."—Vedehette Cardamoms Ex, 1 case sold at 3s 6d; ditto AA, 7 cases sold at 2s 9d; ditto A, 2 cases sold at 2s; 3 cases sold at 1s 11d; ditto B, 4 cases sold at 1s 5d; ditto C, 2 cases sold at 1s 4d; 2 cases sold at 1s 3d; ditto D, 1 case sold at 2s 6d; Kandaloya Cardamoms A, 4 cases sold at 1s 5d.

'Bingo Maru."—Altwood Cardamoms, 1 case sold at 2s 6d; 1 case sold at 2s; 1 case sold at 1s 3d; 1 bag Seed sold at 2s 6d.

"Prometheus."—Altwood Cardamoms B, 3 cases sold at 1s 3d; ditto O, 1 case sold at 1s 1d; ditto Splits, 1 case sold at 1s 3d; ditto Seed, 1 case sold at 2s 6d; OBEC in estate mark, Dankande, 2 cases sold at 2s 6d; 11 cases sold at 2s 7d; 2 cases sold at 1s 3d; 4 cases sold at 1s 4d; ditto Seed, 1 bag sold at 2s 4d.

"Alcinous."—OBEC in estate mark, Dankande B, 2 cases sold at 1s 4d; ditto C, 2 cases sold at 1s 3d; ditto D, 1 case sold at 2s 7d; OBEC in estate mark, Nilloomally Mysore O, 1 case sold at 2s; ditto OO, 2 cases sold at 1s 7d, and 1 case sold at 1s 6d; ditto OOO, 4 cases sold at 1s 2d; ditto Seed. 1 bag sold at 2s 5d; OBEC in estate mark, Dankande, 6 cases sold at 2s 3d; 4 cases sold at 1s 3d; Midlands O, 2 cases sold at 3s; ditto 1, 7 cases sold at 2s 1d; ditto 2, 1 case sold at 1s 1d; ditto B & S, 1 case sold at 1s 4d; ditto Seed, 1 case sold at 2s; ditto NM in estate mark, 1 case soldat 1s 3d.

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, Dec. 14.

"Orissa."—2 Leangawella, 6 casks sold at 75s; ditto 3, 1 cask and 1 barrel sold at 48s 6d; ditto PB, 1 cask sold at 68s.

CEYLON COCOA SALES IN LONDON.

"Lancashire."—A Yattawatte, 20 bags sold at 90s 6d; 31 bags sold at 90s; ditto B, 2 bags sold at 72s; ditto 2, Yattawatte, 6 bags sold at 60s.

"Alcinous."—2, 1 bag sold at 65s; ditto 2, 4 bags sold at 66s 6d; ditto T, 2 bags sold at 63s; ditto Nibs, 2 bags sold at 69; ditto Rockhill, 13 bags sold at 83s; ditto B, 6 bags sold at 40s; ditto C, 6 bags sold at 53s 6d; ditto Maousawa AA, 4 bags sold at 85s 6d; ditto A, 6 bags sold at 45s 6d; ditto B, 1 bag sold at 46s.

"Bingo Maru."—Hylton O O London, 3 bags sold at 78s; ditto, 4 bags sold at 60,

Coffee is low and safe in price. Sugar is weak. Cotton crop 9½ to 10½ millions.

No. 2. COLOMBO, JANUARY 14, 1901. { PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[9,445 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Battalgalla	48	26	ch	or pek	2470	27 bid
2		51	19	do	pek	1615	35 bid
3		54	14	do	pek sou	1120	34
4	Hornsey	57	27	ch	bro or pek	1215	50 bid
5		60	19	do	or pek	1615	36 bid
6		63	10	do	pek	650	34

Messrs. Forbes & Walker

[342,433 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Castlereagh	2261	29	ch	bro pek	2755	38
2		1264	11	do	or pek	880	34
3		1267	13	do	pek	1040	31
5	Broadoak	1273	6	ch	pek fans	714	14
6	L G F, in est. mark	1276	16	ch	dust	2240	14
7		1279	17	do	sou	1700	14
8		1282	10	do	sou	1000	12
14	O B E C, in estate mark Forest Hill	1300	22	ch	bro or pek	2200	61
15		1303	34	do	bro pek	3400	46
16		1306	15	do	or pek	1350	42 bid
17		1309	24	do	pek No 1	2160	37
18		1312	30	do	pek ,, 2	2700	34
24	Shrubs Hill	1330	43	do	bro pek	4601	32 bid
25		1133	58	do	or pek	4930	33 bid
26		1336	43	do	pek	3569	26 bid
27	Sarnia	1339	28	ch	or pek	3224	28
28		1342	18	do	bro or pek	1656	33 bid
29		1345	12	do	pek	960	23
30	Macaldenia	1348	13	hf ch	bro pek	715	36
32		1354	36	hf ch	pek	1800	31
36	Tymawr	1366	18	do	bro or pek	1089	50
37		1369	25	do	or pek	1375	40
38		1372	30	do	pek	1500	36
39		1375	21	do	pek sou	2050	33
40	Doranakande	1378	13	ch	bro pek	1300	27
41		1381	11	do	pek	990	20
42		1384	16	do	pek sou	1440	16
44	Monkswood	1390	20	hf ch	bro pek	1200	74
45		1393	27	do	or pek	1485	70
46		1396	20	do	pek	1800	56
47	B D W P	1399	28	ch	sou No. 2	2240	8 bid
51	Rowley	1411	38	hf ch	bro pek	1900	35
52		1414	41	do	pek	2050	27
53	Pine Hill	1417	16	hf ch	bro or pek	960	51
54		1420	31	do	or pek	1860	39
55		1423	42	ch	pek	3360	31
57		1429	11	do	dust	990	15
60	A	1438	9	ch	bro pek	900	24
61		1441	7	ch	pek	700	17
66	St. Heliers	1456	34	hf ch	bro or pek	1870	36
67		1459	31	do	pek	1848	29
68	Maha Eliya	1462	36	do	bro or pek	1980	57 bid
69		1465	36	do	bro pek	1980	44
70		1468	41	ch	pek	4100	36
71		1471	11	do	pek sou	980	31
72	Ingrogalla packed in 2 oz. lead)	1474	15	ch	bro pek	1500	32
73		1477	14	do	pek	1190	23
75	I N G, in estate mark (packed in 2 oz lead)	1483	7	ch	pek fans	700	17
76		14·6	7	do	bro pek dust	840	16
79	Ingrogalla packed in 2 oz. lead)	1495	9	ch	bro pek	900	36
84	Wewawatte	1510	23	hf ch	bro pek	1334	23
86	K G, in estate mark	1516	64	ch	bro pek	6400	20
87		1519	41	do	pek	3485	19
88		1522	16	do	pek sou	1328	16
95	Harrow	1543	15	hf ch	or pek	825	42
96		1546	19	do	bro or pek	1140	46
97		1549	29	ch	pek	2755	36
98		1552	8	do	pek sou	720	35
101	Flint, in est. mark	1561	53	ch	pek sou	4770	18 bid
102	Cooroondoowatte	1564	12	hf ch	bro pek	720	55
103		1567	12	ch	pek	1200	29
104		1570	7	do	pek sou	700	24
105	Walton	1573	21	ch	bro pek	2315	36
106		1576	15	do	or pek	1350	31
107		1579	12	do	pek	1080	29
111	Torwood	1591	58	ch	bro pek	5220	26
112		1594	36	do	pek	2736	21
113		1597	22	do	pek sou	1672	19
114		1600	12	do	sou	960	17
115	Broadoak	1603	42	ch	bro tea	3360	14 bid
116		1606	45	do	sou	3690	11 bid
117	Weyungawatte	1609	22	ch	bro pek	2200	34
118		1612	22	do	pek	1980	26
119		1615	16	do	pek sou	1280	23
122	Marlborough	1624	15	ch	or pek	1425	32
123		1627	50	do	pek	4100	26
124		1630	22	do	pek sou	1760	22
125	Yataderia	1633	12	ch	pek sou	960	11
126	Patiagama	1636	14	hf ch	bro or pek	700	54
127		1639	19	ch	pek	1520	25
128		1642	10	do	pek sou	800	21
129		1645	6	do	bro or pek fans	780	13
131	Tonacombe	1651	17	ch	or pek	1530	33
132		1654	40	do	bro pek	4000	43
133		1657	32	do	pek	2850	33
134		1660	12	do	pek sou	1080	23
135	Glendon	1663	40	hf ch	or pek	1800	33
136		1666	30	ch	bro pek	3000	33
137		1669	43	do	pek	3655	27
138		1672	25	do	pek sou	2125	23
139	G	1675	10	ch	sou	800	18
140		1678	12	hf ch	dust	960	14
142	Ewhurst	1684	21	ch	bro pek	1863	29 bid
143		1687	26	do	pek	2158	23 bid
146	Haputale-Wella	1693	32	hf ch	bro pek	1760	34
147		1699	24	do	pek	1080	29
150	Vogan	1708	18	ch	bro pek	1800	47
151		1711	24	do	or pek	2160	39
152		1714	21	do	pek No. 1	1890	34
153		1717	52	do	pek No. 2	4680	31
154		1720	16	do	pek sou	1250	26
157	Stamford Hill	1729	54	hf ch	bro pek	3240	38
158		1732	18	ch	or pek	1530	40
159		1735	48	do	pek	4320	31
160		1738	11	do	pek sou	935	28
162	Tambiligalla	1744	23	ch	bro or pek	2155	34
163		1747	36	do	pek	2880	26
166	Hentleys	1756	33	hf ch	bro pek	1716	24
168		1762	17	ch	pek	1360	21
171	Bandarawela	1771	21	do	bro pek	2205	26 bid
172		1774	24	do	pek	2160	23 bid
173	Bandarawela	1777	13	ch	or pek	1300	30 bid
174		1780	25	do	bro pek	2750	26 bid
175		1783	24	do	pek	2112	25 bid
176		1786	24	do	pek sou	2208	21
177		1789	18	do	sou	1440	19
178	Geragama, Inv. No. 60	1792	23	ch	bro pek	2297	23 bid
179	Geragama, Inv. No. 61	1795	21	ch	bro pek	2097	29
180	Passara Group	1798	23	ch	bro or pek	2300	33
181		1801	13	do	or pek	1040	31
182		1804	27	do	pek	2430	28
183		1807	8	do	pek sou	720	21
184	Hayes	1810	21	ch	bro or pek	2100	33
185		1813	74	do	bro pek	7400	26
186		1816	71	do	pek	6390	23
187		1819	16	do	pek sou	1360	20
188		822	6	do	dust	780	14
190	High Forest	1828	56	hf ch	bro or pek	9·20	37
191	Weemalla	1831	18	ch	pek	1617	24
192	Bargany	1834	12	ch	bro pek	1080	38 bid
193		1837	11	do	pek	880	32 bid
194		1840	10	do	pek sou	800	23 bid
197	Middleton	1849	21	hf-ch	bro or pek	1176	60
198		1852	41	ch	bro pek	4100	46
199		1855	45	do	pek	4050	38
200	Elkadua	1858	29	hf ch	bro or pek	2900	28 bid
201		1861	45	do	or pek	3600	26 bid
202		1864	57	do	pek	4560	25 bid
203		1867	23	do	pek sou	1840	22 bid
205	Elkadua	1873	24	ch	bro or pek	2400	28 bid
206		1876	29	do	bro pek	2320	26 bid
207		1879	35	do	pek	28·0	25 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
208		1882	16 ch	pek sou	1280	22 bid
209		1885	25 do	pek No 2	2000	20 bid
210	Ella Oya	1888	19 bf ch	young byson	950	35
211		1891	19 do	hyson	760	30
212		1894	26 do	byson No. 2	988	27
214	St. Heliers	1900	32 bf cb	bro or pek	1757	29
215	Kelaneiya and Braemar	1903	24 ch	bro or pek	2400	30
216		1906	13 do	or pek	1300	28
217		1909	12 do	pek	1200	24
220	Stafford	1918	12 bf cb	bro or pek	717	60 bid
223	Yahaella	1927	11 do	bro pek	1097	27
224	Dunnottar	1930	9 ch	bro pek	897	19

Messrs. Somerville & Co.—[116,025 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Blackburn	1342	15 ch	pek sou	1245	17
2		1345	17 bf ch	fans	1275	15
3		1348	10 do	dust	850	14
6	H J S	1357	19 hf ch	pek sou	1140	21
8	Glenalmond	1363	12 cb	bro pek	1143	30 bid
9		1366	9 do	pek	796	25 bid
17	R, in estate mark	1390	11 ch 1 bf cb	pkgs. Fluff	900	5
19	Doragalla	1396	18 ch	bro pek	1710	36 bid
20		1399	36 do	pek	2880	31
21		1402	17 do	pek sou	1360	26
22		1405	9 do	bro or pek fans	1080	32
24	Ossington	1411	10 ch	bro pek	1000	19 bid
25		1414	10 do	bro pek	1000	18 bid
26		1417	11 do	pek	1100	13 bid
27		1420	7 do	pek sou	700	12 bid
31	Oakham	1432	30 hf cb	or pek	1350	41 bid
32		1435	35 do	bro pek	2100	45 bid
33		1438	28 ch	pek	2520	30 bid
34		1441	9 do	pek sou	855	25 bid
36	Polgabakande	1447	25 ch	bro pek	2375	24 bid
37		1450	19 do	pek	1615	24
38		1453	15 do	pek sou	1200	18
39		1456	21 do	pek sou	1680	16
40	Yspa	1459	18 ch	pek sou	1440	30
41	Marigold	1462	26 hf cb	bro or pek	1430	51
42		1465	21 do	or pek	987	43
44		1471	15 do	pek sou	720	45
47	W Tenne	1480	18 bf cb	bro pek	990	27
48		1483	26 do	pek	1300	20
49		1486	34 do	pek sou	1700	16
50	Hapugasmulle	1489	12 ch	bro pek	1320	26
51		1492	17 do	pek	1530	21
53	Monrovia	1498	45 ch	bro pek	4500	26
54		1501	36 do	pek	3420	22
55		1504	20 do	pek sou	2000	19
56		1507	9 do	bro tea	855	8
58	Ravenscraig	1513	24 cb	or pek	2040	29 bid
59		1516	29 do	bro pek	1595	25 bid
60		1519	25 do	pek	2250	24
62	Ingeriya	1525	46 bf cb	bro pek	2300	26
63		1528	23 do	bro or pek	1380	22
64		1531	36 do	pek	1728	20
65		1534	24 do	pek sou	1104	16
66		1537	25 do	unas	1250	19
68	Siriniwasa	1543	16 ch	bro pek	1600	35
69		1546	22 do	pek	1980	24
70		1549	12 do	pek sou	1080	20
71		1552	19 do	bro or pek fans	1995	21
72		1555	5 do	dust	775	13
73	W, in estate mark	1558	9 cb	pek	852	11
75	Ambalawa	1564	20 bf ch	bro pek	1000	21
76	Mahatenne	1567	19 cb	bro pek	1900	24
77		1570	11 do	pek	1045	22
80	Poonkande	1579	12 ch	pek	1200	21 bid
81	Kurunegalle est. Co	1582	24 bf ch	bro or pek	1440	33
82		1585	15 do	or pek	825	30
83		1588	16 bf ch	pek	1600	24
86	Waganila	1597	15 cb	bro pek	1500	45
87		1600	11 do	or pek	990	40
95	Gingranoya	1624	34 bf cb	bro or pek	1870	23 bid
96		1627	18 do	or pek	900	23 bid
97		1630	24 cb	pek	1920	22 bid
103	D, in estate mark	1648	13 cb	pek sou	1235	11 bid
104	Harangalla	1651	13 ch	or pek	1170	32
105		1654	14 do	bro or pek	1330	32
106		1657	30 do	pek	2400	30
107		1660	9 do	sou	720	21
118	Mawatara	1693	18 bf ch	pek	900	24

[Mr. E. John.—102,096 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	W, in est. mark	138	9 ch	pek fans	1193	17
3		141	8 do	dust	1354	13
7	Dickapittia	153	34 do	bro pek	3400	38
8		156	40 do	pek	4000	27
9		159	10 bf-cb	dust	800	15
10		162	10 do	fans	700	17
11	Cabin Ella	165	10 ch	bro or pek	1100	38 bid
12		168	10 do	pek No. 1	1000	32
13		171	12 do	pek No. 2	1140	28
14		174	9 do	sou	765	19
15	Glassaugh	177	44 hf cb	or pek	2332	65
16		180	32 do	bro or pek	2080	57
17		183	35 ch	pek	3500	47
19	Mocha	189	22 do	bro or pek	2200	58
20		192	12 do	or pek	1020	62
21		195	15 do	pek	1200	48
22		198	16 do	pek sou	1280	44
23	Koslande	201	14 hf-cb	bro pek	770	40
24		204	13 ch	pek	1170	30
28	Gingran Oya	216	30 do	pek	2400	26
29	St. John's	219	24 hf-ch	bro or pek	1392	57 bid
30		222	30 do	or pek	1500	57
31		225	30 do	pek	1560	46
32	Coslande	228	14 do	bro pek	770	40
33		231	13 ch	pek	1170	30
37	Brownlow	243	34 hf-ch	bro or pek	1768	39 bid
38		246	25 ch	bro pek	2150	32 bid
39		249	33 do	pek	2772	30 bid
40	Oonoogaloya	252	17 do	bro or pek	1700	53
41		255	10 do	or pek	900	44
42		258	24 do	pek	2160	38
44	Ohiya	264	13 do	bro pek	754	35 bid
45		267	13 do	pek	1344	25 bid
46		270	15 do	pek sou	1320	25
47		273	10 do	sou	900	20
48	X Y Z	276	8 hf-cb	pek dust	720	14
50	S J	282	7 ch	bro pek	700	28
52	Uda	288	8 do	bro pek	736	12
53		291	15 do	pek	1110	12
55		297	11 hf cb	dust	924	14
56	Galloola	300	27 ch	bro pek	2700	38 bid
57		303	36 do	pek	3240	31 bid
58		306	19 do	pek sou	1520	24 bid
61	Loughton	315	32 bf ch	bro pek	1600	35 bid
62		318	52 do	pek	2600	25 bid
63		321	50 do	pek sou	2500	22 bid
66	Maskeliya	330	46 do	bro or pek	2300	39
67		333	15 ch	or pek	1275	37
68		336	26 do	pek	2600	31
69		339	10 do	pek sou	1000	21
74	Agra Ouvah	354	35 hf cb	bro or pek	2100	58
75		357	59 do	or pek	3422	44
76		360	23 ch	pek	2162	43
77	Glasgow	363	40 do	bro or pek	3200	61
78		366	18 do	or pek	1260	62
79		369	11 do	pek	935	53
80		372	12 do	pek sou	1140	47

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
7	Hornsey	63	7 ch	pek sou	560	33

[Messrs. Forbes & Walker.]

Lot.		Box	Pkgs.	Name.	lb.	c.
4	Castlereagh	1270	7 ch	pek sou	560	26
19	A & F (packed in 2 oz. lead)	1315	2 ch	bro pek	200	25
20		1318	4 do	pek	400	10
21		1321	4 do	pek sou	400	9
22		1324	3 do	congou	270	7
23		1327	1 do	dust	83	11
31	Macaldeniya	1351	10 bf-cb	or pek	500	32
33		1357	10 do	pek sou	500	25
34		1360	3 do	bro mix	150	22
35		1363	3 do	dust	225	14
45	Doranakande	1387	2 ch	dust	158	12
48	B D W P	1402	5 bf ch	fans	525	25
49		1405	1 do	dust	90	14
50		1408	3 do	do No. 2	225	13
56	Pine Hill	1426	9 ch	pek sou	630	26
58		1432	1 do	sou	86	10
59	Allerton	1435	5 ch	dust	600	14
62	A	1444	4 do	pek sou	380	17
63		1447	3 do	sou	285	15
64		1450	1 do	dust	150	
65		1453	1 do	fans	120	19
74	Ingrogalla (packed in					

Lot.		Box.	Pkgs.	Name.	lb.	c.
	2 oz. lead)	1480	6 ch	pek sou	510	23
77	I N G, in est. mark (packed in 2 oz. lead)	1489	6 ch	sou	480	13
78	Ingrogalla packed in 2 oz. lead)	1492	2 ch	bro pek No. 2	200	
80		1498	8 do	pek	680	
81	I N G, in est. mark packed in 2 oz. lead)	1501	1 ch	pek sou	80	16
82		1504	1 do	pek fans	100	16
83		1507	3 do	red leaf	255	7
85	Wewawatte	1513	12 hf ch	pek	600	19
89	K G, in estate mark	1525	4 ch	sou	360	15
90		1528	7 hf-ch	fans	420	15
91		1531	2 ch	dust	272	13
92	P C H Galle, in estate mark	1534	4 hf ch	young hyson	200	36
93		1537	4 do	hyson	200	34
94		1540	5 do	hyson No. 2	250	29
99	Kelvin	1555	3 ch	pek fans	300	12
100		1558	2 do	bro mix	160	7
108	Walton	1582	3 ch	bro tea	245	18
109		1585	1 do	dust	150	14
110	Rosita	1588	1 ch	or pek	73	33
120	Weyungawatte	1618	2 ch	bro tea	200	20
121		1621	2 hf ch	dust	170	13
130	Patiagama	1648	10 hf ch	bro fans	600	16
141	G	1681	6 do	bro tea	360	16
144	Ewhurst	1690	5 ch	pek sou	420	20
145		1693	7 hfch	fans	532	14
148	Haputalewella	1702	10 hf ch	pek sou	400	24
149		1705	3 do	fans	240	16
155	Vogan	1723	3 ch	bro pek fans	375	20
156		1726	6 hf ch	dust	510	14
161	Stamford Hill	1741	7 hf ch	dust	595	16
164	Tembiligalla	1750	1 ch	pek sou	100	16
165		1753	1 do	bro pek fans	110	
167	Hentleys	1759	9 hf ch	or pek	396	
169		1765	6 ch	pek sou	414	18
170		1768	3 hf ch	fans	225	16
189	B, in estate mark	1825	5 ch	unas	510	15
195	B Y, in estate mark	1843	2 ch	fans	200	16 bid
196		1846	1 do	dust	85	14
213	Ellaoya	1897	4 ch	sifting	240	26
218	Kelaneiya and Braemar	1912	4 ch	sou	400	21
219		1915	8 hf ch	dust	640	16

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name	lb.	c,
4	Blackburn	1351	2 ch	sou	186	8
5	H J S	1354	10 hf-ch	bro pek	600	24
7		1360	7 do	dust	526	15
10	Glenalmond	1369	5 ch	pek sou	373	18
11		1372	5 do	bro pek fans	511	22 bid
12		1375	1 do	bro or pek	88	39
13		1378	1 do	dust	137	13
14	R, in estate mark	1381	8 ch	bro or pek	600	26
15		1384	4 do	or pek	268	25
16		1387	3 do	pek sou	225	17
23	Doragalla	1408	4 ch	bro mix	540	12
28	Ossington	1423	1 ch	dust	1	12
29		1426	1 do	unas	110	9
30		1429	1 do	bro tea	109	7
35	Oakham	1444	4 ch	pek fans	320	17
43	Marigold	1468	11 hf ch	pek	550	48
45		1474	5 do	bro pek fans	330	40
46		1477	5 do	pek dust	375	31
52	Hapugasmulle	1495	1 ch	dust	160	13
57	Monrovia	1510	2 ch	pek dust	320	13
61	Ravenscraig	1522	7 hf ch	fans	560	15
67	Ingeriya	1540	4 hf ch	dust	340	14
74	M G	1561	4 hf ch	bro mix	216	6
78	Mahatenne	1573	4 ch	pek sou	360	18
79	Poonkandy	1576	6 ch	bro or pek	600	34

Lot.		Box.	Pkgs.	Name.	lb.	c.
84	Kurunegalle est Co	1591	3 ch	pek sou	300	21
85		1594	3 hf-ch	dust	240	14
88	Waganila	1603	3 ch	pek	270	33
89		1606	4 hf ch	pek fans	289	20
90	D, in estate mark	1609	1 ch 1 hf ch	bro pek	140	10 bid
91		1612	2 ch	pek	159	10 bid
92		1615	1 do 1 hf ch	dust	120	12
93	A P	1618	1 hf ch	pek fans	50	10
98	D B R, in estate mark	1633	1 ch	bro pek	85	21
99		1636	1 do	pek	77	16
100		1639	1 hf ch	pek sou	50	13
101		1642	1 do	dust	85	12
102		1645	1 do	red leaf	38	7
108	Arcady	1663	7 hf-ch	bro pek	350	25
109		1666	8 do	pek	400	21
110		1669	4 do	pek sou	200	18
111		1672	1 do	sou	50	14
112	Mawatara	1675	6 hf ch	bro pek	330	27
113		1678	4 do	bro or pek	240	26
114		1681	7 do	pek	350	24
115		1684	3 do	pek sou	150	18
116		1687	10 do	bro pek	550	29
117		1690	10 do	bro or pek	600	28
119		1696	8 do	pek sou	400	21
120		1699	1 do	dust	90	41

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	135	2 ch	dust	210	12
4	W, in est. mark	144	6 do	sou	538	10
5		147	1 do	pek sou	80	18
6		150	1 do	pek (in 1 lb. leads)	100	25
18	EK, in est. mark	186	3 do	bro mix	285	7
25	Koslande	207	2 do	pek sou	180	24
26		210	2 do	fans	220	25
27		213	2 hf ch	dust	160	16
34	Coslande	234	2 ch	pek sou	180	24
35		237	2 do	fans	220	25
36		240	2 hf ch	dust	160	16
43	Oonoogaloya	261	8 ch	pek sou	600	35
49	X Y Z	279	4 do	sou	268	16
51	S J	285	5 do	pek	500	23
54	Uda	294	8 do	pek sou	576	9
59	Galloola	309	4 do	dust	320	14
60		312	3 do	fans	300	24
64	Loughton	324	6 hf-ch	dust	300	15
65		327	10 do	fans	500	16
70	Coundon	342	6 do	fans	360	16
71		345	1 do	dust	90	13
72	K T	348	2 ch	bro pek	180	23
73		351	2 do	pek	180	

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Dec. 21.

"Arcadia."—Meegama A, 44 bags sold at 95s; 1, 20 bags sold at 76s; B, 6 bags sold at 64s; B1, 3 bags sold at 66s.

"Bingo Maru."—1 MAK in estate mark, Estate Cocoa, London, 5 bags sold at 62s 6d.

"Sado Maru."—B MAK in estate mark, 10 bags sold at 64s 6d.

"Tamba Maru."—Hylton OO, 27 bags sold at 100; 1 bag sold at 67s; ditto T, 2 bags sold at 51s 6d.

"Shropshire."—Kepitigala, 6 bags sold at 68s.

"Tamba Maru."—2, 1 bag sold at 69s; T, 1 bag sold at 46s.

No. 3. COLOMBO, JANUARY 21, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[44,732 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Torrington	49	18	ch	or pek	1620	30 bid
2		52	10	do	bro pek	1050	43 bid
3		55	53	do	pek	4505	35
4		58	30	do	pek sou	2250	18 bid
5	Hornsey	61	37	hf ch	bro or pek	1665	54 bid
6		64	39	ch	pek	3315	37
7		67	16	do	pek sou	1280	29
8	Mapitigama	70	8	ch	bro or pek	784	35
9		73	16	do	bro pek	1360	35
10		76	25	do	pek	2000	21 bid
11		79	18	do	pek sou	1440	19 bid
15	Riversdale, in est. mark	91	25	hf ch	bro pek	1375	out
16		94	25	do	pek	1250	out
17		97	25	do	pek sou	1000	25 bid
18	Battalgalla	100	22	ch	or pek	2090	34 bid
19		3	18	do	pek	1530	28 bid
20		6	13	do	pek sou	1040	31
21	Ovoca	9	30	hf ch	bro or pek	1487	62 bid
22		12	23	do	or pek	1026	45
23		15	25	ch	pek	2125	38 bid
24		18	19	do			
			1	hf ch	pek sou	1736	26 bid
27		27	19	ch			
			1	hf ch	unas	2029	13 bid
28	Manickwatte	30	42	do	bro or pek	2391	23 bid
29		33	24	ch	or pek	1920	19 bid

[Mr. E. John.—321,160 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Harrisland	375	18	ch	bro pek	1728	25
2		378	11	do	pek	880	22
3		381	9	do	pek sou	720	20
5	Poilakande	387	56	do	bro pek	5600	25
6		390	36	do	pek	3240	27
7	P K T	393	9	do	dust	785	14
8	Natuwakelle	396	21	do	bro pek	1890	24
9		399	12	do	bro or pek	1200	23 bid
10		402	18	do	pek	1620	23
11		405	10	do	pek sou	900	19
13	Kandaloya	411	58	hf ch	bro pek	2610	32
14		414	21	do	or pek	840	27 bid
15		417	123	do	pek	4920	26
19	Iona	429	45	ch	bro or pek	2610	51 bid
20		432	31	do	or pek	2790	41 bid
21		435	26	do	pek	2210	39
23	Lunugalla	441	10	do	bro pek	1000	18 bid
24		444	17	do	pek	1360	18 bid
27	Myraganga	453	17	do	or pek	1445	37 bid
28		456	10	do	bro pek	1050	39 bid
29		459	43	do	pek	3655	30 bid
30		462	36	do	pek sou	2520	26
32		468	8	do	or pek fans	920	21 bid
33	Templestowe	471	27	do	bro or pek	2160	34 bid
34		474	24	do	or pek	1008	48
35		477	25	do	pek	2000	34 bid
36		480	14	do	pek sou	1190	33
37	Glentilt	483	35	do	bro pek	3500	37 bid
38		486	29	do	or pek	2610	35 bid
39		489	23	do	pek	1955	35
40		492	14	hf-ch	fans	1120	15 bid
41	Cleveland	495	32	do	flow or pek	1792	52
42		498	31	do	pek	1705	43
45	Agra Ouvah	507	28	do	bro or pek	1680	53
46		510	58	do	or pek	3364	33 bid
47		513	21	ch	pek	1974	39
48	Glassaugh	516	33	hf-ch	or pek	1815	67
49		519	24	do	bro or pek	1560	57
50		522	24	ch	pek	2400	53
52		528	10	hf-ch	dust	900	20
55	Suduganga	534	10	ch	or pek	850	out
55		537	16	hf ch	bro or pek	800	44
56		540	23	ch	pek sou	1725	20 bid
58		546	10	do	sou	700	18
59	M N	549	15	do	or pek	1500	41
60		552	8	do	bro or pek	800	51
61		555	27	do	pek	2565	37
62		558	9	do	pek sou	765	31
63	Kotuagedera	561	45	do	bro pek	4275	22 bid
64		564	20	do	pek	1600	19 bid
67		573	10	hf-ch	bro pek fans	750	14 bid
71	Mahapahagalla	585	20	ch	or pek	1800	32
72		588	17	do	pek sou	1360	24
73	Agra Ouvah	591	17	hf ch	bro or pek	1020	56
74		594	49	do	or pek	2842	37 bid
75		597	15	ch	pek	1410	39
76		600	8	do	pek sou	736	30
77		603	23	hf ch	pek fans	1840	22
79	Kolapatna	609	59	do	bro or pek	2950	39
80		612	39	do	bro pek	1872	36 bid
81		615	24	do	pek	1080	32
82		618	18	do	bro or pek fans	1260	19
84	Mocha	624	22	ch	bro or pek	2200	52 bid
85		627	12	do	or pek	1380	53
86		630	12	do	pek	1080	46
87		633	20	do	pek sou	1600	42
88	Mossend	636	16	hf-ch	bro or pek	880	53
89		639	19	do	or pek	950	44
90		642	23	do	pek	1035	45
94	Bellongalla	654	32	ch	bro pek	3200	21 bid
95		657	29	do	pek	2320	19 bid
97	M P	663	16	hf-ch	bro pek	720	20 bid
98		666	21	ch	bro or pek	1995	20 bid
99		669	44	do	pek	3300	18 bid
100		672	16	do	pek sou	1120	16
101		675	8	do	bro mix	720	10
103		681	23	do	pek fans	2645	16
104	Eila	684	44	do	bro or pek	4840	22 bid
105		687	39	do	or pek	3120	24
106		690	12	do	pek sou	960	18
107	Warleigh	693	14	hf ch	bro or pek	840	64 bid
108		696	14	do	or pek	770	55
109		699	29	ch	bro pek	2755	31 bid
110		702	24	do	pek	2040	32 bid
112	V, in est. mark	708	12	do	bro or pek	1320	24 bid
113	Elston	711	12	do	or pek	1080	36 bid
114		714	34	do	bro pek	3740	49
115		717	32	do	pek	3040	36
116		720	25	do	pek	2125	36
117		723	23	do	pek sou	2070	30
118	K G	726	9	do			
			1	hf ch	bro pek	910	22 bid
121	Syston	735	38	ch	bro pek	3610	24 bid
122		738	26	do	pek	2080	26
123		741	14	do	pek sou	1120	20
132	Troup	768	22	do	pek sou	1980	21
138	M T	786	23	do	bro pek	2070	20 bid
139		789	29	do	bro or pek	2755	21 bid
140		792	37	do	pek	2775	16 bid
141		795	46	do	pek sou	3220	16
142	Lameliere	798	29	do	bro or pek	2755	39 bid
143		801	25	do	bro pek	2250	out
144		804	50	do	pek	4250	30 bid
145		807	13	do	sou	1360	14
146	Mocha	810	13	do	bro or pek	1300	52 bid
147		813	14	do	or pek	1260	53
148		816	16	do	pek	1520	46
150	North Pundul-oya	822	8	do	young hyson	800	33
151		825	14	do	hyson	1260	31
152		828	14	do	hyson No. 2	1400	2
156	Gonavy	840	11	hf ch	dust	825	1
158	Gingranoya	846	28	do	bro pek	1680	29 bid
159		849	20	do	or pek	1100	31 bid
160		852	20	ch	pek	1600	24 bid
162		858	11	hf ch	fans	770	18
163		861	9	do	dust	765	17
164	Kanangama	864	21	do	bro or pek	2205	22
165		867	32	do	bro pek	3040	23
166		870	31	do	pek	2790	19 bid
167		873	26	do	pek sou	2080	16
168		876	10	do	pek fans	1000	15 bid
170	Bittacy	882	13	do	bro pek	1300	45
171		885	9	do	pek	810	38
172		888	10	do	pek sou	900	31 bid
181	Rookwood	915	18	hf ch	bro or pek	1044	48 bid
182		918	10	ch	or pek	900	40
182		921	13	do	pek	1118	33
186	Cabin Ella	930	7	do	bro or pek	770	32 bid
188		936	13	do	pek No. 2	1235	26
191		945	9	do	sou	810	18
193	Brownlow	951	37	hf ch	bro or pek	1961	41
194		954	25	ch	bro pek	2050	34
195		957	40	do	pek	3440	29
196		960	11	hf ch	bro pek fans	748	18 bid
197	Ratwatte	963	16	ch	bro pek	1600	20 bid
198		966	33	do	pek	2970	18 bid
201	H	975	18	do	sou	1080	16
202		978	12	do	bro mix	1212	12
205	M S S	987	33	hf-ch	bro pek	1650	30 bid
206	Morahela	990	33	ch	bro or pek	3102	23 bid
207		993	14	do	bro or pek	1344	23 bid
208		996	24	do	bro or pek	2256	23 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
09		999	20 ch	or pek No.1	1540	32
210		2	25 do	or pek No.2	1950	23 bid
211		5	26 do	pek	2028	19 bid
212		8	20 do	pek	1580	19 bid
215	Ottery	17	27 do	bro or pek	2835	45
216		20	29 do	or pek	2320	46
217		23	35 do	pek	2975	38
221	Maskeliya	35	16 do	or pek	1280	32 bid
222		38	26 do	pek	2600	27
223	Elkaduwa	41	6 do	mix	780	10
225	G W, in est. mark	47	14 do	bro pek	1400	20 bid
226		50	15 do	or pek	1350	out
227		53	22 do	pek	1870	out
228		56	12 do	pek sou	960	out
229	Gangawatte	59	17 do	bro or pek	1700	58
230		62	26 do	bro pek	2600	36
231		65	37 do	pek	3330	35
232		68	12 do	pek sou	1080	30
233		71	6 do	dust	760	16

Messrs. Forbes & Walker.

[706,830 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Sirikandura	1945	10 ch	bro pek	1000	33
6		1948	9 do	pek	855	23
7		1951	9 do	pek sou	810	20
11	Hatton	1963	24 ch	bro pek	2495	52
12		1966	28 do	pek	2520	37
15	Drayton	1975	17 do	or pek	1615	45
16		1978	22 do	pek	1870	37
17		1981	12 do	pek sou	1020	35
19	O B E C, in estate mark Sidumallay	1987	14 ch	or pek	1190	35
20		1990	45 do	bro pek	4140	31 bid
21		1993	30 do	pek	2190	26 bid
22		1996	57 do	pek sou	3534	22
24	C S G	2002	66 hf ch	bro pek	3300	34
25		2005	33 ch	pek	2640	28
26		2008	14 do	pek sou	1120	26
28		2014	10 hf cb	dust	800	16
29	Arapolakande	2017	71 hf cb	young hyson	3550	35
30		2020	38 ch	hyson	3420	29
31		2023	14 do	hyson No. 2	1400	26
33	Bandara-Eliya	2029	41 hf ch	or pek	1640	48 bid
34		2032	41 do	bro or pek	2050	62 bid
35		2035	34 do	pek	1428	43 bid
40	Pooprassie	2050	21 do	hyson	1550	20 bid
48	Pooprassie	2074	24 do	hyson No. 2	1200	27 bid
61	Loinorn	2113	19 ch	or pek	1710	66
63	Cooroondoowatte	2119	20 ch	pek	1292	28
64		2122	11 do			
		a	1 hf cb	pek sou	1148	23
67		213	9 do	dust	849	15
72	Yogama	2146	19 ch	bro pek	1900	29
73		2149	22 do	pek	1980	21
74		2152	16 do	pek sou	1250	16
76	Irex	2158	27 ch	bro pek	2430	23
77		2161	32 do	pek	2560	22
78		2164	15 do	pek sou	1200	20
81	Aberfoyle	2173	23 hf cb	bro pek	1288	26
82		2176	13 cb	pek	1235	24
86	L C L, in est. mark	2188	24 ch	sou	2280	16
93	Ireby	2209	52 hf ch	bro pek	2860	57
94		2212	16 ch	pek	1360	47
95		2215	13 do	pek sou	1105	38
97		2222	10 hf ch	dust	850	25
98	Marlborough	2224	15 ch	or pek	1122	31 bid
99		2227	37 do	pek	3068	29 bid
100		2230	19 do	pek sou	1479	23 bid
101	E D P	2233	13 ch	sou	910	16
103	M P	2239	11 ch	sou	880	17
104		2242	7 do	dust	980	16
107	K P W	2251	16 hf ch	bro pek	880	28
109		2257	17 do	pek	850	23
112	Tambiligalla	2266	15 ch	or pek	1350	31 bid
113		2269	40 do	pek	3200	25
117	Sembawatte	2281	17 ch	bro tea	1527	8
118	Harrington	2284	26 hf ch	bro or pek	1300	58
119		2287	21 ch	or pek	1995	38
120		2290	33 do	pek	2970	35
124	Munukettia Ceylon, in estate mark	2302	24 hf ch	or pek	1162	36
125		2305	44 ch	bro pek	2552	44
126		2308	23 do	pek	1840	34
127		2311	13 do	pek sou	1170	25
129		2317	9 do	dust	720	15
130	Pendle	2320	18 do	bro pek	1800	38
131		2323	23 do	do	2294	out
132		2326	21 ch	pek	1890	32
133		2329	12 do	pek sou	1080	27
137	X X X, in estate mark	2341	7 ch	pek sou	743	out
138	Yatiyana	2344	8 ch	pek	752	20
139	Parsloes	2347	53 ch	bro pek	5300	25
140		2350	23 do	pek	2070	24
142	Dunkeld	2356	51 hf ch	bro or pek	3060	41
143		2359	13 cb	or pek	1235	36
144		2362	21 do	pek	1890	35
145		2365	16 do	pek sou	1440	28
146		2368	20 hf cb	pek fans	1360	21
147		2371	12 do	dust	1080	16
148	Erracbt	2374	29 ch	bro or pek	2755	24
149		2377	26 do	or pek	2030	27
150		2380	34 do	pek	2720	22
151		2383	18 do	pek sou	1440	18
152		2386	10 do	bro or pek fans	1280	18
154	High Forest	2392	64 hf ch	or pek No 1	3840	71
155		2395	42 do	or pek	2310	57
156		2398	37 do	pek	1850	52
157	Polatagama	2401	55 ch	bro pek	5500	35
158		2404	16 do	or pek	1360	23 bi1
159		2407	77 do	pek	6545	20 bid
160		2410	31 do	pek sou	2790	17 bid
161		2413	10 do	bro pek fan	1000	17
162		2416	5 do	dust	750	14
163	Kirklees	2419	9 ch	bro or pek	900	37
164		2422	33 do	pek	2970	27 bid
165		2425	22 do	pek sou	1760	17 bid
167	Battawatte	2431	23 ch	bro or pek	2530	30
168		2434	20 do	pek	1800	22
171	Higb Fores	2443	45 hf ch	or pek No. 1	2700	65
172		2446	33 do	or pek	1749	57
173		2449	26 do	pek	1248	54
174	Ruanwella	2452	25 ch	or pek	2125	23 bid
175		2455	32 do	bro pek	3010	22 bid
176		2458	33 do	pek	3420	26
177		2461	13 do	pek sou	1170	18
179	Pallagodde	2467	17 ch	bro or pek	1700	24
180		2470	28 do	bro pek	2800	24
181		2473	23 do	or pek	2070	29
182		2476	17 do	pek	1360	25
183		2479	16 do	pek sou	1440	23
184	Gampaha	2482	24 ch	bro or pek	2610	31
185		2485	19 do	or pek	1805	35
186		2488	31 do	pek	2635	33
188	Agra Oya	2494	11 ch	bro mix	990	14
189	Kitulgalla	2497	12 cb	bro pek	1080	23
190		2500	10 ch	pek	900	22
191		2503	9 do	pek sou	720	18
194	Erollwood	2512	14 hf cb	bro or pek	770	57
195		2515	12 ch	or pek	1140	46
196		2518	15 do	pek	1425	40
198	E	2524	10 ch	pek sou No. 2	1100	17
204	Good Hope	2542	10 cb	bro pek fans	1000	24
207	Ketadola (packed in 2 oz. lead)	2551	10 cb	bro pek	1000	22
211	Naseby	2563	49 hf-cb	bro or pek	2940	56
212		2566	40 do	or pek	1840	59
213		2569	27 do	pek	1296	52
217	Yalatenne	2581	25 hf ch	bro or pek	1450	38
218		2584	24 do	pek	1200	33 bid
220	Opalgalla	2590	15 do	dust	1155	15
227	Gonapatiya	2611	18 hf cb	bro pek	954	57
228		2614	21 do	or pek	1008	48
229		2617	21 do	pek	1050	41
232	H, in estate mark	2626	9 cb	hyson No. 1	765	29
237	U Roeberry	2641	24 do	bro pek	2400	34
238		2644	23 do	bro or pek	2300	50
239		2647	53 do	pek	4876	30
240		2650	18 do	pek sou	1548	26
241		2653	13 do	dust	1300	15
242		2656	16 do	fans	1600	28
243	Palmerston	2659	15 hf ch	bro or pek	825	60
244		2662	11 ch	or pek	880	40 bid
245		2665	14 do	pek	1260	40
247	Lindula	2671	14 ch	pek sou	1260	28
248		2674	14 hf-ch	dust	1260	15
249	Bargany	2677	12 ch	or pek	1077	36 bid
250		2680	10 do	pek sou	797	24
253	Coreen	2689	33 hf cb	bro or pek	1980	36 bid
254		2692	11 ch	or pek	968	46
255		2695	26 do	pek	2288	39
257	Ambalangoda	2701	12 ch	bro or pek	1200	30
258		2704	10 do	or pek	900	28
259		2707	17 do	pek	1530	23 bid
260		2710	12 do	pek sou	1030	20
262	Hopton	2716	19 ch	bro or pek	1900	28 bid

Lot.		Box.	Pkgs.		Name.	lb.	c.
263		2719	13	ch	or pek	1170	26 bid
264		2722	23	do	pek	2070	22 bid
265		2725	18	do	pek sou	1620	19 bid
267	St. Paul's	2731	25	hf ch	bro pek	1375	51
268		2734	25	do	pek	1250	36
269		2737	25	do	pek sou	1000	29
270	Dunbar	2740	15	hf ch	bro or pek	750	66
271		2743	27	ch	or pek	2214	39
272		2746	39	do	pek	2925	37
277	Monkswood	2761	24	hf ch	bro pek	1440	62
278		2764	34	do	or pek	1870	63
279		2767	23	ch	pek	2185	49
280		2770	20	do	pek sou	1700	42
281		2773	8	hf-ch	dust	720	18
282		2776	11	do	fans	770	36
283	Devonford	2779	19	hf ch	bro or pek	3045	63 bid
284		2782	18	ch	or pek	1620	55 bid
285		2785	11	do	pek	935	46
286		2788	11	do	pek sou	990	40
287		2791	9	hf ch	dust	720	24
288	Erlsmere	2794	19	do	bro or pek	988	53
289		2797	12	ch	or pek	960	45
290		2800	29	hf ch	bro pek	1624	43
291		2803	31	ch	pek	3225	39
292		2806	9	do	pek sou	720	36
294	Ellaoya	2812	18	do	young hyson	1530	32
295		2815	16	do	hyson	1230	28
296		2818	34	do	hyson No. 2	2210	24
298	in est mark	2824	18	do	pek	1437	32 bid
299		2827	23	do	pek sou	1837	26
300	Forest Creek	2830	24	do	bro or pek	2400	53 bid
301		2833	36	do	bro pek	3600	39 bid
302		2836	15	do	or pek	1350	46
303		2839	26	do	pk No. 1	2340	35
304		2842	31	do	pk No 2	2790	34
305	Penrhos	2845	28	hf-ch	bro or pek	1568	47
306		2848	22	do	or pek	1056	35 bid
307		2851	32	ch	pek	2720	34
308		2854	10	do	pek sou	800	32
311	H G M	2863	11	do	bro pek	1045	31
313		2869	21	do	pek	1680	22
314		2872	10	do	pek sou	800	19
316		2878	14	do	fans	910	18
317		2881	15	do	pek	1299	23
323	Bandarawella	2899	21	do	bro pek	2232	24 bid
324		2902	24	do	pek	2157	23 bid
326	Vogan	2908	14	do	pek	1260	37
328		2914	19	do	or pek	1805	39
329		2917	11	do	bro pek	1100	50
330		2920	17	do	pek No. 1	1530	33 bid
331		2923	53	do	pek No. 2	4770	26 bid
332		2926	11	do	pek sou	880	21 bid
335		2935	9	do	or pek	855	38 bid
338		2944	23	do	pek No. 2	2077	25 bid
342	Freds Ruhe	2956	57	do	bro pek	5100	24 bid
343		2959	33	do	pek	2970	22
344		2962	12	do	pek sou	1200	17
349	Nilloma y	2977	37	do	br pek	3404	38
350		2980	20	do	or pek	1560	31
351		2983	17	do	pek	1360	30
352		2986	19	do	pek sou	1520	28
353		2989	9	do	bro or pek	900	59
355	Agra Oya	2995	12	do	bro or pek	1080	33
356		2998	19	do	or pek	1520	28
357		3001	12	do	br pok	1200	26 bid
358		3004	10	do	pek	750	24
362	Cotswold	3016	17	hf ch	bro or pek	1190	32
363		3019	19	ch	or pek	1520	25
367	Agra Oya	3031	13	do	pek	975	24
368		3034	8	do	pek sou	720	17
369	D in est mark	3037	64	do	pek sou	5120	17
370		3040	13	hf-ch	fans	845	14
372		3046	83	ch	pek sou	6640	17
375	Castlereagh	3055	39	do	bro pek	3705	38
376		3058	19	do	or pek	1615	33
377		3061	19	do	pek	1615	29 bid
378		3064	10	do	pek sou	800	26
381	Beaumont	3073	29	do	bro pek	2900	26
382		3076	25	do	or pek	2300	22
383		3079	34	do	pek	3128	20
384		3082	11	hf-ch	fans	968	16
385	Labookelle	3085	47	ch	young hyson	1935	33
386		3088	50	do	hyson	4750	28
388	Mawaliganga-watte	3094	30	do	pek sou	2100	18
389		3097	11	do	bro or pek	1100	44
391		3103	87	do	br pek	8265	25
392		3106	83	do	pek sou	6225	20
393		3109	12	do	dust	1284	18
400	Summerville	3130	15	hf-ch	bro pek	1050	55
401		3133	11	ch	pek	1320	39
403	G T D	3139	10	do	br pek	1000	out
404		3142	10	do	pek	800	16
412	Tellisford	3166	8	do	bro pek	768	24 bid
413		3169	10	do	pek	930	21
416	Maldeniya	3178	24	do	bro pek	2280	27
417		3181	25	do	pek	2250	22
418		3184	20	do	pek sou	1700	19
419	Summer Hill	3187	27	do	pek	2400	47
420	Bogahagoda-watte	3190	7	do	bro or pek	770	23
421		3193	9	do	bro pek	900	27
422		3196	14	do	pek	1330	22
423		3199	10	do	pek sou	900	17
427	Rockside	3211	6	do	dust No. 2	1020	14
428		3214	6	do	bro pk fans	720	29
429	Choisy	3217	21	do	or pek	1995	40
430		3220	40	do	bro pek	4000	41 bid
431		3223	45	do	pek	3825	35
432	Ambragalla	3226	43	do	or pek	3440	21 bid
433		3229	39	do	bro or pek	3900	23
434		3232	43	do	pek	3139	19
435		3235	42	do	pek sou	3276	16 bid
438	Passara Group	3244	22	do	bro or pek	2200	34
439		3247	13	do	or pek	1040	32
440		3250	25	do	pek	2250	27 bid
441		3253	9	do	pek sou	800	21
442	Palmerston	3256	15	do	bro or pek	825	61
443		3259	15	do			
			1	hf-ch	or pek	1400	45
446	Rookwood	3268	9	ch	hyson	828	31 bid
447		3271	23	do	hyson No. 1	2070	30 bid
450		3280	24	hf-ch	young hyson	1104	33 bid
451		3283	9	ch	hyson	828	29 bid
452		3286	13	do	hyson No. 1	1170	20 bid
455	Adisham	3295	54	hf-ch	bro or pek	2970	32
456		3298	36	do	bro or pek	1977	27
457		3301	34	do	or pek	1530	37
458		3304	26	do	pek	1820	28
459		3307	18	do	pek sou	1260	26
460		3310	21	do	br pek	1890	23
461		3313	13	do	bro pek	1102	21
463		3319	10	ch	unast No. 1	950	13
464		3322	9	do	unast No. 2	810	10
465	Chesterford	3325	76	do	bro pek	7220	29
466		3328	51	do	pek	4590	21 bid
467		3331	31	do	pek sou	2790	19
470	Ambragalla	3340	41	hf-ch	or pek	1886	24½ bid
471		3343	40	do	bro or pek	2200	25 bid
472		3346	23	ch	pek	1679	22 bid
473		3349	20	do	pek sou	1560	18 bid
476	P S A	3358	24	do	bro or pek	2323	25 bid
480	Woodend	3370	32	do	br pek	3200	20 bid
481		3373	48	do	pek	4320	20 bid
482		3376	15	do	pek sou	1200	17
484	Ellapolla	3382	28	do	bro pek	2660	29 bid
485		3385	21	do	or pek	1680	24 bid
486		3388	19	do	pek	1520	21 bid
489	Arlford	3397	23	hf-ch	or pek	1157	22 bid
490	Battawatte	3400	21	ch	pek	1837	19
491	Galapitakande	3403	10	do	or pek	850	40
492		3406	14	do	bro pek	1330	41
493		3409	31	do	pek	2635	23
496	Maha Uva	3418	42	hf-ch	bro or pek	2520	32
497		3421	28	do	or pek	1568	35 bid
498		3424	25	ch	pek	2250	30 bid
499		3427	13	do	pek sou	1040	23
502	High Forest	3436	23	hf-ch	or pk No. 1	1914	71
503		3439	15	do	br pek	795	60
504		3442	18	do	pek	832	55
505		3445	13	do	bro or pek	910	39
506		3448	21	do	pek sou	966	41
507		3451	18	do	pek dust	1620	23
509	Massena	3457	19	do	or pek	950	34
511		3463	17	do	bro pek	850	26 bid
512		3466	87	do	pek	4350	21 bid
513		3469	43	do	pek sou	2150	19
514		3472	17	do	br pk fans	935	20
517	Seenagolla	3481	35	do	bro or pek	2100	50
518		3484	27	do	pek	1404	47
519		3487	16	do	pek sou	832	36
521	Killarney	3493	60	do	bro or pek	3300	43
522		3496	13	ch	or pek	1105	38
524		3502	34	do	pek sou	3400	28
525		3505	9	hf-ch	dust	765	16
528	Carfax	3514	11	ch	bro or pek	1100	47
529		3517	39	do	or pek	3510	38
530		3520	12	do	pek	1030	37
531	Tiliyrie	3523	9	do	green tea fans	720	out
533	Dickella	3529	23	do	bro or pek	2415	23
534		3532	24	do	bro pek	2184	22
535		3535	32	do	pek sou	2560	17
536	Weyunga-watte	3538	24	do	bro pek	2400	28 bid
537		3541	21	do	pek	1890	23 bid
538		3544	21	do	pek sou	1680	18 bid
541	Talgaswela	3553	12	hf-ch	bro or pek	720	26
542		3556	39	ch	or pek	3315	32
544		3562	43	do	pek	3440	23
545		3565	22	do	pek sou	1650	20

Messrs. Somerville & Co.—

[306,881 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Ambalawa	1702	28 hf ch 1 box	bro pek	1427	21
2		1705	18 ch 1 hf cb	pek	1672	19
3		1705a	16 cb	pek sou	1280	17
8	St. Catberine	1720	11 cb	pek	938	27 bid
15	R K P	1741	14 cb	bro pek	1190	22 bid
16		1744	10 do	pek	800	21
18	F F, in estate mark	1750	21 hf ch	bro pek	1155	25
25	Gangwarily	1771	15 cb	sou	975	14 bid
27		1777	10 do	fans	1000	15
31		1789	13 do	red leaf	845	6
33	Haviland	1795	12 cb	pek fans	1200	15
34		1798	11 do	sou	880	7 bid
36		1804	10 do	pek fans	1000	15
38	Glenalla	1819	12 cb	sou	960	13
41	Cbarlie Hill	1819	63 hf ch	bro pek	3150	21
42		1822	33 do	pek	1650	20
45	Kurulugalla	1831	25 cb	bro pek	2500	23
46		1834	15 do	pek	1350	19
47	Lyndhurst	1837	27 hf cb	bro or pek	1404	22
48		1840	64 do	bro pek	3200	26
49		1834	44 do	pek	1980	22
50		1846	18 do	pek sou	756	18
53	Hatdowa	1855	22 cb	bro pek	2090	24 bid
54		1858	20 do	pek	1600	20
55		1861	18 do	pek sou	1350	18
60	Galphele	1876	10 ch	bro or pek	1000	26
67	do B	1897	8 do	bro or pek	800	26
74	Jak Tree Hill	19	24 ch	bro pek	2401	24 bid
75		22	10 do	pek	900	22 bid
76		25	14 do	pek sou	1120	19
79	Dartry	34	12 bf ch	fans	936	14
81		40	11 cb	bro tea	1232	12
84	Oonakande	49	30 bf ch	pek	1650	29
85	Columbia	52	29 bf cb	bro or pek	1508	51
86		55	27 do	or pek	1215	39
87		58	12 do	bro pek	720	28
88		61	26 do	pek	1196	33
91	Rahatungoda	70	30 bf ch	bro or pek	1500	54
92		73	27 do	or pek	1350	40
94		79	26 do	pek	1300	36
96		85	10 do	pek dust	800	15
106	Honiton	115	13 ch	bro pek	1300	26
107		118	22 do	pek	1870	24
108		121	15 do	pek sou	1200	20
110	Nebo'a	127	18 ch	bro or pek	1800	26 bid
111		130	43 do	bro pek	4 00	26
115	Neuchatel	142	48 ch	or pek	4080	26
116		145	29 do	bro or pek	3045	26
117		148	18 do	pek sou	1440	20
118		151	7 do	dust	700	14
119	Kelani	154	36 ch	bro pek	3060	25 bid
120		157	22 do	pek	1760	21
121		160	7 do	dust	700	14
122		163	25 do	bro pek	2125	28
123		166	20 do	bro or pek	2000	25
124		169	25 do	pek	2000	22
125		172	14 do	pek sou	1120	19
126	Marigold	175	42 hf-ch	bro or pek	2226	47
127		178	37 do	or pek	1739	39 bid
128		181	27 do	pek	1350	41
129		184	28 do	pek sou	1260	39
137	P	208	7 ch	unas	702	out
138	Mt Vernon	211	49 cb	pek	4753	37 bid
139		214	28 do	pek A	2380	35 bid
140		217	19 do	pek sou	1710	36
141		220	24 hf ch	dust	1920	16 bid
143	Lower Dickoya	226	8 ch	bro pek	800	20 bid
144		229	10 do	pek	940	19
149	Hangranoya	244	14 ch	bro pek	1400	26
150		247	12 do	pek	1020	29
152	Agra Elbedde	253	37 hf ch	or pek	1850	41
153		256	42 do	bro or pek	2520	37 bid
154		259	60 do	pek	2700	35
155		262	29 do	pek sou	1160	32
158	Findlater	271	33 cb	bro pek No 1	3300	43 bid
159		274	27 do	bro or pek	2700	38 bid
160		277	49 do	pek	4508	28 bid
161		280	14 do	pek sou	1260	20 bid
162		283	10 bf cb	dust	900	15 bid
163	Kurunegalle est Company, Ltd	286	25 hf ch	bro or pek	1500	35
165		292	16 cb	pek	1600	21 bid
167	Annandale	298	23 hf ch	bro or pek	1318	61
168		301	22 do	or pek	1254	46
169		304	22 do	pek	1210	39
170		307	15 do	pek sou	868	35
173	Rothes	316	15 hf ch	bro or pek	900	45
174		319	17 do	or pek	850	42
175		322	11 ch	pek	990	32
180	P	337	12 ch	pek	960	21 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
181	Mattamagoda	340	9 ch	bro pek	900	22
182		343	15 do	pek	1350	20
184		349	15 do	pek sou	1200	17
188	Roseneath	361	24 ch	bro pek	2400	28
189		364	15 do	pek	1350	31
190		367	35 do	pek sou	2800	22
193	Polgahakande	376	19 ch	bro pek	1805	25
194		379	17 do	pek	1445	22
195		382	18 do	pek sou	1440	19
196		385	6 bf ch 1 ch	dust	920	14
198	Ambalawa	391	14 ch 1 bf cb	pek	850	16
200	Jak Tree Hill	397	22 ch	bro pek	2225	24
201		400	9 do	pek	817	23 bid
202		403	11 do	pek sou	917	19
204	C M, in estate mark	409	26 hf ch	or pek	1284	22 bid
205	Blackburn	412	13 ch	pek sou	1079	18
206	M D M	415	10 cb	fans	1130	15
207	Broad Oak	418	9 cb	pek	765	10 bid
208		421	10 do	pek sou	800	9
209	Killin	424	25 hf ch	bro or pek	1250	27 bid
210		427	27 ch	or pek	2322	23 bid
211		430	14 do	pek	1190	19
218	Siriniwasa	451	23 cb	bro pek	2300	32
219		454	29 do	pek	2755	22
220		457	23 do	pek sou	2070	19
221		460	10 do	bro pek fans	1050	20
226	Fairfield	475	12 cb	pek sou	1140	31
229	Meddegodde	484	20 bf ch	bro or pek	900	32
230		487	20 do	or pek	800	36
231		490	50 do	pek	1750	26
232	Blinkbonnie	493	46 hf cb	bro pek	2760	42 bid
233		496	28 ch	or pek	2520	38 bid
234		499	37 do	pek	3256	37
235		502	17 do	pek sou	1394	34
238	Swinton	511	15 cb	or pek	1500	24 bid
239		514	7 do	bro pek	735	24 bid
242	H G M	523	22 do	pek	1936	11 bid
243		526	12 do	pek sou	1200	7 bid
244		529	10 do	unas	850	8 bid
245	Rayigam	532	31 ch	bro pek	2945	25 bid
246		535	28 do	or pek	2240	23 bid
247		538	23 do	pek	1840	21 bid
248		541	19 do	pek sou	1710	20
250	Ranasinghapatna	547	29 bf ch	or pek	1421	25 bid
251		550	22 do	bro or pek	1232	25 bid
252		553	14 cb	pek	1036	22 bid
253		556	10 do	pek sou	820	19 bid
254		559	24 bf ch	or pek	1152	30 bid
255		562	20 do	bro or pek	1100	28 bid
256		565	12 ch	pek	864	22 bid
257	Ugieside	568	9 ch	fans	855	15
260	B, in estate mark	577	19 hf ch	bro pek dust	1706	13
261	J M D M	580	8 ch	bro pek	800	23
262		583	10 do	pek	950	19 bid
267	Murraythwaite	598	26 cb	bro pek	2447	27 bip
268		601	26 do	pek	2055	26
269		604	18 do	pek sou	1432	20
270		607	7 do	bro pek fans	828	17
278	Avisawella	631	26 cb	bro pek	2600	26
279		634	44 do	pek	3740	23 bid
280		637	30 do	pek sou	2400	18
282		643	5 do	dust	700	13
283	Ferriby	646	9 ch	bro or pek	900	32
284		649	15 do	or pek	1350	32
285		652	26 do	pek	2210	25 bid
286		655	13 do	pek sou	1040	22
292	Mousakande	673	13 ch	bro pek	1170	20 bid
293		676	14 do	pek	1120	18 bid
294	Harangalla	679	12 cb	or pek	1080	36
295		682	10 do	bro or pek	950	29
296		685	22 do	pek	1760	31
297		688	16 do	sou	1280	21
298		691	13 do	dust	975	15
299	Bodava	694	14 bf cb	bro pek	770	24
300		697	13 cb	pek	1300	22 bid
301		700	13 do	pek sou	1040	19

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
12	Mapitigama	82	7 ch	sou	595	17
13		85	6 do	bro or pek fans	660	18
14		88	4 do	bro tea	540	13
25	Ovoca	21	6 bf cb	pek fans	414	18
26		24	3 do	dust	252	16

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hangrokande	1933	6 ch	bro pek	500	28
2		1936	4 do	pek	340	21
3		1939	5 do	pek sou	400	17
4		1942	1 do	dust	100	13
8	Sirikandura	1954	2 ch	bro tea	163	9
9		1957	1 do	fans	102	20
10		1960	1 do	dust	159	11
13	Hatton	1969	7 ch	pek sou	560	26
14		1972	2 do	dust	310	15
18	Drayton	1984	1 ch	son	80	26
23	Sirikandura	1999	1 do	fans	70	18
27	C S G	2011	5 hf ch	fans	325	18
32	Arapolakande	2026	6 hf ch	sifting	480	12
36	Bandara Eliya	2038	11 ch	pek sou	462	34 bid
37		2041	2 hf-ch	dust	160	18
38		2044	4 do	pek fans	280	22 bid
39	Pooprassie	2047	8 do	young hyson	440	29
41		2053	5 do	fans	300	16
42		2056	1 do	dust	115	10
43	P	2059	11 hf ch	young hyson	550	30
44		2062	5 do	hyson No. 1	325	23
45		2065	6 do	hyson No. 2	330	21
46		2068	6 do	hro mix	300	12
47	Pooprassie	2071	8 do	young hyson	440	32
49		2077	4 do	fans	240	16
50		2080	1 do	dust	80	10
51	P	2083	10 hf ch	younghyson	500	31
52		2086	2 do	hyson No. 1	110	24
53		2089	6 do	hyson No. 2	330	23
54		2092	4 do	hro mix	240	13
55	Nahakettia	2095	5 do	young hyson	284	30
62	Cooroondoowatte	2116	9 ch	hro pek	562	43
65		2125	4 do	congou	385	16
66		2128	7 hf ch	pek fans	544	15
68	Ettapolla	2134	12 do	bro pek	672	19
69		2137	5 do	pek	280	17
70		2140	2 do	pek sou	100	15
71		2143	1 do	dust	50	13
75	Yogama	2155	7 ch	fans	665	17
79	Irex	2167	3 ch	dust	300	14
80		2170	1 hf ch	bro tea	40	7
83	Aberfoyle	2179	4 ch	pek sou	360	17
84		2182	1 hf ch	pek sou No. 2	44	15
85		8185	1 ch	dust	90	15
87	C T L	2191	4 hf ch	dust	340	14
88		2194	6 do	fans	420	14
89	St. Clive	2197	9 do	young hyson	450	30 bid
90		2200	8 do	hysou	360	26
91		2203	12 do	hyson No. 2	480	23 bid
92		2206	3 do	hyson fans	150	10 bid
96	rehy	2218	7 hf ch	fans	490	37
102	E D P	2236	8 do	dust	600	14
105	M P	2245	2 ch	dust No. 2	340	11
106	Drayton	2248	1 ch	pek	95	28
108	K P W	2254	9 hf ch	bro or pek	540	26
110		2260	6 do	pek sou	300	18
111		2263	1 ch	dust	90	14
114	Tembiligalla	2272	1 ch	pek sou	80	22
115		2275	1 do	hro pek fans	100	20
116		2278	1 do	hro mix	115	6
121	Harrington	2293	3 ch	pek	285	34
122		2296	5 hf ch	or pek fans	350	28
123		2299	3 do	dust	270	16
128	Munukettia Ceylon in estate mark	2314	1 ch	congou	100	18
134	Pendle	2332	2 ch	pek sou No. 2	180	25
135		2335	2 do	hro mix	100	29
136		2338	4 hf-ch	pek fans	300	16
141	Parsloes	2353	5 ch	pek sou	460	22
153	Erracht	2389	2 ch	dust	342	9
166	Kirklees	2428	4 ch	pek fans	440	16
169	Battawatte	2437	8 ch	pek sou	640	21
170		2440	2 do	dust	200	15
178	Ruanwella	2464	9 hf ch	dust	675	14
137	Agra Oya	2491	4 ch	bro pek	400	18
192	Kitulgalla	2506	5 ch	bro or pek fans	500	16
193		2509	3 hf ch	dust	240	14
197	Errollwood	2521	5 ch	pek sou	525	32
199	E	2527	4 ch	bro tea	380	8
	Errollwood	2530	7 hf ch	dust	630	15
		2533	4 do	or pek fans	228	25
02	Good Hope	2536	7 ch	pek	630	23
		2539	5 do	pek sou	425	22
		2545	6 hf ch	dust	480	
		2548	7 ch	pek sou	630	
08	L N S, in estate mark	2554	2 ch	pek sou	15	1
209		2557	1 hf ch	hro pek	36	
210		2560	1 do	dust		1

Lot.		Box.	Pkgs.	Name	lb.	c.
214	Naseby	2572	11 hf ch	pek sou	550	33
215		2575	8 do	fans	616	83
216		2578	4 do	dust	360	16
219	Opalgalla	2587	7 ch	congou	511	15
221	B D W P	2593	6 ch	sou No. 2	540	10
222		2596	6 hf ch	hro pek fans	420	22
223		2599	2 do	dust	170	15
224	Ookoowatte	2602	3 ch	pek fans	37[illegible]	16
225		2605	1 do	sou	90	15
226		2608	2 hf ch	dust	183	13
230	Kennington	2620	5 do	unas	429	12
231	H, in estate mark	2623	3 ch	young hyson	255	33
233		2629	8 do	hyson No. 2	640	25
234		2632	1 do	hyson sifting	120	15
235	Kelvin	2635	4 ch	pek fans	360	18
236		2638	6 hf ch	dust	450	12
246	Palmerston	2668	2 ch	pek sou	160	38
251	B Y, in est. mark	2683	2 ch	fans	197	17
252	D	2686	2 do			
			1 hf ch	pek sou	230	21
56	Coreen	2698	6 do	dust	480	17
261	Ambalangoda	2713	3 ch	dust	330	13
266	Hopton	2728	4 ch	dust	440	13
273	Dunhar	2749	12 hf ch	bro pek	612	39
274		2752	10 do	hro pek fans	580	34
275		2755	3 ch	pek sou	225	27
276		2753	1 do	dust	146	16
293	Erlsmere	2809	3 hf ch	dust	246	16
297	Ella Oya	2821	6 ch	siftings	360	16
309	Penrhos	2857	1 hf-ch	fans	77	17
310		2860	1 do	pek dust	94	14
312	H G M	2866	3 do	or pek	141	33
315		2875	4 ch	dust	352	13
318		2884	3 do	pek sou	240	23
319		2887	2 do	fans	130	15
320		2890	7 do	hro pek	665	39
321		2893	1 do			
			1 hf ch	pek sou	127	25
322		2896	2 ch	dust	161	13
325	P'Kanda	2905	6 do	hro pek	600	42
327		2911	6 hf-ch	pek sou	510	21
333	Vogan	2929	4 ch	bro pk fans	480	28
334		2932	4 hf-ch	dust	340	15
336		2938	6 ch	br pek	600	50
337		2941	7 do	pek No. 1	665	33
339		2947	3 do	pek sou	270	22
340		2950	2 do	bro pek fans	240	23
341		2953	3 hf-ch	dust	255	14
345	W A	2965	6 ch	bro pek	660	28
346		2968	4 do	pek	400	22
347		2971	2 do	pek sou	200	19
348		2974	1 do	dust	150	13
354	Nillomally	2992	3 hf-ch	fans	222	25
359	Agra Oya	3007	3 ch	pek sou	270	22
360		3010	3 hf ch	dust	255	14
361		3013	3 ch	fans	600	15
364	Cotswold	3022	7 do	pek sou	560	18
365		3025	7 do	pek fans	595	17
366		3028	3 hf-ch	dust	315	14
371	D in est. mark	3043	5 do	dust	360	13
373		3049	4 do	fans	260	13
374		3052	7 do	dust	525	13
379	Castlereagh	3067	8 do	fans	600	18
380		3070	7 do	dust	650	15
387	Labookelle	3091	6 hf-ch	twanky	508	13
390	Mawaligangawatte	3100	5 ch	or pek	375	33
394		3112	5 do	fans	455	14
395	S V in est. mark	3115	7 hf-ch	dust	560	13
396		3118	4 do	dust	320	14
397		3121	3 ch	pek fans	336	15
398		3124	1 do	pek fans	112	15
399		3127	3 do	hro mixed	336	17
402	Summerville	3136	4 do	pek sou	480	33
405	G T D	3145	4 hf-ch	fans	240	10
406		3148	1 do	dust	94	13
407		3151	4 ch	br pek	380	20
408		3154	7 do	pek	560	16
409		3157	1 do	pek sou	60	13
410		3160	1 hf-ch	dust	104	10
411		3163	1 do	fans	95	8
414	Tellisford	3172	3 ch	pek sou	243	18
415		3175	1 do	dust	81	13
424	Rockside	3202	6 do	sou	480	23
425		3205	2 do	hro mixed	160	14
426		3208	4 do	dust	550	16
436	Ambragalla	3238	4 do	dust	340	14
437		3241	3 do	red leaf	300	8
444	Palmerston	3262	4 hf-ch	pek sou	320	40
445	Rookwood	3265	19 do	young hyson	638	31 bid
448		3274	4 ch	hyson No. 2	312	20 bid
449		3277	2 hf-ch	siftings	110	12
453		3289	4 do	hyson No. 2	336	20 bid
454		3292	3 hf ch			

Lot.		Box.	Pkgs.	Name.	lb.	c.
			1 ch	siftings	264	10 hid
462	Adisham	3316	7 hf-cb	dust	630	14
474	Ambragalla	3352	3 ch	dust	240	14
475		3355	1 do	red leaf	100	8
477	Kotua	3361	4 do	bro pek	400	29
478		3364	3 do	pek	300	21
479		3367	3 do	pek sou	300	20
483	Woodend	3379	3 do	dust	390	13
487	K G K	3391	2 do	sou	178	12
488		3394	2 do	bro tea	200	7
494	Galapitakande	3412	5 do	pek sou	450	23
495		3415	3 do	dust	300	15
500	Maha Uva	3430	1 hf-ch	pek fans	70	15
501		3433	5 do	dust	400	14
508	High Forest	3454	1 do	bro mixed	69	13
510	Massena	3460	13 do	bro or pek	650	36
515		3475	10 do	fans	450	20
516		3478	9 do	dust	630	14
520	Seenagolla	3490	5 do	dust	450	16
523	Killarney	3499	7 ch	pek	595	13
526		3508	6 hf-cb	fans	480	17
527		3511	5 cb	bro mixed	500	21
532	Tillyrie	3526	9 hf-ch	twanky	675	8 hid
539	Weyunga-watte	3547	3 ch	bro tea	264	16
540		3550	4 hf-ch	dust	206	15
543	Talgaswela	3559	9 do	bro pk No. 2	540	19
546		3568	4 do	dust	320	13

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Harrisland	384	7 ch	pek sou No. 2	665	16
12	Natuwakelle	408	4 do	dust	500	18
16	Kandaloya	420	11 hf-ch	pek sou	440	20
17		423	11 do	fans	550	16
18		426	6 do	dust	300	14
22	Iona	438	3 cb	dust	225	17
25	Lunugalla	447	7 do	pek sou	560	16
26		450	2 do	dust	280	13
31	Myraganga	465	1 do	dust	155	13
43	Cleveland	501	8 bf ch	pek sou	400	38
44		504	2 do	fans	160	20
51	Glassaugh	525	6 ch	pek sou	600	40
53		531	2 do	bro mix	200	12
57	Suduganga	543	4 hf ch	pek fans	300	27
65	Kotuagedere	567	5 cb	pek sou	475	19
66		570	4 hf ch	dust	380	13
68	Nanuoya	576	1 hf cb	dust	87	14
69		579	2 ch 1 bf-ch	sou	221	16
70	Orwell	582	4 ch	bro mix	400	7
78	Agra Ouvah	606	4 hf ch	dust	328	15
83	Kolapatna	621	10 do	pek sou	490	26
91	Mossend	645	2 do	dust	120	16
92	A A	648	1 cb	dust	113	13
93		651	4 do	sou	320	15
96	Bellongalla	660	2 do	dust	280	13
102	M P	678	4 do	dust	510	13
111	Warleigh	705	4 do	pek sou	320	32
119	K G	729	4 do	pek	320	23
120		732	1 do 1 hf-ch	pek sou	150	16
124	Syston	744	1 ch	dust	150	12
125		747	1 do	fans	123	18
126	Sanqubar	750	7 do	sou	595	12
127		753	4 do	bro mix	360	7
128	L'Espoir	756	5 hf ch	bro pek	275	37
129		759	5 ch	pek	450	23
130		762	3 do	pek sou	264	21
131		765	1 hf ch	dust	70	14
133	Mabagalatenne	771	2 cb	fans	200	11
134		774	4 do	pek	400	15
135		777	2 do	dust	170	10
136		780	1 do	bro pek	100	16
137		783	1 do	pek sou	100	11
149	Mocha	819	8 hf ch	fans	640	20
153	North Pundul-oya	831	do	siftings	450	12
154		834	6 ch	byson No. 2	660	20
155	Gonavy	837	6 hf ch	fans	330	17
157		843	3 do	sou No. 2	240	18
161	Gingranoya	855	7 do	pek sou	630	20
169	Kanangama	879	7 do	dust	560	13
173	Bittacy	891	4 do	dust	340	15
174		894	5 do	fans	300	27
175		897	6 do	bro or pek	360	42
176	Ullandapitiya	900	1 do	bro or pek	50	60
177		903	1 do	bro pek	55	28
178		906	2 do	pek	100	21 bid
179		909	1 do	pek sou	40	19
180		912	1 do	or pek	50	31 bid
184	Rookwood	924	2 do	fans	136	23
185		927	1 do	pek dust	90	15 bid
187	Cohin Ella	933	5 ch	pek No. 1	500	26 hid
189		939	8 hf ch	dust	680	14
190		942	6 do	fans	450	14

Lot.		Box.	Pkgs.	Name.	lb.	c.
192		948	8 bags	red leaf	378	6
199	Ratwatte	969	7 ch	pek sou	660	16
200	H	972	7 do	pek No. 1	695	20
203	G L	981	8 do	pek sou	640	16
204		984	3 hf ch	bro pek fans	183	13
213	Morahela	11	5 ch	sou	380	16
214		14	2 hf ch	dust	168	13
218	Ottery	26	6 do	dust	480	16
219	Maryland	29	6 ch	bro pek	600	27
220		32	6 do	pek	600	18
224	Farm	44	4 do	dust	320	14
234	Gangawatte	74	6 do	fans	660	25
235		77	3 do	sou	270	24
236		80	2 do	unas	170	16
237	Pitiyoa	83	5 do	sou	500	17

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
4	A, in estate mark	1708	2 hf-ch	pek	79	19
5		1711	4 do	pek sou	216	16
6	St. Catherine	1714	5 ch	bro or pek	503	43
7		1717	6 do	or pek	573	34
9		1723	8 do	pek sou	603	29
10		1728	2 hf cb	dust	123	14
11	Yatagala	1729	7 hf cb	bro pek (unhooped)	415	20
12		1732	3 ch	pek	270	19
13		1735	5 do	pek No 2	425	17
14		1738	3 do	pek sou	225	14
17	R K P	1747	3 ch	dust	300	13
19	F F, in estate mark	1753	13 bf cb	pek	650	22
20		1756	6 do	pek sou	270	18
21		1759	1 do	dust	80	12
22		1762	4 do	bro pek fans	260	15
23		1765	3 do	bro mix	150	18
24	S L G	1768	8 bf ch	red leaf	400	6
26	Gangwarily	1774	4 bf cb	dust	320	12
28		1780	4 ch	sou	260	13
29		1783	4 do	fans	400	14
30		1786	7 do	bro mix	560	14
32	Havilland	1792	3 hf cb	dust	270	13
35		1801	1 ch	dust	90	12
37		1807	7 bf-cb	sou	560	9 bid
39	Glenalla	1813	2 ch	dust	290	12
40		1816	1 do	fans	90	12
43	Charlie Hill	1825	1 hf cb	pek sou	50	16
44		1828	5 do	bro pek fans	370	13
52	Lyndhurst	1852	3 hf ch	dust	255	13
56	Hatdowa	1864	2 ch	dust	280	13
57		1867	5 do	fans	510	15
58		1870	2 ch	sou	150	17
59		1873	1 do	bro mix	56	8
61	Galphele	1879	2 cb	or pek	180	28
62		1882	2 do	bro pek	200	21
63		1885	5 do	bro pek	400	23
64		1888	3 do	pek sou	240	20
65		1891	1 do	sou	70	18
66		1894	2 do	fans	210	13
68	do B	1	2 do	or pek	180	23
69		4	2 do	bro pek	180	29
70		7	5 cb	pek	400	21
71		10	2 do	pek sou	160	19
72		13	1 do	sou	80	16
73		16	1 do	fans	135	12
77	Jak Tree Hill	28	2 ch	or pek	180	26
78		31	3 hf ch	dust	271	13
80	Dartry	37	5 hf ch	dust	425	12
82		43	2 cb	bro pek	192	21
83		46	1 do	pek sou	89	19
89	Columbia	64	11 hf ch	pek sou	550	30
90		67	7 do	pek dust	553	14
93	Rahatungoda	76	11 bf ch	bro pek	660	34
95		82	8 do	pek sou	400	30
102	Lahugama	10	13 bf cb	bro pek	650	26
103		106	5 ch	pe	475	19 hid
104		109	7 do	pek sou	595	17
105		112	7 hf ch	bro pek fans	455	16
109	Honiton	124	3 ch	dust	420	14
112	Neboda	133	7 cb	pek	630	23
113		136	7 do	pek sou	560	20
114		139	4 hf ch	dust	340	13
130	Marigold	187	8 hf ch	bro pek fans	528	37
131		190	9 do	pek dust	675	23
132	Maligatenne	193	2 ch	bro pek	207	out
133		196	3 do	pek	275	15
134		199	6 do	pek sou	564	7
135		202	2 do	bro tea	207	5
136		205	1 do	dust	99	9
142	Lower Dickoya	223	5 bf ch	bro or pek	280	24
145		232	1 do	pek sou	00	18
146		235	2 do	bro sou	196	7
147		238	1 do	dust	89	12
143	Hangranoya	241	7 ch	bro or pek	665	38
151		250	3 cb	pek sou	240	22

Lot.	Box.	Pkgs.	Name.	lb.	c.
156 X X	265	5 hf ch	unas	250	16
157	268	5 do	pek dust	400	13
164 Kurunegalle est. Co, Ltd	289	12 hf-ch	or pek	660	32
166	295	1 ch	pek sou	100	18
171 Annandale	310	5 hf-ch	dust	400	16
172	313	11 do	sou	532	22
176 Rothes	325	3 ch	pek sou	255	20
77	328	2 do	unas	182	18
178	321	4 hf ch	bro tea	232	20
179	334	2 do	dust	170	14
183 Mattamagoda	346	1 ch	pek No 2	85	19
185	352	1 do	fans	100	12
186	355	1 hf-ch	dust	85	11
187 A B C	358	3 ch	bro pek	300	16
191 Roseneath	370	4 hf ch	dust	400	12
192	373	5 ch	bro mix	360	8
197 Polgahakande	388	2 ch	sou	160	11
199 San Cio	394	4 ch 1 box	sou	359	13
203 Jak Tree Hill	406	2 hf ch	dust	180	13
212 Killin	433	4 ch	bro mix	320	6
213	436	6 hf ch	dust	450	12
222 Siriniwesa	460	3 ch	dust	450	12
223	466	1 do	con	80	12
224 Fairfield	469	2 ch	unas	164	31
227	478	3 do	dust	285	12
228	481	9 do	fans	630	18

Lot	Box.	Pkgs.	Name	lb.	c.
236 Blinkbonnie	505	9 hf ch	fans	585	20
237	508	8 do	dust	680	19
240 Swiuton	517	7 ch	pek	630	20 bid
241	520	6 do	pek sou	480	20 bi
249 Rayigam	544	6 hf ch	dust	600	13
258 Ugieside	571	7 ch	fans	655	12
259 Dowa	574	2 ch	fans	200	14
263 J M D M	586	4 ch	pek sou	400	17
264	589	4 do	fans	412	15
265	592	2 do	cou	166	15
266	595	1 do	dust	155	12
271 Murraythwaite	610	3 ch	dust	443	14
272 Harankaha-tenne	613	4 hf ch	bro pek	221	25
273	616	8 do	pek	430	18
274	619	6 do	pek sou unbulked	300	18
275	632	2 hf ch	sou	93	14
281 Avisawella	640	5 ch	sou	400	11
287 G T	658	9 hf ch	bro or pek	585	17
288	661	2 do	or pek	110	25
289	664	4 do	pek	380	21
290 Sangaly Toppoe	667	5 hf ch	dust	450	12
291	670	3 ch	red leaf	285	7
302 Bodava	703	1 ch	dust	150	12
303	706	3 do	fans	360	12
304	709	1 do	red leof	90	7

No. 4. COLOMBO, JANUARY 28, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[33,979 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Pelsatenne	50	30 ch	bro pek	2654	29 bid
2		53	21 do	or pek	1674	27 bid
3		56	20 do	pek	1514	20 bid
4	Lomond	59	46 hf ch	bro pek	2294	26 bid
5		62	22 ch	pek	1974	23 bid
6	Halgashena (A)	65	20 ch	pek	2000	32 bid
7	Halgashena (B)	68	20 ch	pek	2000	22 bid
8	Ellatenne	71	50 ch	bro pek	5000	30 bid
9		74	22 do	pek	2194	25 bid
10	Battalgalla	77	35 ch	or pek	3325	40 bid
11		80	22 do	pek	1870	35
12		83	15 do	pek sou	1200	30
14	Carendon	89	24 do	bro pek	2400	21
15		92	17 do	pek	1700	19
16		95	17 do	pek sou	1700	15

Messrs. Forbes & Walker.

99] 2,974 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	New Peacock	3583	17 ch	bro mix	850	15
6		3586	28 do	pek fans	2100	18
16	St. John's Wood	16	26 ch	pek	2210	25
20	Shrubs Hill	28	35 ch	bro pek	3748	32 bid
21		31	61 do	or pek	5063	33 bid
22		34	18 do	pek	1530	26 bid
23		37	17 do	pek sou	1411	21
24		40	22 do	bro pek fans	1700	14
28	Glencorse	52	22 ch	bro pek	2200	35
29		55	28 do	pek	2240	29
30		58	24 do	or pek	1920	35
31		61	33 do	pek sou	2640	23
33	Grange Garden	67	24 ch	bro or pek	2400	32 bid
34		70	10 do	pek	1000	30 bid
38	Ismalle	82	11 ch	sou	990	14
39		85	9 do	congou	729	9
42	Matale	94	34 ch	bro pek	1870	30
43		97	27 do	pek	2430	28
44		100	15 do	pek sou	1350	23
51	D, in estate mark	121	107 ch	pek sou	8560	11 bid
52		124	18 hf ch	fans	1170	14
53		127	16 do	dust	1200	13
59	Sutton	145	18 ch	bro or pek	1980	73
60		148	43 do	or pek	4300	65
61		151	31 do	pek	2635	54
64	Mouna	160	10 ch	bro pek	1000	18
65		163	13 do	pek	1170	16
66		166	7 do	bro pek dust	700	13
67		169	10 do	pek sou	850	9
78	Rowley	202	21 hf ch	bro pek	1050	33
79		205	21 ch	pek	1050	26
80	Dambagastalawa	208	8 ch	bro or pek	880	56
81		211	15 do	bro pek	1590	36 bid
82		214	11 do	pek	900	35 bid
88	Palm Garden	232	10 ch 1 hf ch	bro pek	1152	32
89		235	11 ch 1 hf ch	pek	1141	21
90		238	7 ch 1 hf ch	pek sou	750	16
97	Ardlaw and Wishford	259	27 hf ch	bro or pek	1377	60
98		262	48 ch	bro pek	4224	44 bid
99		265	22 do	or pek	1804	46
100		268	44 do	pek	3128	33 bid
101	S W	271	31 ch	fans	3503	23
102		274	25 do	bro mix	2500	15
103	Chesterford	277	23 ch	fans	2070	17
106		286	17 hf-ch	dust	1260	13
107	S W	289	12 ch	bro mix	1152	14
108	M C, in est. mark	292	7 ch	unas	924	18 bid
110	Madulkelle	298	13 do	bro or pek	1300	33
111		301	11 do	or pek	825	28
112		304	21 do	bro pek	1890	25
113		307	15 ch	pek	1275	21
119	Panmure	325	11 do	pek sou	1045	19 bid
120		328	20 hf ch	bro or pek fans	1500	19 bid
121		331	11 do	dust	990	14
122	Udapolla	334	12 ch	bro pek	1200	25
123		337	8 do	or pek	720	25 bid
124		340	16 do	pek	1440	25
129	Theydon Bois	355	12 ch	bro or pek	1140	48
130		358	13 do	or pek	1235	37
131		361	29 do	pek	2320	30
132		364	12 do	pek sou	1020	24
137	St. Heliers	379	27 hf ch	bro or pek	1485	36
138		382	17 do	pek	1496	28
141	Patiagama	391	31 ch	pek	2480	27 bid
142		394	9 do	pek sou	720	21
146		406	23 do	pek	1955	27 bid
150	O B E C, in estate mark Sidumallay	418	46 ch	bro pek	4508	39
151		421	12 do	or pek	1008	28
152		424	41 do	pek	3198	27 bid
153		427	48 do	pek sou	3024	23 bid
154	Pine Hill	430	24 hf ch	bro pek	1440	52
155		433	29 do	or pek	2340	44
156		436	42 ch	pek	3990	33
160	Queensland	448	14 do 1 hf ch	bro pek	1383	48
162		451	26 ch	pek	2258	38
166	Dammeria	466	29 do	bro pek	2900	33
167		469	54 do	or pek	5400	28 bid
168		472	33 do	pek	2970	26 bid
169		475	9 do	pek sou	810	23
170		478	14 do	bro pek fan	1120	18
171		481	9 do	dust	900	13
172		484	17 do	bro or pek	1700	30
173	D M	487	15 ch	bro pek	1500	22
174		490	13 do	pek	1170	20
175	Hayes	493	12 ch	bro or pek	1200	38
176		496	34 do	bro pek	3740	26 bid
177		499	77 do	pek	6930	23 bid
178		502	17 do	pek sou	1445	21
179	Hayes	505	14 ch	bro or pek	1400	41 bid
180		508	24 do	bro pek	2640	27 bid
181		511	35 do	pek	3150	27 bid
183	Hayes	517	19 ch	bro or pek	1900	37
184		520	15 do	bro pek	1500	26 bid
185		523	29 do	pek	2610	24 bid
187	Hayes	529	12 ch	pek dust	1560	12
188	Dea Ella	532	39 hf ch	bro or pek	2028	39
189		535	54 do	or pek	2700	30
190		538	47 do	pek	2350	25
191		541	22 do	pek sou	990	23
194	Gampaha	550	41 ch	bro or pek	4510	39 bid
195		553	24 do	or pek	2280	46 bid
196		556	45 do	pek	3825	38 bid
199		559	40 do	pek sou	3600	27 bid
198		562	18 do	pek fans	1620	16
200	Ganapalla	568	23 ch	bro or pek	2300	26
201		571	21 do	bro pek	1680	24
202		574	36 do	or pek	3096	29
203		577	40 do	pek	3200	22 bid
206	Non Pariel	586	24 hf ch	bro pek	1344	33 bid
207		589	14 do	pek	700	33
208		592	16 do	pek sou	700	25
211	Good Hope	601	9 ch	bro or pek	900	30
212		604	46 do	bro pek	4140	32
215	W, in estate mark	613	18 hf ch	bro or pek	1170	26
216		616	30 do	or pek	1500	25
220	Anningkande	628	32 ch	bro pek	3200	24
221		631	30 do	pek	2850	21
222		634	14 do	pek sou	1260	18
223		637	11 hf ch	dust	825	14
225	C R D	643	15 ch	dust	1500	12
228	O B E C, in est. mark, Forest Creek	652	24 ch	bro or pek	2397	55
229		655	36 do	bro pek	3597	43
230	Lyegrove	658	27 ch	bro pek	2835	32
231		661	22 do	pek	2090	27
234	O B E C, in est. mark, Forest Creek	670	8 ch	sou	720	24
236		676	17 do	fans	1700	18
237	Kosgalla	679	28 hf ch	bro pek	1397	23
238		682	22 do	pek	987	19
245	Glengariffe	703	69 hf ch	bro pek	3657	36
246		706	33 do	or pek	1485	32
247		709	48 ch	pek	4416	29
248		712	29 do	pek sou	2407	23
249		715	16 hf ch	bro or pek fans	1040	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
251	Zululand	721	11 ch	bro pek	1100	26
252		724	34 do	pek	2720	21 bid
253		727	13 do	pek sou	936	20
258	Ruanwella	742	25 ch	or pek	2122	23 bid
259		745	32 do	bro pek	3037	26
260	Maha Uva	748	25 do	pek	2247	28 bid
261	Wyamita	751	12 ch	bro pek	1140	25
262		754	11 do	pek	935	19
263	Carlabeck	772	11 do	pek sou	1012	37
272	Ingurugalla	784	14 ch	bro tea	1190	13
284	V O A	820	16 ch	bro tea	1600	10 bid
285	Corfu	823	28 bf-ch	bro pek	1540	31 bid
286		826	48 do	pek	2400	25 bid
287		829	23 do	pek sou	1035	21 bid
290	K P W	838	25 hf-ch	br pek	1375	27
291		841	19 do	bro or pek	1140	31
229		844	31 do	pek	1550	24
295	R M in est. mark	853	38 ch	bro pek	3800	27 bid
296		856	28 do	pek	2380	26
297		859	11 do	pek sou	913	22
302	Augusta	874	8 do	sou	720	15
303		877	9 do	dust	1250	13
306	B G	886	16 hf ch	br pek	800	29
307		889	14 do	pek	700	23
308	Dunnottar	892	17 ch	bro or pek	1700	46
309		895	17 do	bro pek	1700	26
310		898	50 do	pek	4250	34
319	Penrhos	925	18 hf-ch	bro or pek	1044	50
320		928	18 do	or pek	864	40
321		931	25 ch	pek	2175	33 bid
322		934	9 do	pek sou	720	31
325	Carberry	943	12 do	bro pek	1020	35
327		949	13 do	pek sou	975	24
329		955	21 do	br pek fans	2100	24 bid
332	G in est. mark	964	12 do	sou	960	15
333	G K	967	21 do	bro tea	1365	19 bid
334		970	7 do	dust	980	15
335	Ingrogalla	973	13 do	br pek	1300	32 bid
336		976	11 do	pek	935	30
341	C S G	991	126 hf-ch	bro pek	6300	37
342		994	54 ch	pek	4320	28
343		997	33 do	pek sou	2640	26
345		1003	10 hf-ch	dust	800	14
349	Nugagalla	1015	20 do	br pek	1000	37 bid
350		1018	39 do	pek	1950	25
353	Kincora	1027	13 ch	bro pek	1170	53
354		1030	13 do	pek	1105	41
355		1033	20 do	pek No. 2	1500	33
362	Palmerston	1054	14 hf-ch	bro or pek	770	65
363		1057	15 ch	pek	1275	46
365		1063	16 hf-ch	bro pek	960	41
366		1066	11 ch	or pek	880	43
370	Adisham	1078	36 hf-ch	bro or pek	1977	26 bid
371	Lyegrove	1081	13 do	young hyson	715	33
376	Nahakettia	1096	69 do	young hyson	3864	33
377		1099	45 do	hyson	2070	27 bid
378		1102	40 do	hyson No. 2	2000	25
381	Panilkande	1111	26 ch	or pek	2470	38
382		1114	7 do	bro or pek	700	34 bid
383		1117	16 hf-ch	pek	1360	31
384	Bandare Eliya	1120	39 do	or pek	1794	54 bid
385		1123	30 do	bro or pek	1650	65
386		1126	34 do	pek	1530	43
387		1128	18 do	pek sou	756	39
388	Clyde	1132	61 ch			
			2 hf-ch	bro pek	5306	28 bid
389		1135	51			
			1 hf-chkch		4245	26
390		1138	16 chpe			
			1 fh ch	pek sou	1408	
391		1141	10 hch			
			1 f-ch	bro or pek	1236	25 bid
394		1150	5 ch			
			1 hf-ch	dust	779	13
395	Udaveria	1153	35 do	bro or pek	2030	44 bid
396		1156	51 ch	sou	2550	38
397		1159	40 do	pek	2000	29 bid
401	Kotagaloya	1171	10 do	bro pek	1000	24 bid
402		1174	16 do	pek	1360	23 bid
403		1177	10 do	pek sou	750	22
407	K G	1189	12 ch	pek	960	24
410	W F	1198	17 do	congou	1530	12
413	St. Martin	1207	38 hf-ch	pek	1520	20
416	P in est. mark	1216	38 ch	bro or pek	3800	44 bid
421		1231	16 hf ch	br or pk fans	1696	38
425	Digdola	1243	28 do	bro pek	1400	27 bid
426		1246	14 ch	bro pek	1260	29
427		1249	15 do	pek	1275	23
428		1252	17 do	pek	1445	21 bid
429	Aden	1255	20 hf-ch	dust	1500	15 bid
431	A	1261	9 do	sou	810	19
433	C B	1267	7 do	pek	735	25
436	Torwood	1276	19 do	bro or pek	1900	31
437		1279	19 do	br pek	1550	28
438		1282	25 do	pek	2000	22
439		1285	21 do	pek sou	1680	26
440		1288	20 do	sou	1600	17
441		1291	12 hf-ch	dust	816	14
442	V in est. mark	1294	12 ch			
			1 hf-ch	pek sou (2 oz. lead)	1120	17
443		1297	9 ch	dust (4 chest 2 oz. lead)	720	14
446	Malvern	1306	56 do	bro pek	3080	53
447		1309	47 do	pek	3290	35
448		1312	20 do	pek sou	14 0	31
449	Middleton	1315	37 hf-ch	bro or pek	2072	55
450		1318	64 ch	bro pek	6400	40
451		1321	78 do	pek	6630	37
452		1324	15 hf ch	dust	1125	18
453	O'Bode	1327	20 ch	br pek	2240	27 bid
454		1330	16 do	or pek	1600	28
455		1333	15 do	pek	1425	25
458	B D W P	1342	12 hf-ch	br pek fans	720	25 bid
462	Gonapitiya	1354	15 do	or pek	735	54
463		1357	21 do	pek	1029	45
465		1363	12 ch	pk fans	804	35
470	Anningkande	1378	25 do	bro pek	2500	25
471		1381	19 do	pek	1805	21
472		1384	12 do	br pk No. 2	1200	29
473		1387	17 do	pek No. 2	1615	21
474	Tymawr	1390	19 hf ch	bro or pek	1140	54
475		1393	21 ch	or pek	1155	39
476		1396	29 hf-ch	pek	1450	37
477		1399	20 do	pek sou	1000	33
478		1402	27 do	or pek	1485	40
479		1405	33 do	pek	1650	38
480		1408	26 ch	pek sou	1300	31
481		1411	12 do	dust	1080	15
482	P in est mark	1414	25 hf ch	bro pk fans	1750	30
484	Amblakande	1420	23 ch	bro pek	2300	24 bid
485		1423	22 do	pek	1760	21 bid
486		1426	18 do	pek sou	1440	19
488	Hopton	1432	19 do	bro or pek	1897	25 bid
489		1435	13 do	or pek	1167	29
490		1438	23 do	pek	2067	21 bid
491		1441	18 do	pek sou	1317	18 bid
492	Robgill	1444	52 hf-ch	bro or pek	3640	47 bid
493		1447	28 do	or pek	2520	43
494		1450	38 ch	pek	3420	34 bid
495		1453	12 do	pek sou	1080	23
498	Stafford	1462	16 do	pek	1360	47
507	Aberdeen	1489	39 do	bro pek	3510	26 bid
508		1492	96 do	pek	7296	20
509		1495	29 do	sou	2001	17
510		1498	33 hf-ch	bro pk fans	2244	16
511	Pallagodde	1501	12 ch	bro or pek	1200	27
512		1504	20 do	bro pek	2000	26
513		1507	16 do	or pek	1440	25 bid
514		1510	15 do	pek	1200	23 bid
515		1513	16 do	pek sou	1440	22 bid
516		1516	16 do	sou	1520	17
517		1519	14 do	dust	1190	14
518	Erracht	1522	20 do	bro pek	1800	29
519		1525	31 do	or pek	2325	26
520		1528	17 do	pek	1190	21 bid
521		1531	31 do	pek sou	2480	16 bid
524	Clunes	1540	7 do	br or pk No. 1	735	25
525		1543	12 do	or pek No. 2	1320	24
527		1549	23 do	br pek	2185	21 bid
528		1552	22 do	pek	1980	19 bid
529		1555	9 do	pek sou	9 0	15 bid
530		1558	7 do	pek fans	700	16 bid
538	Letchmey	1582	6 do	dust	810	13
541	Galkadua	1591	13 do	bro pek	1364	30
542		1594	13 do			
			2 hf ch	pek	1438	20
543		1597	8 do	pek sou	790	18
547	Sarnia	1609	39 ch	or pek	3549	28 bid
548		1612	20 do	bro or pek	1840	35 bid
549	Elkadua	1615	18 do	bro or pek	1800	28 bid
550		1618	26 do	or pek	2080	26 bid
551		1621	31 do	pek	2480	25 bid
552		1624	18 dc	pek No. 2	1440	23
553		1627	19 do	pek sou	1520	20 bid
554	Weemalle	1630	6 do	bro or pek	600	out
555		1633	7 do	or pek	595	out
556		1636	13 do	pek	1170	27
557		1639	2 do	pek sou	180	out
559	Bargany	1645	31 hf ch	or pek	1550	36
560		1648	14 do	pek	1120	29
561		1651	15 do	pek sou	1200	23
565	Yaha Ella	1663	9 ch	bro pek	895	27
566		1666	11 do	pek	990	22

Messrs. Somerville & Co.—

[237,632 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	S F D	718	15 ch	sou	1320	16
7	Ravenoya	730	14 ch	pek	1120	24 bid
11	Rambodde	742	19 hf ch	or pek	950	42
12		745	18 do	bro or pek	1080	46

Lot.		Box.	Pkgs.	Name.	lb.	c.
13		748	41 hf ch	pek	1845	37
14		751	35 do	pek sou	1575	25
17	Kelani	760	49 cb	bro pek	4165	29
18		763	10 do	bro or pek	1000	25
19		766	25 do	pek	2000	25
34	Narangoda	811	32 cb	bro pek	2880	27
35		814	60 do	pek	5360	22
36		817	19 do	pek sou	1710	18
40		829	19 cb	bro or pek	1900	23
41	Mora Ella	832	18 hf cb	or pek	864	41
42		835	57 do	bro or pek	3135	35
43		838	37 ch	pek	3330	29
44		841	16 do	pek sou	1 60	25
47	Nugawella	850	20 ch	bro pek	2100	27
48		853	1[illegible] do	pek	1530	26
52	Mahatenne	865	18 cb	bro pek	1800	25
53		868	1[illegible] do	pek	1330	22
56	Mahalla	877	38 hf cb	bro pek	1824	28
57		880	15 ch	pek	1200	20
58		883	12 do	pek sou	900	18
60	Tiddydale	889	9 ch	bro pek	900	20 bid
61		892	17 do	pek	1530	17 bid
62		895	20 do	pek sou	1800	8 bid
63	Moragalla	898	12 cb	bro pek	1200	30
64		901	14 do	pek	1400	19
68	California	913	10 ch	pek	943	19
74	Mary Hill	931	27 hf cb	bro pek	1485	33
75		934	36 do	pek	1800	30
76		937	21 do	pek sou	1050	19
80	I P	949	24 ch	pek sou	2160	15 bid
81		952	30 hf cb	dust	2580	13 bid
82	Yspa	955	18 ch	pek sou	1440	22 bid
83		958	8 do	dust	1120	15
84	Oonanagalla	961	13 ch	dust A	1690	14
89	Farnham	976	20 ch	bro pek	1800	28 bid
90		979	11 do	or pek	880	26 bid
91		982	17 do	pek	1530	21 bid
92		985	10 do	pek sou	800	21 bid
99	New Valley	1006	22 ch	bro or pek	2200	45
100		1009	15 do	or pek	1350	43
101		1012	13 do	pek	1170	37
102		1015	13 do	pek sou	1040	35
105	N I T	1024	16 cb	unas No. 2	1280	15
119	K R P	1036	38 cb	bro pek	3230	27
010		1039	9 do	bro or pek	900	25
111		1042	21 do	pek	1680	23
115	Glenesk	1054	19 ch	bro pek	1900	23
116		1057	10 do	pek	800	22
117		1060	17 do	pek sou	1360	17
119	Auburn	1066	17 ch	bro pek	1700	23 bid
120		1069	10 do	pek	900	22
125	Oolapane	1084	9 hf cb	dust	738	14
128	Venture	1093	19 ch	pek	1615	23 bid
129		1096	14 do	pek sou	1050	21 bid
139	Bollagalla	1126	40 cb	bro pek	4000	25 bid
140		1129	29 do	pek	2320	31
141		1132	24 do	pek sou	1920	19 bid
43	Blackburn	1138	15 ch	pek	1350	20 bid
145		1144	13 do	fans	975	15
146		1147	10 do	dust	850	13
147	Rayigam	1150	34 ch	bro pek	3230	27 bid
148		1153	28 do	or pek	2240	25 bid
149		1156	22 do	pek	1760	22 bid
150		1159	18 do	pek sou	1620	21
154	Doragalla	1171	17 ch	bro pek	1700	42
155		1174	38 do	pek	32[illegible]0	35
156		1177	21 do	pek sou	1785	28
157		1180	9 cb	bro or pek fans	1125	31 bid
159	Glenalmond	1186	15 cb	bro pek	1559	25
160		1189	8 do	pek	736	24
166	Meddegodde	1207	42 hf ch	pek	1470	25
170	Nillicollaywatte	1219	36 hf cb	bro pek	2160	27
171		1222	32 ch	pek colindia pkgs	2656	23
172		1225	18 ch	pek sou colindia pkgs	1260	19
180	Amupitiya	1249	12 hf ch	bro pek	720	26 bid
184	Harangala	1261	9 ch	or pek	810	35
185		1264	8 do	bro or pek	760	28 bid
186		1267	30 do	pek	2400	32
187		1270	15 do	sou	1200	21
189	K'Gama	1276	22 cb	pek	1936	18
190	Tientsin	1279	21 ch	pek sou	1785	25 bid
191		1282	10 do	dust	1400	13 bid
192	Galatota	1285	7 ch 1 hf ch	bro pek	750	16
204	A B T, in esmark	1321	13 cb	bro pek	1079	21
206		1327	10 do	pek sou	850	10 bid
207		1330	12 do	pek sou A	1200	8 bid
213	Kurunegalle Estate, Co. Limited	1348	13 hf ch	bro or pek	780	36
214		1351	13 do	or pek	715	33
215		1354	11 do	pek	1160	24
218	Romania	1363	8 ch	pek	760	22
220	Mt Vernon	1369	33 ch	pek	3036	33
221		1372	22 do	pek A	1870	33 bid
222		1375	24 hf ch	dust	1920	17 bid
223	Yarrow	1378	46 do	bro or pek	2760	35
224		1381	37 do	or pek	1665	37
225		1384	52 do	pek	2080	28
225a		1384a	52 do	pek A	2080	26
226		1387	19 do	pek sou	855	21
228	Ravenscraig	1393	27 cb	or pek	2295	31
229		1396	29 hf ch	bro pek	1595	28
230		1399	23 ch	pek	2070	26
233	S R K	1408	19 ch	pek sou	1785	25 bid
234		1411	7 do	dust	1050	14
236	Swinton	1417	15 ch	or pek	1500	25 bid
237		1420	7 do	bro pek	735	25 bid
238	Bewadugama	1423	16 ch	bro pek	1760	25 bid
239		1426	10 do	pek	1000	25 bid
241	Patulpana	1432	18 hf cb	bro pek	990	23
242		1435	15 do	pek	750	19
245	Meddegodde	1444	25 hf ch	bro or pek	1125	33
247	Nyanza	1450	34 hf cb	bro pek	1972	33 bid
248		1453	14 ch	or pek	1260	37 bid
249		1456	28 do	pek	2800	32 bid
250		1459	8 do	pek sou	705	23
251		1462	7 do	dust	700	14

[Mr. E. John.—188,399 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Theresia	86	17 ch	pek sou	1445	32
5	Wendura	98	17 do	bro pek	1632	36
6		101	12 do	pek	960	24
7		104	9 do	pek sou	720	20
10	Oonoogaloya	113	9 do	bro or pek	900	54
11		116	10 do	or pek	900	45
12		119	20 do	pek	1800	38
15		128	7 do	bro or pek No. 2	840	38
17	Perth	134	31 do	bro or pek	3100	29
18		137	50 do	bro pek	4250	28
19		140	19 do	pek	1425	27
24	Dalbousie	155	14 hf ch	bro pek	770	48
25		158	35 do	pek No. 1	1575	33
26		161	18 do	pek No. 2	810	25
28	Bowella	167	8 ch	bro pek	760	25 bid
29		170	17 do	pek	1275	21
30		173	11 do	pek sou	715	17
32	Vincit	179	24 do	bro pek	2160	31
33		182	15 do	pek	1350	18 bid
34		185	10 do	pek sou	900	16
35		188	9 do	bro pek fans	1035	15
42	Mount Everest	209	33 hf-ch	bro or pek	1815	58 bid
43		212	41 do	or pek	2050	53
44		215	41 cb	pek	4100	40
45		218	14 do	pek sou	1260	34
46	St. John's	221	12 hf-ch	bro or pek	720	61
47		224	23 do	or pek	1150	60
48		227	32 do	pek	1664	47
49		230	18 do	pek sou	936	39
50		233	15 do	pek fans	1020	37
51	Templestowe	236	36 ch	bro or pek	3600	42
52		239	34 hf-ch	or pek	1530	47
53		242	38 ch	pek	3040	35
55		248	10 hf cb	fans	900	33
56		251	21 do	dust	1575	17
63	Troup	272	7 ch	bro mix	700	10
164	Uvakellie	275	4 do	bro or pek	1540	49
68	Rondura	287	41 do	bro pek	4100	25
69		290	25 do	or pek	2125	30
70		293	61 do	pek	4880	24
71		296	35 do	pek sou	2800	19
77	Hantane	314	15 hf-cb	dust	1200	13
78		317	8 cb	bro mix	720	8
80	C	323	24 do	sou	1920	12
81		326	12 do	dust	1680	11
82		329	16 do 1 box	or pek	1460	13
84	Elston	335	10 ch	or pek	900	42
85		338	26 do	bro pek	2860	[illegible]0 bid
86		341	20 do	pek	1900	[illegible]6 bid
87		344	16 do	pek	1360	34
88		347	10 hf ch	dust	850	15
89		350	17 ch	pek sou	1530	32
90	Waragalanda	353	9 do	bro or pek	900	36
91		356	16 do	bro pek	1600	36
92		359	16 do	pek	1440	28
93		362	12 do	pek sou	1080	22
101	G T	386	11 do	pek	935	19
102		389	10 do	sou	850	20
104	M G	395	8 do	unas	800	15 bid
105		398	9 hf ch	fans	720	15 bid
106	Chapelton	401	8 do	dust	720	15
107		404	12 cb	bro mix	960	15
108	Nahavilla	407	16 do	or pek	1440	37
109		410	32 do	bro pek	3200	34
111		416	9 do	pek sou	720	25
115	W P	428	28 do	unas	2520	20

Lot.		Box.	Pkgs.	Name.	lb.	c.
117	Glentilt	434	28 ch	bro pek	2800	42
118		437	25 do	or pek	2250	38
119		440	20 do	pek	1700	34
120		443	9 do	pek sou	855	28
123	Brownlow	452	41 hf-ch	bro or pek	2255	41 bid
124		455	21 ch	bro pek	1827	35
125		458	46 do	pek	3588	28
126		461	13 do	pek sou	1196	20
129		470	11 hf ch	pek fans	726	15 bid
134	Bellongalla	485	12 ch	bro pek	1200	22
135		488	23 do	pek	1840	19 bid
138	Mount Clare	497	33 do	bro or pek	3300	36 bid
139		500	25 do	or pek	2425	27
140		503	14 do	pek	1302	21 bid
141		506	11 do	pek sou	935	17 bid
155	Kecnagaha Ella	548	65 hf-ch	bro or pek	3250	27 bid
156		551	24 ch	or pek	1680	23 bid
157		554	17 do	pek	1190	20 bid
159		560	18 hf ch	bro pek fans	1080	23
162	Leymastotte	569	66 do	or pek	3036	32
163		572	56 do	bro or pek	3248	32 bid
164		575	35 ch	pek	2625	26
165		578	27 do	pek sou	2268	21
166	M P	581	28 do	bro pek	2520	17 bid
167		584	37 do	bro or pek	2565	16 bid
168		587	33 do	pek	2475	20
169		590	26 do	pek sou	1820	15 bid
170	N B	593	31 do	pek sou	2790	34 bid

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name	lb.	c.
13	Battalgalla	86	4 hf ch	fans	320	23 bid
17	Clarendon	98	2 ch	sou	160	10

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	I K V	3571	1 ch	bro mix	110	8
2		3574	1 do	bro pek	51	33
3		3577	5 do	pek fans	600	15
4	New Peacock	3580	7 ch	pek sou	630	24
7	Horagaskelle	3589	6 hf ch	bro pek	356	29
8		3592	7 do	pek	382	21
9		3595	9 do	pek sou	478	15
12	Maligatenne	4	6 ch	bro pek	600	27
13		7	5 do	pek	450	23
14		10	2 do	pek sou	180	17
15	St. John's Wook	13	4 ch	bro pek	380	27
17		19	4 do	pek sou	340	21
19	B A	25	4 do	dust	320	12
32	Glengorse	64	2 do	dust	330	12
35	Grange Garden	73	4 ch	pek sou	400	19
36		76	2 do	fans	200	16
37		79	4 do	dust	340	14
40	Ismalle	88	3 ch	fans	369	13
41		91	4 do	dust	580	13
45	Matale	103	3 ch	fans	210	22
46		106	7 do	dust	560	14
47	New Galway	109	6 hf ch	bro pek	360	67
48		112	8 do	pek	440	48
49		115	2 do	pek sou	100	71
50	B and D	118	7 ch	pek sou	595	20
54	Igalkande	130	1 hf ch	bro mix	46	8
55		133	3 ch	dust	390	12
56	Wewawatte	136	8 hf ch	bro pek	464	33
57		139	5 do	pek	270	24
58		142	4 do	pek sou	220	18
62	Sutton	154	2 ch	pek sou	170	45
63		157	2 do	dust	280	15
68	Mouna	172	5 ch	bro pek fans	550	13
83	Damhagas-talawa	217	4 do	pek sou	360	35
84		220	2 do	bro pek fans	270	22
85	D G T	223	1 hf ch	bro pek	62	28
86		226	1 ch	pek	103	21
87		229	1 do	bro pek fans	140	13
91	Palm Garden	241	1 do	congou	90	12
92		244	1 do	fans	110	14
93		247	1 do	dust	166	10
94	Doranakande	250	2 ch	bro pek	200	25
95		253	1 do	pek	95	20
96		256	1 do	pek sou	90	19
104	Chesterford	280	2 do	congou	180	14
105		283	3 do	bro tea	285	11 bid
109	M C, in estate mark	295	2 ch	congou	220	12
114	Madulkelle	310	8 do	sou	640	19
115		313	3 hf-ch	dust	240	15
116	K D A	316	2 ch	bro pek	200	31
117		319	2 ch	pek	200	23
118		322	2 do	pek sou	190	20
125	Udapolla	343	6 do	pek sou	480	19
126		346	2 hf ch	dust	160	14
127	D H, in estate mark	349	4 hf ch	bro mix	288	10
128	N B	352	3 ch	bro tea	240	9
133	T B, in estate mark	367	3 ch	congou	255	15
134		370	3 hf ch	dust	240	13
135		373	3 do	fans	180	15
136		376	3 bags	red leaf	135	5
139	Patiagama	385	9 do	bro or pek	450	52
140		388	8 ch	or pek	680	38
143		397	7 hf ch	bro or pek fans	455	18
144		400	2 do	mixed	120	17
145		403	6 ch	sou	570	15
147	A	409	1 do	pek	75	19
148		412	1 do	pek sou	69	16
149		415	1 do	sou	96	12
157	Pine Hill	439	7 do	pek sou	630	32
158	Sunnycroft	442	4 ch	bro tea	432	11
159	Queensland	445	11 hf ch	bro or pek	523	65
161		451	1 ch	bro pek No. 2	95	25
163		457	4 do	pek No. 2	340	25
164		460	5 do	pek sou	450	33
165		463	2 hf ch	bro pek dust	154	16
182	Hayes	514	5 ch	pek sou	459	22
186	Hayes	526	3 do	dust	390	12
192	Dea Ella	544	8 hf-ch	fans	496	25
193		547	6 do	dust	438	16
199	F P W	565	4 ch	bro mix	380	8
204	Ganapall	580	6 do	pek sou	540	18
205		583	5 hf ch	dust	570	13
209	Nonpariel	595	6 do	fans	350	28
210		598	1 do	dust	86	14
213	Good Hope	607	7 ch	pek	630	22
214		610	5 do	pek sou	425	21
217	W, in estate mark	619	4 hf ch	pek	200	24
218		622	4 do	dust	320	15
219		625	1 do	bro mix	79	15
224	C R D	640	4 ch	sou	320	15
226		646	2 do	pek	180	20
227	Mahagas-totta	649	2 ch	red leaf	200	8
232	Lyegrove	664	7 do	pek sou	630	27
233		667	8 do	dust	640	15
235	O B E C, in est. mark, Forest Creek	673	4 ch	red leaf	340	10 bid
239	Kosgalla	685	12 hf ch	pek sou	597	15
240	Dickella	688	4 ch	pek sou	283	12
241		691	2 do	sou	130	8
242	Sogama	694	1 do	bro or pek	74	35
243	Ingoya	697	1 hf-ch	pek	51	22
244		700	1 box	bro or pek	22	20
250	Glengariffe	718	5 hf ch	dust	400	12
254	Zululand	730	3 do	dust	240	12
255		733	3 do	fans	270	24
256		736	1 do	unas	50	18
257		739	1 do	bro mix	50	8
263	Wyamita	757	6 ch	pek sou	480	15
264		760	1 do	sou	80	9
265		763	1 do	dust	80	12
266	L B K	766	1 ch	dust	600	11
267		769	1 ch	sou	300	10
269	Carlabeck	775	4 ch	bro pek fans	560	18 bid
270	Dromoland	778	8 hf ch	bro pek fans	520	16
271		781	8 do	dust	640	13
273	Ingrugalla	787	6 ch	red leaf	540	8
274	Labukelle	790	4 hf ch	bro pek fans	336	15
275		793	4 do	dust	348	7
276	A G	796	7 ch	bro tea	622	14
277		799	3 do	dust	399	13
278		802	2 do	dust	204	12
279	I G A	805	2 ch	bro pek	200	20
280		808	2 do	pek	180	20
281		811	4 do	pek sou	360	19
282		814	6 hf ch	bro tea	510	12
283		817	3 ch	red leaf	270	9
288	Corfu	832	5 hf ch	bro pek fans	375	15
289		835	5 do	bro tea	250	8
293	K P W	847	13 hf-ch	pek sou	650	20
294		850	3 do	dust	201	12
298	R M in est mark	862	2 ch, 1 hf-ch	sou	221	17
299		865	7 do	fans	420	21
300		868	2 ch	dust	280	13
301	Augusta	871	2 do	bro pek fans	220	16
304		880	1 do	dust No. 2	170	13
305		883	1 do	red leaf	97	7
311	Dunnottar	901	2 do	sou	170	25
312		904	3 do	bro pk fans	390	21
313		907	2 do	pek fans	200	16
314		910	1 do	dust No. 1	130	14
315		913	1 do	dust No. 2	100	12

Lot.		Box.	Pkgs.	Name.	lb.	c.
316		916	1 ch	bro mixed	100	9
317	Peak Shadow	919	2 do	br pek	300	16
318		922	4 do	pek	340	14
323	Penrhos	937	2 hf-cb	fans	150	17
324		940	1 do	pek dust	74	12
326	Carberry	946	5 ch	pek	375	28
328		952	5 do	bro pek sou	425	24
330		958	6 do	bro tea	360	21
331		961	3 do	dust	420	12
337	C F in est mark	979	3 do	bro pek	270	24
338		982	6 do	pek	510	23
339		985	2 do	sou	200	12
340		988	2 hf-ch	bro tea	510	7
344	C S G	1000	4 do	fans	260	18
346		1006	5 do	bro mixed	500	10
347	N	1009	3 ch	bro tea	300	8
348		1012	3 do	pek fans	353	12
351	Nugagalla	1021	4 hf ch	pek sou	200	20
352		1024	3 do	dust	270	13
356	Kincora	1036	5 cb	fans	600	35
357		1039	1 do	dust	155	12
358		1042	3 do	or pek	285	40
359		1048	3 do	pek	255	28
361		1051	3 do	congou	255	7
364	Palmerston	1060	1 do	pek sou	80	38
367		1069	5 bf-ch	dust No. 1	375	17
368		1072	1 do	dust No. 2	90	14
369		1075	1 ch	bro mixed	90	13
372	Lyegrove	1084	7 bf-ch	hyson	315	28
373		1087	9 do	hyson No. 2	486	27
374		1090	3 do	hyson No. 3	123	24
375		1093	2 do	twanky	110	11
379	Nahakettia	1105	9 do	hyson No. 3	459	23
380		1108	6 do	twanky	450	12
392	Clyde	1144	7 cb	pek sou No. 2	469	17
393		1147	1 ch	bro mixed	74	12
398	Udaveriya	1162	4 bf-ch	pek sou	200	20 bid
399		1165	6 do	faus	510	17 bid
400		1168	9 do	br pek fans	675	27
404	Kotagaloya	1180	3 ch	sou	225	16
405		1183	1 do	red leaf	45	7
406	K G	1186	5 do	bro pek	500	29
408		1192	4 do	pek sou	280	20
409		1195	2 do	fans	250	16
411	St. Martin	1201	13 hf-ch	or pek	510	25
412		1204	15 do	br or pk	600	21
414		1210	12 do	pek sou	480	14
415		1213	5 do	dust	300	11
417	P in est mark	1219	4 cb	bro pek	400	39
418		1222	5 do	bro mixed	450	24
419		1225	5 do	pek	400	36
420		1228	3 bf-ch	unast	135	22
422		1234	4 do	unast	200	15
423	R W T	1237	4 ch	dust	360	9
424		1240	1 do	congou	90	10
430	A	1258	3 bf-ch	bro mixed	255	9
432	C B	1264	4 ch	bro pek	440	25
434		1270	4 do	pek sou	360	14
435		1273	3 do	br pek fans	228	16
444	V in est mark	1300	1 do	br tea	68	20
445		1303	1 do	br tea	55	19
456	O'Bodde	1336	4 do	pek sou	340	21
457	B D W	1339	1 do	sou No. 2	90	15
459		1345	1 hf ch	dust	85	12
460	X	1348	3 ch	red leaf	195	8
461	Gonapitiya	1351	12 bf cb	bro pek	648	66
464		1360	14 do	pek sou	644	37
466		1366	3 ch	dust	261	16
467	C N N	1369	9 hf-ch	fans	675	17
468		1372	7 cb	pek sou	525	19
469		1375	2 hf-cb	unast	208	19
483	Sirikandura	1415	2 ch	bro tea	163	5
487	Amblakande	1429	4 do	dust	400	12
496	Stafford	1456	9 hf-ch	br pek	540	62
497		1459	7 ch	or pek	665	57
499		1465	1 hf-ch	dust	80	15
500	Cotaganga	1468	6 do	dust	438	12
501	H	1471	4 ch	bro pek	400	23
502		1474	1 do	pek	93	16
503	Perwatte	1477	5 hf-ch	dust	354	10
504	Debatgama	1480	8 hf-cb	young hyson	480	33
505		1483	5 cb	hyson	300	28
506		1486	5 do	hyson No, 2	275	24
522	Ragalla	1534	2 hf ch	fans	150	17
523	R	1537	1 cb	bro mixed	68	8
526	Clunes	1546	8 do	or pek	640	22
531		1561	3 do	sou	300	14
532		1564	7 hf-ch	dust	630	13
533		1567	2 ch	or pek	170	22
534		1570	4 do	br pek	420	21
535		1573	3 do	pek	315	19
536		1576	3 do	pek sou	330	14
537	F L in est mark	1579	5 do	bro mixed	500	10
539	Letcbmey	1585	2 bf-ch	pek fans	150	13
540	Galkadua	1588	3 ch 1 hf-ch	bro or pek	402	28 bid
544		1600	1 do	congou	50	11
545		1603	1 ch 1 hf-ch	fans	158	14
546		1606	1 do	dust	79	9
554	Weemalle	1630	6 do	bro or pek	600	29
555		1633	7 do	or pek	955	35
557		1639	2 ch	pek sou	180	18
558		1642	2 hf-cb	bro tea	170	12
562	B Y in est mark	1654	5 do	fans	275	19
563		1657	2 do	dust	170	12
564		1660	1 do	red leaf	45	8
567	Yaha Ella	1669	2 ch	pek sou	170	15
568		1672	2 do	pek fans	157	14
569		1675	1 do	dust	96	10
570		1678	1 hf-ch	bro mixed	50	12
571	Cobbanswood	1681	2 cb	young hyson	200	25 bid
572		1684	2 do	young hyson No1	190	25
573		1687	5 do	hyson	400	19 bid
574		1690	2 do	hyson No. 2	170	14 bid
575		1693	1 do	fans	90	8

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	St Leys	712	2 cb	red leaf	208	8
2		715	2 hf ch	fans	176	11
4	S F D	721	1 ch	unas	68	12
5		724	8 bf ch	dust	672	13
6	Ravenoya	727	4 cb	bro pek	400	30
8		733	5 do	pek sou	360	21
9		736	1 bf ch	dust	80	13
10		739	1 do	fans	90	21
15	Rambodde	754	1 bf-cb	dust	90	12
16		757	3 do	fans	210	18
20	Kelani	769	8 ch	pek sou	640	17
21		772	7 do	sou	490	14
22		775	3 do	dust	500	11 bid
23	Kabatagala	778	4 ch	bro pek	340	26
24		781	1 do	bro or pek	100	22
25		784	2 do	pek	160	22
26		787	1 do	pek sou	80	17
27		790	1 do	dust	100	11 bid
28	J P E	793	5 do	bro pek	425	25
29		796	1 do	bro or pek	100	22
30		799	2 do	pek	160	22
31		802	1 do	pek sou	80	17
32		805	1 do	sou	70	14
33		808	1 do	dust	100	10 bid
37	Narangoda	820	4 ch	dust	340	11 bid
38		823	3 do	sou unbulked	180	8
39		826	1 do	unas	83	9
45	Mora Ella	844	2 bf cb	bro pek fans	130	22
46		847	1 do	dust	85	14
49	Nugawella	856	8 ch	pek sou	640	18
50		859	1 hf ch	dust	85	12
51	Mahatenne	862	6 ch	bro or pek	600	26
54		871	1 do	pek sou	100	19
55		874	2 do	dust	200	12
59	Mahalla	886	2 ch	dust	186	12
65	Moragalla	904	6 ch	pek sou	600	16
66		907	2 do	bro tea	200	10
67	California	910	7 cb	bro pek	645	26
69		916	6 do	pek sou	516	14
70		919	4 do	pek fans	400	14
71	Mousa Eliya	922	1 ch	pek sou	100	13
72		925	3 do	bro pek fans	369	13
73		928	1 do	dust	170	10
77	Mary Hill	940	9 hf cb	dust	675	11
78	D B G	943	3 ch	bro mix	300	6 bid
79	G B	946	10 hf cb	bro tea	500	6 bid
85	S	964	6 hf ch	dust	480	13
86		967	10 do	sou	500	12 bid
87	A	970	5 hf ch	dust	400	14
88		973	5 do	sou	250	13
92a	Farnbam	985a	5 cb	sou	420	20
93		988	3 do	bro or pek	315	22 bid
94		991	3 do	bro pek fans	345	21 bid
95		994	4 do	pek fans	460	14 bid
96		997	2 do	dust	282	10 bid
97	S P	1000	1 ch	bro pek fans	122	10 bid
98	Kumwattia	1003	2 ch	pek	170	17
103	N I T	1018	2 bf ch	dust	150	14
104		1021	3 ch	unas No. 1	300	14
106	Goonambil	1027	1 bf cb	bro mix	69	6 bid
107	F A	1030	1 ch 1 hf ch	pek sou	133	21 bid
108		1033	3 bf ch	dust	210	13
112	R K P	1045	8 cb	pek sou	640	20
113		1048	7 do	sou	490	16
114		1051	2 do	dust	200	11 bid
118	Glenesk	1063	1 ch	dust	170	10
121	Auburn	1072	3 ch	pek sou	249	19
122		1075	7 hf ch	fans	525	14
123		1078	7 do	dust	609	13
124		1081	1 do	sou	80	10
126	Oolapane	1087	4 bf ch	fans	232	14
127		1090	1 do	bro pek	60	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
130	Beruketiya	1099	5 ch	bro pek	535	28
131		1102	5 do	pek	460	19
132		1105	1 do	pek fans	112	16
133		1108	1 do	dust	70	10 bid
134	Dryburgh	1111	6 ch	bro or pek	540	25
135		1114	7 do	or pek	602	29
136		1117	8 do	pek	584	22
137		1120	3 do	pek sou	228	18
138		1123	5 hf ch	fans	340	w drawn
142	Blackburn	1135	4 ch	bro pek	400	24
144		1141	1 do	pek sou	83	18
151	Rayigam	1162	2 hf ch	dust	206	13
152	F, in estate mark	1165	4 ch	pek sou	420	38
153		1168	5 hf ch	dust	350	16
158	Doragalla	1183	5 ch	bro mix	675	9 bid
161	Glenalmond	1192	4 ch	pek sou	348	18
162		1195	1 do	dust	138	11
163	Fai field	1198	1 hf ch	pek	50	36
164	Siriniwasa	1201	1 ch	con	92	11
165	Meddegodde	1204	8 hf ch	bro or pek	360	30 bid
167	L E	1210	2 ch	bro pek	210	10 bid
168		1213	1 do	pek	62	10 bid
169	Stockholm	1216	1 ch	bro pek	100	35
173	Nellicollay-watte	1228	1 hf ch	sou colindia pkgs	60	8 bid
174		1231	2 do	dust	120	14
1 5		1234	2 do	fans	170	14
176	Hatale	1237	1 ch	pek	86	20
177	W S	1240	1 ch	pek	140	21
178		1243	1 hfch 1 ch	pek sou	130	18
179	Amupitiya	1246	1 hf ch 5 hf ch	bro or pek	242	41
181		1252	4 do	pek	380	21
182		1255	2 do	pek sou	180	18
183		1258	1 do	dust	113	11
188	Harrangala	1273	6 ch	bro pek fans	600	24
193	Galetota	1288	3 ch	pek	300	8 bid
194		1291	1 do	sou	150	8
205	A B T, in estate mark	1324	1 hf ch 6 ch	pek	630	20
208	Waganila	1333	4 ch	bro pek	400	36 bid
209		1336	1 hf-ch 3 ch	or pek	270	36 bid
210		1339	1 do	pek	90	29 bid
211		1342	2 do	pek sou	160	21 bid
212		1345	2 hf ch	dust	160	13 bid
216	Kurunegalle Estate, Co Limited	1357	2 ch	pek sou	200	18
217	Romania	1390	12 ch	bro pek	672	20
219		1366	4 do	pek sou	326	10
227	Y, in estate mark	1390	6 ch	dust	480	10 bid
231	Ravenscraig	1402	3 ch	pek sou	270	16
232		1405	3 hf ch	fans	240	15
235	S R K	1414	5 ch	bro tea	500	10
240	Eewadugama	1429	3 ch	pek sou	255	19 bid
243	Patulpana	1438	10 hf ch	pek sou	500	out
244		1441	4 do	sou	200	11
246	Meddegodde	1447	18 hf ch	pek	630	21 bid

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Theresia	89	2 ch	bro pek fans	190	25
3		92	5 hf ch	dust	400	17
4		95	1 do	sou	50	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Wendura	107	4 ch	pek sou No. 2	380	15
9		110	1 hf ch	dust	88	13
13	Oonoogaloya	122	4 ch	pek sou	320	36
14		125	4 do	dust	600	13
16		131	2 do	fans	270	15
20	Perth	143	9 do	pek sou	670	23
21		146	7 hf ch	pek dust	525	14
22		149	1 do	red leaf	32	8
23	Dalhousie	152	8 do	or pek	360	41
27		164	6 do	bro pek fans	420	25
31	Bowella	176	1 do	dust	106	13
36	Vincit	191	2 ch	dust	300	12
37		194	2 do	red leaf	270	7
38	B B B, in est. mark	197	8 hf ch	bro mix	400	6
39	Melvilla	200	8 do	bro pek	400	29
40		203	8 do	pek	400	21
41		206	2 do	pek sou	100	19
54	Templestowe	245	7 ch	pek sou	630	35
57	Wadhurst	254	6 do	or pek	600	39
58		257	7 do	pek	630	26
59		260	4 do	pek sou	360	23
60		263	1 hf ch	dust	80	15
61		266	1 ch	bro mix	100	8
62		269	1 hf ch	fans	73	18
65	Uvakellie	273	7 ch	pek	693	46
66		281	4 do	pek sou	378	36
67		284	1 do	bro mix	159	12
72	Rondura	299	4 do	dust	600	12
73	S H	302	2 do	pek	1[illegible]6	22
74		305	1 do	pek sou	486	19
75		308	2 hf ch	dust	168	12
76		311	1 do	fans	70	12
79	Nikakotua	320	5 ch	unas	400	12
83	C D	332	1 hf-ch	bro or pek	56	26
94	Waragalanda	365	2 ch	dust	230	14
95	K P	368	1 hf ch	dust	96	10
96		371	4 ch	pek fans	256	16
97		374	3 hf-ch	fans	222	16
98		377	1 ch	congou	105	12
99		380	2 do 1 hf ch	bro tea	343	8
100	G T	383	3 ch	bro pek	300	20
103		392	7 hf ch	dust	665	13
110	Nahavilla	413	5 ch	pek	450	29
112		419	6 hf ch	dust	480	14
113		422	6 do	pek fans	20	14
114	W P	425	1 ch	dust	120	26
116		431	6 do	sou	420	16
121	Glentilt	446	10 hf ch	pek mix	600	17
122	Kuruwaithai	449	2 ch	pek sou	160	14
127	Brownlow	464	2 do	bro mix	200	14
128		467	7 hf ch	bro pek fans	469	23
130		473	8 ch	dust	680	12
131	Villa	476	1 hf ch	pek	47	22
132		479	1 do	pek sou	45	28
133		482	6 ch	red leaf	450	8
136	W, in est. mark	491	8 do	pek	800	19
137		494	2 do	bor mix	180	8
142	Mount Clare	509	2 do	sou	146	8
143		512	1 do	bro tea	90	9
144		515	4 do	fans	364	13
145		518	3 do	dust	288	11
146	Coundon	521	10 hf-ch	bro or pek	450	26
147		524	3 ch	or pek	225	26
148		527	5 ch	pek	425	20
149		530	5 do	pek sou	400	17 bid
150		533	5 hf-ch	bro pek fans	300	25
151		536	2 do	fans	120	16
152	K T	539	1 ch	bro pek	85	19
153		542	1 do	pek	80	15
158	Keenagaha Ella	557	8 do	pek sou	600	18
160		563	4 ch	pek fans	320	12 bid
161		566	1 hf ch	dust	90	12 bid

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 5. COLOMBO, FEBRUARY 4, 1901. { PRICE :—12½ cents each, 3 copies 30 cents ; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[16,264 lb.]

Lot.		Box	Pkgs.	Name.	lb.	c.
1	Battalgalla	51	24 ch	or pek	2280	43 bid
2		54	23 do	pek	1955	33 bid
3		57	14 do	pek sou	1120	30
5	Hornsey	63	55 hf ch	bro or pek	2475	49 bid
6		66	26 ch	pek	2210	34 bid
7		69	10 do	pek sou	800	31
9	Selvawatte	75	14 hf ch	bro pek	770	27
11	A	81	8 ch	pek	752	24 bid
19	Halgolle	5	8 ch	hyson No. 2	736	17 bid

Messrs. Forbes & Walker

[480,558 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Kosgalla	1693	18 hf ch	bro pek	900	22
2		1699	18 do	pek	810	19
5	Nakadenia	1708	11 ch	bro pek fans	1100	26
7	Great Valley Ceylon, in est. mark	1714	22 hf ch	bro or pek	1210	38
9		1720	18 ch	pek	1530	30
10		1723	35 do	pek sou	2625	23
11		1726	9 do	sou	765	11 bid
13	Sirikandura	1732	12 do	bro pek	1200	28
14		1735	11 do	pek	1045	22
15		1738	8 do	pek sou	720	16
17	Thedden	1744	23 ch	bro pek	2300	34 bid
18		1747	18 do	pek	1710	29
24	Carolina	1765	13 ch	hyson	1274	30
25		1768	13 do	do No. 2	1248	28
27	S R, in estate mark	1774	13 ch	congou	1300	19
28	D, in estate mark	1777	20 ch	pek sou	1800	19
29		1780	10 hf ch	dust	700	14
30	Palawatte	1783	18 ch	bro pek	1800	30
31		1786	11 do	pek	1100	22
35	Villehena	1798	12 ch	bro pek	1200	29
36		1801	8 do	pek	800	22
40	A G S	1813	20 hf ch	bro or pek	1209	22
41		1816	24 do	or pek	1200	23
46		1831	24 do	dust	2090	13
51	Allagalla	1846	27 hf ch	dust	2295	14
53	Tonacombe	1852	37 ch	or pek	3330	38
54		1855	29 do	bro pek	2909	46
55		1858	34 do	pek	3060	35
56		1861	13 do	pek sou	1170	29
57		1864	11 hf ch	dust	935	17
65	Nillomally, O B E C, in est. mark	1888	29 ch	bro pek	2068	50
66		1891	19 do	or pek	1482	34 bid
67		1894	13 do	pek	1040	34
68		1897	10 do	pek sou	800	33
69		1900	9 do	bro or pek	900	63
7·	Doomba	1906	6 ch	fans	720	24
73		1912	7 do	congou	700	16
79	Queensland	1930	9 ch	bro pek	855	48
80		1933	18 do	pek	1620	36
81	Kelaneiya and Braemor	1936	22 ch	bro or pek	2200	34 bid
82		1939	20 do	or pek	2000	27 bid
83		1942	18 do	pek	1800	24 bid
86	Dunbar	1951	16 hf ch	bro or pek	800	63
87		1954	21 do	or pek	1701	38
88		1957	40 do	pek	30 0	35
93	Oakham	1972	24 do	or pek	1080	43
94		1975	25 ch	bro pek	1500	46 bid
95		1978	24 do	pek	2160	34
96		1981	8 do	pek sou	760	25
98	Tempo	1987	18 ch	bro pek	1800	31
09		1990	13 do	or pek	1170	28 bid
100		1993	34 do	pek	2550	23 bid
101		1996	22 do	pek sou	1430	21
103		2002	8 do	bro pek fans	760	23
106	Shrubs Hill	2011	35 ch	bro pek	3742	30 bid
107		2014	61 do	or pek	5060	31 bid
108		2017	18 do	pek	1527	25 bid
110	Tembiligalla	2023	14 ch	or pek	1260	35
111		2026	36 do	pek	2880	23 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
113	Pansalatenne	2032	42 ch	bro pek	4200	34
114		2035	21 do	pek	1890	31
115		2038	18 do	pek sou	1530	23
119	D, in estate mark	2050	8 ch	or pek	800	out
121		2056	12 do	pek sou	1055	12
122		2259	18 do	sou	1440	11
123		2062	14 do	fans	1815	13
124	W V R A	2065	13 hf ch	bro or pek	715	59
125		2068	14 do	bro or pek	770	55 bid
127		2074	15 do	fans	1200	13
128	Weyangawatte	2077	28 ch	bro pek	2800	30
129		2080	27 do	pek	2430	25
130		2083	22 do	pek sou	1760	21
136	Mawiligangawatte	2101	9 ch	bro or pek	900	42
137		2104	56 do	bro pek	5320	24
138		2107	45 do	pek sou	3375	21
140	Castlereagh	2113	32 ch	bro pek	3040	41
141		2116	13 do	or pek	1105	37
142		2119	17 do	pek	1360	33
143	Yataderia	2122	34 ch	pek	2992	21
144		2125	36 do	pek	3060	21
147	A M P	2134	93 ch	bro mix	7440	8 bid
148	W, in est. mark	2137	8 ch	sou	760	8 bid
149	Polatagama	2140	54 do	bro pek	5400	32
150		2143	18 do	or pek	1530	26
151		2146	84 do	pek	7140	22
152		2149	27 do	pek sou	2295	16 bid
153		2152	9 do	bro pek fans	900	22
156	Maha Uva	2161	16 hf ch	bro or pek	960	33
158		2167	14 ch	pek	1260	33 bid
160	Inverness	2173	13 ch	or pek	1235	57
161		2176	21 do	bro or pek	2100	58
162		2179	23 do	pek	2185	47
163	Ganapalla	2182	16 ch	bro or pek	1664	23
164		2185	13 do	bro pek	1040	24 bid
165		2188	26 do	or pek	2236	28
166		2191	37 do	pek	2960	20 bid
169	Lucky Land	2200	9 ch	bro or pek	990	42
171		2206	12 do	pek	1020	39
172		2209	8 do	pek sou	720	30
176	Ella Oya	2221	14 ch	hyson No. 2	900	23
178	D M V	2227	11 ch	bro pek	1034	19
179		2230	17 do	pek	1241	16
181	O B E C, in est. mark, Forest Creek	2236	22 ch	bro or pek	2200	54 bid
182		2239	33 do	bro pek	3300	37 bid
183		2242	13 do	or pek	1170	45 bid
184		2245	21 do	pek No. 1	1890	36 bid
1-5		2248	31 do	pek No. 2	2790	34
186	M C, in estate mark	2251	7 ch	unas	921	25 bid
187	Avoca	2254	13 ch	bro or pek	1365	50 bid
188		2257	24 do	bro pek	2400	35 bid
189		2260	19 ch	pek	1710	34 bid
190		2263	8 do	pek sou	720	29
192	Kotagaloya	2269	16 do	pek	1357	29
193	Passara Group	2272	11 do	or pek	880	35
194		2275	20 do	bro or pek	20 0	38
195		2278	25 do	pek	2250	30
196		2281	10 do	pek sou	900	24
200	Knavesmire	2293	15 hf-ch	or pek	750	31
201		2296	40 ch	br pek	3800	29
202		2299	47 do	pek	3760	26
203		2302	17 do	pek sou	1275	22
204		*2305	14 do	dust	1120	16
206		2311	29 do	sou	2030	23
208	Clyde	2317	61 ch 2 hf-ch	bro pek	5303	26 bid
209	Adisham	2320	26 hf-ch	bro or pek	1430	36
210		2323	18 do	or pek	810	35
211		2326	21 ch	pek	1575	28
212		2329	14 do	pek sou	980	25
213		2332	13 do	bro pek	1170	28
220	Panmure	2353	20 hf ch	br or pk fans	1497	15 bid
2.2	Attempettia	2359	8 ch	bro pek	720	24 bid
224		2365	11 do	pek	880	16 bid
227	Ardlaw and Wishford	2374	14 hf ch	bro or pek	714	59
228		2377	25 ch	br pek	2150	44
229		2380	12 do	or pek	924	38
230		2383	16 do	pek	1280	35
231	Geragama	2386	19 do	bro pek	1900	28
232		2389	37 do	pek	3330	23
234		2395	20 do	br pek	2000	29
235		2398	40 do	pek	3600	23
238		2407	9 do	bro pek	900	26
239		2410	15 do	pek	1350	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
42	Mansfield	2419	55 hf-ch	bro pek	3300	50
243		2422	19 ch	pek	1710	37
244		2425	9 do	pek sou	765	26
247	Preston	2434	20 do	bro pek	2000	61
248		2437	11 do	pek	880	41
249		2440	14 do	pek sou	1120	39
250	Waitalawa	2443	47 hf-ch	bro pek	2350	44
251		2446	84 do	pek	4200	30
252		2449	14 do	pek sou	700	21
254	Puspane	2455	41 ch	br pek	4510	27 bid
255		2458	18 do	pek	1620	22 bid
256		2461	25 do	or pek	2875	24 bid
257	Memorakande	2464	15 hf-ch	dust	1200	14
262	Ugieside	2479	10 do	dust	800	12
263		2482	15 ch	bro mix	1275	13
265	Dammeria	2488	22 do	pek	2967	25 bid
268	Kennington	2497	8 do	dust	1200	13
269		2500	12 do	unast	922	10
270	Arapolakande	2503	60 hf-cb	young hyson	3000	34 bid
271		2506	33 ch	hyson	2970	34 bid
272		2509	8 do	hyson No. 2	880	26 bid
274	Marlborough	2515	27 do	or pek	2106	30 bid
275		2518	58 do	pek	4900	26 bid
276	,,		57 do	pek	4845	26 bid
277		2521	45 do	pek sou	3600	22 bid
278	Anningkande	2524	30 do	br pek	3000	28
279		2527	14 do	pek	1330	22
280	Gallawatte	2530	24 do	bro pek	2160	26
281		2533	18 hf-ch	bro or pek	990	28
282		2536	41 cb	pek	3250	22
283		2539	11 do	pek sou	935	21
284		2542	17 do	sou	1360	17
286		2548	20 hf-ch	pek fans	1400	16
287		2551	29 ch	fans	2320	14
288	Middleton	2554	30 hf-ch	bro or pek	1650	58
289		2557	48 cb	bro pek	4800	36 bid
290		2560	61 do	pek	4880	35
291	M D	2563	33 hf-ch	fans	1930	18
295	Choisy	2575	9 cb	or pek	855	43
296		2578	19 do	br pek	1900	53
297		2581	20 do	pek	1700	35
300	Karakettia	2590	8 do	bro pek	853	25
301		2593	11 do	pek	1124	16
306	Great Valley, Ceylon, in est. mark	2608	69 do	bro or pek	3795	47
307		2611	26 do	or pek	2210	36 bid
308		2614	52 do	pek	4420	31 bid
309		2617	61 do	pek sou	4575	24 bid
310		2620	10 do	sou	850	15
311		2623	10 do	dust	850	15
314	Dewalakande	2632	9 do	hyson	792	26
317	Tillyrie	2641	20 hf ch	young hyson	1100	32 bid
318		2644	10 ch	hyson	850	30 bid
319		2647	20 do	hyson No. 2	2000	24 bid
321		2653	9 do	green tea fans	720	12
323	Stamford Hill	2659	38 hf-ch	br pek	2280	43
324		2662	16 do	or pek	1170	51
325		2665	28 ch	pek	2520	26 bid
326		2668	9 do	pek sou	720	34
329	Bandarawella	2677	21 do	bro pek	2199	25
330	Woodend	2680	22 do	bro pek	2200	25
331		2683	37 do	pek	3330	22 bid
332		2686	13 do	pek sou	1040	21
334	Battawatte	2692	24 do 1 hf-cb	bro or pek	2603	26
335		2695	23 cb 1 hf-ch	pek	2120	20
342	Clune	2716	12 ch	pek No. 1	1020	29
343		2719	27 do	pek No. 2	2295	26
344		2722	11 do	pek sou	1200	22
346	Pallegodde	2728	13 do	bro or pek	1300	26
347		2731	24 do	br pek	2400	39
348		2734	18 do	or pek	1620	26 bid
349		2737	15 do	pek	1200	24
350		2740	11 do	pek sou	990	21
361	Pallegodde	2773	16 do	or pek	1437	26
362		2776	15 do	pek	1197	23 bid
363		2779	16 do	pek sou	1437	20 bid
364	Harrow	2782	11 do	or pek	1100	47
365		2785	19 hf-ch	bro or pek	1140	50
366		2788	30 ch	pek	2850	37
367		2791	9 do	pek sou	810	34
369	Glendon	2797	21 hf-ch	or pek	1680	25
370		2800	20 ch	bro pek	2000	28
371		2803	51 do	pek	4335	23
372		2806	20 do	pek sou	1600	19
373	G	2809	8 do	sou	720	15

Messrs. Somerville & Co.—
[278,391 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Sadamallo	1465	12 ch	bro pek	1140	20
2		1468	17 do	pek	1615	15 bid
6	Meetiagoda	1480	11 ch	pek	1100	11 bid
11	Citrus	1495	15 ch	bro pek	1350	22
12		1498	52 do	pek	5200	14 bid
13		1501	18 do	pek sou	1800	12 bid
15	Wilpita	1507	11 ch	bro pek	1100	20
16		1510	11 do	pek	1045	18 bid
17		1513	18 do	pek sou	1710	15
21	P T N, in est. mark	1525	25 hf ch	pek sou	1250	10 bid
23	Hanagama	1531	14 ch	pek sou	1260	16
26	Citrus	1540	30 cb	bro pek	2000	21
27	Kumaragala	1543	14 hf cb	bro pek	770	33
28		1546	12 ch	pek	960	25 bid
29		1549	14 do	pek sou	1220	21
33	Primrose Hill	1561	10 ch	pek	800	24 bid
34		1564	12 do	pek sou	960	21
37	F, in estate mark	1573	35 ch	pek	3500	22
38		1576	26 do	bro mix	1170	16
39	Kelani	1579	30 cb	bro pek	2550	26 bid
40		1582	20 do	pek	1600	23
41		1585	12 do	pek sou	960	21
43	R T, in estate mark	1591	8 ch	bro mix	840	15
44		1594	38 hf ch	fans	2660	18
45		1597	21 do	dust	1680	13
46	L	1600	9 ch	bro mix	765	9
47		1603	23 hf ch	dust	1840	14
48	Dikmukalana	1606	33 hf ch	bro pek	1815	27
46		1609	20 do	pek A	1000	23
50		1612	20 do	pek B	1000	20
51		1615	30 do	pek sou A	1440	20
52		1618	18 do	pek sou B	864	16
53		1621	23 do	bro pek fans	1265	18
64	Ingeriya	1654	35 hf cb	bro pek	1750	23
65		1657	14 do	bro or pek	840	23
66		1660	28 do	pek	1344	20
67		1663	28 do	pek sou	1288	16
69	Beausejour	1669	17 cb	bro pek	1410	23 bid
70		1672	15 do	pek	1320	19 bid
72	Cooroondoo-watte	1678	21 hf cb	bro pek	1260	46
73		1681	15 cb	pek	1500	27
74		1684	9 do	pek sou	900	22
76	Avisawella	1690	18 cb	bro pek	1800	27
77		1693	32 do	pek	2720	24
78		1696	19 do	pek sou	1520	21
79	Mossville	1699	15 ch	bro pek fans	1500	15
80		1702	15 hf cb	dust	1350	11
84	Woodthorpe	1714	10 cb	bro pek	1000	34
85		1717	17 do	pek	1360	25 bid
86		1720	19 do	pek sou	1520	16
89	Derby	1729	34 hf cb	bro pek	2040	22
90		1732	22 do	pek	1210	18
93		1741	27 do	bro pek	1620	23 bid
94		1744	22 do	pek	1232	18 bid
95		1747	17 do	pek sou	850	14
97	G A Ceylon	1753	10 cb	pek sou	700	19
100		1759	13 hf cb	dust	1001	12
101	Theberton	1765	22 ch	bro or pek	2200	25
102		1768	16 do	bro pek	1440	30
103		1771	20 do	pek	1700	23
108	Atababena	1786	13 hf cb	bro pek	702	24
111	B F, in estate mark	1795	21 hf ch	bro pek dust	1890	9 bid
112	Old Medde-gama	1798	10 cb	bro or pek	700	51 bid
113		1801	10 do	or pek	700	35 bid
114		1804	15 do	pek	1200	27 bid
118	Raglan	1816	11 ch	pek	990	17 bid
123	Monrovia	1831	10 cb	Young Hyson	900	26
124		1834	11 do	Hyson	990	22 bid
133	Monrovia	1861	22 cb	bro pek	2200	21
134		1864	26 do	pek	2470	19
135		1867	13 do	pek sou	1300	14
138	Labaduwa	1876	9 ch	bro pek	1023	22
140		1882	11 do	pek sou	1094	15
145	Meddagodda	1897	31 hf cb	pek sou	1240	20
150	G, in estate mark	13	25 ch	bro or pek	2488	26 bid
151	Ocnankande	16	23 hf cb	bro pek	1150	38
152		19	15 ch	sou	1050	21
154	Forest Hill	25	12 cb	bro pek	1080	25 bid
155		28	14 do	pek	1190	24
158	K R G	37	24 hf ch	bro or pek	1440	34 bid
159	Cork	40	9 cb	bro pek	864	47
160		43	11 do	or pek	913	38
165		58	8 do	bro pek	763	25 bid
166		61	9 do	or pek	810	23 bid
167		64	9 do	pek	765	21 bid
171	Farnham	76	20 ch	bro pek	1800	31
172		79	11 do	or pek	880	30
173		82	17 do	pek	1530	25
174		85	10 do	pek sou	800	22
179	Dumbarton	100	15 ch	bro or pek	1500	31 bid
180		103	12 hf cb	bro pek	732	26
181	Cooroondoo-watte	106	8 ch	pek	800	25 bid
182	Jak Tree Hill	109	9 cb	bro pek	950	30

Lot.		Box.	Pkgs.	Name.	lb.	c.
186	Mount Vernon	121	26 ch	pek	2470	38 bid
187		124	18 do	pek A	1566	35 bid
188		127	20 do	pek sou	1720	34
190	D S	133	15 hf ch	dust	1200	13
197	Paradise	154	17 ch	bro pek	1870	24
198		157	15 do	pek	1500	18 bid
199		160	11 do	pek sou	1045	15
202	Rayigam	169	58 ch	bro pek	3610	27 bid
203		172	31 do	bro pek	2945	27 bid
204		175	17 do	or pek	1360	25
205		178	19 do	pek	1520	22
206		181	26 do	pek sou	2340	22
207		184	8 do	dust	800	14
208	Attiville	187	12 ch	bro pek	1200	21
209		190	15 do	pek	1560	17
210		193	12 do	pek sou	1140	13
212	Depedene	199	17 hf ch	bro pek	850	23 bid
214		205	28 do	pek	1400	22
215		208	32 do	pek sou	1600	18
216		211	16 do	bro pek fans	880	18
218		217	47 do	bro pek	2350	28
219		220	38 do	pek	1900	23
220		223	40 do	pek sou	2000	20
221		226	15 do	bro pek fans	900	19
223		232	81 do	bro pek	4455	28
224		235	60 do	pek	3000	23
225		238	36 do	pek sou	1800	18
228	Hangranoya	247	13 ch	bro or pek	1300	45
229		250	24 do	bro pek	2400	26
230		253	21 do	pek	1785	21
231	Kurulugalla	256	18 ch	bro pek	1800	18 bid
232		259	16 do	pek	1440	15 bid
233		262	8 do	pek sou	720	10 bid
234	K G A, in estate mark	265	8 ch	bro tea	760	6
235		268	10 do	fans	1150	8
237	Harangalla	247	11 ch	or pek	990	35
238		277	9 do	bro pek	855	32
239		280	21 do	pek	1680	31
240		283	12 do	sou	960	23
242	T S N	289	23 hf ch	pek	1150	18 bid
243	Ardlaw and Wishford	292	16 ch	bro pek	1408	33 bid
244	P T N	295	10 ch	bro pek fans	1000	16 bid
245	Lunugalla	298	9 ch	bro pek	900	21 bid
246	Anningkande	301	20 ch	or pek	2000	21 bid
247	Eewadugama	304	16 ch	bro pek	1760	27 bid
248		307	10 do	pek	1000	25 bid
249	Tiddydale	310	20 ch	pek sou	1800	11 bid
250	South Africa	313	10 ch	or pek	980	24
251		316	21 do	bro pek	2310	29
252		319	16 do	pek	1188	27
253		322	14 do	pek sou	1302	22
255		328	10 do	sou	770	17
256		331	7 do	or pek fans	840	21 bid
257		334	7 do	pek fans	840	15
258	Cairn Hill	337	10 ch	or pek	900	26 bid
259		340	21 do	bro pek	2100	25 bid
260		343	29 do	pek	2610	21 bid
261		346	22 do	pek sou	1760	16 bid
262		349	9 hf ch	dust	720	15
263		352	13 ch	or pek	1170	27 bid
264		355	26 do	bro pek	2600	25 bid
265		358	31 do	pek	2790	22 bid
267	C, in estate mark	361	26 hf ch	or pek	1284	24 bid
268	P	367	12 ch	pek	960	21 bid
269	Murraythwaite	370	21 do	bro pek	1995	36
270		373	19 do	pek	1520	25
271	Venture	376	19 do	pek	1615	27
272		379	14 do	pek sou	1050	22 bid
273	Blackburn	382	15 ch	pek	1350	23
275	Wilford	388	7 ch	sou	700	16 bid
277	Annandale	394	12 hf ch	bro or pek	744	76
278		397	22 do	or pek	1254	51
279		400	20 do	pek	1160	45
280		403	13 do	pek sou	741	40
281	D	406	32 hf ch	pek	1600	21 bid
283	G T	409	18 hf ch	or pek	900	31 bid
283	W L E	412	11 ch	pek sou	1260	16 bid

[Mr. E. John.—186,504 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Allington	608	9 ch	bro pek	900	27
6		611	10 do	pek	900	19 bid
9	Natuwakelle	620	24 do	bro pek	2160	27
10		623	12 do	bro or pek	1200	34
11		626	15 do	pek	1350	26
14	Poilakande	635	33 do	bro pek	3300	29
15		638	21 do	pek	1890	27
16	Eila	641	44 do	bro pek	3960	28
17		644	74 do	pek	6290	23 bid
18		647	84 do	pek sou	6300	19
19	G W	650	22 do	pek sou	1980	30
20		653	70 hf-ch	fans	5950	18
21	Ben Nevis	656	16 ch	bro pek	1630	37
22		659	10 ch	or pek	850	51
23		662	21 do	pek	1890	36
26	Glasgow	671	30 hf-ch	bro or pek	1950	47 bid
27		674	18 ch	or pek	1260	61
28		677	12 do	pek	1080	49
29		680	12 do	pek sou	1200	42
30	Agra Ouvah	683	44 hf-ch	bro or pek	2640	58
31		686	49 ch	or pek	4900	40 bid
32		689	24 do	pek	2208	39
33	Koslande	692	13 hf ch	bro pek	715	45
34		695	14 ch	pek	1260	29 bid
38	G B	707	8 do	bro pek	800	17
39		710	10 do	pek	800	14
40	M N	713	20 hf-ch	or pek	1100	42
41		716	12 do	bro or pek	720	55
42		719	22 ch	pek	1980	36
44		725	10 do	fans	730	26 bid
45	Glassaugh	728	38 hf ch	bro or pek	2470	45 bid
46		731	32 ch	pek	3200	45
51	Ohiya	746	15 hf ch	fans	900	19
53	Alplakande	752	10 ch	sou	900	15
55	Little Valley	758	10 do	pek	850	22 bid
58		767	18 hf ch	young hyson	900	30 bid
59		770	13 ch	hyson No. 1	1040	23 bid
60	Elston	773	19 do	pek	1710	37
61		776	21 do	pek sou	1890	33
62		779	19 do	or pek	1710	41 bid
65	G B	788	14 hf ch	fans	980	16 bid
66	U D	791	14 ch	bro pek	1397	22 bid
67		794	9 do	or pek	807	23 bid
68		797	20 do	pek	1497	14 bid
69	Coslanda	800	13 hf ch	bro pek	715	45
70		803	14 ch	pek	1260	29
74	G F R, in estate mark	815	37 do	bro pek	3512	26
75		818	38 do	pek	3037	18 bid
78	Oonoogaloya	827	10 do	pek	900	40
83	Doonhinda	842	24 do	bro pek	2400	47
84		845	32 do	pek	3200	36
85		848	7 do	pek sou	700	24
87	Birnam	854	21 do	pek sou	1407	28
88	Dickapittia	857	31 do	bro pek	3100	40
89		860	35 do	pek	3500	33
94	Ratwatte	875	24 do	bro pek	2400	28 bid
95		878	28 do	pek	2520	24 bid
98	Mahapahagalla	887	19 do	or pek	1710	35
99		890	20 do	pek sou	1600	25
105	Y K	908	9 do	dust	1350	13
106	Maskeliya	911	44 hf ch	bro or pek	2200	37 bid
108		917	16 ch	or pek	1440	41
109		920	21 do	pek	2100	34
113	Keenagaha Ella	932	24 do	or pek	1680	23 bid
114	Templestowe	935	27 do	bro or pek	2160	35 bid
115	Glentilt	938	27 do	bro pek	2700	45
116		941	23 do	or pek	2070	37
117		944	18 do	pek	1440	31 bid
118	Glasgow	947	81 hf ch	bro or pek	4833	50 bid
119		950	32 do	or pek	1600	61
120		953	12 ch	pek	1080	51
121		956	11 do	pek sou	1045	43
122	Galloola	959	36 do	bro pek	3600	31 bid
123		962	45 do	pek	4050	24 bid
124		965	20 do	pek sou	1600	19 bid
127	E R, in estate mark	974	14 do	pek No. 1	1050	34 bid
128		977	16 do	pek sou	1200	22 bid
129	O	980	8 do	bro or pek No. 1	880	18 bid
130		983	7 do	bro or pek No. 2	735	18 bid
134	Ottery	995	18 do	bro or pek	1980	51
135		998	17 do	or pek	1360	46
136		1	21 do	pek	1785	40
138	R S	7	11 do	unas	1100	17 bid
139	Glassaugh	10	77 hf ch	or pek	4158	63
140		13	19 do	bro or pek	1235	54
141		16	16 ch	pek	1600	45

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Battalgalla	60	6 hf ch	fans	480	26
8	Hornsey	72	6 do	fans	450	26
10	Selvawatte	78	7 ch	pek	560	18
12		84	1 ch	bro pek	100	26 bid
13		87	1 do	bro pek	100	24 bid
14		90	2 do	or pek	180	23 bid
15	S	93	1 ch	pek	101	14
16		96	1 do	dust	114	13
17	Halgolle	99	4 ch	young hyson	396	32 bid
18		2	4 do	hyson	376	27 bid
20		8	2 do	fans	168	16
21		11	1 do	dust	111	14

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Kosgalla	1702	7 hf ch	pek sou	350	16
4		1705	2 do	unas	100	14
6	Nakadeniya	1711	3 ch	pek fans	240	19
8	Great Valley Ceylon, in est. mark	1717	8 ch	or pek	680	35
12		1729	7 do	dust	595	16
16	Sirikandura	1741	1 ch	dust	160	15
19	Thedden	1750	5 ch	pek sou	425	23
20		1753	3 do	dust	465	11
21	J E A D, in estate mark	1756	2 ch	unas	190	40
22		1759	2 do	red leaf	100	15
23	Carolina	1762	6 ch	young hyson	564	34
26		1771	3 do	sifting	354	12
32	Palawatte	1789	4 ch	pek sou	360	19
33		1792	3 hf ch	sou	150	16
34		1795	3 do	dust	240	14
37	Villebena	1804	3 ch	pek sou	270	20
38		1807	2 do	sou	100	16
39		1810	2 do	pek dust	160	14
42	A G S	1819	12 hf ch	pek	540	20
43		1822	6 do	pek sou	300	16
44		1825	2 do	fans	150	16
45		1828	5 ch	red leaf	275	8
47		1834	4 hf ch	dust No. 2	440	11
48	E D P	1837	3 hf ch	dust	225	13
49		1840	3 ch	sou	225	20
50	Allagolla	1843	5 do	bro mix	375	24
52		1849	12 hf ch	fans	600	23
58	M in estate mark	1867	3 ch	bro mix	285	7
59		1870	4 do	pek fans	320	10
60		1873	2 do	do	200	6
61	Maligatenne	1876	4 ch	bro pek	420	25
62		1879	3 do	pek	300	19
63		1882	2 do	pek sou	190	16
64		1885	1 do	fans	115	13
70	Nilloomally O B E C, in estate mark	1903	2 hf ch	fans	100	21
72	Doomba	1909	2 ch	dust	300	17
77	H S F, in estate mark	1921	2 hf ch	fans	106	10
78		1927	1 box	dust	37	13
84	K W D	1945	4 hf ch	bro or pek fans	300	22
85	B D W G	1948	5 hf ch	dust	450	18
89	Dunbar	1960	10 do	bro pek	510	43
90		1963	6 do	bro pek fans	348	29
91		1966	4 ch	pek sou	308	28
92		1969	1 do	dust	146	17
97	Oakham	1984	5 ch	pek fans	400	20
102	Tempo	1999	11 do	sou	660	18
104	A G	2005	1 ch	pek	60	21
105		2008	1 hf ch	red leaf	47	7
109	T, in estate mark	2020	4 ch	dust	322	15
112	Tembiligalla	2029	1 do	pek sou	90	18
115	Pansalatenne	2041	2 ch	fans	270	16
117		2044	1 do	dust	150	11
118	D, in estate mark	2047	3 ch	bro pek	275	16
120		2053	4 do	pek	310	12
126	W V R A	2071	2 hf ch	bro tea	160	8
131	Weyungawatte	2086	2 ch	bro tea	200	18
132		2089	2 hf ch	dust	170	13
133	Dromoland	2092	4 ch	pek sou	320	16
134		2095	3 hf-ch	bro pek fans	192	16
135		2098	2 do	dust	140	13
139	Mawiligangawatte	2110	5 ch	dust	465	14
145	Y	2128	3 do	pek	231	17
146		2131	8 do	pek sou	638	10
154	Polatagama	2155	4 do	dust	500	12
155	P	2158	7 ch	bro mix	630	8
157	Maha Uva	2164	12 hf ch	or pek	672	39
159		2170	6 ch	pek sou	480	24
167	Ganapalla	2194	5 do	pek sou	375	16
168		2197	3 hf ch	dust	335	13
170	Lucky Land	2203	5 ch	or pek	475	42
173		2212	4 do	pek fans	360	14
174	Ella Oya	2215	6 do	young hyson	406	33
175		2218	4 do	hyson No. 2	320	28
177		2224	2 do	sifting	120	26
180	D M V	2233	5 ch	pek sou	380	17 bid
191	Avoca	2266	5 do	bro pk fans	675	18
167	Passara Group	2284	4 hf-ch	dust	360	13
198		2287	4 do	fans	280	16
199		2290	1 do	bro pek	50	30
205	Knavesmire	2308	4 do	bro pek fans	266	20
207		2314	1 do	bro mixed	42	19
211	Mahayaya	2335	3 ch	bro or pek	315	26

Lot.		Box.	Pkgs.	Name.	lb.	c.
215		2338	3 ch	bro pek	267	21
216		2341	5 do	pek	425	23
217		2344	5 do	pek sou	400	19
218		2347	1 do	sou	81	10
219		2350	1 do	dust	83	13
221	Attempettia	2356	5 do	bro or pek	450	32
223		2362	6 do	or pek	510	22 bid
225		2368	3 do	pek sou	216	15
226		2371	8 do	pek dust	680	14
233	Geragama	2392	6 do	pek sou	510	18
236		2401	2 do	pek sou	142	18
237		2404	4 hf ch	dust	360	13
240		2413	3 ch	pek sou	201	17
241		2416	2 hf-cb	dust	180	13
245	Mansfield	2428	3 hf-ch	dust	285	17
246	Preston	2431	4 ch	bro or pek	432	54
253	Waitalawa	2452	6 hf-ch	dust	540	19
258	Poengalla	2467	3 do	dust	270	13
259	P B	2470	2 ch	bro pek	200	15
260		2473	2 do	pek	190	12
261		2476	1 do	pek sou	90	11
266	Condegalla	2491	1 do	pek sou	91	31
267	C in est mark	2494	2 hf-ch	dust	174	11
273	Arapolakande	2512	3 ch	sifting	345	12
285	Gallawatte	2545	8 hf-ch	dust	640	12
299	New Market	2587	2 do	dust	150	14
302	Karawkettia	2596	1 ch	congou	90	9
303	St Johnswood	2599	3 hf-ch	pek pek	225	26
304		2602	3 ch	pek	195	20
305		2605	2 do	pek sou	140	22
312	Great Valley, Ceylon, in est. mark	2626	1 do	bro tea	54	20
313	Dewalakande	2629	4 do	young hyson	365	32
315		2635	3 do	hyson No. 2	249	23
316		2638	1 do	siftings	70	13
320	Tillyrie	2650	4 do	twanky	540	13
322		2656	9 hf-ch	twanky	675	13
327	Stamford Hill	2671	4 ch	dust	324	16
328		2674	1 do	dust	82	16
333	Woodend	2689	2 do	dust	182	14
336	Battawatte	2698	8 do 1 hf-ch	pek sou	672	16
337		2701	2 ch	dust	231	13
338	Clunes	2704	5 do	bro or pek	550	28
339		2707	3 do	or pk No. 1	270	41
340		2710	2 do	or pk No. 2	180	35
341		2713	5 do	br pek	525	33
345		2725	3 do	dust	270	13
351	Nonpariel	2743	9 hf ch	br pek	461	36
352		2746	5 do	pek	240	30
353		2749	3 do	pek sou	129	26
354		2752	4 do	br pek fans	200	27
355		2755	1 do	dust	51	15
356	Oodewera	2758	3 do	bro pek	300	33
357		2761	2 do	pek	164	27
358		2764	1 do	pek sou	90	20
359		2767	1 hf ch	dust	75	14
360	C	2770	1 do	bro or pek	78	21
363	Harrow	2794	3 hf-ch	dust	270	15
374	G	2812	7 ch	br pek fans	585	14
375	Debatgama	2815	2 hf ch	dust	160	12
376	Rajawatte	2818	3 do	bro mixed	165	19

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name.	lb.	c.
3	Sadamulle	1471	5 ch	pek sou	500	10
4		1474	1 do	dust	150	10
5	Meetiagoda	1477	4 ch	bro pek	400	22
7		1483	4 do	pek sou	400	11
8		1486	4 do	fans	400	8
9		1489	5 do	red leaf	400	7
10		1492	1 do	dust	160	8
14	Citrus	1504	4 ch	dust	600	11
18	Wilpita	1516	7 ch	bro mix	665	7
19		1519	1 do	dust	150	12
20	P T N in estate mark	1522	11 hf ch	bro pek	615	13
22		1528	5 do	fans	310	8
24	Hanagama	1534	8 ch	sou (2 oz. lead)	680	12
25		1537	4 hf ch	dust (2 oz lead)	348	12
30	Kumaragala	1552	1 ch	sou	76	13
31		1555	2 hf ch	dust	100	13
32	Primrose Hill	1558	6 ch	bro pek	600	31
35		1567	1 ch	sou	76	15
36		1570	2 hf ch	dust	109	13
42	Dryburgh	1588	5 hf ch	fans	240	14
54	Dalveen	1624	6 ch	bro pek	540	25
55		1627	8 do	pek	640	20 bid
56		1630	4 do	sou	400	14
57		1633	1 do	pek fans	100	14
58		1636	1 do	dust	85	14
59		1639	3 do	bro pek	270	25

Lot.		Box.	Pkgs.	Name	lb.	c.
60		1642	4 ch	pek	320	21
61		1645	3 do	con	300	16
62		1648	1 do	pek fans	100	14
63		1651	1 do	dust	85	13
68	Ingeriya	1666	2 hf-ch	dust	150	13
71	Beausejour	1675	6 ch	pek sou	450	15
75	X Z	1687	4 ch	red leaf	392	8
81	Dessa	1705	2 hf ch	bro pek	116	23
82		1708	2 do	pek	94	18
83		1711	1 do	pek sou	46	15
87	Woodthorpe	1723	3 ch	sou	228	16
88		1726	2 do	dust	146	13
91	Berby	1735	11 hf ch	pek sou	605	15
92		1738	2 do	dust	160	14
96		1750	3 do	dust	225	13
98	G A Ceylon	1756	5 ch	sou	330	12
100		1762	3 do	bro mix	315	10
104	Theberton	1774	2 ch	pek sou	1:0	15
105		1777	1 ch	bro or pek fans	100	25
106		1780	5 do	pek fans	500	13
107		1783	2 do	dust	200	15
109	Atabahena	1789	10 hf ch	pek	470	17
110		1792	7 do	pek sou	350	14
115	Old Maddegama	1807	8 ch	pek sou	640	23 bid
116		1810	4 do	dust	400	14
117	Raglan	1813	4 ch	bro pek	380	20
119	H R	1819	1 hf ch	bro pek 2 oz lead	58	16
120		1822	4 hf ch	pek 2 oz lead	178	14
121		1825	1 hf ch	dust 2 oz lead	63	12
125	Monrovia	1837	7 ch	Hyson No 2	630	21
126		1840	2 do	Twanky	180	12
127	St Catherine	1843	5 ch	Young Hyson	277	24 bid
128		1846	4 do	Hyson	202	21 bid
129		1849	7 do	Hyson No. 2	352	18 bid
130	Moragalla	1852	3 ch	Young Hyson	300	25 bid
131		1855	2 do	Hyson No 2	200	23 bid
132		1858	2 do	Hyson No 3	200	18 bid
136	Monrovia	1870	3 ch	bro tea	285	9
137		1873	3 do	pek dust	450	13
139	Lahaduwa	1879	5 do	pek	516	19
141		1885	2 do	fans	183	10
142		1888	1 do	pek dust	1[illegible]1	13
143		1891	1 do	congou	83	11
144		1894	2 do	hro mix	179	7
146	Meddagodda	1	5 hf ch	or pek	200	34
147		4	2 do	sou	70	12
148		7	4 do	fans	220	13
149		10	4 do	dust	240	13
1[illegible]3	Oonankande	2[illegible]	3 do	dust	210	14 6
1	Forest H ll	31	6 ch	pek sou	510	13
157		34	6 hf ch	fans	426	10 bid
161	Cork	46	9 ch	pek	693	35 bid
162		49	3 do	pek sou	246	11
163		52	1 do	fans	105	21 bid
164		55	2 do	dust	192	13 bid
168		67	5 do	pek sou	335	14
169		70	2 do	fans	250	15
175	Farnh m	88	3 do	bro or pek	315	27
176		91	3 do	bro pek fans	345	22
177		94	4 do	pek fans	460	16
178		97	2 do	dust	282	12
183	Jak Tree Hill	112	4 do	pek	362	25
184		115	3 do	pek sou	244	18
185		118	1 do	dust	92	14
189	D S	130	5 do	sou	425	15
191	B A K, in est. mark	136	4 hf ch	bro pek	220	22
192		139	4 do	pek	200	16
193		142	4 do	pek sou	200	14
194		145	1 do	pek fans	60	8
195		148	2 do	fans	110	11
196		151	1 do	dust	60	11
200	Paradise	163	3 ch	hro mix	336	11
201		166	4 ch	dust	580	13
211	Attiville	196	1 do	fans	95	11
213	Depedene	202	10 hf ch	or pek	500	24
217		214	2 do	dust	170	13
222		229	4 do	dust	340	13
226		241	5 do	dust	425	14
227		244	1 do	unas	56	14
236	K G A, in est. mark	271	2 ch	pek dust	280	13
241	M, in est. mark	286	1 hf ch	pek	54	14
254	South Africa	325	5 do	pek sou No. 2	475	22

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	P P P	596	3 ch	hro pek	313	23
2		599	4 do	pek	379	18
3		602	6 do	pek sou	578	14
4		605	1 do	dust	102	13
17	Allington	614	6 do	pek sou	540	19
18		617	1 do	dust	120	13
22	Natuwakelle	629	7 do	pek sou	630	20
23		632	3 do	dust	390	13
24	Ben Nevis	665	8 do	pek sou	640	26
25		668	4 hf-ch	dust	312	16
35	Koslande	698	3 ch	pek sou	255	22
36		701	2 do	fans	220	20
37		704	2 hf ch	dust	160	13
43	M N	722	7 ch	pek sou	644	33
47	W H	734	5 hf ch	bro pek	280	15
48		737	3 do	pek	138	13
49		740	6 do	pek sou	270	8
50	Ohiya	743	8 do	dust	672	12
52		749	2 ch	sou	184	15
54	Little Valley	755	4 do	hro pek	380	32
56		761	5 do	pek sou	425	17
57		764	3 hf-ch	dust	225	14
63	W H R	7[illegible]2	1 ch	sou	86	9
64		785	2 do	fans	190	7
71	Ceslanda	806	3 do	pek sou	255	22
72		809	2 do	fans	220	20
73		812	2 hf ch	dust	160	14
76	Oonoogaloya	821	4 ch	hro or pek	400	58
77		824	5 do	or pek	450	48
79		830	3 do	pek sou	240	33
80		833	1 do	bro or pek No. 2	125	36
81		836	1 do	fans	135	24
82	A A	839	1 do	dust	105	12
86	Doonhinda	851	3 do	dust	300	14
90	C	863	4 do 1 hf ch	hro or pek	442	24
91		866	2 ch 1 hf ch	or pek	216	22
92		869	4 ch 1 hf ch	pek	388	18
93		872	6 ch 1 hf ch	pek sou	500	15
96	Ratwatte	881	5 ch	pek sou	400	14 bid
97	EK, in est. mark	884	5 do	bro mix	500	7
100	Mahapahagalla	893	7 hf ch 1 ch	dust	691	12
101	Ladbrooke	896	5 do	pek sou	450	26
102		899	6 do	fans	450	24
103	Adamspeak	902	1 hf ch	dust	25	13
104	Y K	905	5 ch	sou	400	7
107	Maskeliya	914	2 hf ch	bro pek	120	24
110		923	2 ch	pek sou	200	26 bid
111		926	11 hf ch	bro pek fans	660	23
112		929	7 do	dust	630	15
125	Galloola	968	4 ch	dust	400	15
126		971	3 do	fans	300	20
131	O	986	3 do	bro pek	345	16 bid
132		989	1 hf ch	bro pek	50	16 bid
133		992	2 do	fans	210	13
137	Ottery	4	4 do	dust	320	16

No. 6. COLOMBO, FEBRUARY 11, 1901. { PRICE :—12½ cents each, 3 copies 30 cents ; 6 co[illegible] rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[31,080 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	H' Eliya	53	70 cb	r pek	6300	28 bid
2	Madeganga (2 oz. lead)	55	19 do	bro pek	1900	20 bid
3	Battalgalla	58	24 ch	or pek	2280	40 bid
4		61	20 do	pek	1700	36
5		64	17 do	pek sou	1360	32
6		67	12 hf ch	fans	960	27
7	Riversdale, in est. mark	70	25 bf cb	bro pek	1250	55
8		73	40 do	pek	1920	33 bid
9		76	25 do	pek sou	950	27 bid
10	Torrington	79	16 cb	or pek	1360	45
11		82	26 do	do No. 2	2380	35 bid
12		85	12 do	bro or pek	1200	52
13		88	18 do	pek	1620	27 bid
14		91	34 do	pek sou	2550	21 bid
15	Oakfield	94	22 hf cb	bro pek	1232	20 bid
16		97	13 cb	pek	1053	20 bid
17		100	15 do	pek sou	1065	16 bid

Messrs. Forbes & Walker.

[438,884 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Nahalma	2821	38 ch	sou	3648	10
2	X Y Z	2824	20 ch	pek sou	1600	14
3		2827	37 do	do	3145	13
5		2383	7 do	fans	945	14
7	St. H	2839	9 ch	pek	908	out
12	Yelatenne	2854	16 hf cb	bro or pek	896	38
13		2857	17 do	pek	850	34
14		2860	34 do	pek sou	1632	25
19	Puspone	2875	9 ch	pek sou	765	19
20		2878	6 do	dust	900	10
23	H G L, in estate mark	2887	22 hf ch	bro or pek	1320	32
25		2893	13 ch	bro pek	3325	25
26		2896	29 do	pek	2465	22
27		2899	18 do	pek sou	1440	20
31	Carolina	2911	11 ch	young hyson	1144	35
32		2914	16 do	hyson	1632	30
33		2917	10 do	hyson No. 2	910	26
35	St. Pauls	2923	25 hf ch	bro pek	1250	57
36		2926	40 do	pek	1920	34 bid
37		2929	25 do	pek sou	950	27
39	Holton	2935	8 ch	bro pek	760	33
40		2938	12 do	pek	1020	23
42	O B E C, in est. mark New Market	2944	27 ch	bro pek	2808	32 bid
43		2947	23 do	pek	1932	29
44		2950	20 do	pek sou	1680	23
48	Chesterford	2962	54 ch	bro pek	5130	30
49		2965	60 do	pek	5700	20 bid
50		2968	24 do	pek sou	2280	19
51	Kirklees	2971	24 cb	bro or pek	2640	36 bid
52		2974	30 do	or pek	2700	34
53		2977	35 do	pek	3150	28 bid
		2980	23 do	pek sou	1840	24
57	Dammeria	2989	33 ch	bro pek	3300	33
58		2992	41 do	or pek	3930	26 bid
60		2995	20 do 1 hf ch	pek	1860	26
61		3001	10 ch	pek sou	900	21
62		3004	10 hf-ch	bro pek fans	800	21
66	T Villa	3016	23 ch	bro or pek	2300	22
67		3019	10 do	or pek	800	20
68		3022	9 do	pek	810	13
69		3025	30 do	pek	2400	15
70		3028	9 do	pek sou	720	12
75	Ninfield	3043	18 ch	bro or pek	1800	29
77		3049	27 do	pek	2160	19 bid
85	Grange Garden	3073	40 ch	bro or pek	4000	37
86		3076	27 do	pek	2700	34
90	Yatiyana	3088	12 ch	bro pek No. 1	1128	40
91		3091	17 cb	bro pek	1700	23
93		3097	11 do	pek	1067	19
96	Graceland	3106	28 bf ch	bro pek	1580	26
97		3109	14 do	pek	700	17
101	Mouna	3121	11 ch	bro mix	1045	7
102	Onamana	3124	20 bf ch	bro pek dust	1700	11
103	Walton	3127	17 ch	bro pek	1680	36 bid
104		3130	11 do	or pek	998	31
105		3133	9 do	pek	785	27
108	Clarendon	3142	28 bf ch	bro pek	1764	40
109		3145	18 do	or pek	972	39
110		3148	17 cb	pek	1615	34
111		3151	11 do	pek sou	1100	25
114	Errollwood	3160	18 bf cb	bro or pek	990	57
115		3163	10 do	or pek	950	42
116		3166	16 do	pek	1520	36
120	Kitulgalla	3178	10 ch	bro pek	1000	32
121		3181	10 do	pek	900	22
122		3184	9 do	pek sou	720	18
123		3187	7 do	bro or pek fans	700	19
125	Anningkande	3193	21 ch	pek sou	1390	16
126		3196	14 hf cb	dust	1050	14
129	Erlsmere	3205	32 do	bro pek	1792	49
130		3208	10 ch	or pek	800	51
131		3211	31 do	pek	2480	38
135	Rowley	3223	20 hf ch	bro pek	1000	33
136		3226	21 do	pek	1050	21 bid
137		3229	19 do	bro pek	950	30
138		3232	20 do	pek	1000	21 bid
139	Kumaradola	3235	8 ch	bro pek	880	32
143	Maragalla	3247	17 ch	bro pek	1870	32
144		3250	11 do	or pek	990	27
145		3253	9 do	pek	810	27 bid
148	Kelaneiya and Braemar	3262	22 cb	bro or pek	2197	33 bid
149		3265	20 do	or pek	1997	25 bid
150		3268	18 do	pek	1797	22 bid
151	High Forest	3271	39 hf cb	or pek No. 1	2262	67
152		3274	34 do	or pek	1870	55
153		3277	22 do	pek	1100	46
154	C B	3280	7 ch	pek	732	22 bid
155	Tembiligalla	3283	20 ch	pek	1600	20 bid
156	E D P	3286	13 ch	sou	910	16 bid
157	Jack Tree Hill	3289	11 ch	pek sou	917	15 bid
158	Adisham	3292	21 ch	bro pek	1890	22 bid
159	A P N	3295	21 ch	bro pek	2100	26
160	Ireby	3298	55 bf ch	bro pek	3025	56
161		3301	23 ch	pek	1955	47
162		3304	10 do	pek sou	850	43
163	Maha Eliya	3307	30 bf ch	bro or pek	1650	60
164		3310	27 do	bro pek	1485	47
165		3313	20 do	or pek	2000	41
166		3316	33 do	pek	3300	26
167	Hopton	3319	21 ch	bro or pek	2100	28
168		3322	18 do	or pek	1620	25 bid
169		3325	29 do	pek	2465	22 bid
170		3328	16 do	pek sou	1440	17 bid
172	Kincora	3334	12 ch	bro pek	1140	48 bid
173		3337	13 do	pek	1105	38 bid
174		3340	17 do	pek No. 2	1275	30 bid
176	Coreen	3346	33 hf ch	bro or pek	1980	45
177		3349	19 ch	or pek	1710	50
178		3452	37 do	pek	3182	39
181	Amblakande	8361	9 cb	bro pek	900	26 bid
184	Inverness	3370	14 ch	or pek	1330	66
185		3373	39 hf ch	bro or pek	2340	54 bid
186		3376	24 ch	pek	2160	49
191	Massena	3391	30 bf ch	pek	1500	20 bid
193		3397	13 do	bro pek fans	715	20
197	Penrhos	3409	25 do	bro or pek	1400	51
198		3412	21 do	or pek	1008	42
199		3415	28 ch	pek	2380	31 bid
200		3418	11 do	pek sou	880	24 bid
202	Hentleys	3424	15 hf ch	bro pek	880	32
204		3430	16 ch	pek	1280	26 bid
208	Pine Hill	3442	27 hf ch	bro or pek	1620	53
209		3445	50 do	or pek	3000	34 bid
210		3448	27 ch	pek	2430	31
211		3451	11 do	pek sou	935	24
212	St. Clive	3454	15 hf ch	young hyson	750	32
214		3460	19 ch	hyson No. 2	760	24 bid
216	St. Heliers	3466	14 hf ch	bro or pek No. 1	756	46
217		3469	32 do	bro or pek	1760	34
218		3472	20 ch	pek	1760	31 bid
219		3475	9 do	pek sou	810	21
220	Palmerston	3478	14 hf ch	bro or pek	770	65
221		3481	12 do	bro pek	720	45
222		3484	11 ch	pek	957	44
224	Macaldeniya	3490	13 hf ch	bro pek	715	42
225		3493	15 ch	pek No. 1	750	33

Lot.		Box.	Pkgs.	Name.	lb.	c.
226		3496	28 hf-ch	pek	1400	27
230	Theydon Bois	3508	10 ch	or pek	900	33
231		3511	21 do	pek	1680	23
233	H G M	3517	13 hf-ch	flo. bro or pek	845	43
234		3520	12 do	bro or pek	816	29 bid
235	Galapate	3523	9 ch	bro or pek	837	27
236		3526	12 do	pek	960	22 bid
239	N W D	3535	9 do	bro pek	882	36
240		3538	12 do	pek	984	25
242		3544	13 do	fans	1560	29
244	Mawaliganga-watte	3550	7 do	bro or pek	700	45
245		3553	41 do	bro pek	3977	26
246		3556	35 do	pek sou	2625	16 bid
248	Weyunga-watte	3562	19 do	br pek	1900	30
249		3565	19 do	pek	1805	25
250		3568	16 do	pek sou	1280	21
253	Broadoak	3577	49 do	bro tea	4018	14
254		3580	41 do	sou	3485	9
255		3583	16 do	pek fans	1792	14
256		3586	7 do	dust	1106	13
257	B D W G	3589	61 hf-ch	bro pek	3050	25 bid
258		3592	36 do	pek	1500	24 bid
261	Erlsmere	1	9 ch	pek sou	720	18
264	North Cove	10	18 do	pek sou	1800	9 bid
266	Ingrogalla	16	14 do	bro pek	1400	36 bid
267		19	13 do	pek	1105	32
268	Forest Creek	22	18 do	pek dust	1170	33
269		25	24 do	dust	2040	16
270	M	28	17 do	pek	1241	14 bid
271	R Y	31	18 do	pek sou	1620	out
272	Munukattia, Ceylon, in est. mark	34	9 do	or pek	765	40
273		37	35 hf-ch	bro pek	2030	45
274		40	22 ch	pek	1760	32
275		43	9 do	pek sou	810	26
276	Talgaswe'a	46	26 do	or pek	2210	31
277		49	28 do	pek	2240	32
278		52	16 do	pek sou	1200	20
279	Clyde	55	60 do	bro pek	5040	28
280		58	61 do			
			2 hf ch	br pek	5300	22 bid
281		61	52 do	pek	4160	19 bid
282	V in est mark	64	45 ch	pek sou	4050	11 bid
283	Torwood	67	23 do	bro or pek	2300	30
284		70	21 do	bro pek	1722	21 bid
285		73	27 do	pek	2160	18 bid
286		76	21 do	pek sou	1680	16
287		79	9 do	sou	720	13 bid
292	Dewalakande	94	10 do	young hyson	920	30 bid
293		97	23 do	hyson	2288	22 bid
294		100	14 do	hyson No.2	1078	14 bid
295	Tillyrie	103	22 hf-ch	young hyson	1210	32 bid
296		106	12 ch	hysou	1020	28 bid
297		109	19 do	hyson No.2	1805	24 bid
299	Bickley	115	11 do	br or pk	792	64
300		118	12 do	br pek	864	42
301		121	14 hf ch	or pek	910	41 bid
302		124	27 do	pek	1620	45
303	Vogan	127	22 ch	br pek	2090	47 bid
304		130	30 do	or pek	2850	38 bid
305		133	30 do	pek No. 1	2700	29 bid
306		136	38 do	pek No. 2	3230	27 bid
307		139	33 do	pek No. 2	3230	27 bid
808		142	15 do	pek sou	1200	20 bid
311	Weoya	151	15 do	bro or pek	1650	18 bid
312		154	30 do	br pek	3000	27
313		157	26 do	or pek	2210	24
314		160	41 do	pek	3485	18 bid
315		163	20 do	pek sou	1600	14 bid
317	Maha Uva	169	14 hf ch	bro or pek	840	30 bid
318		172	13 do	or pek	728	38
319		175	16 do	pek	1440	31
323	Dunkeld	187	67 hf-ch	bro or pek	4020	38
324		190	14 ch	or pek	1330	33
325		193	26 do	pek	2340	30
	Carfax	196	16 do	bro or pek	1600	50
		199	18 do	or pek	1620	44
328		202	18 do	pek	1620	38
329	Fairlawn	205	23 hf-ch	bro or pek	1150	56
330		208	10 ch	or pek	750	30 bid
331		211	21 do	pek	1785	27 bid
332		214	11 do	pek sou	825	24
334	Tembiligalla	220	36 do	pek	2877	20 bid
336	Relugas	226	8 do	dust	1280	13
341	Bandara Eliya	241	34 hf-ch	or pek	1700	58
342		244	34 do	bro or pek	1904	65 bid
343		247	42 do	pek	1890	47
344		250	19 ch	pek sou	817	39
347	Adisham	259	36 hf-ch	bro or pek	1977	24 bid
348	P in est. mark	262	23 do	bro pek	1157	20 bid
349	Sylvakandy	265	55 hf-ch	bro or pek	3025	47
350		268	15 ch	bro pek	1500	38
351		271	35 hf-ch	or pek	1750	40
352		274	14 ch	pek	1330	24
355	Amblangoda	283	17 ch	pek	1530	22 bid
356	Agraoya	286	10 do	bro pek	1060	27
357		289	14 do	pek	1050	26
358		292	15 do	pek sou	1200	23

Messrs Somerville & Co.—

[166,008 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Polgahakande	418	9 ch	or pek	774	34
		421	7 do	bro pek	700	25
4		424	11 do	pek	990	25
5		427	16 do	pek sou	1280	22
	Yspa	430	16 ch	pek sou	1260	28
14	Ravenscraig	454	19 do	or pek	1615	33 bid
15		457	16 hf ch	bro pek	880	30
16		460	18 ch	pek	1620	26 bid
17	Fairfield	463	18 hf ch	bro or pek	900	67 bid
18		466	27 ch	bro pek	2700	48 bid
19		469	15 do	or pek	1200	47 bid
20		472	26 do	pek	2240	38 bid
21	Peniyaya	475	64 ch	bro pek	6400	26 bid
22		478	35 do	pek	3500	21 bid
25	H J S	587	13 hf ch	pek	780	23
26		590	14 do	pek sou	840	20
28	Allakollawewe	596	29 hf ch	bro or pek	1537	31 bid
29		599	27 do	or pek	1269	32 bid
30		602	17 do	pek	850	29 bid
31		605	18 do	pek sou	864	23 bid
34	Nyanza	514	30 hf ch	bro pek	1650	35 bid
35		517	12 ch	or pek	1140	30 bid
36		520	21 do	pek	2100	26 bid
39	Yarrow	529	19 hf ch	or pek	855	36
40		532	18 do	bro or pek	1080	34
41		535	52 do	pek	2340	26 bid
44	Monte Christo	544	28 ch	bro pek	2800	36 bid
45	Rayigam	547	33 ch	bro pek	3135	27 bid
46		550	23 do	or pek	1840	24 bid
47		553	21 do	pek	1680	20 bid
48		556	25 do	pek sou	2250	18
49		559	9 do	dust	900	14
50	Avisawella	562	18 ch	bro pek	1800	25 bid
51		565	25 hf ch	bro or pek	1250	34
52		568	24 ch	pek	2040	18 bid
53		571	18 do	pek sou	1440	14 bid
55	Ferriby	577	20 hf ch	bro or pek	1120	33
56		580	17 ch	or pek	1530	26
57		583	28 do	pek	2380	19 bid
58		586	12 do	pek sou	960	15 bid
67	Bellagalla	613	29 ch	bro pek	2900	28 bid
68		616	21 do	pek	1680	27
69		619	17 do	pek sou	1360	17 bid
70	Neboda	622	16 ch	bro or pek	1600	30
71		625	43 do	bro pek	4300	22
75	Neuchatel	637	37 ch	or pek	3145	28
76		640	23 do	bro or pek	2415	27
77		643	18 do	pek sou	1440	19
82	Ingeriya	658	30 hf ch	bro pek	1500	22
83		661	12 do	bro or pek	720	18 bid
84		664	24 do	pek	1152	16 bid
85		667	16 do	pek sou	736	11 bid
88	Harangalla	676	11 ch	or pek	935	34
89		979	9 do	bro pek	855	31
90		682	22 do	pek	1760	28 bid
91		685	12 do	sou	960	23 bid
92		688	16 hf ch	dust	1200	16
94	Dumbarton	694	8 ch	pek sou	808	12
			1 hf ch			
95		697	7 ch	red leaf	700	6
98	M	706	20 ch	pek sou	2000	12 bid
99	M T A	709	25 ch	pek	2000	24 bid
100	Cairn Hill	712	10 ch	or pek	900	22 bid
101		715	16 do	bro pek	1600	20 bid
102		718	24 do	pek	2160	16 bid
103	Monrovia	721	11 ch	Young Hyson	990	29
104		724	11 do	Hyson	990	23
107	Romania	733	13 ch	or pek	1300	21 bid
108		736	19 ch	bro pek	1843	26
110		742	8 do	pek sou	704	7 bid
112	Koladeniya	748	27 hf ch	bro pek	1405	22 bid
113		751	11 ch	pek	880	15 bid
119	Lawrence	769	9 ch	bro pek	900	20 bid
120		772	22 do	pek sou	1750	12 bid
121	Aberfoyle	775	27 hf ch	bro pek	1512	27 bid
122		778	31 do	pek	1395	18 bid
133	M T S, in estate mark	811	10 ch	pek sou	1267	15
			1 hf ch			
134		814	12 hf ch	dust	1080	9
135	A M S	817	19 ch	pek	1615	7
140	Cooroondeo-watte	832	25 hf ch	bro pek	1500	42 bid
141		835	8 ch	pek	800	23 bid
142		838	9 do	pek sou	900	20
143	Ambalawa	841	39 hf ch	bro pek	1950	22
144		844	13 do	pek	1040	20

Lot.		Box.	Pkgs.	Name.	lb.	c.
145	Ravenscraig	847	10 ch	or pek	850	32 bid
146		850	14 hf ch	bro pek	770	35
147		853	11 ch	pek	990	26 bid
151	Kerenvilla	8 5	9 ch	pek	855	9 bid
155	Ravana	877	34 ch	bro pek	3075	28
156		880	18 do	or pek	1530	20 bid
157		883	18 do	pek	1530	23
158		886	18 do	pek sou	1440	20 bid

[Mr. E. John.—126,311 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c
1	St. Andrews	19	17 hf ch	dust	1530	14
3	G F R, in estate mark	25	8 ch	bro or pek	800	53
		28	13 do	bro pek	1235	32 bid
5		31	36 do	pek	3060	29
8	Cobin Ella	40	10 do	bro or pek	1100	38
9		43	9 do	pek No. 1	900	33
10		46	9 do	pek No. 2	855	27 bid
11	Elston	49	23 do	pek	1955	35 bid
12		52	22 do	pek sou	1980	29 bid
13	Brownlow	55	41 hf ch	bro or pek	2050	37 bid
14		58	22 ch	bro pek	1892	34
15		61	32 do	pek	2624	25 bid
16	Agra Ouvah	64	27 hf ch	bro or pek	1563	61
17		67	53 do	or pek	2968	42
18		70	17 ch	pek	1530	42
19	Kandaloya	73	50 hf-ch	bro pek	2250	36
20		76	19 do	or pek	760	28 bid
21		79	91 do	pek	3640	26 bid
25	Warleigh	91	19 ch	bro pek	1805	36 bid
26		94	20 do	pek	1700	31 bid
28		100	10 hf ch	dust	800	23 bid
29	Suduganga	103	9 ch	or pek	765	28 bid
30		106	14 hf ch	bro or pek	700	48
31		109	13 ch	pek sou	975	25 bid
34	Kotuagedera	118	27 do	bro pek	2565	24 bid
38		130	11 hf ch	bro pek fans	825	17
39	Templestowe	133	36 ch	bro or pek	2880	36 bid
40		136	27 hf ch	or pek	1215	46
41		139	29 ch	pek	2320	32 bid
42		142	8 do	pek sou	720	30
43	Rookwood	145	39 hf ch	bro or pek	2340	55
44		148	19 ch	or pek	1710	41
45		151	27 do	pek	2322	32 bid
48	Elston	160	19 do	or pek	1710	42
49		163	25 do	pek	2125	36 bid
50		166	28 do	pek sou	2520	29 bid
51	M C, in est mark	169	20 do	pek sou	1790	7 bid
52	C S G	172	46 do	pek	3680	22 bid
53		175	22 do	pek sou	1760	18 bid
54	Mccha	178	29 do	bro or pek	2900	55
55		181	15 do	or pek	1350	54
56		184	24 do	pek	2160	45
57		187	16 do	pek sou	1360	43
60	Gangawatte	196	19 do	bro or pek	1900	57
61		199	21 do	bro pek	2100	36½bid
62		202	29 do	pek	2610	31 bid
64		208	7 do	fans	770	23
65	Nahavilla	211	23 do	or pek	2070	37
66		214	25 do	bro pek	2500	32 bid
67		217	8 do	pek	720	26 bid
68	H, in est. mark	220	34 hf ch	or pek	1700	32 bid
69	Evalgolla	223	19 do	or pek	760	36
70		226	31 do	bro or pek	1395	37
71		229	56 do	pek	1960	25
72		232	24 do	pek sou	960	18 bdi
79	N B	253	23 ch	pek sou	2070	31 bid
80	Myraganga	256	10 do	bro pek	1047	42 bid
81		259	43 do	pek	3652	33
82	O	262	8 do	bro or pek	830	20
83		265	7 do	bro or pek No. 2	735	17
86	Glassaugh	274	37 hf ch	or pek	2035	70
87		277	27 do	bro or pek	1755	52
88		280	23 ch	pek	2300	49
89	Brownlow	283	26 hf ch	bro or pek	1430	33 bi
90		286	17 ch	or pek	1445	32 bid
91		289	27 do	pek	2295	23 bid
92		292	11 do	bro pek fans	704	20
93	R S	295	11 do	unas	1100	18 bid

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	X Y Z	2833	4 ch	pek sou	300	14
6		2836	4 do	dust	600	11
8	Karabusnawa	2842	8 hf ch	bro pek	400	26
9		2845	5 do	pek	250	16 bid
10		2848	2 hf ch	pek sou	100	14
11		2851	1 do	sou	50	12
15	Velatenne	2863	2 do	sou	100	17
16		2863	2 do	bro pek fans	150	22
17		2869	4 do	fans	340	15
18		2872	3 do	bro mix	150	
21	Puspane	2881	7 ch	bro mix	665	8 bid
22	G T	2884	3 hf ch	hyson fans No. 2	150	7
24	H G L, in estate mark	2890	13 do	or pek	585	21
28		2902	2 do	pek fans	126	15
29		2905	3 ch	sou	339	13
30		2908	5 do	pek dust	650	13
34	Carolina	2920	3 ch	sifting	414	12
38	B B B, in estate mark	2932	3 ch	dust	255	14
41	Holton	2941	8 do	pek sou	680	19
46	N	2956	1 do	fans	81	13
47	P and S B | Q, in est. mark	2959	2 hf ch	pek	112	15
55	Kirklees	2983	2 ch	pek fans	240	22
56		2986	6 hf ch	dust	516	15
59	Dammeria	2995	4 do	bro or pek	250	26
63		3007	4 do	dust	400	14
64		3010	2 do	bro pek	130	26
65	D M	3013	1 ch	or pek	71	23
7?	T Villa	3031	5 ch	sou	400	12
72		3034	6 do	fans	695	13
73		3037	1 do	red leaf	80	6
74		3040	1 hf ch	red leaf	54	6
76	Ninfield	3046	6 ch	or pek	570	24
78		3052	7 do	pek sou	560	13
79		3055	3 do	fans	339	14
80		3058	1 do	fans	110	12
81	A B F, in est. mark (packed in 2 oz. lead)	3061	3 ch	bro pek	300	24
82		3064	3 do	pek	300	14
83		3067	3 do	pek sou	300	10
84		3070	1 do	congou	75	7
87	Grange Garden	3079	2 ch	pek sou	200	2
88		3082	1 do	fans	100	16
89		3085	3 hf ch	dust	255	14
92	Yatiyana	3094	2 ch	pek No. 1	200	14
94		3100	7 do	pek sou	679	14
95		3103	2 do	do No. 2	180	10
98	Graceland	3112	8 hf ch	pek sou	400	12
99		3115	1 do	congou	45	10
100		3118	1 do	dust	75	8
106	Walton	3136	3 ch	bro tea	198	14
107		3139	2 do	dust	183	13
112	Clarendon	3154	2 ch	sou	160	17
113		3157	2 hf ch	pek dust	160	13
117	Erollwood	3169	5 ch	pek sou	450	28
118		3172	3 hf ch	or pek fans	180	25
119		3175	3 do	dust	195	14
124	Kitulgalla	3190	4 hf ch	dust	340	13
127	Anningkande	3199	3 ch	sou	270	13
128		3202	2 do	red leaf	180	6
132	Erlsmere	3214	6 ch	pek sou	510	36
133		3217	3 hf ch	dust	252	14
134		3220	13 do	bro or pek	676	63
140	Kumaradola	3238	5 ch	or pek	450	24 bid
141		3241	4 do	pek	360	20 bid
142		3244	1 do	bro tea	80	15
146	Maragalla	3256	2 hf-ch	bro tea	160	15
147		3259	1 ch	dust	50	10
171	Hopton	3331	4 do	dust	440	14
175	Kincora	3343	4 do	fans	500	37
179	Coreen	3355	2 ch	pek sou	190	30
180		3358	3 hf ch	dust	237	15
182	Amblakande	3364	8 ch	pek	640	20 bid
183		3367	7 do	pek sou	560	17
187	Kotiyagalla	3379	6 ch	or pek	600	50 bid
188	Massena	3382	8 hf ch	or pek	400	35 bi
189		3385	5 do	bro or pek	250	40
190		3388	9 do	bro pek	450	34
192		3394	12 do	pek sou	600	19
194		3400	4 do	fans	180	18
195		3403	7 do	dust	490	12
196	F	3406	1 ch	pek	85	35
201	Penrhos	3421	1 hf ch	fans	73	13
203	Hentleys	3427	12 do	or pek	552	24
205		3433	6 ch	pek sou	432	13 bid
206		3436	3 hf ch	fans	207	14
207		3439	3 do	pek dust	285	12
213	St. Clive	3457	13 ch	hyson	585	29
215		3463	4 hf ch	hyson fans	200	10
223	Palmerston	3487	1 ch	pek sou	80	35
227	Macaldeniya	3499	10 hf-ch	pek sou	500	20
228		3502	3 ch	fans	195	21
229		3505	1 hf-ch	dust	80	14
232	Theydon Bois	3514	8 ch	pek sou	680	18
237	Galapate	3529	6 do	pek sou	480	13 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
238		3532	1 ch	dust	89	13
241	N W D	3541	6 do	pek sou	540	23
243		3547	4 do	dust	648	13
247	Mawaliganga-watta	3559	4 do	dust	408	13
251	Weyunga-watte	3571	1 do	hro tea	100	17
252		3574	2 hf ch	dust	170	14
259	B D W G	3595	9 do	pek sou	450	20
260		3598	3 do	dust	270	16
262	Erlsmere	4	3 do	dust	246	16
263	B F B	7	7 do	unast	315	12
265	T in est. mark	13	3 ch	unast	289	9
298	Tillyrie	112	7 hf-ch	twanky	525	10
309	Vogan	145	8 do	dust	68	13
310		148	4 ch	br pek fans	480	19
316	Weoya	166	3 do	dust	450	12
320	Maha Uva	178	6 hf ch	pek sou	180	32
321		181	1 do	fans	70	18
322		184	5 do	dust	400	15
333	Fairlawn	217	4 do	dust	340	16
335	Relugas	223	4 ch	sou	430	10
337	B G	229	3 hf ch	bro pek	150	25
338		232	3 do	pek	150	17
339		235	12 do	pek sou	540	13
340		238	3 do	dust	195	13
345	Bandara Eliya	253	1 do	dnst	86	13
346		256	5 do	pek fans	400	21
353	Sylvakandy	277	2 ch	dust	200	15
354	D M V	280	5 do	pek sou	377	13

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	W, in e t. mark	22	2 hf ch	dust	174	out
6	G F R, in ets. mark	34	6 ch	pek sou	510	18
7		37	3 do	fans	330	23
22	Kandaloya	82	14 hf ch	pek sou	560	19
23	Warleigh	85	11 do	bro or pek	660	70 bid
24		88	12 do	or pek	660	45 bid
27		97	3 ch	pek sou	240	27 bid
32	Suduganga	112	2 hf ch	pek fans	140	27
33		115	4 ch	sou	280	19
35	Kotuagedera	121	8 do	pek	640	19
36		124	1 do	pek sou	95	13
37		127	1 hf ch	dust	95	13
46	Rookwood	154	6 do	fans	408	19
47		157	2 do	pek dust	174	18
58	G K	190	8 do	bro pek	400	30 bid
59		193	6 (20 lb)	boxes br or pe	120	24 bid
63	Gangawatte	205	6 ch	pek sou	540	23
73	Evalgolla	235	6 hf ch	sou	210	14
74		238	4 do	fans	220	12
75		241	4 do	dust	280	13
76	Anamallai	244	1 do	dust	85	13
77	Maryland	247	6 ch	bro pek	600	22
78		250	6 do	pek	600	14
84	O	268	3 do	bro pek	345	18
85		271	1 hf ch	bro pek	47	18

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Allokolla	415	4 hf ch	dust	380	12
7	Bodava	433	3 hf ch	bro pek	165	35
8		436	4 ch	pek	400	23
9		439	5 do	pek sou	400	16
10		442	2 do	fans	280	14
11		445	1 hf ch	red leaf	44	6
12	S L G	448	4 hf ch	sou	200	17
13		451	2 do	red leaf	100	5
23	Deniyaya	581	6 ch	sou	600	13 bid
24	H J S	584	9 hf ch	bro pek	540	24 bid
27	Oonanagala	593	1 ch	pek dust	130	14
32	Allakollawewa	608	7 hf ch	bro pek fans	462	31
33		611	8 do	dust	600	20
37	Nyanza	523	2 ch	pek sou	190	20
38		526	4 do	dust	400	14
42	Yarrow	538	8 hf ch	pek sou	360	18
43	Y, in estate mork	541	3 hf ch	mix	225	8 bid
54	Avissawella	574	4 ch	dust	560	14
59	Ferriby	589	1 ch	pek dust	80	13
60	Benveula	592	6 ch	pek sou 2 oz lead	540	5
61		595	3 do	sou 2 oz. lead	210	5 bid
62		598	1 hf ch	red leaf (2 oz lead)	40	4
64	Kurugalla	604	6 ch	sou	520	10 bid
65		607	2 do	bro mix	200	9 bid
66		610	1 hf ch	dust	83	14
72	Nehcda	628	6 ch	pek	540	22
73		631	7 do	pek sou	560	17
74		634	3 do	dust	255	14
78	W, in estate mark	646	3 hf-ch	bro pek	150	20
79		649	2 hf ch	pek	180	14
80		652	3 ch	pek sou	300	10
81		655	1 do 1 hf ch	dust	170	13
86	Ingeriya	670	2 hf ch	unas	96	9
87		673	2 do	dust	146	13
93	B F, in estate mark	691	7 hf ch	bro pek dust	630	9 bid
96	A, in estate mark	700	7 hf ch	bro pek dust	630	10
97	F, in estate mark	703	7 hf ch	bro pek dust	630	9 bid
105	Monrovia	727	5 ch	Hyson No 2	450	20
106	Potulpana	730	10 hf ch	pek sou	500	12
109	Romania	739	7 ch	pek	644	16
111		745	6 hf ch	dust	360	15
114	Koladeniya	754	7 ch	pek sou	525	10 bid
115		757	1 do	dust	110	13
116		760	1 hf ch	dust	55	13
117		763	1 box	bro mix	24	5
118	A A	766	6 ch	bro mix	330	5 bid
123	Abtrfoyle	781	1 hf ch	pek No 2	43	14 bid
124		784	6 do	pek sou	270	11 bid
125		787	1 do	dust	50	12
126	M N	790	4 ch	bro or pek	360	36
127		793	3 do	pek	255	25 bid
128		796	5 do	pek sou	425	12 bid
129	M T S, in estate mark	799	4 ch	bro or pek	440	9 bid
130		802	4 do	bro pek	400	9 bid
131		805	5 do	pek	475	10
132		808	3 do	pek sou	270	9 bid
136	K P	820	7 ch	bro or pek	689	16
137	Handrokande	823	4 ch	bro pek	400	25 bid
138		826	5 do	pek	425	15 bid
139		829	7 do	pek sou	560	12 bid
148	Ravenscraig	856	2 ch	pek sou	180	12 bid
149		859	5 hf ch	fans	400	14
150	Kerenvilla	862	5 ch	bro pek	500	26
152		868	4 do	pek sou	380	6
153		871	2 do	pek fans	200	7 bid
154		874	2 do	pek dust	172	12

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

Mincing Lane, Jan. 11.

"Sanuki Maru."—Yattawatta 1, 75 bags sold at 92s 6d; 2, 6 bags sold at 65s 6d; Broken, 2 bags sold at 70s; Asgeria A, 37 bags sold at 85s; T, 2 bags sold at 65s 6d; 5 bags sold at 60s 6d; 3, 4 bags sold at 64s.

"Duke of Sutherland."—T, 3 bags sold at 66s 6d.

"Ophir."—B, 1 bag sold at 55s.

"Clan Ross."—Katugastota, 35 bags sold at 86s; 4 bags sold at 66s; 3 bags sold at 52s 6d.

"Clan McLean."—Katugastota, 35 bags sold at 86s; 3 bags sold at 66s; 2 bags sold at 52s 6d.

"Sanuki Maru."—Kepitigala, 6 bags sold at 66s; 6 bags sold at 60s.

"Ophir."—C, 9 bags sold at 65s; D, 1 bag sold at 58s.

"Staffordshire."—Roseneath, 28 bags sold at 87s 6d; 2 bags sold at 66s 6d; 9 bags sold at 52s 6d.

"Sanuki Maru."—Hylton OO, 42 bags sold at 100s 6d; 6 bags sold at 65s 6d; ditto T, 5 bags sold at 59s.

"Duke of Sutherland."—Beredewella GOC, Ex. No. 1, 38 bags sold at 98s; ditto 1, 9 bags sold at 80s; ditto T, 2 bags sold at 54s 6d; ditto B, 2 bags sold at 49s.

"Clan McLean."—II, 7 bags sold at 64s; III, 3 bags sold at 43s; IIII, 5 bags sold at 54s.

"Duke of Portland."—North Matale 1, 35 bags sold at 98s; Alloowihare A, 1 bag sold at 62s.

"Malta."—North Matale A, 57 bags sold at 100s.

"Clan McLean."—B, 6 bags sold at 56s 6d; B1, 1 bag sold at 38s.

"Sanuki Maru."—A3 Grove London, 3 bags sold at 74s; A1 ditto, 5 bags sold at 62s 6d; Grove G, 7 bags sold at 85s; First Grade London, 9 bags sold at 62s 6d.

"Iamba Maru."—O ditto, 19 bags sold at 58s 6d; Estate Cocoa, 9 bags sold at 56s 6d.

CEYLON COCOA SALES IN LONDON

(*From Our Commercial Correspondent.*)

MINCING LANE, Feb. 8.

"Awa Maru."—Asgeria A, 103 bags sold at 90s; T, 3 bags sold at 61s; Ingurgala A, 51 bags sold at 85s; T, 4 bags sold at 61s; Kirimettia A, 19 bags sold at 85s; T, 1 bag sold at 61s; 2 bags sold at 59s 6d.

"Clan Ronald."—Daisy Valley, 1 bag sold at 61s; Ukuwela A, 20 bags sold at 82s.

"Sanuki Maru."—Goonambil, 1 bag sold at 57s.

"Clan McNeil."—Kepitigala, 40 bags sold at 99s; 91 bags sold at 85s; 4 bags sold at 61s 6d; Coodugala, 16 bags sold at 85s; ditto X, 6 bags sold at 76s 6d; CDG, 14 bags sold at 67s 6d; Old Haloya, 36 bags sold at 78s.

"Sanuki Maru."—Kepitigala, 40 bags sold at 84s.

"Awa Maru."—Hylton OO, 14 bags sold at 72s; ditto T, 8 bags sold at 57s 6d; 1 bag sold at 56s 6d.

"Cheshire."—FB, 22 bags sold at 77s.

"Clan Ronald."—F ditto, 9 bags sold at 67s 6d.

"Clan McNeil."—Ditto 1, 4 bags sold at 66s; ditto D, 5 bags sold at 65s 6d; ditto G, 10 bags sold at 50s; OBEC in estate mark, Mahaberia Ceylon O, 39 bags sold at 108s; ditto 1, 1 bag sold at 78s Maria, 1 bag sold at 71s.

OBSERVER PRINTING WORKS.

No. 7. COLOMBO, FEBRUARY 18, 1901. { PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[13,695 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	53	40 hf ch	bro or pek	1800	47 bid
2		56	23 ch	pek	1955	34 bid
3		59	14 do	pek sou	1120	34
4		62	10 hf ch	bro pek fans	800	28
5	Battalgalla	65	22 ch	or pek	2090	59 bid
6		68	22 do	pek	1570	35
7		71	14 do	pek sou	1120	34
8	Riversdale, in est. mark	74	31 hf ch	pek	1550	33
9		77	25 do	pek sou	950	26 bid

Messrs. Forbes & Walker

[461,177 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	St. Pauls	301	31 hf ch	pek	1550	33
4	Katadola	304	17 ch	bro pek	1682	22
5		307	13 do	pek	1235	14
7	Halbarawe	313	19 ch	bro pek	1900	27
8		316	17 do	pek	1530	18
10	Kelaneiya and Braemar	322	19 ch	bro or pek	1900	33 bid
11		325	10 do	or pek	1000	28
12		328	10 do	pek	1000	22 bid
14		334	9 hf ch	dust	720	17
16	Carolina	340	10 ch	hyson	1000	25
17		343	8 do	hyson No 2	720	23
19	Yogama	349	10 ch	bro pek	1000	23
20		352	17 do	pek	1530	20
21		355	12 do	pek sou	960	15
24	Glencorse	364	21 ch	bro pek	2100	42
25		367	15 do	or pek	1275	38
26		370	16 do	pek	1280	31
27		373	19 do	pek sou	1520	26
31	Poyston	385	10 hf ch	fans	700	21
45	Lomora	427	18 ch	or pek	1620	63
46	Nahalma	430	25 do	sou	2425	8
50	M	442	13 hf ch	bro pek	715	21
51		445	13 ch	pek	1300	16
52		448	22 hf ch	pek fans	1760	16
57	Maldeniya	463	23 ch	bro pek	2300	31
58		466	35 do	pek	3150	19
59		569	26 do	pek sou	2210	14
60		472	7 do	bro pek fans	700	14
61		475	5 do	dust	700	14
62	Nakiadeniya	478	18 ch	bro pek	1620	26
63		481	7 do	bro pek fans	700	20
64	Walpita	484	13 ch	bro pek	1300	28
65		487	15 do	or pek	1500	22
66		490	11 do	pek	990	16
70	Ella Oya	502	9 ch	bro pek	900	27
74	Good Hope	514	38 ch	bro pek	3420	29
75		517	15 do	bro or pek	1500	33
76		520	10 do	pek sou	900	22
79	Deaculla	529	57 hf ch	bro pek	3135	45
80		532	53 ch	pek	3710	32
81		535	15 do	pek sou	1050	31
82	V Roeberry	538	18 ch	bro or pek	1800	56
83		541	27 do	bro pek	2700	37
84		544	31 do	pek	2790	32
85		547	14 do	pek sou	1190	25
88	Doorooma-dela	556	21 hf ch	fans	1050	22
89		559	13 ch	pek sou	1040	14
91	Adishan	565	25 hf ch	bro or pek	1430	41
93		571	17 ch	pek	1275	31
94		574	13 do	pek sou	910	32
96		580	9 do	bro pek	855	27
99	Knavesmire	589	33 ch	bro pek	3135	30
100		592	29 do	pek	2320	26
101		595	26 do	pek sou	1950	21
102		598	9 hf ch	dust	720	17
104		604	24 ch	sou	1680	16
111	Killarney	625	15 ch	bro pek	1575	39
112		628	30 do	pek	2700	32 bid
113	Seenagolla	631	27 hf ch	bro or pek	1512	55
114		634	20 do	pek	1000	46
116	Morankande	640	35 hf-ch	bro or pek	1960	31
117		643	34 ch	or pek	2890	28
118		646	41 do	pek	3690	20
119		649	23 do	pek sou	2070	14

Lot.		Box.	Pkgs.	Name.	lb.	c.
120	Erracht	652	14 ch	bro pek	1400	23
121		655	12 do	or pek	960	33
122		658	21 do	pek No. 1	1470	20
123		661	16 do	pek	1120	17
124		664	19 do	pek sou	1520	15
125		667	17 do	bro pek fans	1700	18
127	Pallagodda	673	15 ch	bro or pek	1500	26
128		676	21 do	bro pek	2100	35
129		679	16 do	or pek	1440	30
130		682	14 do	pek	1120	27
131		685	10 do	pek sou	900	18
132	Ruanwella	688	21 ch	or pek	1785	23
133		691	37 do	bro pek	3515	25
134		694	42 do	pek	3780	18
135		697	13 do	pek sou	1170	14
137	Battawatte	703	29 ch	bro or pek	2900	27
138		706	24 do	pek	2160	21
139		709	9 do	pek sou	720	14 bid
141	Middleton	715	18 hf ch	bro or pek	1008	63
142		718	33 ch	bro pek	3300	39
143		721	48 do	do	4800	34 bid
144		724	34 do	pek	2890	36
145		727	12 hf ch	dust	900	18
146	K P W	730	39 hf ch	bro pek	2145	26 bid
147		733	20 do	bro or pek	1200	29
148		736	48 do	pek	2400	24 bid
149		739	19 do	pek sou	950	15 bid
151	Vogan	745	32 ch	bro pek	2093	52
152		748	29 do	or pek	2755	38
153		751	31 do	pek No. 1	2790	27 bid
154		754	39 do	do ,, 2	3315	24 bid
155		,,	33 do	do ,, 2	3315	24 bid
156		757	13 do	pek sou	1105	14 bid
157		760	6 do	bro pek fans	720	17
158		763	9 hf ch	dust	7[illegible]	15
159	Stamford Hill	766	34 hf ch	bro pek	2040	44
160		769	21 do	or pek	945	53
161		772	22 ch	pek	1980	36
168	Marlborough	793	27 ch	or pek	2106	29
169		796	58 do	pek	4930	22 bid
170		,,	57 do	pek	4845	22 bid
171	Castlereagh	799	30 ch	bro pek	2850	44
172		802	14 do	or pek	1190	39
173		805	20 do	pek	1600	35
185	Errollwood	841	12 hf ch	or pek fans	780	23
186	Elkadua	844	10 ch	young hyson	1000	31
187		847	19 do	hyson	1900	26
188		850	22 do	hyson No. 1	2200	23
189		853	11 do	do No. 2	1210	20
192	Bandarawella	862	31 ch	bro pek	2083	24
193		865	33 do	pek	2640	23
194		868	24 do	do No. 2	2040	20
195		871	15 do	pek sou	1200	13
196	O B E C, in est. mark Forest Creek	874	20 ch	bro or pek	2000	56 bid
197		877	41 do	bro pok	4100	43
198		880	16 do	or pek	1440	46
199		883	22 do	pek No. 1	1930	40
200		886	31 do	do ,, 2	2790	36
201	Palmerston	889	12 hf ch	bro or pek	720	65
202		892	14 do	or pek	742	41
203		895	10 ch	pek	900	39
205	Queensland	901	15 hf ch	bro or pek	705	69
206		904	9 ch	bro pek	855	42
207		907	20 do	pek	1700	36
216	Tallegalla-kande	934	11 ch	pek	1100	10
219	Pine Hill	943	26 hf ch	bro or pek	1560	53
220		946	37 do	or pek	2220	40
221		949	37 ch	pek	3515	32
223	Harrow	955	14 hf-ch	or pek	770	44
224		958	18 do	br or pk	1080	45 bid
225		961	30 ch	pek	3000	37
226		964	8 do	pek sou	760	35
227	St. Heliers	967	20 do	pek	1757	29
228		970	9 do	pek sou	807	20
229	M T P in est. mark	973	34 do	sou	3060	8
230		976	17 do	pek dust	2040	13
231	Irex	979	26 do	bro pek	2340	26
232		982	33 do	pek	2640	23
233		985	20 do	pek sou	1800	16
246	B D W G	1024	78 hf ch	bro pek	3900	27 bid
247		1027	61 do	bro pek	3050	27 bid
248		1030	50 do	pek	2500	21 bid
249		1033	15 do	pek sou	750	16
250	High Forest	1036	12 do	pek dust	1020	23
251	C B	1039	25 ch	pek sou	2125	25 bid
252	K in est mark	1042	31 hf-ch	br or pk fans	2170	20 bid
253	Ardlaw and					

Lot,		Box.	Pkgs.	Name.	lb.	c.
	Wishford	1015	19 hf-ch	bro or pek	969	58
254		1048	17 ch	br pek	1432	43
255		1051	13 do	or pek	949	38
256		1054	19 do	pek	1558	36
257	Dunbar	1057	14 hf-ch	bro or pek	700	73
258		1060	19 cb	or pek	1615	42
259		1063	26 do	pek	1976	37
261	A M P	1069	20 do	congou	1800	8
262		1072	51 do	bro mixed	4590	5
263	Lissgrove	1075	13 do	pek	1167	12 bid
264	Marlborough	1078	11 do	or pek	825	32
265		1081	30 do	pek	2460	28
266	Geragama	1084	32 do	bro pek	3200	29
267		1087	43 do	pek	3440	18
261	Bagahagoda-watte	1099	13 do	pek	1235	23
272		1102	8 do	pek sou	720	16
274	Sirikandure	1108	19 do	bro pek	1900	31
275		1111	14 do	pek	1330	22
276		1114	9 do	pek sou	810	16
282	Passara Group	1132	18 do	bro or pek	1800	43
283		1135	11 do	or pek	935	40
284		1138	24 do	pek	2160	34
285		1141	8 do	pek sou	720	29
288	Yaba Ella	1150	10 do	pek	900	19
291	Cairnton	1159	37 do	pek	3145	12 bid
292	Baitawatte	1162	21 do	pek	1857	16 bid
294	Middleton	1168	23 do	bro pek	2300	44
295		1171	27 do	pek	2295	41
296	Gampaha	1174	18 hf-ch	bro or pek	1980	45
297		1177	21 ch	or pek	1935	54
298		1180	26 do	pek	2210	42
299		1183	10 do	pek sou	900	36
300	High Forest	1186	40 hf ch	or pk No. 1	2400	60 bid
301		1189	22 do	or pek	1232	54 bid
302		1192	20 do	pek	1000	47
303	Ganapalla	1195	30 ch	or pek	2640	27
304		1198	17 do	bro or pek	1785	25
305		1201	17 do	br pek	1411	24
306		1204	20 do	pek	2320	16
307		1207	37 do	pek	2960	18
310	H in est. mark	1216	7 do	young hyson	700	32
311		1219	9 do	hyson No.1	765	26 bid
312		1222	14 do	hyson No.2	1190	22 bid
314	Penrbos	1228	28 hf-ch	bro or pek	1288	51
315		1231	20 do	or pek	960	43
316		1234	28 ch	pek	2324	36
317		1237	10 do	pek sou	800	29
325	Weyunga-watte	1261	21 do	bro pek	2100	31
326		1264	22 do	pek	2090	25
327		1267	18 do	pek sou	1440	20
332	Mawaliganga-watte	1282	43 do	bro pek	4800	28
333		1285	36 do	pek sou	2880	17
335	Laurawatte	1291	17 do	bro pek	1700	28
336		1294	22 do	or pek	2024	20
337		1207	28 do	pek	2576	17
339	Ettapolla	1303	17 hf-ch	br pek	850	22

Messrs. Somerville & Co.—

[247,333 lb.]

Lot.		Box.	Pkgs,	Name.	lb.	c.
1	Avisawella	889	29 ch	pek	2465	21
2		892	20 do	pek sou	1600	15
3	Carney	895	23 hf ch	bro pek	1150	24
4		898	40 do	pek	1800	17 bid
5		901	18 do	pek sou	900	12 bid
11	Blackburn	919	18 ch	pek sou	1494	15
13		925	11 hf cb	fans	825	14
14	Salawe	928	34 ch	bro pek	3570	22
15		931	19 do	pek	1805	17
16		934	18 do	pek sou	1530	15
23	Kannattota	955	11 do	pek unblkd	935	16
24		958	12 do	pek No.2 do	960	15
25		961	8 cb	bro or pek fans	800	19
32	Marigold	982	31 hf ch	bro or pek	1643	49
33		985	28 do	or pek	1316	42
34		988	14 do	pek	700	45
35		991	18 do	pek sou	864	39
38	Pindeni Oya	1000	22 cb	pek	1980	28
39		1003	28 do	pek sou	1520	16
41	Rothes	1009	13 hf ch	bro or pek	780	39
42		1012	15 do	bro pek	750	36
43		1015	8 ch	pek	720	29
47	New Valley	1027	29 ch	or pek	2900	51
48		1030	18 do	or pek	1620	43
49		1033	17 do	pek	1530	38
50		1036	19 do	pek sou	1520	36
52	N I T	1042	11 do	unas No 2	880	10
55	Charlie Hill	1051	54 hf cb	bro pek	2700	out
56		1054	21 do	pek	1050	22
61	Mawatura	1069	20 do	pek	1000	25
64	Karandupona	1078	17 cb	bro pek	1700	28 bid
65		1081	25 do	pek	2250	22 bid
66		1084	16 do	pek sou	1280	13 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
68	Polduwa	1090	10 ch	bro pek	1000	out
69		1093	12 do	pek	1140	12
74	Tiddydale	1108	10 do	pek	900	out
78	Ravenscraig	1120	16 do	pek	1440	28
81	Hangranoya	1129	16 ch	bro or pek	1520	44
82		1132	29 do	bro pek	2900	23
83		1135	17 do	pek	1445	23
84		1138	15 do	pek sou	1200	19
85	R K P	1141	8 ch	bro pek	720	32
86		1144	9 do	or pek	720	30
87		1147	8 do	bro or pek	760	22
88		1150	9 do	pek	720	25
89		1153	9 do	pek sou	765	18
90	Hapugasmulla	1156	10 ch	bro pek	1100	33
91		1159	14 do	pek	1260	19
92		1162	8 do	unas	800	13
94	Rambodde	1168	18 hf ch	or pek	900	42
95		1171	21 do	bro pek	1260	46
96		1174	46 do	pek	2070	35
97		1177	25 do	pek sou	1125	29
100	Rayigam	1186	27 ch	bro pek	2700	34
101		1189	22 do	or pek	1870	26
102		1192	19 do	pek	1520	24
103		1195	19 do	pek sou	1805	21
105	Monte Christo	1201	17 do	pek	1445	18 bid
106	Kurulugalla	1204	18 do	bro pek	1800	out
107		1207	16 do	pek	1440	out
108		1210	8 do	pek sou	720	out
109	Columbia	1213	27 hf ch	bro or pek	1440	54
110		1216	29 do	or pek	1305	41
111		1219	25 do	pek	1125	37
112	Rabatungoda	1222	21 do	bro or pek	1050	56 bid
113		1225	20 do	or pek	1000	44
114		1228	22 do	pek	1100	35 bid
115	Derby	1231	27 hf ch	bro pek	1620	32
116		1234	22 do	pek	1232	18
117	Lower Dikoya	1237	21 ch	bro pek	2100	21
118		1240	20 do	pek	1880	18
119	T S N	1243	23 hf ch	pek	1150	18 bid
120	Kelani	1246	18 ch	bro pek	1620	
121		1249	23 ch	or pek	1840	29
122		1252	12 ch	bro or pek	1140	23
123		1255	23 ch	pek	1840	25
124		1258	15 ch	pek sou	1275	17
125	M & B	1261	44 hf cb	dust	3344	7 bid
132	D	1282	12 ch	bro pek	1200	21
136	Paradise	1294	15 ch	pek	1500	18
137	Kurunegalle Est Co, Ld	1297	20 hf ch	bro or pek	1200	36
138		1300	18 do	or pek	990	35
139		1303	23 ch	pek	2070	26
141	Citrus	1309	52 ch	pek	5200	14
142		1312	18 do	pek sou	1800	10 bid
151	Glenanore	1339	15 ch	bro mix	1500	9 bid
153	Sadamulle	1345	17 do	pek	1615	14 bid
154	Raxawa	1348	20 ch	bro pek	2000	36
155		1351	18 cb	pek	1620	28
156	Mora Ella	1354	19 hf ch	bro or pek	1102	43
157		1357	28 do	or pek	1400	35
158		1360	22 ch	pek	1980	29
159		1363	10 do	pek sou	800	24
160	Wilpita	1366	11 ch	pek	1045	15
161	Yarrow	1369	23 hf ch	bro or pek	1280	41
162		1372	35 do	or pek	1680	38
163		1375	59 do	pek	2655	33
167	Mount Vernon	1387	46 ch	pek	4600	43
168		1390	24 do	pek A	2112	38
171	Cooroondoo-watte	1399	21 hf ch	bro pek	1260	33 bid
172		1402	12 ch	pek	1200	22 bid
173		1405	8 cb	pek	800	21 bid
174		1408	10 do	pek sou	1000	16
175	Nyanza	1411	28 do	pek	2800	25 bid
180	Q	1426	12 ch	pek	960	21
181	Dikmukalana	1429	18 hf ch	bro pek	990	34
182		1432	18 do	or pek	900	25
183		1435	18 do	pek	900	22
184	Tiddydale	1438	20 ch	pek sou	1800	10 bid
185	Lowrence	1441	9 cb	bro pek	900	20
186		1444	25 do	pek sou	1750	14
187	Warakamure	1447	35 ch	bro pek	3395	30 bid
188		1450	30 do	pek	2250	25 bid
191	Venture	1459	14 ch	pek sou	1050	20 bid
192	Roseneath	1462	21 ch	bro pek	2100	30
193		1465	8 do	pek	720	26
194		1468	21 do	pek sou	1680	20
197	Killin	1477	21 hf cb	bro or pek	1050	30
198		1480	24 ch	or pek	2064	22
199		1483	10 ch	pek	850	16
202	Cork	1492	9 do	or pek	810	22 bid
203		1495	8 do	bro pek	768	out
204		1498	9 do	pek	765	out
207	Aberfoyle	1507	27 do	bro pek	1512	26
208		1510	31 hf ch	pek	1395	18
211	Hatdowa	1519	20 cb	bro pek	1900	25
212		1522	16 ch	pek	1280	18
213		1525	13 ch	pek sou	1040	14
215	Lyndburst	1531	10 hf ch	bro or pek	600	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
216		1534	39 hf ch	bro pek	1950	22 bid
217		1537	26 hf ch	pek	1170	18
221	Fortrose	1549	28 ch	pek	2380	16 bid
224	Murray-thwaite	1558	23 ch	bro pek	2300	30
225		1561	20 do	pek	1600	28
226		1564	11 do	pek sou	880	15
227		1567	6 do	fans	720	18
229	Beausejour	1573	17 ch	bro pek	1530	24 bid
230		1576	15 ch	pek	1200	18 bid
232	Monte Christo	1582	28 do	bro pek	2800	38 bid
234	Dumbarton	1588	9 ch	pek	810	out
235		1591	17 ch			
			1 hf ch	pek sou	1750	14 bid
226	M T S, in estate mark	1594	10 ch			
			1 hf ch	pek fans	1267	36
237	Harangalla	1597	13 ch	or pek	1105	36
228		1600	9 do	bro pek	855	35
239		1603	24 do	pek	1920	30
240		1606	12 do	pek sou	960	18 bid
248		1609	8 do	bro pek fans	800	25
242	Ravenoya	1612	7 do	bro pek	700	30
243		1615	17 do	pek	1360	26
247	Monte Christo	1627	9 do	pek fans	1080	14
248		1630	9 hf ch	dust	720	12
249	Meddegodde	1633	20 do	bro or pek	900	35 bid
250		1636	46 do	pek	1610	24 bid

[Mr. E. John.—180,015 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c
1	J M	298	17 ch	bro or pek	1700	22 bid
2		301	10 do	pek	900	out
6	Oonoogaloya	313	15 do	or pek	1350	41 bid
7		316	12 do	bro or pek	1200	52
8		319	36 do	pek	3240	34 bid
9	Harrisland	322	15 hf ch	bro or pek	825	28
11		328	15 ch	pek	1155	20 bid
15	Iona	340	43 hf-ch	bro or pek	2580	42 bid
16		343	28 ch	or pek	2660	41
17		346	23 do	pek	1955	38
19	Giugranoya	352	26 do	bro or pek	2470	withd'n
20		355	43 do	pek	3440	
25	G B	370	8 do	bro pek	800	17
26		373	8 do	pek	720	15
27		376	11 hf ch	dust	990	14
28		379	18 ch	fans	1260	17
30	Mahapahagalla	385	22 do	or pek	1980	31
31		388	29 do	pek sou	2370	18 bid
32	Birnam	391	23 do	pek sou	1449	22 bid
33	Elston	394	19 do	pek	1615	32 bid
34		397	20 do	pek sou	1800	29
35		400	21 do	or pek	1890	41
37	Heatherly	406	19 do	bro or pek	1710	35 bid
38		409	24 do	pek	1800	20 bid
42	Perth	421	22 do	bro or pek	2187	25 bid
43		424	32 do	bro pek	2750	23 bid
44		427	12 do	pek	900	19 bid
47	Kolapatna	436	28 hf ch	bro or pek	1400	61
48		439	31 do	or pek	1400	47
49		442	31 do	pek	1395	33
53	Coslanda	454	22 ch	bro pek	1210	36 bid
54		457	21 do	pek	1890	24 bid
58	Agra Ouvah	469	42 hf ch	bro or pek	2436	55
59		472	70 do	or pek	3920	39 bid
60		475	14 ch	pek	1620	39
61	Glasgow	478	60 ch	bro or pek	3480	42 bid
62		481	19 do	or pek	1330	54
63		484	13 do	pek	1209	47
64		487	11 do	pek sou	1067	44
65	Glentilt	490	29 do	bro pek	2900	37 bid
66		493	25 do	or pek	2250	38
67		496	17 do	pek	1360	33
68	Kanangama	499	15 do	or pek	1425	25 bid
70		505	18 do	pek	1620	18
71		508	12 do	pek sou	1020	15
72		511	13 do	sou	845	9 bid
76	Koslanda	523	22 hf ch	bro pek	1210	35 bid
77		526	21 ch	pek	1800	24 bid
81	B B	538	21 do	sou	1890	10 bid
82	Mossend	541	13 hf ch	bro or pek	715	70
83		544	24 do	or pek	1200	48 bid
84		547	36 do	pek	1620	41 bid
86	Brownlow	553	25 do	bro or pek	1325	39
87		556	15 ch	or pek	1260	37
88		559	31 do	pek	2666	25 bid
89	Galloola	562	36 do	bro pek	3600	out
90		565	45 do	pek	4050	out
91		568	20 do	pek sou	1600	out
92	Ottery	571	20 do	bro or pek	2100	40 bid
93		574	20 do	or pek	1600	45
94		577	26 do	pek	2210	36 bid
96	Bellongalla	583	17 do	bro pek	1870	21
97		586	24 do	pek	1920	17 bid
100	Kataboola	595	10 do	pek sou	900	out
101	Glassaugh	598	36 hf ch	or pek	[illegible]	70
102		601	24 do	bro or pek	1550	56
103		604	23 ch	pek	2300	53
104	N B	607	20 do	pek sou	1700	26 bid
105	Kelaneiya and Breamar	610	20 do	bro or pek	200	37
106		613	18 do	or pek	1800	28
107		616	12 do	pek	1200	23 bid
111	Maskeliya	628	34 hf ch	bro or pek	1700	39
112		631	21 ch	bro pek	1890	32 bid
113		634	23 do	pek	2300	33
114	Ferndale	637	9 do	or pek	828	29
115		640	10 do	pek No. 2	920	24
117	Bowella	646	12 do	bro pek	1080	20 bid
122	E L	661	10 do	bro pek	1060	23 bid
123		664	25 do	pek	2125	out
		667	16 do	pek sou	1280	16 bid
124	Agra Ouvah	673	21 hf-ch	pek fans	1680	22
128	Glasgow	679	63 ch	bro or pek	3465	49 bid
129		682	15 do	or pek	1050	57
130		685	13 do	pek	1209	48
131		688	14 do	pek sou	1400	42
132		691	12 do	fans	1200	20
134	G W	697	7 do	fans	770	29
135	Glentilt	700	18 do	pek	1440	25 bid
136	K G	703	20 do	bro pek	1900	23
137		706	9 do	pek	720	16
140	Rookwood	715	48 hf ch	bro or pek	2880	46 bid
141		718	20 ch	or pek	1920	38 bid
142		721	27 do	pek	2430	34

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
10	W	80	7 hf ch	bro pek	350	14 bid

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Lauriston (packed in 2 oz. lead)	295	9 hf ch	bro tea	486	14
2		298	2 do	dust	160	18
6	Ketadola	310	6 ch	pek sou	540	9
9	Halbarawe	319	4 ch	pek sou	300	11
13	Kelaneiya and Braemar	331	4 ch	sou	400	13
15	Carolina	337	6 ch	young hyson	600	32
18		316	2 do	siftings	280	9
22	Yogama	358	4 ch	fans	400	8 bid
23		361	3 do	dust	330	14
28	Poyston	376	8 hf ch	bro pek	400	28
29		379	6 do	pek	300	24
30		382	7 do	pek sou No. 2	315	12
32		385	4 do	dust	320	15
33	Tennehena	391	1 ch			
			1 hf ch	bro pek	183	24
34		394	3 ch	pek	331	10
35	P C H Galle, in estate mark	397	4 hf ch	young hyson	200	19
36		400	1 do	young hyson (chests No. 5)	50	26
37		403	3 do	hyson	150	20
38		406	1 do	hyson (chests No 4)	50	18 bid
39		409	13 do	hyson No. 2	650	18
40		412	1 do	hyson ,, 2 (chests No. 13)	50	16
41		415	1 do	siftings	70	8
42	Kelvin	418	4 ch	pek fans	360	17
43		421	3 do	bro mix	255	5
44		424	4 hf ch	dust	320	14
47	K, in estate mark	433	1 ch	bro or pek	103	25
48		436	1 do	bro pek	101	18
49		439	1 do	pek	90	14
53	Ismalle	451	3 ch	sou	285	7
54		454	4 do	congou	320	5
55		457	2 do	fans	280	13
56		460	3 do	dust	465	14
67	Walpita	493	6 ch	pek sou	510	10
68		496	3 do	sou	270	10
69		499	3 do	dust	450	14
71	Ella Oya	505	7 ch	pek	595	16
72		508	8 do	pek sou	680	14
73		511	1 hf ch	dust	75	18
77	Good Hope	523	5 ch	pek sou	400	16
78		526	6 hf ch	pek dust	430	14
86	V Roeberry	550	5 ch	dust	500	13
87		553	3 do	fans	300	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
90	Dooroomadella	562	3 hf ch	dust	210	15
92	Adisham	568	14 hf-ch	or pek	630	36
95		577	3 do	dust	270	14
97		583	4 do	unas No. 1	240	12
98		586	2 do	do ,, 2	110	10
103	Knavesmire	601	7 hf ch	bro pek fans	455	19
115	Seenagolla	637	2 hf ch	fans	120	33
126	Erracht	670	2 ch	dust	354	10
136	Ruanwella	700	8 hf ch	dust	600	16
140	Battawatte	712	2 ch	dust	200	14
150	K P W	742	2 hf ch	dust	180	13
162	Stamford Hill	775	6 ch	pek sou	510	26
163		778	3 hf ch	dust	255	16
178	St. Leonards-on-sea	820	4 hf ch	young hyson	240	30
179		823	4 do	hyson	200	28
180		826	2 do	do No. 2	210	23
181	Aigburth	829	4 ch	sou	320	8
182		832	2 hf ch	pek dust	190	12
183	Ookoowatte	835	1 hf ch	dust	105	10
184		838	4 ch	pek fans	520	15
190	Elkadua	856	3 ch	green tea fan	300	13
191		859	3 do	green tea dust	210	8
204	Palmerston	898	2 ch	pek sou	170	35
208	Queensland	910	7 ch	pek sou	630	33
209		913	2 hf ch	bro pek dust	154	14
210		916	1 do	bro pek No. 2	295	16
211		919	2 do	pek No. 2	180	13
212	Maligatenne	922	6 ch	pek sou	630	out
213		925	4 ch	pek	400	out
214		928	4 do	pek sou	380	out
215	Tallegalla-kande	931	6 ch	bro pek	660	20
217		937	4 do	pek sou	380	out
218		940	1 do	red leaf (paper lined)	95	3
222	Pine Hill	952	7 hf ch	dust	630	14
234	Irex	988	2 ch	dust	200	15
235	Penagalla	991	3 hf-ch	dust	210	14
236	Kotua	994	3 ch	bro pek	300	16
237		997	3 do	pek	300	11 bid
238		1000	2 do	pek sou	200	8 bid
239		1003	1 do	sou	100	5 bid
240		1006	1 do	dust	115	8
260	Dunbar	1066	7 hf-ch	bro pek	385	45
268	Geragama	1090	5 ch	pek sou	400	13
269	Bogahagoda watte	1093	4 do	bro or pek	440	26
270		1066	6 do	bro pek	600	28
273	W V R A	1105	2 hf ch	bro tea	157	7
277	Sirikandure	1117	1 ch	bro tea	77	9
278		1120	1 do	pek fans	107	16
279		1123	1 do	fans	96	16
280		1126	2 do	bro pek dust	214	17
281		1129	1 do	dust	154	10
286	Yaha Ella	1144	1 do	bro or pek	110	23
287		1147	6 do	br pek	600	29
289		1153	3 do	pek sou	270	15
290		1156	1 do	pek fans	130	17
293	Middleton	1165	12 hf-ch	bro or pek	672	66
208	Ganapalla	1210	4 ch	pek sou	300	13
309		1213	4 do	dust	472	13
313	H in est. mark	1225	3 do	hyson siftings	327	out
318	Penrhos	1240	2 hf-ch	fans	150	16
319		1243	1 ch	pek dust	96	12
328	Weyunga-watte	1270	2 do	bro tea	200	12
329		1273	3 hf ch	dust	255	13
330	Mawaliganga-watte	1276	6 ch	bro or pek	600	44
331		1279	8 do	or pek	640	32
334		1288	4 do	dust	444	14
338	Laurawatte	1300	7 hf-ch	fans	616	14
340	Ettapolla	1306	10 do	pek	500	18
341		1309	4 do	pek sou	200	12
342		1312	1 do	dust	60	12

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
6	Carney	904	3 hf-ch	bro pek fans	150	13
7		907	3 do	sou	150	10
8	Clova Sana	910	4 hf ch	pek sou	200	8
9		913	1 do	dust	65	12
10		916	6 do	fans	300	7
12	Blackburn	922	6 hf ch	dust	510	13
17	Salawe	937	3 ch	unas	330	10
18		940	4 do	pek dust	486	14
19		943	4 do	dust	632	12
20	Kannattota	946	4 ch	or pek No 1	360	23 bid
21		949	4 do	or pek	320	20 bid
22		952	5 do	bro pek	450	20 bid
24		964	1 do	bro or pek fans	130	13
27	Attalawatte	967	3 hf ch	bro pek	150	22
28	D Ceylon	970	4 hf ch	bro or pek	200	18
29		973	4 do	or pek	200	15
30		976	12 do	pek	540	14
31		970	2 do	sou	80	9
36	Marigold	994	6 hf ch	bro pek fans	296	35
37		997	7 do	pek dust	525	21
40	Pindenioya	1006	1 ch	dust	137	11
44	Rothes	1018	2 ch	pek sou	170	14
45		1021	3 hf ch	bro tea	150	19
46		1024	2 do	dust	170	13
51	N I T	1039	5 ch	unas No 1	500	11
53	G, in estate mark	1045	1 hf ch	bro or pek	55	24
54		1048	1 do	pek	40	20
57	Charlie Hill	1057	2 hf ch	pek sou	100	9
57		1060	3 do	bro pek fans	210	11
59	Mawatura	1063	11 hf ch	bro or pek	660	27
60		1066	11 do	bro pek	605	26
62		1072	9 do	pek sou	450	14
63		1075	1 do	dust	80	12
67	Karandupona	1087	4 hf ch	dust	300	14
70	Polduwa	1096	3 ch	pek sou	300	6
71		1099	1 do	dust	132	11
72		1102	1 do	red leaf	85	3
73	Tiddydale	1105	4 ch	bro pek	300	21
75		1111	7 do	pek sou	630	9
76	Ravenscraig	1114	10 hf ch	or pek	500	33 bid
77		1117	5 do	bro pek	275	33
79		1123	2 ch	pek sou	180	15
80		1126	2 hf ch	fans	160	14
93	Hapugasmulle	1165	2 ch	dust	300	12
98	Ramboda	1180	2 hf ch	dust	180	13
99		1183	1 do	fans	70	12
104	Rayigam	1198	7 hf ch	dust	560	15
126	O O R, in estate mark	1264	1 hf ch	bro or pek	43	16
127		1267	1 do	bro pek	91	12
128		1270	2 do	pek	1:2	12
129		1273	2 do	pek sou	110	10
130		1276	2 do	sou	106	8
131		1279	1 do	pek dust	7·	10
133	D	1285	6 ch	pek	570	13 bid
134		1288	5 do	pek sou	460	11
135		1291	1 do	bro pek dust	80	12
140	Kurunegala est Co. Ltd	1306	3 ch	pek sou	270	15 bid
143	Bodava	1315	4 hf ch	bro or pek	200	36
144		1318	8 do	or pek	400	32
145		1321	5 do	pek sou	200	14
146		1324	1 ch	con	95	out
147		1327	4 hf ch	pek	180	19 bid
148		1330	4 ch	fans	440	15
149		1333	1 do	red leaf	85	6
150	Glenanore	1336	2 ch	pek sou	200	16
152		1342	7 hf ch	dust unbulked	560	14
164	Yarrow	1378	5 hf ch	pek sou	275	17
165	Y, in estate mark	1381	2 hf ch	fans	144	12
166		1384	1 do	dust	90	12
169	Mount Vernon	1393	1 ch	bro mix	616	8 bid
170	Hapugasmulle	1396	1 ch	dust	160	10
176	Monrovia	1414	7 ch	Young Hyson	630	22
177		1417	7 do	Hyson	630	18
178		1420	4 do	Hyson No 2	360	out
179		1423	2 do	Twanky	180	out
195	Kerenvilla	1471	4 ch	pek sou	380	9
196		1474	2 do	pek fans	200	5
200	Killin	1486	2 ch	bro mix	163	4
201		1489	5 hf ch	dust	375	13
205	Cork	1501	1 ch	fans	105	20 bid
209	Aberfoyle	1513	1 hf ch	pek No 2	43	14
210		1516	6 do	pek sou	270	11
214	Hatdowa	1528	3 ch	fans	300	14
218	Lyndhurst	1540	6 hf ch	pek sou	252	12
219		1543	2 do	dust	168	12
223	Murraythwaitte	1570	1 ch	dust	160	10
231	Beausejour	1579	5 ch	bro pek fans	500	16
233	Dumbarton	1585	5 hf ch	bro pek	280	out
244	Ravenoya	1618	7 ch	pek sou	504	15 bid
245		1621	2 hf-ch	dust	160	13
46		1624	2 do	fans	180	22

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	J M	304	6 ch	pek sou	530	6
4		307	2 do	bro mix	190	4
5	A A	310	1 do	dust	105	12
10	Harrisland	325	12 hf ch	or pek	540	28
12		331	5 ch	pek sou	365	13
13		334	1 hf ch	fans	73	14
14		337	1 do	dust	87	13
18	Iona	349	3 hf ch	dust	240	17

ot		Box.	Pkgs.		Name.	lb.	c.
29	G B	382	3	ch	bro mix	270	7
36	Heatherly	403	4	do	or pek	320	28
39		412	5	do	pek sou	325	14
40		415	5	do	pek No. 1	425	out
41		418	9	do	sou	666	out
45	Perth	430	5	do	pek sou	375	16
46		433	5	hf-ch	pek dust	375	15
50	Kolapatna	445	9	do	pek sou	441	36
51		448	5	do	br or pe fans	275	36
52		451	7	do	fans	504	20
55	Coslanda	460	3	ch	pek sou	240	19
56		463	2	do	fans	220	19
57		466	3	hf-ch	dust	240	13
69	Kanangama	502	6	ch	bro or pek	620	24
73		514	4	do	fans	328	10
74		517	4	do	dust	320	14
75		520	3	hf ch	or pek fans	210	14
78	Koslanda	529	3	ch	pek sou	240	19
79		532	2	do	fans	220	19
80		535	3	hf ch	dust	210	13
95	Ottery	580	4	do	dust	360	14
98	Bellongalla	589	4	ch	sou	320	13
9		592	3	do	dust	420	13
110	M P	625	2	do	sou	160	4
116	Ferndale	643	3	do	dust	342	13
118	Bowella	649	8	do	pek	560	13 bid
119		652	8	do	pek sou	480	12 bid
120		655	1	do	sou	56	8
121		658	1	do	dust	82	14
125	Agra Ouvah	670	6	do	pek sou	552	38
127		676	5	hf-ch	dust	485	13
133	G W	694	6	ch	pek sou	540	28
138	K G	709	2	do	pek sou	180	13
139		712	1	hf ch	fans	65	14
143	Rookwood	724	8	do	fans	560	27
		727	2	do	pek dust	182	14

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Jan. 25.

"Alcinous."–Cocoa, WHD London, 5 bags sold at 75s 6d; ditto KK London, 3 bags sold at 75s 6d.

"Hakata Maru."—Ross 1, 47 bags sold at 89s 6d; 2, 3 bags sold at 66s; T, 3 bags sold at 53s 6d; No. 2, 3 bags sold at 63s 6d.

"Sanuki Maru."—Goonambil, 55 bags sold at 85s; 1 bag sold at 64s; 7 bags sold at 66s.

"Hakata Maru."—Coodulgala, 39 bags sold at 88s; HK 1 in estate mark, 1 bag sold at 63s; HK 1, 20 bags sold at 80s 6d; ditto 2, 1 bag sold at 54s; ditto T, 1 bag sold at 66s; Hylton OO, 124 bags sold at 100s 6d; 7 bags sold at 69s; ditto T, 4 bags sold at 60s.

"Clan Graham."—2, 10 bags sold at 64s; Gleanry 1, 18 bags sold at 85s; 2, 3 bags sold at 55s 6d; 3, 2 bags sold at 50s 6d.

"Hakata Maru."—Maria 1, 50 bags sold 84s; 2, 4 bags sold at 54s 6d; 3, 4 bags sold at 50s Meegama B, 6 bags sold at 59s; B 1, 1 bag sold at 65s

OBSERVER PRINTING WORKS.

No. 8. COLOMBO, FEBRUARY 25, 1901. PRICE :—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[28,290 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Yelana	54	11 ch	bro pek	1100	27 bid
4	Battalgalla	63	22 ch	or pek	2090	35 idd
5		66	25 do	pek	2125	31 bid
6		69	10 do	pek sou	800	31
7	Riversdale, in est. mark	72	26 hf ch	bro pek	1352	44 bid
8		75	26 do	pek	1300	33
9	Bunyan and Ovoca, Invoice No. 1	78	41 hf ch	bro or pek	2050	50 bid
10		81	32 do	or pek	1440	42 bid
11		84	28 do	pek	2520	32 bid
12		87	22 ch	pek sou	1980	24
13		90	8 do	unas	840	14 bid
14	Bunyan and Ovoca, Invoice No. 2	93	27 hf ch	bro or pek	1350	54 bid
15		96	21 do	or pek	945	45 bid
16		99	21 ch	pek	1890	32 bid
17		2	15 do	pek sou	1350	26
18		5	13 hf ch	pek fans	845	18
20		11	7 ch	unas	735	16
23	A	20	12 do	sou	960	withd'n.

Messrs. Forbes & Walker

[490,411 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	St. Pauls	3127	26 hf ch	bro pek	1352	45 bid
6		1330	26 do	pek	1300	33
7	Great Valley	1333	61 ch	bro or pek	3355	48
8		1336	20 do	or pek	1700	35 bid
9		1339	50 do	pek	4250	30
10		1342	33 do	pek sou	2475	25
13	Weyawatte	1351	13 hf ch	bro pek	780	30
15	Lyegrove	1357	11 ch	bro pek	1153	34
16		1380	8 do	pek	760	30
19	Pendle	1369	18 ch	bro pek	1800	35
20		1372	19 do	pek	1710	24
21		1375	10 do	pek sou	900	18
25	New Peacock	1387	10 ch	pek sou	900	34
26		1390	18 hf-ch	bro mix	900	13
27		1393	26 do	hyson fans	1950	15
28	Matale	1396	37 do	bro pek	2220	30
29		1399	20 ch	pek	1800	26
30		1482	15 do	pek sou	1200	21
32	C C (packed in 2 oz. lead)	1408	11 ch	sou	880	7 bid
33		1411	19 do	dust	1520	12
35	L L (packed in 2 oz. lead)	1417	11 ch	sou	830	6 bid
36		1420	8 do	bro mix	720	out
37		1423	15 hf ch	dust	1200	12
38	D, in estate mark (packed in 2 oz. lead)	1426	12 hf ch	bro mix	720	6
39	Chesterford	1429	73 ch	bro pek	6935	27
		1432	78 do	pek	7410	19 bid
		1435	40 do	pek sou	3800	14
43	3 and ?, M T P, in est. mark	1441	30 ch	sou	2700	6
44		1444	25 do	dust	2800	13
51	Palm Garden	1465	9 ch	pek	900	16
55	Holton	1477	10 ch	pek	850	22
58	Grange Garden	1486	29 ch	bro or pek	2900	39
59		1489	25 do	pek	2500	26
63	Onamana	1501	8 ch	bro pek	800	14
64		1504	10 do	pek	900	8
65		1507	9 hf ch	bro pek dust	720	10
67	Thedden	1513	22 ch	bro pek	2200	34
68		1516	14 do	pek	1260	28
71	O B E C, in estate mark Nillomally	1525	8 ch	bro or pek	800	64
72		1528	44 do	or pek	4048	48
73		1531	26 do	pek No. 1	2028	41
74		1534	23 do	pek No. 2	1840	36
75		1537	13 do	pek sou	1040	34
79	Naseby	1549	31 hf ch	bro or pek	1860	73

Lot.		Box.	Pkgs.	Name.	lb.	c.
80		1552	26 hf-ch	or pek	1196	64
81		1555	25 do	pek	1200	52
84	Devonford	1564	26 hf ch	bro or pek	1430	68
85		1567	13 ch	or pek	1170	56
87	Erlsmere	1573	22 hf ch	bro pek	1232	45
88		1576	14 ch	pek	1120	36
92	Kitulgalla	1588	12 ch	bro pek	1080	28
93		1591	10 do	pek	950	23
94		1594	9 do	pek sou	765	18
97	H G M	1603	17 hf-ch	flowery bro or pek	1020	56
98		1606	18 do	bro or pek	1224	36
99		1609	16 ch	bro pek	1600	34
100		1612	26 do	pek	2340	28 bid
104	L G F, in est. mark	1624	5 ch	dust	700	14
105	Clunes	1627	8 ch	or pek	720	41
106		1630	20 do	bro pek	2000	32 bid
107		1633	14 do	pek No. 1	1190	31
108		1636	27 do	do No. 2	2295	22
109		1639	20 do	pek sou	1800	17
112	Polatagama	1648	59 ch	bro pek	5900	33
113		1651	18 do	or pek	1620	27
114		1654	49 do	pek	4165	20
115		1657	16 do	pek sou	1520	14
118	Maha Uva	1666	24 hf ch	bro or pek	1440	32
119		1669	15 do	or pek	840	37
120		1672	18 ch	pek	1620	32
123	High Forest	1681	42 hf ch	or pek No 1	2520	64
124		1684	28 do	or pek	1568	51 bid
125		1687	18 do	pek	900	46
127	Galkadua	1693	16 ch	bro pek	1760	27
128		1696	18 do	pek	1800	15
129		1699	11 do	pek sou	1100	10 bid
134	Panawatte	1714	11 ch	pek	957	17
136	Dunkeld	1720	56 hf ch	bro or pek	3248	42
137		1723	13 ch	or pek	1235	36
138		1726	19 do	pek	1710	32
139	Silverkandy	1729	56 hf ch	bro or pek	3080	46
140		1732	12 ch	bro pek	1200	38
141		1735	29 hf ch	or pek	1450	43
142		1738	17 ch	pek	1615	35
145	Ardlaw and Wishford	1747	25 hf ch	bro or pek	1325	56
146		1750	21 ch	bro pek	1806	41
147		1753	14 do	or pek	1064	35 bid
148		1756	15 do	pek	1245	31
149	Kumaradola	1759	7 ch	bro pek	763	32
153	Maragalla	1771	13 ch	bro pek	1430	35
154		1774	9 do	or pek	810	27
158	Theydon Bois	1786	8 ch	bro or pek	720	47
159		1789	11 do	or pek	990	35
160		1792	25 do	pek	2000	28
161		1795	10 do	pek sou	850	17
162	Bandara Eliya	1798	30 hf ch	or pek	1650	55 bid
163		1801	18 do	bro or pek	1080	70
164		1804	47 do	pek	2203	47 bid
165		1807	24 do	pek sou	1104	39 bid
167	Elkadua	1813	9 ch	hyson	900	24
168		1816	10 do	hyson No. 1	1000	out
180	Nugagalla	1852	15 hf ch	bro pek	750	38 bid
181		1855	34 do	pek	1700	21
184	G E B, in estate mark	1864	11 ch	bro pek	1100	26
186		1870	11 do	pek	935	22
196	B, in estate mark	1900	9 ch	sou	810	10
200		1912	6 do	dust	840	12
202	Ambragalla	1918	63 hf ch	or pek	2901	32 bid
203		1921	45 do	bro or pek	2700	31 bid
204		1924	36 ch	pek	2628	25
205		1927	25 do	pek sou	2100	18 bid
209	Stafford	1939	8 ch	or pek	760	57
210		1942	13 do	pek	1105	49
212	Zululand	1948	9 do	bro pek	897	27
213		1951	24 do	pek	1917	18
214		1954	11 do	pek sou	789	14
217	O B E C, in est. mark Newmarket	1963	27 ch	bro pek	2805	31
218	Ingrogalla	1966	12 do	bro pek	1200	38
219		1969	13 do	pek	1105	29
230	Udapolla	2002	9 ch	bro pek	900	24
231		2005	14 do	pek	1260	19
234	Carolina	2014	26 do	young hyson	2756	out
235		2017	61 do	hyson	6222	out
236		2020	49 do	hyson No. 2	4900	out
237		2023	14 do	sifting	1876	6 bid
238	T H in est. mark	2026	13 do	pek	1105	ou

Lot.		Box.	Pkgs.	Name.	lb.	c.
239	K P W	2029	30 hf-ch	bro pek	1650	27
240		2032	16 do	bro or pek	960	31
241		2035	38 do	pek	1900	22
242		2038	14 do	pek sou	700	15
245	Tembiligalla	2047	23 ch	bro or pek	2185	34
246		2050	26 do	pek	2340	19
250	Vogan	2062	14 do	hr pek	1340	45
251		2065	17 do	or pek	1615	40
252		2068	15 do	pek No. 1	1350	29
253		2071	23 do	pek No. 2	2070	21
254		,,	23 do	pek No. 2	2070	21
255		2074	9 do	pek sou	765	12 bid
258	Tymawr	2083	19 hf-ch	bro or pek	1140	48
259		2086	31 do	or pek	1705	38
260		2089	39 do	pek	1950	32
261		2092	30 do	pek sou	1500	32
262	O'Bode	2095	10 ch	bro pek	1120	36
263		2098	9 do	or pek	900	31
266	Monkswood	2107	34 hf-ch	br pek	1870	71
267		2110	46 do	or pek	2300	63
268		2113	33 cb	pek	2970	51
269		2116	17 do	pek sou	1445	45
270	Hatton	2119	33 do	hro pek	3465	53
271		2122	41 do	pek	3485	38
277	Choisy	2140	22 do	bro or pek	2200	50
278		2143	15 do	or pek	1425	46
279		2146	24 do	pek	2040	37
280	Freds Ruhe	2149	69 do	bro pek	6900	28
281		2152	45 do	pek	4050	18
282		2155	16 do	pek sou	1600	14
286	Gallawatte	2167	9 do	bro or pek	900	34
286		2170	26 do	br pek	2340	23
288		2173	39 do	pek	3120	18
289		2176	10 hf-ch	pek fans	700	21
290	Amblakande	2179	13 ch	br pek	1300	30
291		2182	12 do	pek	960	22
293	Hopton	2188	19 do	bro or pek	1900	30
294		2191	16 do	or pek	1440	23 bid
295		2194	28 do	pek	2380	19 bid
296		2197	14 do	pek sou	1260	14 bid
298	Nahakettia	2203	51 bf-ch	young hyson	2856	out
299		2206	44 do	hyson	2024	out
300		2209	38 do	hyson No. 2	1900	out
303	Damhagas-talawe	2218	14 ch	hro or pek	1540	57
304		2221	19 do	hro pek	2052	40 bid
305		2224	15 do	pek	1410	38
308	Amblangoda	2233	11 do	bro or pek	1100	32
309		2236	9 do	or pek	810	26
310		2239	15 do	pek	1275	21 bid
311		2242	8 do	pek sou	720	16
314	Dewalakande	2251	14 do	hyson	1316	out
316	Kincora	2257	13 do	hro pek	1235	50
327		2260	12 do	pek	1020	38
318		2263	16 do	pek No. 2	1200	32
319		2266	15 do	pek sou	1350	25
321	Knavesmire	2272	20 do	or pek	1000	31
322		2275	34 do	hro pek	3230	30
323		2278	34 do	pek	2720	20 hid
324		2281	20 do	pek sou	1500	20
325		2284	35 do	sou	2450	16
326	Irehy	2287	35 hf-ch	hro pek	1925	54
327		2290	12 ch	pek	1020	49
330	Glengariffe	2299	35 hf ch	br pek	1925	40
331		2302	30 do	or pek	1350	32
332		2305	36 ch	pek	3420	30
333		2308	12 do	pek sou	996	27
341	Vogan	2332	30 do	or pek	2850	38
342		2335	30 do	pek No. 1	2700	28 bid
343		2338	38 do	pek No. 2	3230	20 bid
344		,,	38 do	pek No. 3	3230	20 bid
345		2341	15 do	pek sou	1200	13 bid
348	Patiagama	2350	14 do	pek	1120	26
352		2362	19 bf-ch	pek	1615	30
355	Palmerston	2371	13 do	bro or pek	754	77
356		2374	15 ch	pek	1350	52
358	Bickley	2380	11 hf-ch	bro pek	792	43
359		2383	20 do	or pek	1300	42
360		2386	28 do	pek	1680	34 bid
361	Galapitakande	2389	14 ch	or pek	1190	37
362		2392	17 do	br pek	1666	37
363		2395	39 do	pek	3315	23
366	Glendon	2404	29 do	or pek	2320	31
367		2407	51 hf ch	bro pek	2805	29
368		2410	51 ch	pek	4080	19 bid
369		2413	16 do	pek sou	1280	16
371	G	2419	10 do	sou	800	11
372		2422	15 hf-ch	dust	1275	13
374	Tonacombe	2428	36 ch	or pek	3240	37
375		2431	27 do	br pek	2700	38 hid
376		2434	29 do	pek	2610	32
377		2437	10 do	pek sou	900	26
378	Inverness	2440	19 do	or pek	1805	62
379		2443	52 hf-ch	bro or pek	3120	58
380		2446	35 ch	pek	3159	55
381		2449	10 do	pek sou	950	43
382		2452	12 hf ch	dust	1020	27

Lot.		Box.	Pkgs.	Name.	lb.	c.
383	Pallagodda	2455	18 ch	bro or pek	1800	24
384		2458	25 do	hr pek	2500	36
385		2461	23 do	or pek	2070	27
386		2464	17 hf-ch	pek	1360	20 hid
387		2467	14 ch	pek sou	1260	16
388		2470	13 hf-ch	dust	1105	15
397	Ugieside	2497	13 do	bro mixed	1235	8
398	Tempo	2500	16 cb 11 boxes	bro pek (11 boxes 2 oz. lead)	1955	28
399		2503	9 ch	or pek	765	28
400		2506	20 do	pek No. 1	1500	20
403	Talgaswela	2515	12 hf-ch	bro or pek	720	28
404		2518	29 do	or pek	2465	30
405		2521	31 do	pek	2480	19 bid
406		2524	17 do	pek sou	1275	16
408	Digdola	2530	15 ch	br or pek	1500	30
409		2533	22 do	bro pek	2090	28
410		2536	10 do	or pek	800	27
411		2539	15 hf-ch	pek	1275	17
412		2542	13 ch	pek sou	1105	17
413	Passara Group	2545	12 hf-ch	bro or pek	1200	45
414		2548	15 ch	pek	1425	41
415		2551	22 do	pek sou	1980	35
417	Pungetty	2557	10 hf ch	hro or pek	730	40 hid
418		2560	13 do	or pek	910	36 bid
419		2563	11 ch	pek	1188	33 hid

Messrs. Somerville & Co.—

[244,092 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
10	Siriniwesa	1666	19 cb	bro pek	1900	30
11		1669	30 do	pek	2850	19 bid
12		1672	23 do	pek sou	2185	16
13		1675	9 do	bro pek fans	945	20
15	Blinkhonnie	1681	26 hf ch	bro pek	1560	44
16		1684	21 ch	or pek	1890	43
17		1687	26 do	pek	2288	36
18		1690	12 do	pek sou	984	31
19	Galphele	1693	28 ch	bro or pek	2800	30
20		1696	11 do	or pek	990	29
21		1699	23 do	pek	1840	19 hld.
31	Honiton	1729	10 ch	bro pek	1000	27
32		1732	20 do	pek	1700	19
33		1735	16 do	pek sou	1280	14
36	Doragalla	1744	22 ch	hro pek	2200	41
37		1747	40 do	pek	3600	33
38		1750	17 do	pek sou	1530	28
39		1753	8 do	bro or pek fans	960	25 hid
41	Horagoda	1759	7 ch	br or pek	700	18
43		1765	13 do	pek	1235	17 hid
47	Nyanza	1777	23 hf ch	bro pek	1265	34
48		1780	10 ch	or pek	900	33
49		1783	12 do	pek	1200	27
52	Illuketia	1792	10 ch	bro pek	1000	12
53		1795	12 do	pek	1200	7
54		1798	8 do	pek sou	800	6
57	Maligatenne	1807	9 ch	pek sou	821	5
61	Mahagoda	1819	7 ch	bro pek	700	18
62		1822	14 do	pek	1406	7
63	Hurstpier-point	1825	9 ch	bro pek	855	12
69	Oaklands	1843	9 ch	pek	810	20
71	Romania	1849	14 cb	bro pek	1540	22
72		1852	15 do	pek	1500	12
73		1855	19 do	pek sou	1900	7
77	St. Catherine	1867	14 hf ch	Hyson	744	18
81	Rayigam	1879	31 ch	bro pek	3100	31
82		1882	25 do	or pek	2250	26
83		1885	21 do	pek	1785	20 hid
84		1888	16 do	pek sou	1600	19
92	Mahalla	13	36 hf ch	bro pek	1728	17
93		16	14 ch	pek	1120	14 bid
94		19	10 ch	pek sou	750	7 bid
96	Wavena	25	20 ch	pek sou	1600	13
98	G, in estate mark	31	25 ch	hro pek fans	1998	15
99	Farnham	34	13 hf ch	bro or pek	780	44
100		37	13 ch	or pek	1170	35
101		40	8 do 1 hf ch	or pek No 2	728	29 bid
102		43	19 ch	pek	1615	20 hid
103		46	13 do	pek sou	1040	14 hid
104	Nellicollay-watte	49	19 hf ch	bro pek	1273	32
106		55	18 ch	pek	1620	26
107		58	11 do	pek sou	825	17
110	Jak Tree Hill	67	9 ch	bro pek	940	32
114	Lahugama	79	35 hf ch	hro pek	1750	26
115		82	16 do	pek	1520	15 bid
116		85	17 ch	pek sou	1445	10 bid
120	Ingeriya	97	17 ch	bro pek	1700	25
121		100	14 do	pek	1400	18 bid
122		103	8 do	pek sou	760	15
124	Allakollawewa	109	21 hf ch	hro or pek	1113	44

Lot.		Box.	Pkgs.	Name.	lb.	c.
125		112	15 hf ch	pek	705	31 bid
126		115	27 do	or pek	1269	30 bid
127		118	14 do	pek	700	38
131	Oonankande	130	23 do	bro pek	1150	34
132		133	30 do	pek	1500	27
134		139	16 ch	sou	1120	17
135	Mousakande	142	21 ch	bro pek	1785	25 bid
136		145	23 do	pek	1725	21 bid
137	Deniyaya	148	15 ch	pek sou	1560	13
137		151	9 do	sou	909	9 bid
140	P H	157	12 cb	pek sou	960	13 bid
141	Agra Elbedde	160	34 hf ch	bro or pek	2040	33 bid
142		163	32 do	or pek	1600	41
143		166	55 do	pek	2475	36
144		169	28 do	pek sou	1120	31
145	Mary Hill	172	26 hf ch	bro pek	1560	35
146		175	35 do	pek	1925	26
150	Monrovia	187	9 cb	bro pek	900	20
151		190	13 do	pek	1235	14 bid
155	Yspa	202	16 ch	pek sou	1360	21
156		205	10 do	dust	1400	17
157	Kurulugalla	208	20 ch	bro pek	2000	14 bid
158		211	21 do	pek	1890	out
171	Carin Hill	250	11 ch	or pek	990	28
172		253	16 do	bro pek	1600	26
173		256	25 do	pek	2250	20 bid
174	Narangoda	259	26 cb	bro pek	2340	25
175		262	46 do	pek	4140	17
176		265	13 do	pek sou	1170	12
177		268	14 do	bro or pek	1360	18
185	California	292	9 cb	pek	855	11
188	Neboda	301	24 do	bro or pek	2400	31
189		304	64 do	bro pek	6400	25
190		307	12 do	pek	1080	17
191		310	11 do	pek sou	880	16
193	Nenchatal	313	27 ch	or pek	2295	27
194		319	32 do	bro or pek	3200	30
195		322	22 do	pek sou	1760	21
196		325	8 do	dust	800	14
197	J M D M	328	11 cb	bro pek	1100	18 bid
198		331	13 do	pek	1235	14 bid
199		334	9 do	pek sou	810	12 bid
207	Karagolla	358	26 hf ch	or pek 2 oz lead	1275	out
208	Polgahakande	361	11 ch	or pek	946	32
209		364	12 do	bro pek	1200	24
210		367	16 do	pek	1376	19
211		370	16 do	pek sou	1376	14
212	P, in estate mark	373	10 ch	bro pek	1000	out
214	Mabatenne	379	29 ch	bro pek	2900	26
215		382	20 do	pek	1900	21
218	Theberton	391	46 ch	bro or pek	4370	23
219		394	23 do	bro pek	1955	20
224	Meddegodde	409	28 hf ch	or pek	1120	37 bid
225		412	26 do	pek	910	20 bid
226		415	26 do	pek sou	1040	18 bid
229	Charlie Hill	424	54 bf ch	bro pek	2700	out
230	Harangalla	427	9 ch	or pek	765	37
231		430	8 ch	bro pek	760	35
232		433	25 do	pek	2000	29
233		436	17 do	pek sou	1360	17
239		439	11 bf ch	dust	825	16
235	B A T, in estate mark	442	16 bf ch	bro pek	816	34
237		445	9 do	pek fans	774	13 bid
238		451	8 cb	fans	920	8
240	Mt Vernon	457	25 ch	pek	2325	27 bid
241		460	17 do	pek A	1445	32 bid
242		463	13 do	pek sou	1105	29 bid
243	F F, in estate mark	466	17 hf ch	bro pek	1045	19
249	Cooroondoowatte	481	13 bf ch	bro pek	780	30
250		487	12 ch	pek	1080	17 bid
255	H'Gama	502	9 ch	pek	810	9 bid
256		505	17 do 1 hf ch	pek sou	1750	8 bid
257	Attiville	508	11 ch	bro pek	1100	17
258		511	15 do	pek	1425	8
259		514	11 do	pek sou	1045	6

[Mr. E. John.—267,056 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c
1	St. John's	730	11 hf-ch	dust	935	15
3	L' Espoir	736	8 ch	pek	720	22
7	C	748	18 do	sou	1350	9
8	Brownlow	751	22 bf ch	bro or pek	1276	48
9		754	17 ch	or pek	1428	41
10		757	26 do	pek	2210	34
11		760	10 hf ch	bro pek fans	700	24
13	Higbam	766	10 ch	bro pek	950	30
14		769	18 do	pek	1620	25
15		772	11 do	pek sou	880	16 bid
18		781	10 do	sou	850	12
19	Dickapittia	784	28 ch	bro pek	2800	37
20		787	36 do	pek	3600	20 bid
21	M G	790	11 bf-ch	fans	880	18
22	Poilakande	793	44 ch	bro pek	4400	25
23		796	32 do	pek	2880	18 bid
25	Gingranoya	802	25 do	bro or pek	2375	40
26		805	43 do	pek	3520	33
31	Mount Everest	820	37 hf ch	bro or pek	2035	59
32		823	43 do	or pek	21[illegible]0	46
33		826	49 ch	pek	49[illegible]0	35 bid
34		829	16 do	pek sou	1440	30 bid
35		832	15 do	bro pek fans	1500	24
36		835	12 bf ch	dust	1200	16
37	Eila	838	53 cb	bro pek	4505	20 bid
38		841	25 do	pek	2125	16 bid
39		844	71 do	pek sou	6325	11 bid
40		847	14 do	dust	1960	13
41	Cleveland	850	46 bf cb	flow or pek	2530	54
42		853	44 do	pek	2332	39
46	Templestowe	865	24 ch	bro or pek	1872	41
47		868	13 hf ch	bro pek	780	38
48		871	24 do	or pek	1560	46
49		874	40 cb	pek	3280	33 bid
50		877	9 do	pek sou	810	36
51		880	10 do	fans	900	26
52	Glentilt	883	21 do	bro pek	2100	42
53		886	18 do	or pek	1620	36
54		889	12 do	pek		30
55		892	15 do	fans	1200	23 bid
56		895	9 do	pek sou	810	out
57	Lameliere	898	29 do	bro or pek	2755	33 bid
58		901	27 do	bro pek	2430	33
59		904	40 do	pek	3400	21
60		907	19 hf-ch	pek fan	1330	16
61	Wbyddon	910	24 ch	bro pek	2160	32
62		913	28 do	pek	2296	21 bid
71	Agra Ouvah	940	27 hf ch	bro or pek	1620	58 bid
72		943	62 do	or pek	3472	44 bid
73		946	20 ch	pek	1800	41 bid
74	Rondura	949	41 do	bro pek	3895	20 bid
75		952	32 do	or pek	2720	32
76		955	55 do	pek	4400	18 bid
77		958	21 do	pek sou	1680	12 bid
79	Callander	961	22 hf cb	bro or pek	1276	48
80		967	21 do	or pek	1050	42 bid
81		970	38 do	pek	1824	35 bid
84	Kandaloya	979	55 do	bro pek	2475	37
85		982	22 do	or pek	880	32
86		985	107 do	pek	4280	24 bid
88		991	14 do	fans	700	21
90	Morahela	997	20 ch	pek	1620	16 bid
91		1000	15 do	or pek No. 2	1200	25
92		3	16 do	bro or pek	1600	30 bid
93		6	19 do	or pek No. 1	1710	33 bid
95	Vincit	12	21 do	bro or pek	1890	21 bid
96		15	16 do	pek	1440	12 bid
97		18	11 do	pek sou	990	9 bid
98		21	6 do	bro pek fans	720	16
100	Loughton	27	40 hf ch	bro pek	2000	30 bid
101		30	66 do	pek	3300	20 bid
102		33	51 do	pek sou	2550	15 bid
105	Mocha	42	25 cb	bro or pek	2500	59
106		45	15 do	or pek	1395	53
107		48	24 do	pek	2208	48
109	Morahela	54	28 do	bro or pek	3648	25 bid
110		57	17 do	or pek No.1	1343	24 bid
117	M N	78	14 do	or pek	1400	47
118		81	13 hf-cb	bro or pek	741	56
119		84	33 ch	pek	3036	33 bid
120	Cabin Ella	87	10 do	bro or pek	1100	35
121		90	9 do	pek No. 1	900	26 bid
122		93	9 do	pek No. 2	855	26
123	Bowella	96	9 do	bro pek	909	out
125		102	8 do 1 hf ch	pek	703	12 bid
132	Theresia	123	16 ch	pek sou	1360	32
135	Syston	132	23 do	bro pek	2300	30
136		135	13 do	pek	1105	23
138		138	12 do	pek sou	1020	16
139	Gampai	141	19 hf cb	bro pek	1045	24
140		147	20 cb	pek	1500	17 bid
145	Gangawatte	162	12 do	bro or pek	1200	59
146		165	14 do	bro pek	1400	44
147		168	35 do	pek	3150	34 bid
151	North P'daloya	180	16 do	y'ng hyson	1600	out
152		183	25 do	hyson	2250	out
153		186	21 do	hyson No. 2	2100	out
154		189	10 hf cb	siftings	700	out
156	Sumtravalle	195	9 cb	unassorted	900	9
157	Mount Clare	198	34 do	bro or pek	3038	20 bid
158		201	15 do	bro pek	1425	20 bid
159		204	17 do	pek	1360	10 bid
160		207	12 do	pek sou	720	10 bid
161	Warleigh	210	13 hf ch	bro or pek	780	62 bid
162		213	16 do	or pek	880	50
163		216	22 ch	bro pek	2090	40 bid
164		219	25 do	pek	2125	31 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
166	Leymastotte	225	37 hf ch	or pek	1776	32 bid
167		228	29 do	bro or pek	1740	32
168		231	20 ch	pek	1500	21 bid
169		234	17 do	pek sou	1428	14 bid
170	Kanangama	237	13 do	sou	845	26 bid
171	Taunton	240	12 do	pek sou	900	14 bid
172		243	20 hf ch	bro pek fans	1200	25
176	Goomera	255	15 ch	bro pek	1725	out
177		258	22 do	pek	2134	24 bid
178		261	23 do	pek sou	1720	20 bid
185	Mahapahagalla	282	29 do	pek sou	2320	15 bid
186	Dalhousie	285	19 hf ch	or pek	950	59
187		288	14 do	bro pek	770	62
188		291	29 do	pek	1305	40
189		294	17 do	pek sou	765	35
191	Glasgow	300	62 ch	bro or pek	3472	41 bid
192		303	18 do	or pek	1260	55
193		306	13 do	pek	1200	47
194		309	10 do	pek sou	1000	44
195	Glassaugh	312	30 hf ch	or pek	1650	56 bid
196		315	24 do	or pek	1560	49 bid
197		318	21 ch	pek	2100	50
198		321	9 do	pek sou	900	41
199	H K in estat mark	324	34 do	bro or pek	3393	47
201	R S O	330	13 hf ch	bro pe No 1	728	out
205	Pollakande	342	19 ch	pek	1710	18 bid

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	L N S, in estate mark	1315	1 hf ch	bro pek	69	18
2		1318	1 do	pek	44	14
3		1321	2 ch	pek sou	146	8
4		1324	1 hf ch	dust	47	12
11	Great Valley	1315	5 ch	sou	425	13
12		1348	6 do	dust	510	16
14	Weyewatte	1354	9 hf ch	pek	450	15
17	Lyegrove	1363	6 ch	pek sou	540	26
18		1366	2 do	dust	160	16
22	Pendle	1378	2 ch	pek sou No. 2	180	16
23		1381	4 hf ch	bro mix	200	8
24		1384	4 do	pek fans	300	16
31	Matale	1405	3 do	dust	240	15
34	C C	1414	6 ch	bro mix	540	7
42	3 and 4, M T P in est. mark	1438	6 ch	pek sou	480	10
45	C T L	1447	2 hf ch	fans	140	14
46		1450	3 do	dust	255	19
47	B B, in estate mark	1453	5 ch	bro pek	500	20
48		1456	3 do	pek	240	14
49		1459	5 do	dust	450	14
50	Palm Garden	1462	4 ch	bro pek	440	22
52		1468	6 do	pek sou	600	11 bid
53		1471	1 do	fans	110	12
54	Holton	1474	6 ch	bro pek	570	35
56		1480	8 do	pek fans	680	15
57	B A	1483	2 do	dust	160	13
60	Grange Garden	1492	3 ch	pek sou	300	17
61		1495	1 do	fans	100	21
62		1498	2 hf ch	dust	170	15
66	Onamana	1510	4 ch	bro pek fans	480	10
69	Thedden	1519	5 ch	pek sou	400	18
70		1522	1 do	dust	140	20
76	O B E C, in estate mark Nillomallay	1540	7 hf-ch	bro pek fans	490	30
77		1543	5 do	fans	350	24
78		1546	3 do	dust	270	14
82	C R D	1558	1 ch	pek	90	16
83		1561	1 do	sou	85	10
86	Erlsmere	1570	8 ch	or pek	640	41
89		1579	6 do	pek sou	510	55
90		1582	2 hf-ch	dust	156	16
91		1585	10 do	bro or pek	520	55
95	Kitulgalla	1597	2 hf ch	dust	160	14
96		1600	6 ch	bro or pek fans	600	23
101	H G M	1615	5 ch	pek sou	425	19
102		1618	2 hf ch	dust	190	15
103	L G F, in estate mark	1621	4 ch	sou	400	7
110	Clunes	1642	4 do	sou	360	12
111		1645	4 hf ch	dust	360	15
116	Polatagama	1660	6 ch	bro pek fans	600	25
117		1663	3 do	dust	420	15
121	Maha Uva	1675	1 hf ch	pek fans	70	22
122		1678	3 do	dust	240	16
126	Galkadua	1690	3 ch	bro or pek	360	27
130		1702	2 do	fans	200	13
131		1705	1 do	dust	159	10
132	Panawatte	1708	5 ch	bro or pek	550	23
133		1711	5 do	bro pek	460	30
135		1717	6 do	pek sou	528	15
143	Sylvakandy	1741	4 do	dust	400	15
144	D	1744	3 do	sou	260	14
150	Kumaradola	1762	5 ch 1 hf ch	or pek	491	26
151		1765	4 ch	pek	360	18
152		1768	2 do	bro tea	104	12
155	Maragalla	1777	7 ch	pek	630	19
156		1780	2 do	bro tea	160	15
157		1783	1 do	dust	150	12
166	Elkadua	1810	3 ch	young hyson	300	out
169		1819	6 do	hyson No. 2	660	out
170		1822	1 do	bro tea fans	100	9
171		1825	3 do	green tea dust	200	9
172	B D W P	1828	1 ch	sou No. 2	85	12
173		1831	7 hf ch	bro pek fans	455	26
174		1834	1 do	dust	90	15
175		1837	2 do	bro mix	140	9
176	B D W P	1840	1 ch	sou No. 2	105	12
177		1843	8 hf-ch	bro pek fans	520	27
178		1846	1 do	pek fans	60	5
179		1849	1 ch	sou	85	withd'n.
182	O L J in est. mark	1858	2 hf ch	fans	150	14
183	G E B, in est. mark	1861	11 hf ch	bro or pek	605	43
185		1867	13 do	or pek	624	28
187		1873	3 ch	pek sou	255	14
188		1876	4 hf ch	pek fans	240	27
189		1879	3 do	pek dust	225	15
190		1882	1 ch	sou	77	12
191	B, In estate mark	1885	1 hf ch	bro or pek	40	23
192		1888	1 do	bro pek	72	19
193		1891	1 do	pek No. 1	30	20
194		1894	1 do	do ,, 2	76	16
195		1897	1 ch	pek sou	74	13
197		1903	1 do	sou	70	10
198		1906	2 hf ch	fans	120	19
199		1909	1 do	dust	40	17
201		1915	1 ch	dust	130	13
206	B	1930	4 do	pek sou	320	10
207	M	1933	1 ch	pek sou	80	11
208	Stafford	1936	8 hf ch	bro or pek	480	60
211		1945	2 do	dust	150	18
215	Zululand	1957	1 hf ch	dust	77	18
216		1960	2 do	fans	177	27
220	Ingrogalla	1972	5 ch	pek fans	500	24
221	I N G in est. mark	1975	3 ch	bro pk dust	420	15
222	B A K in est. mark	1978	2 hf-ch	bro pek	80	27
223		1981	1 do	pek	40	15
224		1984	1 do	pek sou	45	8
225		1987	1 do	fans	55	9
226		1990	1 do	dust	60	11
227		1993	1 do	bro tea	50	6
228		1996	3 do	unast	135	6
229	Udapolla	1999	6 ch	or pek	540	27
232		2008	5 do	pek sou	400	12
233		2011	2 do	dust	160	16
243	K P W	2041	1 hf-ch	bro pek fans	70	17
244		2044	1 do	dust	85	13
247	Tembiligalla	2053	1 ch	pek sou	85	13
248		2056	1 do	br pek fans	115	21
249		2059	1 do	dust	155	15
256	Vegan	2077	6 hf-ch	dust	510	16
257		2080	4 do	br pek fans	480	22
264	O'Bodde	2101	7 ch	pek	665	25
265		2104	3 do	pek sou	255	18
272	Hatton	2125	5 do	pek sou	400	34
273	Rockside	2128	5 do	sou	400	19
274		2131	2 do	bro mixed	170	11
275		2134	4 do	dust	540	16
276		2137	5 do	bro pek fans	600	26
283	L L	2158	2 do	pek	200	11
284		2161	2 do	bro mixed	200	7
285		2164	2 do	dust	300	13
292	Amblakande	2185	7 do	pek sou	560	15
297	Hopton	2200	6 do	dust	660	15
301	Nahakettia	2212	12 do	hyson No. 3	588	out
302		2215	8 hf-ch	twanky	576	8
306	Dambagas talawa	2227	5 ch	pek sou	470	30
307		2230	4 do	bro pek fans	560	20
312	Amblangoda	2245	4 do	dust	440	14
313	Dewalakande	2248	5 do	young hyson	525	out
316		2254	7 do	hyson No. 2	686	out
320	Kincora	2269	4 do	fans	500	39
328	Ireby	2293	4 hf-ch	fans	280	35
329		2296	7 do	dust	595	20
334	Glengariffe	2311	10 ch	br or pk fans	650	25
335	New Galway	2314	6 hf ch	bro pek	360	64
336		2317	9 do	pek	495	46
337		2320	1 do	pek sou	50	38

Lot.		Box.	Pkgs.	Name.	lb.	c.
338	Blairavon	2323	1 ch	bro tea	86	7
339		2326	1 do	pek sou	88	11
340	W in est mark	2329	1 do	br or pk No 1	95	21
346	Patiagama	2344	10 hf-ch	bro or pek	500	47
347		2347	4 ch	or pek	340	34
349		2353	3 do	pek sou	240	16
350		2356	10 hf-ch	bro or pek	550	55
351		2359	5 ch	or pek	425	36
353		2365	5 do	pek sou	400	18
354		2368	6 hf-ch	br or pk fans	390	21
357	Bickley	2377	9 hf-ch	bro or pek	648	65
364	Galapitakande	2398	5 ch	pek sou	425	14
365		2401	2 do	dust	200	15
370	Glendon	2416	5 do	bro pk fans	550	23
373	Angramally	2425	1 do	mixed	50	13
389	Bambragalla	2473	10 hf-ch	bro or pek	600	38
390		2476	10 do	bro pek	600	28
391		2479	8 do	or pek	400	32
392		2482	8 do	pek	400	23
393		2485	8 do	pek sou	400	18
394	W	2488	1 ch	bro pek	100	40
395	P	2491	1 do	or pek	100	35
396	Ugieside	2494	8 do	dust	640	14
401	Tempoe	2509	8 do	pek No, 2	560	16
402		2512	5 do	pek sou	325	13
407	Talgaswela	2527	10 hf-ch	bro pek No. 2	600	18
416	Passara Group	2554	5 ch	pek sou	450	26
420	Pungetty	2566	5 do	pek sou	480	27 bid
421		2569	1 hf-ch	dust	105	14 bid
422		2572	1 ch	fans	87	16 bid

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name.	lb.	c,
1	St Leys	1639	1 ch	pek sou	88	12 bid
2		1642	1 hf ch	fans	88	14
3	Batgodde	1645	2 ch	bro pek	220	28
4		1648	1 do	pek	98	23
5		1651	1 do	pek sou	88	18
6	C V	1654	1 hf ch	bro pek	62	17
7		1657	1 do	pek	50	12
8		1660	1 do	pek sou	72	6
9		1663	1 do	dust	40	12
14	Siriniwesa	1618	3 ch	dust	450	15
22	Galphele	1702	5 ch	pek sou	450	14
23		1705	1 do	sou	80	12
24		1708	1 do	fans	150	14
25		1711	4 ch	bro or pek	400	25
26		1714	2 do	or pek	180	28
27		1717	5 do	pek	400	19
28		1720	3 do	pek sou	240	14
29		1723	1 hf ch	sou	50	11
30		1726	1 ch	fans	110	15
34	Honiton	1738	2 ch	dust	280	16
35		1741	10 hf ch	bro or pek	500	36
40	Doragalla	1756	4 ch	bro mix	560	10
42	Horagoda	1762	7 do	or pek	630	25
44		1768	6 do	pek sou	540	13
45		1771	1 do	dust	100	13
46		1774	1 do	con	95	6
50	Nyanza	1786	1 ch	pek sou	90	15
51		1789	4 do	dust	400	16
55	Maligatenne	1801	3 ch	bro pek	315	14
56		1804	5 do	pek	458	6
58		1810	2 do	bro tea	209	4
59		1813	1 do	dust	103	8
60	P	1816	6 ch	unas	612	5
64	Hurstpier-point	1828	6 ch	pek	570	9
65		1831	3 do	pek sou	264	6
66		1834	1 do	dust	136	10
67	Oaklands	1837	6 ch	or pek	570	26
68		1840	5 do	bro or pek	500	23
70		1846	4 do	pek sou	340	12
74	B D W	1858	9 hf ch	pek	450	14
75		1861	11 do	bro pek	615	10
76	St Catherine	1864	11 hf ch	Young Hyson	662	out
78		1870	8 ch	Hyson No 2	647	out
79		1873	1 do 1 hf ch	Siftings	169	9
80		1876	1 do	dust	120	8
85	Rayigam	1891	6 hf ch	dust	480	18
86	Galgedioya	1894	1 hf ch	bro pek	46	21
87		1897	1 ch	pek sou	85	11
88		1	3 hf ch	dust	249	15
89	F A, in estate mark	4	3 hf ch	dust	264	16
90	F, in estate mark	7	6 ch	pek sou	624	31
91		10	5 hf-ch	dust	355	18
95	Mahalla	22	2 ch	dust	212	12
97	Wavena	28	2 ch	unas	180	11
105	Nellicollay-watte	52	2 hf ch	or pek	118	27
108		61	2 do	dust	170	17
109		64	1 do	fans	66	18
111	Jak Tree Hill	70	6 ch	pek	560	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
112		73	4 ch	pek sou	352	17
113		76	1 do	dust	90	14
117	Labugama	88	9 hf ch	bro pek fans	585	24
118	A, in estate mark	91	4 ch	bro pek	400	18
119		94	4 do	pek	380	15
123	Ingeriya	106	2 ch	pek dust	252	14
128	Allakollawewa	121	12 hf ch	pek sou	576	26
129		124	4 do	bro pek fans	264	33
130		127	4 do	pek dust	300	24
133	Oonakande	136	3 hf ch	dust	210	15
139	Deniyaya	154	2 ch	dust	320	14
147	Mary Hill	175	12 hf ch	pek sou	600	17
148		181	4 do	unas	200	20
149		184	4 do	dust	320	15
152	Monrovia	193	5 ch	pek sou	500	10
153		196	4 do	bro tea	400	7
154		199	1 do	dust	150	14
159	Kurulugalla	214	6 ch	pek sou	540	8
160	K G A, in estate mark	217	4 ch	bro pek fans	400	10
161		220	1 do	dust	140	12
162	Kurulugalla	223	5 ch	Young Hyson	450	out
163		226	6 do	Hyson No 1	510	out
164		229	4 do	Hyson	360	out
165		232	1 do	fans	105	8
166	St Catherine	235	4 ch	bro or pek	403	39
167		238	4 do	or pek	403	24
168		241	8 do	pek	683	17
169		244	6 do	pek sou	483	13
170		247	2 do	dust	243	14
178	J K	271	1 ch	Young Hyson	52	34
179		274	1 do	Hyson No 1	61	15
180		277	2 do	Hyson No 2	160	10
181		280	1 do	Hyson No 3	70	7
182		283	1 do	Hyson No 3 A	70	4
183		286	1 do	unas	80	5
184	California	289	7 ch	bro pek	661	26
186		295	6 do	pek sou	570	6
187		298	1 do	dust	121	13
192	Neboda	313	3 hf ch	dust	255	14
200	J M D M	337	5 ch	fans	475	12
201		340	1 do	dust	95	14
202	Z	343	2 hf ch	pek sou	75	6
203		346	1 do	sou	62	5
204		349	2 do	unas	86	5
205	Kanattota	352	4 ch	or pek	320	21
206		355	5 do	bro pek	450	21
213	Mahatenne	376	5 ch	bro or pek	500	46
216		385	4 do	pek sou	360	12
217		388	2 do	dust	200	14
220	Theberton	397	1 ch	pek sou	90	12
221		400	6 do	pek fans	600	20
222		403	1 do	dust	100	16
223	Meddegoda	406	12 hf ch	bro or pek	540	37
227		418	4 do	sou	140	8
228		421	4 do	dust	240	13
236	A B T, in estate mark	445	8 hf ch	bro or pek	408	17
239		454	5 do	pek dust	400	16
244	F, F, in estate mark	469	10 hf ch	pek	500	16
245		472	7 do	pek sou	315	11
246		475	1 do	dust	90	11
247		478	2 do	bro pek fans	130	13
248		481	1 do	bro mix	50	8
251	Cooroondoo-watte	490	6 ch	pek sou	540	14
252		493	6 hf ch	pek fans	450	13
253		496	4 ch	dust	400	12
254	H'Gama	499	5 hf ch	bro pek	230	14 bid
260	Attiville	517	5 ch	fans	569	6
261		520	5 ch	bro mix	475	5

[Mr. E. John.]

Lot.		Box,	Pkgs.	Name.	lb.	c.
3	L'Espoir	733	10 hf ch	bro pek	540	30
4		739	5 ch	pek sou	425	10
5		742	1 do	dust	100	14
10		745	1 do	sou	93	8
12	Higham	763	4 hf ch	bro or pek	260	36
16		775	1 do	dust	95	14
17		778	2 ch	bro pek fans	150	22
24	P K T	799	5 hf ch	dust	450	15
27	Gingranoya	808	7 ch	pek sou	525	20
28		811	5 do	fans	500	27
29		814	3 hf ch	dust	390	15
30	G O	817	1 ch 1 hf-ch	pek	134	7
43	Cleveland	856	11 do	pek sou	550	38
44		859	4 do	fans	320	21
45	C L	862	2 do	bro mix	94	6
63	Whyddon	916	7 ch	pek sou	490	15
64		919	3 hf-ch	dust	225	15

Lot.		Box.	Pkgs.	Name.	lb.	c.
65		922	4 ch	bro pek	440	30
66		925	4 do	or pek	352	24
67		928	3 do	pek	258	19 bid
68		931	1 do	pek sou	83	14
69		934	1 do	bro pek fans	100	18
70		937	1 do	dust	83	15
78	Rondura	961	4 do	dust	600	14
82	Callander	973	5 hf cb	pek sou	200	28
83		976	6 do	bro pek fans	420	19
87	Kandaloya	988	12 do	pek sou	489	20
89		994	12 do	dust	600	15
94	Morahela	9	4 ch	sou	352	10 bid
99	Vincit	24	2 do	dust	250	13
103	Loughton	36	6 hf ch	dust	300	15
104		39	10 do	fans	500	18
108	Mocha	51	6 do	fans	480	27
111	Morahela	60	3 do	dust	252	12
112	M N	63	7 do	bro pek	392	29
113		66	6 ch	pek	570	18
114		69	4 do	pek sou	372	12
115		72	7 hf ch	fans	504	23
116		75	4 do	dust	360	13
124	Bowella	99	6 ch	or pek	492	20 bid
126		105	7 do	pek sou	554	out
127		108	1 hf ch	dust	34	12 bid
128	Ullandapitiya	111	1 do	bro or pek	60	41
129		114	2 do	or pek	100	33 bid
130		117	2 do	pek	100	17 bid
131		120	1 do	sou	45	out
133	Theresia	126	5 do	dust	400	19
134		129	1 ch	sou	50	26
138	Syston	141	1 do	dust	157	10
141	Gampai	150	9 do	pek sou	630	12
142		253	2 hf-ch	dust	126	15
143		156	1 ch	red leaf	98	4 bid
144	V	159	3 do	pek	210	17
148	Gangawatte	174	4 do	pek sou	360	29
149		174	4 do	dust	520	18
150		177	6 do	fans	660	26
155	North Pundal-oya	192	6 do	hyson No. 2	630	out
165	Warleigh	222	4 do	pek sou	320	27
173	Tounton	246	4 do	pek fan	400	19
174		249	1 hf ch	dust	80	12
175	Coundon	252	10 ch	bro pek fans	600	24
179	Doonevale	264	6 do	bro or pek	672	32
180		267	5 do	or pek	500	28
181		276	9 do	pek	855	18 bid
182		273	6 do	pek sou	540	14
183		276	6 do	congou	570	12
184		279	4 do	bro pek fans	420	20
190	Dalhousie	297	5 hf ch	bro pek fans	325	25
200	R S O	327	5 ch	pek sou	430	out
202		333	11 hf-ch	bro pek No 2	517	6 bid
203		336	6 ch	bro pek No 3	480	out
204	Farm	339	3 hf-ch	dust	240	14

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Feb. 1.

"Duke of Sutherland."—Wiharagala, 1 cask and 1 barrel sold at 110s; ditto 1, 2 casks and 1 tierce sold at 105s 6d; ditto S, 1 tierce sold at 55s; WHGT in estate mark, 1 barrel sold at 50s; 2 bags sold at 93s 6d.

CEYLON COCOA SALES IN LONDON.

"Cheshire."—Wiharagama London, 8 bags sold at 92s 6d; ditto 2, 7 bags sold at 88s; ditto 3, 11 bags sold at 78s; 1 bag sold at 68s; KAS & Co., Cocoa London, 2 bags sold at 61s.

"Awa Maru."—Ellapola GOFW in estate mark, 25 bags sold at 83s.

"Clan Ronald."—H Grove London, 114 bags sold at 90s; G ditto, 26 bags sold at 85s; B ditto, 1 bag sold at 68s; L ditto, 4 bags sold at 60s; A ditto, 5 bags sold at 70s.

"Cheshire."—Kaduwela 1, 8 bags sold at 72s 6d; ditto 4, 3 bags sold at 55s 6d.

"Mazagon."—Palli London E, 22 bags sold at 95s.

"Sanuki Maru."—Palli London E, 3 bags sold at 68s 6d.

"Gambedge."—K in estate mark, Estate Cocoa, 98 bags sold at 63s.

"Kawachi Maru."—SS in estate mark, Estate Cocoa, 1 bag sold at 46s; OO in estate mark, 1 bag sold at 68s.

"Cheshire."—Rockhill AA, 68 bags sold at 96s; A, 3 bags sold at 72s 6d; B, 6 bags sold at 44s; C, 4 bags sold at 57s; Maousava AA, 23 bags sold at 88s; B, 7 bags sold at 44s; C, 2 bags sold at 57s; Lower Haloya, 50 bags sold at 88s; Goonambil, 29 bags sold at 91s; 4 bags sold at 65s; 65 bags sold at 86s; 11 bags sold at 70s; CG in estate mark, 14 bags sold at 60s 6d.

"Tamba Maru."—Goonambil T, 2 bags sold at 51s 6d.

"Cheshire."—Armagh 1, 26 bags sold at 83s; 2, 4 bags sold at 65s 6d; Pondappa 1, 27 bags sold at 84s; 1 bag sold at 66s; 2, 5 bags sold at 65s 6d; C, 9 bags sold at 62s 6d; Meegama A, 82 bags sold at 86s; B, 10 bags sold at 62s 6d.

"Clan Ronald."—North Matale, 20 bags sold at 103s; 20 bags sold at 103s 6d; 11 bags sold at 102s 6d; 23 bags sold at 85s; A, 42 bags sold at 102s 6d; 18 bags sold at 62s; KK, 8 bags sold at 69s 6d.

"Cheshire."—Gangaroowa, 5 bags sold at 69s 6d; 8 bags sold at 66s.

CEYLON CARDAMOMS SALES IN LONDON.

"Cheshire."—New Peacock, 1 case sold at 1s 5d.

"Lancashire."—Nawanagala 1, 1 case sold at 3s 1d; ditto 2, 4 cases sold at 2s 6d; ditto 3, 1 case sold at 1s 5d; ditto 4, 2 cases sold at 1s 6d; ditto 5, 1 case sold at 2s 5d.

No. 9. COLOMBO, MARCH 4, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[16,123 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Kunawella	55	12 ch	sou	960	6
7	Battalgalla	73	22 ch	or pek	2090	41
8		76	15 do	pek	1275	36
10		82	13 hf ch	bro pek fans	1040	26
11	Hornsey	85	50 hf ch	bro pek	2250	54
12		88	38 ch	pek	5230	35
13		91	13 do	pek sou	1040	31
16		100	9 ch	hyson No 2	747	out

Messrs. Forbes & Walker

[431,812 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
9	X L	2599	4 ch 1 hf ch	dust	757	10
10	U S A	2602	22 ch	bro pek No. 1	2200	withd'n.
11		2605	26 do	bro pek No. 2	2600	withd'n.
12		2608	46 do	pek	2910	withd'n.
13	Torwood	2611	17 ch	bro or pek	1700	38
14		2614	15 do	bro pek	1230	26
15		2617	30 do	pek	2400	21
16		2620	17 do	pek sou	1360	16
17	Lyegrove	2623	23 hf ch	hyson hyson	1288	out
18		2626	18 do	hyson	864	out
22	Coldstream Group	2638	102 hf-ch	bro pek	5610	42 bid
23		2641	37 ch	pek	2960	34
24		2644	31 do	do No. 2	2480	31
25	Ella Oya	2647	12 ch	young hyson	1020	out
26		2650	17 do	hyson	1360	out
31	M	2665	17 ch	pek	1238	14
32	R Y	2668	18 ch	pek sou	1617	ou
33	Corfu	2671	24 hf ch	bro pek	1320	47
35		2677	40 do	pek	2000	30 bid
36		2689	21 do	pek sou	1050	28
40	Clyde	2692	24 ch	bro or pek	2688	23
41		2695	69 do	bro pek	5865	29
42		2698	63 do	pek	5229	19 bid
43		2701	27 do	pek No. 2	2052	15
44		2704	14 do	pek sou	910	11 bid
46	X X X, in est mark	2710	8 ch	pek sou	850	6
48	St. Pauls	2716	44 hf ch	or pek No. 1	2288	34
49		2719	52 do	or pek No. 2	2340	34
50		2722	23 do	pek	1265	32
51		2725	44 do	pek sou	1936	22
52	Ganapatiya	2728	21 hf-ch	bro pek	1134	77
53		2731	26 do	or pek	1300	55
54		2734	32 do	pek	1632	46
58	Middleton	2746	14 hf ch	bro or pek	784	65
59		2749	31 ch	bro pek	3100	44
60		2752	32 do	pek	2720	39
61	Erroll wood	2755	19 hf ch	young hyson	1140	out
62		2758	12 ch	hyson No 1	1320	out
63		2761	12 do	do ,, 2	1140	out
64	Gallawatte	2764	13 ch	pek	1040	20
65		2767	12 do	pek sou	1020	18
66	Rowley	2770	20 hf ch	bro pek	1000	36
67		2773	15 do	pek	750	24
68	Agra Oya	2776	12 ch	bro or pek	1080	34
69		2779	13 do	or pek	1040	27
70		2782	7 do	bro pek	700	25
71		2785	11 do	pek	825	22
72		2788	11 do	pek sou	990	15
73	Carherry	2791	11 ch	bro pek	880	35
75		2797	11 do	pek sou	770	19
79		2809	23 do	bro pek fans	2185	25
	G K	2812	26 ch	sou	1090	13
		2818	12 do	dust	1680	16
	Maldeniya	2821	25 ch	bro pek	2500	34
		2824	24 do	pek	2100	19 bid
		2827	20 do	pek sou	1700	14
90	Seenegolla	2842	13 hf ch	bro or pek	805	71
92		2848	13 do	pek	780	55
93		2851	14 do	pek sou	728	49
94	Rookatenne	2854	13 ch	bro pek	1300	40

Lot.		Box.	Pkgs.	Name.	lb.	c.
95		2857	17 ch	pek	1530	33
96		2860	14 do	pek sou	1260	25
98	Ganapalla	2866	31 do	or pek	2790	30
99		2869	15 ch	bro or pek	1680	26
100		2872	24 do	pek	2280	23
101		2875	30 do	pek sou	2400	16
103	Erracht	2881	21 do	bro pek	2100	26 bid
104		2884	19 do	or pek	1520	32
105		2887	14 do	pek	980	19
106		2890	19 do	pek sou	1520	14 bid
107		2893	13 do	pek fans	1430	20
109	Battawatte	2899	25 ch	bro or pek	2500	28
110		2902	19 do	pek	1805	22
113	High Forest	2911	36 hf-ch	or pek No 1	2160	67
114		2914	23 do	or pek	1265	56
115		2917	21 do	pek	1050	47
116	Dea Ella	2920	29 hf ch	bro or pek	1595	47
117		2923	33 do	pek	1900	22
118		2926	16 do	pek sou	720	17
119	St. Heliers	2929	34 hf ch	bro or pek	1904	35
120		2932	18 ch	pek	1620	24
122	Queensland	2938	8 ch	bro pek	760	50
123		2941	15 do	pek	1275	42
126	Ouvakellie	2950	15 do	pek sou	1350	withd'n.
127		2953	9 hf ch	dust	720	withd'n.
128	H	2956	11 ch	dust	1320	16
129	K P W	2959	20 hf ch	bro pek	1200	28
130		2962	19 do	bro or pek	1045	30
131		2965	37 do	pek	1850	19
135	T C L in estate mark	2977	12 ch	congou	1140	13 bid
136	S H, in estate mark	2980	15 ch	congou	1500	13 bid
137	Yataderia	2983	18 ch	pek sou	1584	10
138	Marlborough	2986	118 hf ch	bro or pek	6608	53
139		2989	26 ch	or pek	2028	34 bid
140		2992	69 do	pek	5934	31 bid
141		2995	32 do	pek sou	2496	23 bid
142	P G A	2998	10 ch	sou	800	15
143	Weyungawatte	3001	20 ch	bro pek	2000	31
144		3004	20 do	pek	1900	25
145		3007	17 do	pek sou	1360	21
149	Mawiligangawatte	2019	48 ch	bro pek	4560	30
150		3022	41 do	pek sou	3280	19
152	Arapolakande	3828	38 hf ch	young hyson	2090	out
153		3031	18 ch	hyson	1800	out
156	Arapolakande	3040	39 ch	young hyson	2145	out
157		3643	18 do	hyson	1800	out
160	O B E C, in estate mark Forest Creek	3052	18 ch	bro or pek	1300	60
161		3055	32 do	bro pek	3200	45
162		3058	20 do	or pek	1800	46
163		3061	20 do	pek No. 1	1800	42
164		3064	33 do	pek No. 2	2970	37
165	Morankande	3067	14 hf ch	bro or pek fans	2870	15
166		3070	20 do	dust	1700	14
168	Toracombe	3076	47 ch	or pek	4230	40
169		3079	40 do	bro pek	4000	39 bid
170		3082	33 do	pek	2970	33
171		3085	15 do	pek sou	1350	26
172		3088	10 hf ch	dust	850	20
173	Ardlaw and Wishford	3091	14 hf ch	bro or pek	798	58
174		3094	16 ch	bro pek	1440	39
175		3097	12 do	or pek	996	39
176		3100	16 do	pek	1328	36
177	Silverkandy	3103	49 hf ch	bro or pek	2695	51
178		3106	15 do	bro pek	1500	37
179		3109	29 ch	or pek	1450	39
180		3112	14 ch	pek	1330	36
182	Oakham	3118	22 hf-ch	or pek	990	43
183		3121	22 do	bro pek	1320	52
184		3124	22 ch	pek	1980	34
188	Holton	3136	9 ch	pek	765	23
190	Ninfield	3142	12 ch	bro or pek	1200	76
193		3151	21 do	pek	1680	18
195		3157	9 do	sou	720	out
199	S S	3169	13 hf ch	sou	923	withdn
200		3172	11 do	dust	880	withdn
202	Wewalakanda	3178	13 do	bro pek	728	23
204		3184	14 do	pek sou	728	11 bid
205	Dunbar	3187	16 hf ch	bro or pek	800	76
207		3193	25 ch	or pek	2125	45
208		3196	27 do	pek	2106	44
210		3202	12 hf ch	bro pek		

Lot.		Box.	Pkgs.	Name.	lb.	c.
				fans	708	36
212	Dunnottar	3208	15 ch	bro or pek	1500	38 bid
213		3211	16 do	bro pek	1600	30
214		3214	59 do	pek	5015	27 bid
215	Memorakande	3217	15 ch	dust	1200	16
216	Galapate	3220	12 ch	pek	957	22
218	Pungetty (packed in 2 oz. lead)	3226	10 hf ch	bro or pek	727	49
219		3229	13 do	or pek	907	40
220		3232	11 ch	pek	1185	36
227	St. Martin	3253	23 hf-ch	pek	920	19
234	Castlereagh	3274	30 ch	br pek	2850	43
235		3277	12 do	or pek	1020	36 bid
236		3280	17 do	pek	1760	36
237		3283	10 hf-ch	fans	750	22
240	Weemalla	3292	9 ch	pek	810	25
243	Claverton	3301	13 hf ch	dust	1001	19
244	C N	3304	11 ch	sou	946	5
245		3307	12 do	bro tea	1104	18
248	M	3316	21 hf ch	br pek	1050	31
249		3319	55 do	pek	4400	23
250		3322	21 ch	pek sou	1680	17
251		3325	17 hf-ch	fans	1275	17
252	B D W G	3328	50 do	pek	2500	23
253	P in est. mark	3331	15 ch	pek sou	1350	30 bid
254	Summer Hill	3334	39 do	bro or pek	4173	75
255		3337	27 do	bro pek	3051	47
256		3340	20 do	or pek	2160	50
257		3343	25 do	pek	2775	43 bid
258		3346	30 do	pek sou	2910	39
259		3349	25 do	fans	2100	32
260	Ouvahkellie	3352	15 do	pek sou	1350	38
261	Sirikandura	3355	16 do	bro pek	1600	35
262		3358	9 do	pek	855	20
263		3361	11 do	pek sou	990	14
266	Vogan	3370	11 do	br pek	1045	57
267		3373	17 do	or pek	1615	40
268		3376	15 do	pek No. 1	1350	32
269		3379	22 do	pek No. 2	1980	24
270		,,	22 do	pek No. 2	1980	24
276	Adisham	3397	24 do	pek	2040	38
277		3400	19 hf-ch	bro or pek	1045	56
278		3403	27 ch	br pek	1350	41
279		3406	13 do	pek sou	715	27 bid
280	Robgill	3409	25 hf-ch	bro or pek	1375	62
281		3412	29 ch	bro[illegible]	2900	44
282		3415	25 do	pe	2375	38
284	Chesterford	3421	16 do	[illegible]	400	18
286		3427	10 do	[illegible]	[illegible]	11
287		3430	14 hf-ch	dust	[illegible]	15
288	Tismada	3433	12 ch	bro pek	1200	25 bid
289		3436	14 do	pek	1260	22 bid
290		3439	10 do	sou	800	12 bid
291	Waitalawa	3442	40 hf-ch	bro pek	2000	51
292		3445	72 do	pek	3600	29
293	Pine Hill	3448	35 do	bro or pek	2100	51
294		3451	39 do	or pek	2184	41
295		3454	37 ch	pek	3515	33
296		3457	8 do	pek sou	720	25
297	Penrhos	3460	18 hf-ch	bro or pek	1008	52
298		3463	18 do	or pek	864	44 bid
299		3466	24 ch	pek	2040	37
302	Fairlawn	3475	14 hf-ch	bro pek	700	56
304		3481	14 ch	pek	1190	32
308	Ruanwella	3493	10 do	or pek	850	26
309		3496	19 do	bro pek	1805	28
310		3499	31 do	pek	2790	19
311		3502	11 do	pek sou	990	16
313	Kirklees	3508	25 hf-ch	bro or pek	1250	46
314		3511	14 ch	or pek	1330	40
315		3514	17 do	pek	1530	32
316		3517	10 do	pek sou	850	23
317	Maha Uva	3520	16 hf-ch	bro or pek	960	33
318		3523	13 do	or pek	728	39
319		3526	13 ch	pek	1170	32
320		3529	11 do	pek sou	880	25
321	Dammeria	3532	17 do	or pek A	1530	33 bid
322		3535	16 do	or pek B	1440	31
323		3538	29 do	bro pek	2900	36
324		3541	18 do	pek	1620	26 bid
325		3544	15 do	pek sou	1350	21 bid
328	Warratenne	3553	29 do	bro pek	2900	24
220		3556	45 do	pek	3600	16
330		3559	9 do	pek sou	720	10
331	Geragama	3562	22 do	hr pek	2200	31
332		3565	82 do	pek	6560	18

Messrs. Somerville & Co.—[174,483 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Primrose Hill	526	9 ch	pek	720	26
3		529	11 do	pek sou	880	15
6	Kumaragalla	538	14 hf ch	bro pek	770	35
7		541	12 ch	pek	960	26
8		544	14 ch	pek sou	1120	14
11	Annandale	553	13 hf ch	bro or pek	754	72
12		556	28 do	pek	1568	50
13		559	25 do	pek	1500	41
14		562	14 do	sou	612	36
15	Nugawella	565	13 ch	or pek	1105	23
16		568	18 do	bro pek	1800	29
18		574	9 do	pek sou	720	18
23	Deniyaya	589	48 ch	bro pek	4800	29 bid
24		592	25 do	pek	2500	22
25	South Africa	595	24 do	or pek	2160	29
26		598	28 do	bro pek	2800	28
27		601	23 do	pek	1909	24
28	Blackburn	604	9 ch	pek sou	765	20
30	Dryburgh	610	14 hf ch	bro or pek 2 oz lead	784	33
31		613	16 ch	pek 3 oz lead	1232	23
32		616	9 do	or pek 3 oz lead	729	30
33	Forest Hill	619	12 ch	bro pek	1164	32
34		622	15 do	pek	1365	23
36	Warakamure	628	26 ch	bro pek	2600	32
37		631	25 do	pek	1875	22
39	Tavalamtenne No 9	637	54 hf ch	bro pek	3240	out
40		640	26 do	pek	1300	19
43	Do No 10	649	30 hf ch	bro pek	1500	38
44		652	17 do	pek	816	27
47	Woodthorpe	661	10 ch	bro pek	1000	36
48		664	16 do	pek	1280	23
49		667	19 do	pek sou	1520	16
52	Florida	676	24 ch	bro pek	2400	19
53		679	26 do	pek	2196	11
55		685	13 do	fans	1248	7
62	Avisawella	706	21 ch	bro pek	2100	30
63		709	26 do	pek	2210	22
64		712	18 do	pek sou	1440	15
65	Gwernet	715	13 hf ch	bro pek	715	30
66		718	13 ch	pek	1040	23
67		721	14 do	pek sou	910	14
70	Kelani	730	15 ch	bro or pek	1500	27
71		733	10 do	pek	800	25
72		736	25 do	or pek	2250	35
73		739	9 do	pek sou	810	18
74	Hangranoya	742	15 ch	bro or pek	1425	47
75		745	30 do	bro pek	3000	24
76		748	19 do	pek	1615	22
80	Dorogalla	760	21 ch	bro pek	2100	43
81		763	41 do	pek	3690	35
82		766	16 do	pek sou	1440	26
83		769	10 do	bro or pek fans	1250	31
84		772	5 ch	bro mix	725	12
85	Old Meddegama	775	9 ch	bro or pek bulked	720	47
86		778	19 do	or pek	1375	36
87		781	30 do	pek	2400	27
88		784	14 ch	pek sou	1120	22
91	Beausejour	793	11 ch	bro pek	1045	withdrawn.
92		796	12 do	pek	960	
93		799	9 do	pek	720	
95	Damblagolla	805	18 ch	or pek	1620	30
96		808	24 hf ch	bro pek	1440	24
97		811	30 ch	pek	2550	21
98		814	18 do	pek sou	1440	12 bid
102	Mt Vernon	826	43 ch	pek	4085	33 bid
103		829	20 do	pek sou	1800	36
104	Sadamulle	832	10 ch	bro pek	1000	21
105		835	16 do	pek	1520	10 bid
106		838	17 do	pek	1615	12 bid
108	Glenalla	844	12 ch	bro or pek	1200	33
109		847	14 do	or pek	1190	31
110		850	24 do	pek	2040	22
111		853	11 do	pek sou	935	17
115	Welgampola	865	39 hf ch	bro pek	2184	20
116		868	36 do	pek	1800	out
117		871	24 do	pek sou	1200	out
120	Ravana	880	30 hf ch	or pek	1350	21
121		883	40 do	bro pek	2200	37
122		886	18 do	pek	810	28
123		889	18 do	pek sou	720	22
124	Oolapane	892	13 hf ch	dust	1040	15
126	Amupitiya	898	8 ch	bro or pek	800	25
135	Primston	925	17 hf ch	bro pek	935	19
140	Romania	940	7 hf ch	dust	700	12
143	Citrus	949	14 ch	bro pek	1260	21
144		952	30 do	hek	3000	out
145		955	13 do	pek sou	1300	6 bid
155	Havilland	985	11 ch	sou	880	12
159	Glenesk	997	12 ch	bro pek	1200	out
161		1003	17 do	pek sou	1445	out
165	Kudakande	1015	7 ch	pek	700	out
172	Ahamed	1036	8 ch	bro pek	800	21
173		1039	8 do	pek	800	12
176	H'Gama	1048	9 hf ch	pek fans	774	16

Lot.		Box.	Pkgs.	Name.	lb.	c.
177	Tavalamtenne No 1	1051	28 hf ch	bro pek	1400	38
178		1054	16 do	pek	720	28
180	Glenalmond	1060	9 ch	hro pek	900	30
184	Jak Tree Hill	1072	10 ch	hrc pek	1100	30
188	D O, in estate mark	1084	9 ch	pek sou	765	out

[Mr. E. John.—179,359 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
6	Coudon	360	9 ch	pek sou	720	13
12	Kuruwathai	378	28 do	pek	2520	28
15	Wadhurst	387	10 do	or pek	1000	41
16		390	9 do	pek	810	29
17		393	8 do	pek sou	720	18
18	Kandaloya	396	32 hf-ch	hro pek	1440	40
19		399	19 do	or pek	760	32 bid
20		402	56 do	pek	2240	23 hid
22	Bittacy	408	24 ch	hro pek	2400	44
23		411	16 do	pek	1440	39
25		414	8 do	pek sou	720	33
28	Elston	426	19 do	or pek	1710	42
29		429	24 do	pek	2040	34
30		432	21 hf ch	dust	1785	17
31		435	23 ch	pek sou	2185	25 hid
32		438	22 do	pek	1870	32 bid
33		441	34 do	pek sou	3230	21 hid
34	Westhall	444	23 hf ch	dust	2415	11
35		447	21 ch	hro mix	1890	50
37	Rondura	453	19 do	hro pek	1805	
38		456	20 do	or pek	1700	
39		459	11 do	hro or pek	1100	withd'n
40		462	34 do	pek	2720	
41		465	9 do	pek sou	720	
43	Ben Nevis	471	23 hf-ch	hro pek	1380	56
45		477	17 ch	pek	1530	38
48	Brownlow	486	20 hf ch	bro or pek	1160	55
49		489	16 ch	or pek	1488	41
50		492	28 do	pek	2576	33
51		495	8 do	pek sou	720	26
52	Nahavilla	498	27 do	or pek	2430	41
53		501	31 do	hro pek	3100	35
54		504	9 do	pek	810	31
55	Eila	507	50 do	hro or pek	5500	23 hid
56		510	47 do	hro pek	3995	22 bid
57		513	65 do	pek	5525	18
58	Whyddon	516	16 do	hro pek	1760	38
59		519	9 do	or pek	810	35
60		522	10 do	pek	888	23 hid
64	Eila	534	34 do	pek	2890	18
65		537	56 do	pek sou	4200	12 hid
66		540	6 do	dust	720	14
67	St. John's	543	25 hf ch	or pek	1250	65
68		546	25 do	pek	1350	48
69		549	11 do	pek fans	770	38
70	B K	552	12 ch	dust	1200	12
75	Little Valley	567	14 do	hro pek	1330	36
76		570	31 do	pek	2480	22
81	Ratwatte	591	24 do	hro pek	2400	27 hid
82		594	26 do	pek	2340	19 bid
83		597	27 do	pek scu	800	11 hid
87	Iona	609	43 hf ch	bro or pek	2580	45 hid
88	Morahela	612	14 ch	hro or pek	1400	31
89		615	10 do	or pek No.1	900	34 hid
90		618	17 ch	or pek No.1	1467	26 bid
91		621	13 do	pck	1131	15 hid
92	Glentilt	624	35 do	hro pek	3500	43
93		627	28 do	or pek	2660	45 hid
94		630	20 do	pek	1700	32
95		633	9 do	pek sou	810	16
96	Poilakande	636	40 do	hro pek	4000	26
97		639	34 do	pek	3060	18 hid
98	Oonoogaloya	642	17 do	or pek	1530	42
99		645	15 do	hro or pek	1500	52
100		648	29 do	pek	2610	38
104	G	660	28 hf ch	hyson No.1	1120	out
106	Galloola	666	21 do	hro pek	2100	42
107		669	30 do	pek	2400	27
108		672	13 do	pek sou	1040	22
111	Ouvah	681	25 do	pek sou	2250	37
112	Mount Clare	684	17 do	pek	1360	15
113		687	12 do	pek sou	720	12
114	Glasgow	690	64 hf ch	bro or pek	3520	48
115		693	20 ch	or pek	1400	55
116		696	14 do	pek	1230	47
117		699	11 do	pek sou	1100	39
118	Agra Ouvah	702	43 hf-ch	hro or pek	2580	56
119		705	74 ch	or pek	4144	45
120		708	26 do	pek	2392	41
121	F in estat mark	711	10 do	pek sou	850	1 out
122	Glassaugh	714	29 hf ch	or pek	1595	67
123		717	25 ch	bro or pek	1625	49 hid
124		726	20 do	pek	2000	61
125		723	8 hf ch	dust	760	27
126	Chapelton	726	8 do	dust	720	24
129	M T K	735	30 ch	pek sou	2586	11 bid
131	Poilakande	741	19 do	pek	1710	out

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Panagalla	58	0 hf ch	pek	580	24
3	Kandaoya	61	7 ch	pek	630	19
4	Tedegama	64	7 hf ch	hro pek	350	21
5	A	67	1 ch	pek	90	40
6		70	2 do	hro pek	200	35
9	Battalgalla	79	8 do	pek sou	640	31
14	Halgolle	94	4 ch	young hyson	370	out
15		97	4 do	hyson	368	out
17		3	2 hf ch	fans	164	8
18		6	1 do	dust	99	8

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Sunnycroft	2575	4 ch	hro tea	440	10
2	I K V	2578	1 ch	hro mix	118	6
3		2581	4 do	pek fans	480	15
4	E D P	2584	6 hf ch	dust	480	14
5		2587	9 ch	sou	675	13
6	Gahhala	2590	6 hf ch	hro pek	311	31
7		2593	8 do	pek	395	18
8		2596	9 do	pek sou	479	13
19	Lyegrove	2629	13 hf ch	hyson No. 2	689	out
20		2632	6 do	do ,, 3	276	out
21		2635	3 do	twankey	210	out
27	Ella Oya	2653	4 ch	sifting	238	out
28	Coldstream Group	2656	5 hf-ch	fans	325	26
29		2659	7 do	dust	565	19
30		2662	2 ch	hro mix	200	9
34	Corfu	2674	12 hf ch	or pek	600	38
37		2683	4 do	sou	200	22
38		2686	2 do	bro tea	120	10
39		2689	7 do	hro pek fans	490	17
45	Clyde	2707	4 ch	dust	584	15
74	X X X, in estate mark	2713	1 ch	hyson	77	5
55	Ganapatiya	2737	13 hf ch	pek sou	624	44
56		2740	10 do	fans	680	37
57		2743	2 do	dust	174	24
74	Carherry	2794	4 ch	pek	360	24
76		2800	6 do	sou	360	14
77		2803	6 do	hro pek sou	480	25
78		2806	3 do	dust	420	18
81	G K	2815	1 ch	hro pek sou	85	24
86	Oodoowerre	2830	4 ch	hro pek	408	49
87		2833	5 do	pek	450	37
88		2836	2 do	pek sou	180	32
89		2839	1 hf ch	dust	75	18
91	Seenagolla	2845	7 hf ch	or pek	350	62
97	Rockatenne	2863	3 do	dust	225	18
102	Ganapalla	2878	7 hf ch	dust	588	15
103	Erracht	2896	3 ch	dust	537	13
111	Battawatte	2905	8 ch	pek sou	640	15
112		2908	2 do	dust	200	15
121	St. Heliers	2935	7 hf-ch	dust	554	18
124	Queensland	2944	5 ch	pek sou	450	33
125		2947	1 hf ch	hro pek dust	77	19
132	K P W	2968	10 do	pek sou	500	17
133		2971	2 do	hro pek fans	140	24
134		2974	2 do	dust	170	16
146	Weyunga-watte	3010	1 ch	bro tea	100	12
147		3013	2 hf ch	dust	170	14
148	Mawiliganga-watte	3016	6 ch	hro or pek	600	withd'n.
51		3025	4 do	dust	400	17
154	Arapola-kande	3034	6 ch	hyson No. 2	660	out
155		3037	1 do	sifting	120	out
158	Arapola-kande	3046	6 ch	hyson No. 2	660	out
159		3049	2 hf ch	siftings	240	out
167	East Holy-rood	3073	1 ch	or pek	101	41
181	Sylvakandy	3115	3 ch	dust	300	21
185	Oakham	3127	7 ch	pek sou	665	27
186		3130	4 do	pek fans	300	21
187	Holton	3133	6 ch	hro pek	570	29
189		3139	5 do	pek sou	425	14
191	Ninfield	3145	4 ch	or pek	321	23
192		3148	5 do	bro pek	500	25
194		3154	7 do	pek sou	560	14
196		3 60	3 do	fans	330	16
197	S S	3163	7 hf ch	hro pek	455	
198		3166	3 do	pek	165	withd'n
201		3175	2 do	fans	140	
203	Wewala-kande	3181	11 hf ch	pek	583	12
206	Dunbar	3190	8 hf ch	hro pek	448	48
209		3199	5 ch	pek sou	420	33
211		3205	2 do	dust	240	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
217	Galapate	3223	6 ch	pek sou	477	15
221	Pungetty packed n 2 oz. lead)	3235	5 ch	pek sou	477	33
222		3238	1 hf ch	dust	102	13
223		3241	1 ch	fans	84	19
224	Mahayaya	3244	4 ch	bro or pek	436	with'
225	St. Martin	3247	9 hf-ch	or pek	360	26
226		3250	8 do	bro or pek	320	27
228		3256	6 do	pek sou	240	12
229		3259	3 do	fans	240	13
230		3262	8 do	bro pek	320	27
231		3265	11 do	pek	440	19
232		3268	2 do	pek sou	80	12
233		3271	3 do	fans	120	13
238	Weemalla	3286	5 ch	bro or pek	500	33
239		3289	6 do	or pek	510	31
241		3295	1 do	pek sou	90	16
242		3298	2 hf-ch	bro tea	170	15
246	Broadoak	3310	5 ch	pek fans	600	16
247		3313	4 do	dust	660	15
264	Sirikandure	3364	1 do	bro pk dust	131	19
265		3367	1 do	dust	148	14
271	Vogan	3382	7 do	pek sou	630	20
272		3385	4 do	bro pek sou	480	20
273		3388	5 hf-ch	dust	425	17
274	A in est. mark	3391	1 do	bro pek (2 lb. pckt.)	50	19
275	B in est. mark	3394	1 do	or pek (2 lb. pckt.)	50	19
283	Debatagama	3418	2 hf-ch	dust	160	withd'n
285	Chesterford	3424	4 do	congou	260	8
300	Penrhos	3469	8 ch	pek sou	640	22
301		3472	1 hf-ch	fans	75	16
303	Fairlaw	3478	8 ch	or pek	600	33
305		3484	6 do	pek sou	450	23
306		3487	7 do	fans	420	26
307		3490	2 hf-ch	dust	170	19
312	Ruanwella	3505	8 do	dust	600	16
326	Dammeria	3547	3 do	br pek fans	240	18
327		3550	3 do	dust	200	15
333	Geragama	3568	7 ch	pek sou	560	13

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Primrose	523	5 ch	bro pek	500	34
4		532	1 do	sou	76	10
5		535	1 hf ch	dust	81	15
9	Kumaragalla	547	3 ch	sou	228	10
10		550	2 hf ch	dust	114	15
17	Nugawella	571	5 ch	pek	425	18
19		577	2 hf-ch	dust	170	16
20	Labuduwa	580	5 ch	pro pek	554	27
21		583	3 do	pek	290	17
22		586	6 do	pek sou	602	12
29	Blackburn	607	5 ch	sou	400	10
35	Warakamure	625	3 ch	bro or pek	360	27
38		634	7 do	pek sou	616	15 bid
41	Tavalamtenne No 9	643	11 hf ch	pek sou	550	10 bid
42		646	2 do	dust	160	15
45	Do No 10	655	13 hf ch	pek sou	624	16
46		658	1 do	dust	84	16
50	Woodthorpe	670	3 ch	sou	228	10
51		673	2 hf ch	dnst	167	16
52	Florida	682	5 ch	pek sou	480	9
56		688	4 do	red leaf	384	6
57		691	1 do	con	90	5
58	Handrokande	694	3 ch	bro pek	300	26
59		697	3 do	pek	255	18
60		700	6 do	pek sou	480	12
61		703	1 do	dust	100	15
68	Gwernet	724	6 ch	or pek	510	28
69		727	2 do	dust	220	16
77	Nadunuyana	751	2 ch	bro pek	206	24
78		754	2 do	pek	186	10
79		757	2 do	pek sou	186	6
89	Old Meddegama	787	2 ch	pek fans bulked	180	18
90		790	1 ch	dust bulked	100	15
94	Beausejour	802	3 ch	dust	390	withdrawn.
99	A R	817	9 ch	Fluffly dust	125	withdrawn.
100		820	1 do	fans	135	withdrawn.
101		823	6 do	pek sou	600	withdrawn.
107	Sadamulle	841	6 ch	pek sou	600	5
112	Glenalla	856	4 ch	sou	320	12 bid
113		859	1 do	dust	145	12
114	S L G	862	7 hf ch	sou	385	11
118	Welgampola	874	8 hf ch	sou	400	9
119		877	7 do	fans	350	13
125	Oolapane	895	6 hf ch	fans	390	18
127	Amupitiya	901	6 ch	pek	570	18 bid
128		904	2 do	pek sou	180	12
129		907	1 do	dust	115	15
130		910	1 hf ch	or pek dust	60	19

Lot.		Box.	Pkgs.	Name.	lb.	
131	A	913	1 ch	Young Hyson	90	withdrawn.
132		916	1 do	Hyson	95	withdrawn.
133	B	919	1 ch	Young Hyson	93	withdrawn.
134		922	1 hf ch	Hyson	47	withdrawn.
136	Primston	928	9 hf ch	pek	450	12
137		931	5 do	pek sou	250	12
138		934	2 do	sou	90	10
139	G	937	7 ch	bro or pek	630	10
141	B F, in estate mark	943	7 hf ch	bro pek dust	630	12
142	F, in estate mark	946	7 hf ch	bro pek dust	630	12
146	H A	958	1 ch	bro tea	112	4
147		961	4 do	fans	378	5
148		964	2 do	dust	300	10
149	E Eliya	967	6 ch	bro or pek	510	40
150		970	2 do	pek sou	180	28
151	M N	973	5 ch	pek sou	425	27 bid
152	Gangwarily	976	4 ch	fans	400	16
153		979	5 hf ch	dust	350	13
154		982	3 do	fans	300	16
156	Havilland	988	7 ch	sou	560	5 bid
157		991	2 hf ch	dust	160	13
158		994	5 ch	fans unbulked	560	16
160	Glenesk	1000	5 ch	pek	450	17 bid
162		1006	1 do	dust	175	13
163	O	1009	7 hf ch	sou	350	9
164	Kudakande	1012	6 ch	bro pek	600	29
166		1018	3 do	pek sou	270	11
167		1021	4 do	pek fans	440	9
168	S	1024	7 hf ch	sou	350	7 bid
169		1027	6 do	dust	450	15
170	A	1030	5 hf ch	sou	250	7 bid
171		1033	4 do	dust	320	15
174	Ahamed	1042	5 ch	pek sou	450	11
175		1045	3 do	fans	300	7
179	Tavalamtenne	1057	9 hf ch	pek sou	405	13
181	Glenalmond	1068	6 ch	pek	530	22
182		1066	3 do	pek sou	240	15
183		1069	1 do	dust	82	14
185	Jak Tree Hill	1075	5 ch	pek	500	23
186		1078	4 do	pek sou	400	14
187		1081	1 do	dust	90	15

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	345	1 ch	dust	105	12
2	R S	348	3 do	bro or pek	330	26
3		351	6 do	or pek	510	34
4		354	5 do	pek	450	24
5		357	5 do	unassorted	500	20
7	Coundon	363	6 hf ch	fans	360	19
8		366	1 do	dust	85	14
9	K T	369	1 ch	bro pek	70	17
10		372	1 do	pek	90	10
12	Kuruwathai	375	6 do	pure br or pek	600	38
13		381	1 do	pek B	95	21
14		384	3 do	pek sou	312	14
21	Kandaloya	405	7 hf-ch	pek sou	280	18
25	Bittacy	417	4 ch	fans	400	29
26		420	4 hf ch	or pek	200	74
27		423	5 do	dust	400	22
36	H	450	1 ch	pek	88	20
42	Rondura	468	3 do	dust	450	withd'n
44	Ben Nevis	474	14 hf ch	or pek	672	57
46		480	5 ch	pek sou	410	30
47		483	2 hf ch	dust	164	18
61	Whyddon	525	3 ch	pek sou	270	23
62		528	1 do	bro pek fans	130	25
63		531	1 do	dust	145	17
71	Little Valley	555	5 hf ch	y'ng hyson	250	w thd'n
72		558	5 ch	hyson No. 1	400	w thd'n
73		561	6 do	hyson No. 2	462	w thd'n
74		564	3 do	hysou fans	288	w thd'n
77		573	9 do	pek sou	675	13 bid
78		576	3 hf ch	dust	240	15
79		579	3 ch	faus	255	24
80	W M	588	1 hf ch	pek	22	18
84	P P P	600	2 ch	bro pek	169	22
85		603	3 do	pek	253	13 bid
86		606	4 do	pek sou	326	10
101	G	651	6 hf-ch	y'ng hyson	300	out
102		654	2 do	do	120	37 bid
103		657	3 do	hyson	120	out
105		663	1 do	unassorted	62	out
109	Galloola	675	2 ch	dust	200	17
110		678	3 do	fans	300	28
127	Chapelton	729	6 do	bor mix	480	7
128	Kelaneiya and	732	1 do	or pek	100	25
130	Castlereagh	738	5 do	bro pek	442	25 bid

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, Jan. 18.

"Kawachi Maru."—Middlemarch, 4 bags sold at 44s 6d; 2 bags sold at 46s 6d; 1 packet sold at 26s.
"Duke of Sutherland."—Blackwood OG, 1 barrel sold at 107s; ditto O, 2 casks and 1 barrel sold at 104s; ditto EF, 1 tierce sold at 60s; ditto F, 1 barrel sold at 57s; ditto PB, 1 barrel sold at 75s; BKW T, 1 barrel sold at 36s.
"Clan Macaulay."—Oliveos O, 3 casks sold at 61s; ditto 1, 2 casks and 1 tierce sold at 61s[?]; ditto 2, 1 cask and 1 barrel sold at 49s; ditto P, 1 tierce sold at 60s; ditto T, 1 tierce sold at 37s.
"Derbyshire."—JB Ouvah 3, 2 casks sold at 45s 6d.

CEYLON COCOA SALES IN LONDON.

"Staffordshire."—Wariapolla, 42 bags sold at 101s; 156 bags sold at 95s; 6 bags sold at 67s 6d; 20 bags sold at 65s; 10 bags sold at 57s; 15 bags sold at 67s 6d; 24 bags sold at 72s; 5 bags sold at 64s 6d; 3 bags sold at 61s; 2 bags sold at 54s; Suduganga, 37 bags sold at 101s; 23 bags sold at 95s; 4 bags sold at 72s; 7 bags sold at 66s 6d; 4 bags sold at 62s; 4 bags sold at 69s 6d; 9 b gs sold at 69s 6d; 5 bags sold at 66s; Polwatta A, 5 bags sold at 65s 6d; ditto B, 3 bags sold at 66s.
"Clan Macaulay."—Wiharagama London 1, 11 bags sold at 100s 6d; ditto 2, 7 bags sold at 88s; ditto 3, 9 bags sold at 80s.
"Sanuki Maru."—Palli London F, 28 bags sold at 95s; ditto 1, 20 bags sold at 100s 6d; 20 bags sold at 100s; 23 bags sold at 100s; ditto 2, 6 bags sold at 65s; ditto T, 2 bags sold at 63s 6d; High Walton, 23 bags sold at 92s 6d; 12 bags sold at 85s; 5 bags sold at 67s 6d.
"Staffordshire."—1 Yattawatte, 106 bags sold at 94s; 2, 9 bags sold at 66s; Broken, 1 bag sold at 70s.

CEYLON CARDAMOMS SALES IN LONDON.

"Shropshire."—Winchfield Park AA, 2 cases sold at 3s 8d; ditto A, 4 cases sold at 2s 8d; 2 case, sold at 2s 9d; 3 cases sold at 2s 8d; ditto Seeds 1 case sold at 2s 4d.
"Clan McLean."—M in estate mark, 4 [?] cases sold at 1s 9d; 3 cases sold at 2s 4d.
"Sanuki Maru."—B, 5 cases sold at 1s 3d; Seeds, 1 bag sold at 1s 9d; Midlands O, 5 cases sold at 2s 11d; ditto 1, 2 cases sold at 1s 11d; 2 cases sold at 1s 10d; ditto 2, 1 bag sold at 1s; 1 bag sold at 1s 3d; ditto Seeds, 1 bag sold at 1s 8d; OBEC Naranghena in estate mark, AAA, 2 cases sold at 3s; 2 oases sold at 3s 1d; 2 cases sold at 3s; ditto A, 2 cases sold at 1s 11d; 7 cases sold at 2s 11d; 3 cases sold at 1s 2d; ditto BB, 3 cases sold at 1s 3d; ditto B, 3 cases sold at 1s 2d.
"Workman."—M in estate mark, 5 cases sold at 2s 11d; ditto B1, 4 cases sold at 2s 2d; ditto B2, 5 cases sold at 1s 7d; ditto C3, 9 cases sold at 1s 5d; ditto C B & S, 10 cases sold at 1s 4d; ditto C Seeds, 1 bag sold at 1s 8d.
"Clan McLean."—Akuressa, 18 cases sold at 2s 9d.
"Sanuki Maru."—* MAK in estate mark, 2 cases sold at 2s 7d,
"Bingo Maru."—Delpotonoya, 1 case sold at 2s 10d; 3 cases sold at 2s 5d; 4 cases sold at 1s 9d; 1 case sold at 1s 2d; 1 case sold at 1s 5d; 1 case sold at 1s 2d.
"Sado Maru."—MAK Mysore, 1 case sold at 1s 5d [?]; ditto Forest Hill Mysore, No. 1 Seed, 2 cases sold at 2s.

OBSERVER PRINTING WORKS.

No. 10. COLOMBO, MARCH 11, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[26,892 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Torrington	56	25 ch	or pek	2125	34 bid
2		59	21 do	bro or pek	2100	43 bid
3		62	32 do	or pek No. 2	2560	30 bid
4		65	35 ch	pek	3150	27 bid
5		68	51 do	pek sou	3825	21 bid
6		71	12 hf ch	bro pek fans	780	30
7	Bunyan and Ovoca	74	27 hf ch	bro or pek	1350	64
8		77	21 do	or pek	945	55
9		80	20 ch	pe	1800	33 bid
10		83	14 do	pek sou	1260	28 bid
16	Hornsey	1	35 hf ch	bro pek	2100	52
17		4	29 ch	pek	2465	36
18		7	15 hf ch	pek sou	1200	32

Messrs. Forbes & Walker

[456,889 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Uragalla	3571	8 ch	bro pek	760	26
2		3574	9 do	pek	855	15
18	Carolina	22	11 ch	hyson No 2	1122	out
26	Choisy	46	13 do	or pek	1235	47
27		49	16 do	bro or pek	1600	52
28		52	19 do	pek	1615	39
29	Lindupatna	55	20 ch	bro or pek	2200	66
30		58	33 do	bro pek	3630	42 bid
31		61	27 do	pek	2565	43 bid
32		64	11 do	pek sou	1045	36 bid
33		67	7 do	bro pek fans	910	24
34	Maha Eliya	70	29 hf ch	bro or pek	1595	67
35		73	25 do	bro pek	1375	49
36		76	11 ch	or pek	1100	46 bid
37		79	32 do	pek	3200	42
38		82	11 do	pek scu	990	37
39	Wyamita	85	10 ch	hro pek	1000	32
40		88	10 do	pek	900	24
44	Halharawa	100	23 ch	bro pek	2860	27
45		103	18 do	pek	1620	17
50	Yuillefield	118	17 hf ch	or pek	850	51
51		121	25 do	pek	2250	37
54	Avanna	130	15 hf ch	bro pek dust	1230	15
55		133	15 ch	bro pek fans	1800	16
57	Haputelewella	139	23 hf-ch	bro pek	1980	41
58		142	24 do	pek	1200	28
61	Laxapana	151	51 do	bro pek	3060	54
62		154	34 do	or pek	2890	41
63		157	64 do	pek	5140	35
64	Naseby	160	31 hf-ch	bro or pek	1860	70 bid
65		163	29 do	or pek	1392	74
66		166	25 do	pek	1200	58
69	R M, in estate mark	175	32 ch	bro pek	3200	35
70		178	21 do	pek	1785	28
75	Puspone	193	44 ch	or pek	4180	25
76		196	67 do	bro pek	7370	32
77		199	18 do	pek	1620	22
78	Mansfield	202	74 hf ch	bro pek	4440	56
79		205	25 ch	pek	2250	37
80		208	0 do	pek sou	900	32
81	Deaculla	211	40 hf ch	bro pek	2200	56
82		214	55 ch	pek	3850	34
83		217	20 do	pek sou	1400	30
84		220	10 hf ch	dust	800	20
85	Ella Oya	223	17 ch	young hyson	1530	out
86		226	24 do	hyson No 2	1920	out
88	Cotswold	232	9 ch	bro or pek	720	50
89		235	10 do	bro pek	800	35
90		238	16 do	pek	1200	28
93	Pretoria	247	15 ch	bro pek fans	1875	18
94	Passara Group	250	9 ch	bro or pek	900	49
95		253	16 do	bro pek	1520	43
96		256	19 do	pek	1710	38
97		259	10 do	pek sou	900	38
98	Middleton	262	14 hf ch	bro or pek	784	67
99		265	26 ch	bro pek	2600	45
100		268	28 do	pek	2520	35
101	Macaldenia	271	20 hf ch	bro pek	1100	52
102		274	18 do	pek No. 1	9 0	37
103		277	34 do	pek	1700	36
107	Palmerston	289	13 hf ch	bro or pek	741	69
108		292	15 do	bro pek	855	53
109		295	15 ch	pek	1350	48
111	Queensland	301	8 ch	bro or pek	720	70
112		304	8 do	or pek	720	50
113		307	10 do	pek	900	40
117	Kirklees	319	15 ch	or pek	1500	44
118		322	22 do	pek	1980	32
119		325	17 do	pek sou	1360	28
120	Pallagodda	328	17 ch	bro or pek	1700	27
121		331	21 do	bro pek	2100	39
122		334	19 do	or pek	1710	33
123		337	17 do	pek	1360	26
124		340	17 do	pek sou	1260	20
125	Hentleys	343	21 hf ch	bro pek	1155	37
127		349	14 ch	pek	1190	21
137	Digdola (Packed in 2 oz. lead)	379	29 hf ch	pek sou	2164	15
138	Detenegalla	382	26 do	pek	1300	38 bid
139		385	24 do	pek sou	1200	29 bid
140	H G M	388	22 hf ch	bro or pek	1496	44
141		391	23 ch	pek	2070	34
142	G T D	394	7 ch	bro pek	700	34
145	Parsloes	403	31 do	bro pek	3100	36
146		406	13 do	pek	1170	25
150	Preston	418	19 ch	bro or pek	1900	57
151		421	15 do	bro pek	1500	65
152		424	12 do	or pek	1080	56
153		427	9 do	pek	765	49
157	Tonacombe	439	31 ch	or pek	2790	45
158		442	26 do	bro pek	2600	46
159		445	26 do	pek	2340	37
160		448	10 do	pek sou	900	35
165	Mawiliganga-watte	463	39 ch	bro pek	3705	33
166		466	33 do	pek sou	26 0	20
168	Irex	472	8 ch	bro pek	780	31
169		475	13 do	pek	1040	27
170		478	6 do	pek sou	720	17
173	Arapola-kande	487	57 hf ch	young hyson	3135	26 bid
174		490	28 ch	hyson	2800	20 bid
175		493	12 do	do No 2	1320	16 bid
177	Great Valley Ceylon, in est. mark	499	43 hf ch	bro or pek	2365	55
178		502	25 ch	or pek	2126	41
179		505	37 do	pek	3145	35
180		508	14 do	pek sou	1050	28
181	Munukettia	511	15 ch	or pek	1275	43
182		514	46 hf-ch	bro pek	2760	51
183		517	33 ch	pek	2640	32
184		520	13 do	pek sou	1235	28
185	Ingrogalla	523	12 ch	bro pek	1200	38
186		526	13 do	pek	1105	34
187	Chesterford	529	54 ch	bro pek	5400	36
188		532	56 do	pek	5320	26
189		535	42 do	pek sou	3780	20
190	Madulkelle	538	7 ch	bro or pek	700	49
191		541	8 do	bro pek	720	44
192		544	13 do	or pek	975	40
193	Sylvakandy	547	50 hf ch	bro or pek	2750	56 bid
194		550	14 ch	bro pek	1400	39
195		553	29 hf ch	or pek	1450	38
196		556	15 ch	pek	1500	36
198	Errollwood	562	18 hf-ch	young hyson	1080	out
199		565	16 ch	hyson	1680	out
200		568	13 do	hyson No. 2	1365	out
201	Glencorse	571	26 ch	bro pek	2600	40
202		574	25 do	or pek	2250	36 bid
203		577	22 do	pek	1760	30
204		580	32 do	pek sou	2400	22
205	Bloompark	583	16 ch	or pek	1600	withd'n
206		586	12 do	pek	960	withd'n
207		589	19 do	pek sou	1615	withd'n
208		592	13 do	fans	1300	withd'n
209	Harrow	595	23 hf-ch	or pek	1265	47
210		598	24 do	bro or pek	1440	54
211		601	9 ch	pek No. 1	900	41
212		604	30 do	pek No. 2	3000	37
213		607	10 do	pek sou	900	37
214	Attempettia	610	10 do	bro pek	1070	41
215		613	11 do	pek	1023	35
217	Coreen	619	48 hf-ch	bro or pek	2880	47
218		622	19 ch	or pek	1710	47
219		625	26 do	pek	2288	37

Lot.		Box.	Pkgs.	Name.	lb.	c.
222	Hopton	634	7 ch	bro or pek	700	64
223		637	22 do	br pek	2200	40
224		640	26 do	pek	2210	28
225		643	8 do	pek sou	720	22
228		652	28 do	bro pek	2800	40
229		655	25 do	pek	2375	29
230		658	11 do	pek sou	990	22
232	Ireby	664	30 bf-ch	bro pek	1650	57
233		667	15 ch	pek	1275	49
234		670	10 do	pek sou	850	41
235	Loinorn	673	19 do	or pek	1710	65
238	T D	682	10 do	pek No. 1	900	21
240		688	12 do	pek sou	852	13 bid
242	Relugas	694	4 do	dust	700	17
243	Bargany	697	48 bf-ch	or pek	2400	40
244		700	15 ch	pek	1520	29 bid
245		703	21 do	pek sou	1680	21 bid
248	C B	712	7 do	pek	732	14
249	Dimbulkelle	715	24 hf-ch	bro pek	1512	24
250		718	28 cb	pek	2660	18
251		721	25 do	pek sou	2500	12
252		724	10 do	sou	800	8
254	Bickley	730	15 hf-cb	bro pek	1080	50
255		733	14 do	or pek	910	46
256		736	32 do	pek	1920	39
257	Ardlaw and Wishford	739	13 hf ch	bro or pek	715	61
258		742	18 cb	bro pek	1620	44
259		745	9 do	or pek	774	39
260		748	13 do	pek	1118	38
261	C B	751	16 do	pek sou	1400	31
262	Torwood	754	19 do	bro or pek	1900	37
263		757	16 do	br pek	1312	27
264		760	33 do	pek	2640	23
265		763	18 do	pek sou	1440	17
266		766	9 do	sou	720	13
267	Bandara Eliya	769	51 hf cb	or pek	2397	52 bid
268		772	47 do	br pek	2491	60 bid
269		775	81 do	pek	3726	42 bid
270		778	44 do	pek sou	1980	34 bid
275	Erlsmere	793	25 do	bro pek	1400	45
276		796	25 ch	pek	2000	40
279	Anningkande	805	23 do	br pek	2300	35
280		808	18 do	pek	1710	25
282	Tymawr	814	33 hf-ch	bro or pek	1380	52
283		817	41 do	or pek	2255	40
284		820	50 do	pek	2500	35
285		823	32 do	pek sou	1600	33
287	Goodhope	829	14 do	bro or pek	1400	43
288		832	50 do	bro pek	4500	36
289		835	13 do	pek	1170	30
292	Udaveria	844	41 hf-ch	bro or pek	2378	49 bid
293		847	31 do	pek	1488	39 bid
294		850	25 do	pek sou	1125	29 bid
295	Matale	853	37 do	br pek	2220	38
296		856	17 ch	pek	1530	29
298	Talgaswela	862	10 do	or pek	850	31
299		865	12 do	pek	930	26
301	Newmarket	871	50 do	bro pek	5500	36 bid
302		874	26 do	or pek	2652	33 bid
303		877	19 do	pek	2071	25 bid
306	Panawatte	886	10 do	bro or pek	1120	37
307		889	14 do	br pek	1288	32
308		892	23 do	pek	2070	25
309		895	25 do	pek sou	2375	20
310	Erracht	898	22 do	br pek	2200	34
311		901	25 do	or pek	2000	36
312		904	48 do	pek	3840	24
313		907	23 do	pek sou	1955	18
314		910	13 do	pek fans	1560	21
316	Carfax	916	15 do	bro or pek	1500	57
317		919	17 do	or pek	1530	48
318		922	17 do	pek	1530	41
320	H in est. mark	928	8 do	hyson No. 1	800	17 bid
323	Dunkeld	937	59 bf-ch	bro or pek	3422	48
324		940	13 cb	or pek	1235	38
325		943	21 do	pek	1890	35
326	Widmore	946	40 hf-cb	or pek	1920	52
327		949	32 do	bro or pek	1920	60
328		952	85 do	pek	4250	38
229		955	36 do	pek sou	1620	35
331	Carolina	961	14 ch	sifting	1873	10
332	Knavesmire	964	28 do	bro pek	2800	35
332		967	45 do	pek	3825	30
334		970	32 do	pek sou	2560	26
335		973	45 do	sou	3150	21
336	Adisham	976	15 do	bro or pek	1575	57
337		979	7 do	bro pek	700	38 bid
338		982	45 do	pek	4050	30 bid

Messrs. Somerville & Co.—

[208,522 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Ferriby	1087	19 hf ch	bro or pek	1064	39
2		1090	19 ch	or pek	1710	32
3		1093	38 do	pek	3230	25
4		1096	19 do	pek sou	1520	16
5	R K P	1099	11 cb	or pek	990	35
6		1102	10 do	bro or pek	1000	34
8		1108	8 do	pek No 2	720	27
15	Rabatungoda	1129	21 bf ch	bro or pek	1050	60
16		1132	20 do	or pek	1000	44
17		1135	21 do	pek	1050	37
18	Carney	1138	27 bf cb	bro pek	1350	35
19		1141	35 do	pek	1575	23
20		1144	16 do	pek sou	800	13
23	Fairfield	1153	19 bf ch	bro or pek	950	76
24		1156	34 ch	bro pek	3400	50
25		1159	20 do	or pek	1600	45 bid
26		1162	32 do	pek	2720	40
27	Gangwarily	1165	24 ch	bro pek	2160	28
28		1168	24 do	pek	1920	21
29		1171	17 do	pek sou	1360	14 bid
30		1174	49 cb	bro pek	4410	29
31		1177	20 do	pek	1600	21
32	Havilland	1180	21 do	bro or pek	2100	37
33		1183	12 do	or pek	960	23 bid
4		1186	36 do	pek	2880	25
35	Kosgahabena	1189	8 ch	bro pek	880	24
36		1192	18 do	pek	1800	out
40	Ambalawa	1204	24 bf ch	bro pek	1272	29
41		1207	9 ch	pek	720	24
42		1210	19 do	pek sou	1330	18
43	Nyanza	1213	29 bf cb	bro pek	1595	36
44		1216	11 ch	or pek	990	33
45		1219	17 do	pek	1700	25 bid
48	Kelani	1228	23 ch	or pek	2070	35
49		1231	15 do	bro or pek	1500	32
50		1234	9 do	pek	720	28
51		1237	10 do	pek sou	750	21
52		1240	11 do	pek No. 2	990	25
59	D M O G, in est. mark	1261	15 cb	pek	1125	27 bid
60		1264	24 cb	pek sou	1680	19 bid
61		1270	14 bf cb	dust	1190	17
63		1273	36 do	fans	2160	26
64		1276	13 do	pek fans	715	23
65	Rayigam	1279	32 ch	bro pek	3200	37
66		1282	26 do	or pek	2340	29
67		1285	22 do	pek	1870	25
68		1288	17 do	pek sou	1700	23
70		1294	14 hf ch	bro or pek	812	48
71		1297	19 do	or pek	988	42
72		1300	19 ch	pek	1710	32
73		1303	9 do	pek sou	720	24
74	Raxawa	1306	15 ch	bro pek	1500	44
75		1309	13 do	pek	1170	32
76		1312	14 do	pek sou	1190	25
78	G B	1318	33 hf ch	dust	1650	19
79	Yarrow	1321	18 hf ch	bro or pek	1026	43
80		1324	31 do	or pek	1550	39
81		1327	18 do	pek	810	35
82		1330	20 do	pek	900	34
86	S P K	1342	11 cb	pek sou	1045	29
89	Doragalla	1351	11 ch	or pek	1045	43
90		1354	17 do	bro pek	1700	44
91		1357	32 do	pek	2880	36
92		1360	9 do	pek sou	810	35
95	Mousa	1369	9 ch	bro pek	900	35
111	Pelgaba-kande	1417	10 ch	or pek	860	35
112		1420	7 do	bro pek	700	28
113		1423	15 do	pek	1290	27
114		1426	13 do	pek sou	1144	17
115	Mt Vernon	1429	75 cb	pek	7125	37
116		1432	20 do	pek sou	1740	34
117	Tiddydale	1435	20 ch	pek sou	1800	6
122	Glenalla	1450	9 ch	bro or pek	900	36
123		1453	11 do	or pek	935	32
124		1456	26 do	pek	2210	23 bid
125		1459	12 do	pek sou	1020	20
131	Selvawatte	1477	19 bf ch	bro pek	1045	30
134	Carin Hill	1486	14 cb	or pek	1260	32
135		1489	25 do	bro pek	2500	30
136		1492	34 do	pek	3060	23
137		1495	18 do	pek sou	1440	18
140	Mawatara	1504	20 hf ch	pek	1000	26
145	Harrangalla	1519	11 ch	or pek	953	37
146		1522	13 do	bro pek	1235	40
147		1525	28 do	pek	2240	31
148		1528	14 do	pek sou	1120	19
150	Neboda	1534	18 ch	bro or pek	1800	37
151		1537	48 do	bro pek	4800	30
152		1540	11 do	pek	990	19
153		1543	13 do	pek sou	1040	15
160	Hatdowa	1564	17 ch	bro pek	1700	26
161		1567	12 do	pek	1020	18
162		1570	10 do	pek sou	800	12 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
166	Romania	1582	25 ch	pek	2500	9 bid
167		1585	20 do	pek sou	1800	7 bid
168		1591	47 do	fans	4230	6 bid
171	Dumbarton	1597	7 hf ch	sou	700	out
172	Ran-singhapatna	1600	16 hf ch	or pek	800	36 bid
174		1606	10 ch	pek	750	27
175	Glenesk	1609	17 ch	pek sou	1445	13 bid
176	H Gama	1612	8 ch	pek	850	7 bid
177		1615	18 do	pek sou	1685	out
178	Murraythwaite	1618	22 ch	bro pek	2200	34
179		1621	20 do	pek	1600	23
181	Raglan	1627	16 ch	pek	1140	16
183	Harangalla	1633	9 ch	or pek	765	37
184		1636	9 do	bro pek	855	41
185		1639	23 do	pek	1840	31
186		1642	12 do	pek sou	960	20
187		1645	16 hf ch	dust	1200	20
188	Avisawella	1648	31 hf ch	bro or pek	1550	45
189		1651	23 ch	pek	2070	25
190		1654	12 do	pek sou	960	16
191		1657	6 do	dust	840	19
192	Ravenscraig	1660	15 hf ch	or pek	750	41
193		1663	21 ch	pek	1890	31

[Mr. E. John.—152,360 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Wahagapitiya	765	7 ch	bro or pek	700	60
9		768	8 do	bro pek	800	34
10		771	34 do	pek	3060	27
13	Elston	780	18 do	or pek	1620	39 bid
14		783	22 do	pek	1870	33
15		786	21 do	pek sou	1995	30
16	Waragalande	789	14 do	bro or pek	1400	44
17		792	17 do	bro pek	1700	34
18		795	19 do	pek	1710	26
19		798	11 do	pek sou	990	24
21	Koswatta	804	36 do	bro pek	3528	32
22		807	31 do	or pek	2635	29
23		810	13 do	pek	1350	26
28	Kandaloya	825	30 hf-ch	bro pek	1350	49
29		828	29 do	or pek	1160	41
30		831	76 do	pek	3040	29
32	Gingranoya	837	7 ch	bro or pek	700	46
33		840	8 do	or pek	720	43
34		843	17 do	pek	1445	37
35	West Hall	846	23 hf ch	dust	2415	15
36	Ottery	849	22 ch	bro or pek	2310	46
37		852	22 do	or pek	1760	44
38		855	26 do	pek	2210	37
44	Coslanda	861	17 hf ch	bro pek	935	46
41		864	17 ch	pek	1445	27
45	Gangawatte	876	17 do	bro or pek	1700	69
46		879	16 do	bro pek	1600	46
47		882	27 do	pek	2430	38
49		888	7 do	fans	770	28
53	Brownlow	900	21 hf-ch	bro or pek	1197	56
54		903	18 ch	or pek	1674	45
55		906	26 do	pek	2262	32
57	M N	912	7 do	or pek	700	47
59		918	20 do	pek	1840	39
60		921	10 do	pek sou	870	27 bid
64	Templestowe	933	26 do	bro or pek	2028	46
65		936	13 hf ch	bro pek	819	35
66		939	25 do	or pek	1075	49
67		942	28 ch	pek	2380	36
68		945	14 hf ch	pek sou	910	36
69		948	13 do	dust	975	19
70	Koslande	951	17 do	bro pek	935	46
71		954	17 ch	pek	1445	27
75	Lameliere	966	8 do	bro or pek	760	47
76		969	8 do	bro pek	720	33 bid
77		972	14 do	pek	1190	32
78	Rookwood	975	55 hf ch	bro or pek	3300	60
79		978	25 ch	or pek	2400	40 bid
80		981	33 do	pek	2970	38
83	Elston	990	23 do	pek	1955	34
84		993	26 do	pek sou	2470	30
86	Laymastotte	999	45 hf ch	bro or pek	2700	39 bid
87		2	63 do	or pek	2961	33 bid
88		5	25 ch	pek sou	2100	20 bid
91	Glassaugh	14	25 hf ch	or pek	1375	69
02		17	21 do	bro or pek	1365	55
93		20	15 ch	pek	1500	56
94	Cabin Ella	23	18 do	bro or pek	1980	39
95		26	17 do	pek No 1	1700	30
96		29	10 do	pek No. 2	950	27
99	G W	38	13 do	pek sou	1040	34 bid
100	Mocha	41	22 do	bro or pek	2200	68
101		44	20 do	or pek	1900	61
102		47	22 do	pek	2090	50
103		50	10 do	pek sou	800	38
104	Manickwatte	53	40 hf ch	or pek	19.0	32
105		56	32 do	bro or pek	1856	32

Lot.		Box.	Pkgs.	Name.	lb.	c.
106		59	26 ch	pek	1872	22
107		62	21 do	pek sou	1680	18
111	Maskeliya	74	29 hf-ch	bro or pek	145[illegible]	48
112		77	17 ch	or pek	15[illegible]0	39
113		80	28 do	pek	[illegible]	31 bid
114		83	18 hf ch	bro or pek fans	1080	25
115	Evalgolla	86	26 do	or pek	1040	43
116		89	28 do	bro or pek	1260	41
117		92	64 do	pek	2240	27
118		95	22 do	pek sou	880	20
121	N B	104	10 ch	pek sou	850	22
122	Glasgow	107	45 hf ch	bro or pek	2430	52
123		110	19 ch	or pek	1330	55
124		113	16 do	pek	1488	46
125		116	14 do	pek sou	1400	43
126	D W, in estate mark	119	37 hf ch	bro mix	1480	6 bid

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Uragalla	3577	7 ch	pek sou	630	6
4		3580	2 do	unas	200	7
5		3583	1 do	bro pek fans	95	11
6		3586	2 do	dust	255	14
7		3589	1 hf ch	red leaf	50	4
8	Kosgalla	3592	9 hf ch	bro,pek	450	34
9		3595	11 do	pek	495	23
10		3598	2 do	pek sou	100	15
11		1	2 do	unas	100	10
12	B B, in estate mark	4	7 hf ch	bro pek	385	32
13		7	11 do	pek	528	20
14		10	7 do	pek sou	529	10
15		13	1 do	pek fans	59	15
16	Carolina	16	5 ch	young hyson	455	out
17		19	6 do	hyson	600	out
19		25	3 do	sifting	339	out
20	Mahayaya	28	4 ch	bro or pek	436	35
21		31	5 do	bro pek	470	33
22		34	8 do	pek	696	30
23		37	5 do	pek sou	430	22
24		40	2 do	sou	172	18
25		43	1 do	dust	88	13
41	Wyamita	91	3 ch	pek sou	240	17
42		94	1 hf ch	sou	43	11
43		97	1 do	dust	80	10
46	Halbarawa	106	8 ch	pek sou	640	11
47		109	1 do	dust	142	10
48		112	1 do	red leaf	99	5
49	Yuillefield	115	8 hf ch	bro or pek	480	55
52		124	3 ch	pek sou	270	28
53		127	1 hf ch	dust	80	19
56	Mouna	136	7 ch	congou	595	5
59	Haputalewella	145	12 hf ch	pek sou	520	20
60		148	2 do	fans	170	21
67	D, in estate mark	169	4 ch	bro pek	420	25
68		172	4 do	pek	400	13
71	R M, in estate mark	181	8 ch	pek sou	664	18
72		184	4 do	sou	320	14
73		187	8 hf ch	fans	480	24
74		190	2 ch	dust	292	18
87	Ella Oya	229	4 ch	siftings	240	7 bid
91	Cotswold	241	5 ch	pek sou	400	22
92		244	1 do	dust	100	18
104	Macaldeniya	280	8 hf ch	pek sou	400	24
105		283	3 do	fans	195	29
106		286	2 do	dust	156	20
110	Palmerston	298	3 ch	pek sou	240	37
114	Queensland	310	4 ch	pek sou	360	34
115		313	1 hf ch	pek dust	70	25
116		316	1 do	or pek fans	60	25
126	Hentleys	346	9 hf ch	or pek	414	32
128		352	7 ch	pek sou	539	15
129		355	2 hf-ch	fans	150	19
130		358	1 do	pek dust	95	13
131	Digdola	361	4 ch	young hyson	340	out
132		364	2 do	hyson	148	out
133		367	6 do	hyson No. 1	480	out
134		370	4 do	hyson No. 2	309	out
135		373	1 do	gree tea bro mix	73	out
136		376	1 hf ch	siftings	78	out
143	G T D	397	7 ch	pek	620	out
144		400	1 hf-ch	dust	80	8
147	Parsloes	409	1 ch	pek sou	80	17
148		412	1 do	unas	75	13
149		415	5 hf ch	dust	450	18
154	Preston	430	5 ch	pek sou	400	41

Lot.		Box.	Pkgs.	Name.	lb.	c.
155		433	3 ch	bro or pek fans	336	37
156		436	2 do	unas	190	20
161	Madulkelle	451	8 ch	pek	680	39
162		454	7 ch	sou	560	30
163		457	1 hf ch	dust	80	19
164	Mawillganga-watte	460	5 ch	bro pek sou	500	15
167		469	4 do	dust	412	19
171	Irex	481	1 ch	dust	80	18
172	Shrubs Hill	484	2 do	or pek	161	22
176	Arapola-kande	496	5 hf ch	siftings	425	7 bid
197	Sylvakandy	559	2 ch	dust	200	22
216	Attampettia	616	3 ch	pek sou	234	27
220	Coreen	628	2 do	pek sou	180	25
221		631	8 hf-ch	dust	640	23
226	Hopton	646	3 ch	dust	330	20
227		649	6 do	bro or pek	600	6 bid
231		661	2 do	dust	220	20
236	T D	676	3 do	bro or pek	330	32
237		679	1 do	or pek	95	32
239		685	3 do	pek No. 2	270	14
241	Woodend	691	3 do	dust	390	18
246	Bargany	706	2 do	dust	170	18
247		709	5 do	fans	500	26
253	Dimbulkelle	727	2 hf-ch	dust	160	16
271	Bandara Eliya	781	2 ch	dust	180	20
272		784	9 do	pek fans	675	26
273	Erlsmere	787	8 hf-ch	bro or pek	416	63
274		790	8 ch	or pek	640	48
277		799	5 do	pek sou	400	34
278		802	3 hf-ch	dust	240	21
281	K W D in est. mark	811	5 ch	br or pk fans	375	38
286	B D W G	826	2 hf-ch	dust	180	18
290	Goodhope	838	5 ch	pek sou	425	20
291		841	4 hf-ch	dust	340	19
297	Matale	859	6 ch	pek sou	540	21
300	Talgaswela	868	5 do	pek sou	375	18
304	Newmarket	880	6 do	pek sou	654	20
305		883	4 do	dust	568	23
315	Errachbt	913	2 do	dust	368	19
319	H in est. mark	925	6 do	young hyson	600	26
321		931	4 do	hyson No. 2	320	20
322		934	1 do	hyson siftings	120	11
330	Widmore	958	4 do	pek fans	340	19
339	Adisham	985	5 hf-ch	fans	325	26

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name.	lb.	c.
7	R K P	1105	4 ch	pek	320	27
9		1111	7 do	pek sou	525	17
10	Goodwood	1114	7 hf ch	or pek	350	47
11		1117	6 do	bro pek	324	60
12		1120	8 do	pek	408	37
13		1123	3 do	pek sou	138	31
14		1126	3 do	pek fans	195	36
21	Carney	1147	1 hf ch	bro pek fans	50	16
22		1150	2 do	sou	100	8
37	Kosgahahena	1195	4 do	pek sou	400	6
38		1198	3 do	sou	300	4
39		1201	2 do	dust	300	9
46	Nyanza	1222	2 ch	pek sou	170	19
47		1225	4 do	dust	400	17
53	Kahatagala	1243	2 ch	or pek	180	33
54		1246	2 ch	bro or pek	2 0	31
55		1249	1 do	pek	80	25
56		1252	2 do	pek No 2	180	24
57		1255	2 do	pek sou	150	18
58	D M O G, in est mark	1258	5 ch	bro pek	425	43
61		1267	7 ch	bro mix	595	7
69	Rayigam	1291	7 hf ch	dust	560	18
77	G B	1315	8 hf ch	bro tea	400	6 bid
83	Yarrow	1333	12 do	pek sou	600	22
84	Y, in estate mark	1336	5 hf ch	bro pek fans	355	27
85		1339	1 do	dust	87	18
87	S R K	1345	4 ch	dust	600	16
88		1384	2 do	bro tea	200	9
93	Doragalla	1363	5 ch	pek fans	600	27
95		1366	3 do	bro mix	435	12
96	Monsa	1372	5 ch	pek	450	24
97		1375	2 do	pek sou	160	16
98		1378	1 hf ch	dust	65	15
99	Swinton	1381	1 ch	bro pek	105	42
99a		1381a	1 do	bro pek A	105	30
100		1384	2 do	or pek	200	24
101		1387	1 do	pek	95	21
102		1390	1 do	pek sou	85	16
103		1393	3 do	dust	318	16
104	Black Pearl	1396	6 hf ch	bro pek	168	22
105		1399	4 do	bro pek	220	22
106		1402	1 do	pek	48	7 bid
107		1405	8 hf ch	pek	440	
108		1408	1 do	pek sou	28	3 bid
109		1411	2 do	pek sou	110	3 bid
110		1414	6 ch	pek s u	540	3 bid
118		1438	13 boxes	pro pek	364	24
111		1441	10 hf ch	pek	490	10
120		1444	4 ch 6 hf ch	pek sou	657	6 bid
121		1447	1 box	sou	25	out
126	Glenalla	1462	3 ch	sou	240	13
127		1465	1 do	dust	145	18
128	H R	1468	2 hf ch	bro pek	107	27
129		1471	3 do	pek	120	13
130		1474	1 do	dust	70	12
132	Selvawatte	1480	7 ch	pek	560	20
133		1483	2 hf ch	fans	160	14
138	Mawatara	1498	7 hf ch	bro or pek	420	35
139		1501	10 do	bro pek	550	31
141		1507	8 do	pek sou	400	16
142		1510	1 do	dust	85	17
143	J K	1513	1 hf ch	Young Hyson	58	out
144		1516	1 do	Hyson	56	out
149	R, in estate mark	1531	1 ch	bro pek	50	10
154	Nebeda	1546	3 ch	dust	255	17
155	M	1549	2 hf-ch	bro pek	100	27
156		1552	2 do	pek	130	12
157		1555	3 ch	pek sou	240	8
158		1558	1 do	dust	130	13
149		1561	1 box	Hyson	20	out
163	Hatdowa	1573	2 ch	dust	290	14
164		1576	4 do	fans	420	12
165	Romania	1579	4 hf ch	bro pek	204	25
168		1588	6 do	pek fans	450	13
170		1594	8 do	dust	680	out
173	Ranasingha-patna	1603	12 hf ch	bro or pek	698	42
180	Raglan	1624	6 ch	bro pek	600	23
182		1630	1 do	dust	90	16
194	Ravenscraig	1666	2 hf ch	dust	160	19

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Gonavy	744	2 ch	sou	170	10
2		747	11 hf ch	fans	605	25
3		750	7 do	dust	525	20
4	Allington	753	6 ch	bro pek	600	39
5		756	6 do	pek	540	20
6		759	5 do	pek sou	450	15
7		762	1 do	dust	120	17
11	Wahagapitiya	774	5 do	dust	650	17
12		777	1 do	fans	110	26
20	Waragalande	801	2 do	dust	240	19
24	Koswatta	813	7 do	pek sou	525	27
25		816	3 hf-ch	pek dust	216	19
26	R S O	819	11 do	bro pek No. 2	517	7
27		822	6 ch	bro pek No. 3	480	7
31	Kandaloya	834	9 hf ch	pek sou	360	out
39	Ottery	858	5 do	dust	400	20
42	Coslanda	867	3 ch	pek sou	270	22
43		870	1 do	fans	110	25
44		873	1 hf ch	dust	80	18
48	Gangawatte	885	4 ch	pek sou	360	30
50	Brownlow	891	3 hf ch	bro or pek	192	75
51		894	5 do	or pek	260	52
53		897	4 do	pek	196	36
56		909	9 do	bro pek fans	657	27
58	M N	915	9 do	bro or pek	513	55
61		924	2 do	bro pek No. 1	110	32
62		927	2 ch	pek No. 2	190	20
63		930	4 hf ch	fans	308	27
72	Koslande	957	3 ch	pek sou	270	22
73		960	1 do	fans	110	26
74		963	1 hf ch	dust	80	18
81	Rookwood	981	8 ch	fans	560	33
82		987	3 do	pek dust	276	20
85	Ladbroke	996	3 do	pek sou	270	23 bid
89	Y	8	1 hf ch	bro pek	40	22
90	M G	11	7 do	fans	560	22
97	Cabin Ella	32	3 ch	bro or pek fans	210	26
98		35	7 hf ch	dust	595	19
108	Manickwatte	65	3 do	dust	219	17
109		68	1 ch	red leaf	85	7
110	Doonvale	71	4 do	dust	600	withd'n
119	Evalgella	98	3 hf ch	sou	105	13
120		101	3 do	dust	180	16
127	D W, in estate mark	122	12 do	pek sou	504	out
128		125	8 do	fans	472	out

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.

MINCING LANE, Feb. 15.

"Alba."—JH, 1 barrel and 1 bag sold at 74s.

"Clan McNeil."—GW, 20 bags sold at 100s; 23 bags sold at 96s; ditto No. 1, 21 bags sold at 87s; ditto No. 2, 20 bags sold at 80s.

"Hakata Maru."—Ditto No. 1, 31 bags sold at 102s 6d; ditto No. 2, 4 bags sold at 57s; ditto T, 3 bags sold at 60s 6d; ditto No. 2, 2 bags sold at 57s 6d.

"Awa Maru."—Ditto No. 1, 79 bags sold at 102s 6d; ditto No. 2, 7 bags sold at 57s; ditto T, 4 bags sold at 61s; Wiltshire London 1, 27 bags sold at 94s; ditto 2, 1 bag sold at 57s; ditto T, 3 bags sold at 61s 6d; ditto 2, 1 bag sold at 57s; ditto T, 5 bags sold at 63s.

"Cheshire."—Gilbury, 4 bags sold at 63s.

"Inaba Maru."—1 Yattawatte, 74 bags sold at 96s; 2 ditto, 6 bags sold at 59s 6d; Broken, 2 bags sold at 69s; Lower Haloya, 23 bags sold at 97s.

"Derbyshire."—Ditto T, 2 bags sold at 55s 6d; Goonambil, 89 bags sold at 90s 6d; 12 bags sold at 64s 6d; Ross R 1, 45 bags sold at 96s 6d; D 1, 9 bags sold at 79s 6d; D 2, 8 bags sold at 59s 6d; B, 7 bags sold at 53s; Kepitigala, 15 bags sold at 60s 6d; Old Haloya, 30 bags sold at 80s; Cudugala, 35 bags sold at 97s 6d; CDG, 3 bags sold at 65s 6d.

"Hakata Maru."—HK 1 in estate mark, 12 bags sold at 75s; ditto 2, 1 bag sold at 54s 6d.

"Inaba Maru."—HK 1, 17 bags sold at 73s; ditto 2, 2 bags sold at 54s 6d; ditto T, 1 bag sold at 61s; OBEC in estate mark, Kondesale Ceylon O, 51 bags sold at 87s 6d; ditto 1, 33 bags sold at 68s; 8 bags sold at 66s; ditto G, 9 bags sold at 53s 6d.

"Awa Maru."—2, 2 bags sold at 78s; 3, 4 bags sold at 57s 6d; Elangapatiya 1 A, 15 bags sold at 83s; A, 9 bags sold at 83s; T, 2 bags sold at 57s 6d.

"Clan McNeill."—New Peradeniya, 1 bag sold at 50s; 2 bags sold at 61s 6d; 2 bags sold at 53s.

CEYLON CARDAMOMS SALES IN LONDON.

"Sado Maru."—MAK Mysore, 1 case sold at 1s 2d

"Clan McNeill."—Kellie A, 2 cases sold at 3s 4d; ditto B, 2 cases sold at 2s 10d; ditto C, 1 case sold at 2s; ditto B Splits, 1 case sold at 1s 4d; ditto C Splits, 1 case sold at 1s 4d; ditto B, 2 cases sold at 2s 10d; ditto C, 1 case sold at 2s 1d.

"Machaoa."—Duckwari B 1, 2 cases sold at 3s 5d; 2 cases sold at 3s 6d.

"Dordogne."—Delpotonoya, 1 case sold at 3s 7d; 4 cases sold at 2s 11d; 2 cases sold at 2s 6d; 2 cases sold at 1s 10d; 1 case sold at 1s 11d; 1 case sold at 1s 4d; 1 case sold at 1s 7d; 1 case sold at 1s 5d.

"Cheshire."—Katooloya Ex., 2 cases sold at 3s 2d; ditto AA, 6 cases sold at 2s 4d; ditto B, 2 cases sold at 1s 5d; 2 cases sold at 1s 6d; ditto C, 1 case sold at 1s 4d.

"Clan McNeill."—OBEC Dankande in estate mark, 2 cases sold at 1s 4d; ditto Seeds, 1 case sold at 1s 9d; Wattakelly 1, 7 cases sold at 1s 11d; ditto 2, 3 cases sold at 1s 6d; ditto 3, 1 bag sold at 1s 3d; ditto Seeds, 1 bag sold at 2s 3d.

OBSERVER PRINTING WORKS.

No. 11. COLOMBO, MARCH 18, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[29,040 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Carendon	57	13	ch	bro pek	1300	23
2		60	13	do	pek	1300	15 bid
3		63	10	do	pek sou	1000	11 bid
4	Uduweria	66	22	hf ch	bro pek	1100	31
5		69	30	do	pek	1500	23
7	Bunyan and Ovoca	75	49	do	bro or pek	2450	58 bid
8		70	37	ch	or pek	1665	48 bid
9		81	34	do	pek	3060	36 bid
10		84	23	do	pek sou	2070	34
11		87	10	hf ch	pek fans	700	28
12	Torrington	90	28	ch	or pek	2380	42 bid
13		93	24	do	do No. 2	1920	34 bid
14		96	15	do	bro or pek	1425	50 bid
15		99	43	do	pek	3870	29 bid
16		2	38	do	pek sou	2850	23 bid

Messrs. Forbes & Walker.

[448,231 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
2	O B E C, in estate mark Summerhill	991	22	ch	bro or pek	2200	81
3		994	20	do	or pek No. 1	1780	60 bid
4		997	21	do	or pek	1848	55
5	St. Paul's	1000	26	hf ch	or pek No. 1	1352	47
6		1003	34	do	or pek No 2	1632	38 bid
7		1006	30	do	pek	1680	36
8	Nillo Mally O B E C, in est. mark	1009	33	ch	or pek	2780	43 bid
9		1012	20	do	pek No. 1	1560	40 bid
10		1015	14	do	do ,, 2	1120	37
11		1018	12	do	pek sou	1020	35
14	Glendon	1027	26	ch	or pek	2080	37
15		1030	33	do	bro pek	3465	38
16		1033	42	do	pek	3750	30
17		1036	18	do	pek sou	1620	22
18	G	1039	10	ch	sou	800	19
19	Drayton	1042	67	hf-ch	bro or pek	4020	66
20		1045	59	do	or pek	2950	50
21		1048	60	ch	pek	5100	44
22		1051	26	do	pek sou	2210	38
23		1054	11	hf ch	pek fans	715	33
26	O B E C, in estate mark Sindamallay	1063	41	ch	bro pek	4100	41
27		1066	25	hf-ch	or pek	1[illegible]00	42
28		1069	33	ch	pek	2739	34
29		1072	22	do	pek sou	1540	29
30		1075	16	do	bro mix	992	10 bid
31		1078	19	do	dust	1425	18
32	Maryland	1081	14	ch	bro pek	1400	36
33		084	20	do	or pek	1800	30
34		1087	14	do	pek	1260	25
35		1090	9	do	pek sou	810	19
39	Bloompark	1102	16	do	or pek	1597	out
40		1105	12	do	pek	957	14 bid
41		1108	19	do	pek sou	1612	11 bid
42		1111	13	do	fans	1297	12 bid
44	Elkadua	1117	15	ch	hyson	1500	16 bid
45		1120	17	do	hyson No. 1	1700	16 bid
46		1123	8	do	hyson ,, 2	800	10 bid
49	Middleton	1132	15	hf ch	bro or pek	840	80
50		1135	32	ch	bro pek	3[illegible]00	56
51		1138	33	do	pek	2805	42
52		1141	15	hf ch	dust	1125	24
53	Kitulgalla	1144	11	ch	bro pek	1100	41
54		1147	10	do	pek	950	32
55		1150	9	do	pek sou	720	23
57	Gallawatte	1156	14	ch	bro pek	1260	33
58		1159	13	do	pek	1040	27
59	Rowley	1162	23	hf ch	bro or pek	1150	41
60		1165	19	do	or pek	950	33
61		1168	20	do	pek	1000	26
63	Carberry	1174	12	ch	bro pek	1140	36
70	G K	1195	18	hf ch	sou	1170	18
71		1198	6	ch	dust	870	19
72	Tambiligalle	1201	26	ch	bro or pek	2470	41
73		1204	21	do	pek	1890	33
77	K P W	1216	40	hf ch	bro pek	2200	35
78		1219	29	do	bro or pek	1740	39
79		1222	86	do	pek	4300	26
80		1225	22	do	pek sou	1100	19
83	Yataderia	1234	13	ch	bro or pek	1404	45
84		1237	18	do	or pek	1944	27
85		1240	31	do	pek	3100	22
86		1243	13	do	do No 2	1235	16
87		1246	9	do	pek sou	819	13
88	Malvern	1249	47	hf ch	bro pek	2585	51
89		1252	48	ch	pek	3360	36
90		1255	21	do	pek sou	1470	32
91	Tempo	1258	14	ch	bro pek	1540	42
92		1261	8	do	or pek	720	34
93		1264	24	do	pek No. 1	1800	26
100	Clyde	1285	17	ch	bro or pek	1700	45
101		1288	27	do	or pek	2592	35
102		1291	44	do	pek No 1	3520	25
105		1300	14	do	pek ,, 2	1092	20
106	Clunes	1303	15	ch	or pek	1350	41
107		1306	17	do	bro pek	1700	44
108		1309	14	do	pek No. 1	1190	31
109		1312	35	do	do ,, 2	2975	27
110		1315	16	do	pek sou	1440	22
112	High Forest	1321	46	hf ch	or pek No. 1	2760	70
113		1324	30	do	or pek	1650	60
114		1327	29	do	pek	1450	56
115	Maha Uva	1330	13	hf-ch	bro or pek	780	37
116		1333	13	do	or pek	728	42
117		1336	13	ch	pek	1170	36
118		1339	9	do	pek sou	720	32
121	High Forest	1348	51	hf ch	or pek No. 1	3060	70
122		1351	32	do	or pek	1760	58
123		1354	31	do	pek	1550	55
124	Killarney	1357	19	ch	bro pek	2090	41 bid
125		1360	33	do	pek	2870	35
126		1363	8	do	congou	800	24
127	Ganapalla	1366	9	ch	bro or pek	1026	31
128		1369	18	do	or pek	1620	40
129		1372	16	do	pek	1520	29
130		1375	13	do	pek sou	1066	21
132	Inverness	1381	40	hf ch	bro or pek	2400	62
133		1384	21	ch	or pek	1995	70
134		1387	34	do	pek	3060	60
135	Killarney	1390	22	hf ch	bro or pek	1320	56
136		1393	23	ch	bro pek	2530	42 bid
137	Castlereagh	1396	34	ch	bro pek	3230	45 bid
138		1399	15	do	or pek	1275	38
139		1402	23	do	pek	1955	35
141	Dewalakande	1408	14	ch	hyson	1316	out
149	Pine Hill	1432	27	hf ch	bro or pek	1620	55
150		1435	32	ch	or pek	2240	43
151		1438	24	do	pek	2280	39
153	Pallagodda	1444	15	ch	bro or pek	1500	33
154		1447	21	do	bro pek	2100	40
155		1450	17	do	or pek	1530	34
156		1453	12	do	pek	1020	29
157		1456	10	do	pek sou	950	25
158	Gampaha	1459	34	ch	bro or pek	3740	49 bid
159		1462	27	do	or pek	2565	59
160		1465	45	do	pek	3825	46
161		1468	38	do	pek sou	3420	37
163	S W	1474	19	ch	fans	2261	24
164	St. Heliers	1477	14	ch	bro or pek	1428	39
165		1480	14	ch	pek	1260	30
166	Palmerston	1483	13	hf ch	bro or pek	741	74
167		1486	15	do	or pek	825	59
168		1489	14	ch	pek	1218	50
169	Queensland	1492	7	ch	bro pek	700	59
170		1495	9	do	pek	855	48
173	Sirikandura	1504	10	ch	bro pek	1000	36
174		1507	11	do	pek	1045	26
175		1510	10	do	pek sou	900	21
180	Hatton	1525	27	ch	bro pek	2835	58
181		1528	23	ch	pek	2380	43
184	Bogahagodawatte	1537	7	ch	bro pek	700	30
185		1540	10	do	pek	950	27
186		1543	9	do	pek sou	810	14
187	Dunbar	1546	18	hf ch	bro or pek	900	77
189		1552	22	ch	or pek	1914	55
190		1555	27	ch	pek	1998	46
194	B D in est. mark	1567	13	ch	bro or pek	728	65
195		1570	28	do	bro pek	1624	48
196		1573	41	do	pek	2009	34
197		1576	42	boxes	pek sou	1974	25
203	Waratenne	1594	8	do	bro pek	800	30

Lot.		Box.	Pkgs.	Name.	lb.	c.
204		1597	24 boxes	pek	1920	21
206	Geragama	1603	15 do	bro or pek	1650	36
207		1606	20 do	br pek	1800	35
208		1609	49 do	pek	3920	24
210	Glengariffe	1615	49 bf-cb	bro or pek	2695	55
211		1618	20 do	or pek	900	40
212		1621	28 ch	pek	2660	36
213		1624	13 do	pek sou	1079	35
216	Maldeniya	1633	24 do	bro pek	2400	38
217		1636	29 do	pek	2755	27
218		1639	24 do	pek sou	2040	20
220	St. Clive	1645	24 bf-cb	young byson	1200	out
221		1648	20 do	hyson	900	out
222		1651	25 do	hyson No. 2	990	out
224	Forest Creek	1657	17 ch	bro or pek	1700	68
225		1660	29 do	br pek	2900	50
226		1663	17 do	or pek	1530	49
227		1666	18 dc	pek No. 1	1620	44
228		1669	21 do	pek No. 2	1890	39
229	Walpita	1672	25 do	or pek	2500	28
230		1675	25 do	bro pek	2500	32
231		1678	20 do	pek	1800	20
233		1681	9 do	pek sou	765	15
234	P	1687	25 hf-cb	fans	1750	28
235		1690	10 do	dust	800	20
236		1693	8 do	pek sou	720	16
237	Kalupahana	1696	14 ch	br pk	1428	30
238		1699	9 do	or pek	810	22
239		1702	25 do	pek	2222	15
240		1705	21 do	pek sou	1810	10
247	Vogan	1726	20 do	or pek	1800	45
248		1729	14 do	bro pek	1330	60
249		1732	18 do	pek No. 1	1620	34
250		1735	25 do	pek No. 2	2125	28
251		,,	25 do	pek No. 2	2125	28
257	Laxapana	1753	34 hf-cb	hro pek	2040	48 bid
258		1756	30 ch	or pek	2550	40 bid
259		1759	49 do	pek	4165	36
261	Clarendon	1765	25 bf-ch	bro pek	1575	51 hid
252		1768	29 do	or pek	1566	41 bid
263		1771	23 ch	pek	2570	38 hid
264		1774	17 do	pek sou	1700	33
267	Putupaula	1783	12 do	bro or pek	1380	36 bid
268		1786	56 do	bro pek	4760	29
269		1789	36 do	pek	2700	24
270		1792	12 do	pek sou	840	18
273	Elkadua	1801	10 do	byson No.1	1000	out
275	M	1807	18 do	sou	1800	14 hid
276	B D W G	1810	40 bf-cb	hro pek	2000	36
277		1813	20 do	pek	1000	28
279	G	1819	17 cb	br pek	1575	18
280	Monkswood	1822	41 do	bro pek	2255	77
281		1825	48 hf-cb	or pek	2400	69
282		1828	37 ch	pek	3330	54
283		1831	15 do	pek sou	1275	47
284		1834	22 do	fans	1540	39
286	Devonford	1840	20 hf-cb	bro or pek	1100	69
287		1843	12 ch	or pek	1080	63
288		1846	15 do	pek	1275	49
289		1849	12 do	pek sou	1200	40 bid
293	Marlhorough	1861	58 do	pek	4930	32 hid
294	M	1864	10 do	pek	900	18 bid
298	Talgaswela	1876	14 hf cb	bro or pek	840	34
299		1879	22 ch	or pek	1870	34
300		1882	24 do	pek	1920	24
301		1885	13 do	pek sou	975	20
303	Nahalma	1891	22 do	bro pek	2156	30 hid
604		1894	30 do	pek	2850	23
305		1897	12 do	pek sou	1080	18
307	Dunkeld	1903	16 do	pek fans	1088	26
308		1906	16 do	pek sou	1440	29
309		1909	10 hf-ch	dust	900	20
310	Carfax	1912	35 ch	bro pek	3850	24 bid
311		1915	19 do	sou	1710	10
312	Battawatte	1918	25 do	bro or pek	750	43 bid
313		1921	20 do	pek	1900	35
314		1924	12 do	pek sou	960	33
316	Hayes	1930	11 do	bro or pck	1100	48
317		1933	39 do	hr pek	4095	37 bid
318		1936	83 do	pek	7055	27 bid
319		1939	19 do	pek sou	1710	20 bid
328	Yaba Ella	1966	8 do	pek	720	22
330	Agraoya	1972	11 do	or pek	880	23
331		1975	13 do	pek	1105	25
334	Augusta	1984	5 do	dust	700	15
337	Woodend	1993	20 do	bro pek	2000	35
338		1996	30 do	pek	2700	28
339		1999	10 do	pek sou	800	21
343	Tembiligalla	2011	20 do	bro or pek	1900	35 bid

Messrs. Somerville & Co.—

[261,897 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Yspa	1669	17 cb	pek sou	1445	28
2	Marigold	1672	22 ch	bro or pek	1166	49
3		1675	21 do	or pek	987	38
10	Wewatenne	1696	35 hf ch	pek sou	1750	10
14	Salawe	1708	31 cb	bro pek	3255	27
15		1711	19 do	pek	1805	18
16		1714	15 do	pek sou	1350	15
18	Allakola-wewe	1720	22 bf ch	bro or pek	1160	50
19		1723	24 do	or pek	1128	39
24	Nyanza	1738	13 bf ch	bro pek	754	40
25		1741	7 ch	pek	700	26
28	M & B	1750	13 ch	dust	988	12 bid
29	Charlie Hill	1753	42 hf ch	bro pek	2100	22
30		1756	19 do	pek	950	18
33	Dikmukalana	1765	34 bf cb	pek	1700	22 bid
34		1768	42 do	bro pek fans	2310	22 bid
35	Cooroondoo-watte	1771	14 hf ch	bro pek	804	40
36		1774	8 ch	pek	720	24
38		1780	14 hf ch	bro pek	840	44
39		1783	18 cb	pek	1547	26
40		1786	7 do	pek sou	700	20
41	Aberfoyle	1789	23 bf cb	bro pek	1456	36
43		1795	28 do	pek	1260	26
48	Annandale	1810	13 bf ch	bro or pek	767	70
49		1813	20 do	or pek	1140	60
50		1816	20 do	pek	1160	42
51		1819	15 do	pek sou	840	39
55	Rothes	1831	13 bf cb	hro or pek	845	45
56		1834	18 do	or pek	900	39
57		1837	12 ch	pek	1080	33
61	Ingeriya	1849	19 ch	bro pek	1995	29
63		1855	16 do	pek	1520	24
64		1858	12 do	pek sou	1080	19
66	Columbia	1861	21 hf ch	hro or pek	1092	58
67		1867	25 do	or pek	1125	40
68		1870	19 do	pek	874	36
69	Mousa Eliya	1873	23 ch	bro pek 3 oz lead	2300	41
70		1876	14 ch	or pek 3 oz lead	1260	33 hid
71		1879	17 ch	pek 3 oz lead	1615	29
74	St H	1888	15 ch	pek	1590	out
75	Rayigam	1891	34 ch	bro pek	3400	37
76		1894	28 do	or pek	2520	32
77		1897	25 do	pek	2125	28
78		1	16 do	pek sou	1600	25
81	Depedene	10	81 hf cb	bro pek	4050	35
82		13	89 do	pek	4450	25
83		16	51 do	pek sou	2550	20
85	Blackburn	22	12 cb	pek sou	1020	28
88	B	31	20 cb	bro pek fans	1840	out
89	H G	34	42 ch	hro pek	4116	out
90		37	54 do	pek sou	4590	out
91		40	11 do	sou	1232	out
92	M	43	34 hf ch	bro or pek	1700	39 bid
93	Beausejonr	46	25 ch	hro pek	2305	29 bid
94		49	31 do	pek	2480	21 bid
98	Mudukiriya-kande	61	7 cb	pek	700	out
101	S & W	70	11 cb	fans	1287	20
102	E	73	50 cb	pek sou	4000	out
103	Murraytb-waite	76	15 cb	bro pek	1500	26
104		79	11 do	pek	935	29
105	Weganila	91	20 ch	bro pek	2000	44
109		94	16 do	or pek	1440	39
110		97	8 do	pek	720	34
120	L	127	30 ch	pek fans	2760	6 bid
121	C	130	28 hf ch	hro pek	1540	34
122	Neuchatel	133	44 ch	or pek	3520	30
123		136	40 do	bro or pek	4000	36
124		139	15 do	pek sou	1200	24
125	Nehoda	142	13 ch	hro or pek	1300	41
126		145	38 do	bro pek	3800	32
127		148	8 do	pek	720	26
128		151	9 do	pek sou	720	23
130	W R A	157	24 ch	bro pek	2400	26 bid
131	Ravenscraig	160	21 hf ch	hro pek	1155	45
132		163	22 do	pek	1980	35
138	K	181	26 ch	fans	2300	out
139	Cairn Hill	184	24 ch	pek	2160	19 bid
140		187	22 cb	pek sou	760	16
141		190	9 hf ch	dust	720	witbd'n
142		193	18 ch	or pek	1620	31
143		196	21 do	hro pek	2100	27 bid
144		199	35 do	pek	3150	22 bid
145		202	21 do	pek sou	1680	17
146		205	11 bf cb	dust	880	14
147	Ranasingha-patana	208	29 do	or pek	1421	28 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
148		211	22 hf ch	bro or pek	1232	24 bid
149		214	14 ch	pek	1036	24
150		217	12 do	pek	864	24
151		220	10 do	pek sou	820	17
153	E B M	226	54 ch	pek sou	4320	out
154	Harangalla	229	20 ch	pek	1600	28 bid
155	Hangranoya	232	15 ch	bro or pek	1424	51
156		235	19 do	bro pek	1900	29
157		238	17 do	pek	1445	25
158		241	21 do	pek sou	1680	21 bid
159	Monrovia	244	20 ch	bro pek	2000	28
160		247	25 do	pek	2500	19 bid
161		250	11 do	pek sou	1000	14
166	Grange Garden	265	10 ch	bro or pek	1000	53
167		268	15 do	or pek	1500	42
168		271	12 do	pek	1200	36
172	M H	283	37 ch	bro pek fans	3404	5 bid
173	Honiton	286	8 ch	bro pek	800	29
174		289	15 do	pek	1275	26
175		292	11 do	pek sou	880	20
178	Avisawella	301	18 ch	bro pek	1800	32
179		304	18 do	pek	1530	27
180		307	10 do	pek sou	800	20
182	Ferriby	313	11 ch	bro pek	1100	25
184		319	12 do	pek	1020	24
186	Kurunegalla est. Co. Ltd.	325	19 hf ch	bro or pek	1140	40 bid
187		328	20 do	or pek	1000	37
188		331	19 ch	pek	1710	28
189		334	8 do	pek sou	720	21
193	Oaklands	346	11 ch	pek No. 2	935	21
198	Elchico	361	39 hf ch	bro pek	1950	33
199		364	18 do	pek	900	23
203		376	13 do	Hyson	780	out
213	Monte Christo	406	31 ch	bro pek	3100	41 bid
214		409	25 do	or pek	2000	30 bid
215		412	60 do	pek	5100	27
216		415	16 do	pek sou	1280	19
219	Cotswold	424	12 ch	pek	960	34
222	Rayigam	433	34 ch	bro pek	3230	34 bid
223	Kellebokka	436	14 ch	bro or pek	1400	
224		439	30 do	bro pek	3150	with
225		442	22 do	pek	1980	drawn
228	Mora Ella	451	15 hf ch	bro or pek	870	49
229		454	19 do	or pek	988	44
230		457	18 ch	pek	1620	35
231		460	9 do	pek sou	720	28
232	Roseneath	463	16 ch	bro pek	1600	39
233		466	11 do	pek	990	33
234		469	17 do	pek sou	1360	25
235	A	472	20 ch	pek	1817	16
236	Theberton	475	29 ch	bro pek	2755	27
237		478	14 do	pek	1190	25

[Mr. E. John.—174,977 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	G W K	128	7 ch	bro pek	770	27
3		134	8 do	pek	704	18
4	Glentilt	137	31 do	bro pek	3100	47
5		140	24 do	or pek	2160	42
6		143	17 do	pek	1360	36
8	Eila	149	24 do	bro or pek	2640	40
9		152	9 do	or pek	765	39 bid
10		155	38 do	bro pek	3610	37 bid
11		158	26 do	pek	2600	31 bid
12		161	28 do	pek sou	2240	23
14		167	6 do	dust	720	18
15	Whyddon	170	19 do	bro pek	2090	44
16		173	14 do	or pek	1260	39
17		176	8 do	or pek	720	29
21	Kandaloya	188	22 hf-ch	bro pek	990	44 bid
22		191	18 do	or pek	720	40 bid
23		194	38 do	pek	1520	34
25	Kelaneiya and Braemar	200	20 ch	bro or pek	2000	44
26		203	9 do	or pek	900	36
27		206	15 do	pek	1500	31
30	O A S, in estate mark	215	9 do	bro pek	900	25 bid
31		218	11 do	pek	1100	17 bid
32		221	9 do	pek sou	890	8 bid
35	Oonoogaloya	230	15 do	or pek	1359	43
36		233	17 do	bro or pek	1700	53
37		236	21 do	pek	2100	39
38		239	9 do	bro or pek No. 2	1125	39
39	Kandaloya	242	35 hf-ch	bro pek	1575	44 bid
40		245	21 do	or pek	840	48
41		248	59 do	pek	2360	35
45	H R	260	21 do	bro or pek	1155	50 bid
46		263	20 do	bro pek	1100	37 bid
47		266	41 ch	pek	3280	22 bid
48		269	24 do	pek sou	2040	16 bid
49	Meeriabedde	281	6 do	bro mix	1040	10
50	Dickapitiya	284	26 do	bro pek	2600	41
51		287	30 do	pek	3000	32
52		290	8 do	pek sou	800	27 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
53		293	15 hf ch	fans	975	21
54	Callander	296	25 do	bro or pek	1500	49
55		299	26 do	or pek	1352	42
56		302	47 do	pek	2256	37
59	Peru	311	8 ch	bro pek	840	50
60		314	11 do	pek	935	35
61		317	11 do	pek sou	935	28
63	S J	323	10 do	bro pek	1000	42
64		326	7 do	pek	700	32 bid
65	St. John's	329	25 hf ch	bro or pek	1500	65 bid
66		332	25 do	or pek	1250	66
67		335	19 do	pek sou	950	45
68	St. Andrew's	338	61 do	bro pek	3355	42 bid
69		341	44 ch	or pek	3740	41
70		344	45 do	pek	4050	37
71		347	20 do	pek sou	1600	31
72		350	9 hf ch	dust	765	22
73	V	353	37 ch	pek	3145	24 bid
74		356	13 do	pek sou	1105	19 bid
75		359	15 do	dust	1200	12 bid
76	Ferndale	362	9 do	bro pek	900	54
77		365	17 do	pek	1445	39
78		368	9 do	pek sou	810	35
83	Brownlow	383	22 hf ch	bro or pek	1320	59
84		386	14 ch	or pek	1302	47
85		389	23 do	pek	1978	40
87	Kolapatna	395	25 hf ch	bro or pek	1350	71
88		398	24 do	or pek	1200	54
89		401	19 do	pek	950	45
93	Poilakande	413	28 ch	bro pek	2800	32 bid
94		416	18 do	pek	1620	24
96	G	422	36 do	pek sou	3276	19 bid
99	M P	431	21 do 1 hf ch	bro pek fans	1510	20
100		434	15 do	pek dust	1350	18
101	Maryland	437	7 ch	bro pek	700	28 bid
103	Y K	443	8 do	dust	1200	17
106	Gampai	452	8 do	bro pek	800	34
107		455	9 do	pek	720	24 bid
111	Rookwood	467	33 hf ch	bro or pek	1980	60
112		470	14 ch	or pek	1344	45
113		473	20 do	pek sou	1800	40
116	Warleigh	482	13 hf ch	bro or pek	780	74 bid
117		485	15 do	or pek	825	53 bid
118		488	23 do	bro pek	2185	42
119		491	23 ch	pek	1955	37
121		497	11 hf-ch	dust	880	23
122	Mossend	500	15 do	bro or pek	825	87
123		503	27 do	or pek	1485	72
124		506	31 do	pek	1550	54
127	Ardlaw and Wishford	515	16 ch	bro pek	1400	21 bid
128	Agra Ouvah	518	39 hf ch	bro or pek	2340	67
129		521	41 ch	or pek	4100	47
130		524	26 do	pek	2392	42
131	Cabin Ella	527	13 do	bro or pek	1430	41
132		530	11 do	pek No 1	1100	31
133		533	10 do	pek No. 2	950	28
134	Little Valley	536	10 do	bro pek	950	53
135		539	18 do	pek	1440	31
139	Glassaugh	551	23 hf-ch	or pek	1265	70
140		554	21 do	bro or pek	1365	60
141		557	14 ch	pek	1400	60
142	M S S	560	33 hf ch	bro pek	1650	32 bid
144	Cresta	566	16 do	bro or pek	800	33 bid
145		569	20 ch	or pek	1720	28
146		572	9 do	pek	765	18

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
6 72	Uduweria	72	9 hf ch	pek sou	450	17

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	B B B, in est. mark	988	4 ch	dust	332	17
12	Dartry	1021	1 ch	bro pek	103	36
13		1024	1 do	pek	100	27
24	Drayton	1057	2 ch	sou	170	28
25		1060	6 do	dust	510	21
36	Maryland	1093	2 ch	sou	180	12
37		1096	1 do	dust	80	20
38		1099	1 do	fans	65	30
43	Elkadua	1114	6 ch	young hyson	600	out
47		1126	3 do	green tea fan	300	11
48		1129	4 do	dust	320	11
56	Kitulgalla	1153	3 ch	bro or pek fans	300	22
62	Rowley	1171	2 hf ch	pek sou	100	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
64	Carberry	1177	4 ch	pek	300	27
65		1180	7 do	pek sou	490	22
66		1183	3 do	sou	180	18
67		1186	2 do	bro pek sou	170	27
68		1189	3 do	bro pek fans	345	29
69		1192	2 do	dust	290	19
74	Tembiligalla	1207	1 do	pek sou	90	24
75		1210	1 do	bro pek fans	110	31
76		1213	1 do	dust	140	18
81	K P W	1228	3 hf ch	bro pek fans	210	23
82		1231	2 do	dust	170	19
94	Tempo	1267	8 ch	pek No. 2	560	20
95		1270	4 do	pek sou	230	16
96		1273	5 do	bro pek fans	500	28
97	Tempo	1276	7 hf ch	young hyson	385	out
98		1279	6 ch	hyson No 1	450	out
99		1282	1 do	hyson ,, 2	80	out
103	Clyde	1294	3 ch	pek sou	210	19
104		1297	2 do	pek fans	262	22
111	Clunes	1318	3 hf-ch	dust	270	19
119	Maha Uva	1342	1 hf ch	pek fans	70	33
120		1345	5 do	dust	400	22
131	Ganapalla	1378	3 hfch	dust	252	19
140	Dewalakande	1405	5 ch	young hyson	525	out
142		1411	7 do	hyson No. 2	686	out
143	Inverness	1414	6 hf ch	bro tea	510	17
144		1417	5 ch	red leaf	450	5
145	L, in estate mark	1420	6 hf-ch	dust	504	18
146	Labukelle	1423	2 ch	pek sou	190	37
147	A G	1426	3 ch	bro tea	300	14
148		1429	2 do	dust	260	16
152	Pine Hill	1441	7 ch	pek sou	630	33
162	Gampaha	1471	5 hf ch	pek fans	450	22
171	Queensland	1498	3 ch	pek sou	285	26
172		1501	1 hf ch	pro pek dust	80	22
176	Sirikandura	1513	2 ch	bro pek fans	170	25
177		1516	2 do	fans	178	12
178		1519	1 do	congou	105	13
179		1522	1 do	bro pek dust	173	20
182	Hatton	1531	3 ch	dust	450	23
183	Bogahagodawatte	1534	3 ch	bro or pek	350	35
188	Dunbar	1549	7 hf ch	bro pek	399	52
191		1558	2 ch	pek sou (2 oz. lead)	170	34
192		1561	6 hf ch	bro pek fans	372	37
193		1564	1 ch	dust (2 oz. lead)	118	21
198	B D in est. mark	1579	3 boxes	br or pk fans	63	72
199	Amblakande	1582	6 ch	bro or pek	600	38
200		1585	7 do	or pek	595	33
201		1588	7 do	pek	560	24
202		1591	7 do	pek sou	560	20
205	Waratenne	1600	4 do	pek sou	320	17
209	Geragama	1612	6 do	pek sou	480	18
214	Glengariffe	1627	10 hf ch	br or pk fans	650	29
215		1630	7 do	dust	560	20
219	Maldeniya	1642	5 ch	br pek fans	500	24
223	St Clive	1654	11 hf-ch	hyson fans	550	11
223	Walpita	1684	4 ch	sou	360	11
241	Kalupahana	1708	3 do	bro tea	330	10
242		1711	4 do	bro mixed	435	8
243		1714	3 do	dust	452	13
244	Harrington	1717	2 do 2 hf ch	bro pek	310	21
245		1720	4 ch 1 hf-ch	pek	400	15
246		1723	1 ch 1 hf-ch	pek sou	220	12
252	Vegan	1738	8 ch	pek sou	680	22
253		1741	5 do	bro pek fans	600	23
254		1744	6 hf ch	dust	510	20
255	E P	1747	1 do	bro,pek N. I	100	21
256		1750	1 ch	bro pek No. 2	100	21
260	Clarendon	1762	10 hf-ch	bro tea	630	48 bid
265		1777	3 ch	sou	240	22
266		1780	2 do	dust	160	22
271	Putupaula	1795	2 do	dust	280	15
272	Elkadua	1798	3 do	young hyson	300	20 bid
274		1804	6 do	hyson No. 2	600	13
278	B D W G	1816	4 hf ch	pek sou	200	20
285	Monkswood	1837	7 do	dust	630	20
290	C T L	1852	4 do	fans	280	19
292		1855	2 do	dust	170	19
292	U S A	1858	5 ch	unast	488	6
295	J E S	1867	2 do	bro pek	194	30
296		1870	4 do	pek	352	18
297		1873	1 do	pek sou	80	10
302	Talgaswela	1888	10 hf ch	br pek No. 2	600	24
303	Nahalma	1900	5 do	dust	400	16
315	Battawatte	1927	2 ch	dust	200	19
320	Hayes	1942	5 hf ch	br or pk fans	350	24
321	R G in est. mark	1945	4 ch	bro or pek	400	39
322		1948	3 ch	or pek	255	38
323		1951	6 do	pek	480	25
324		1954	2 do	pek sou	160	18
325		1957	1 hf ch	dust	80	18
326	Tilyrie	1960	3 do	twanky	225	10
327	Yaha Ella	1963	6 ch	bro pek	600	32
329		1969	3 do	pek sou	270	17
332	Augusta	1978	2 do	sou	190	11
333		1981	1 do	pek fans	110	16
335	R W T	1987	2 do	dust	240	16
336		1990	2 do	congou	180	10
340	Woodend	2002	3 hf-ch	bro pk fans	354	22
341		2005	2 ch	fans	220	22
342		2008	1 do	dust	140	18

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Marigold	1678	11 hf ch	pek	550	39
5		1681	11 do	pek sou	528	36
6		1684	6 do	bro pek fans	396	35
7		1687	3 do	pek dust	225	26
8	Wewatenne	1690	13 hf ch	bro pek	650	29
9		1693	13 do	pek	650	22
11		1699	4 do	pek dust	300	15
12		1702	8 do	dust	640	11
13		1705	8 do	con	360	7
17	Salawe	1717	2 ch	pek dust	320	17
20	Allakolawewe	1726	12 hf ch	pek	600	30
21		1729	13 do	pek sou	624	37
22		1732	6 do	bro pek fans	396	37
23		1735	5 do	pek dust	375	24
26	Nyanza	1744	1 ch	pek sou	90	21
27		1747	1 do	dust	100	19
31	Charlie	1759	2 hf ch	pek sou	90	10
32		1762	4 do	fans	240	17
37	Cooroondoowatte	1777	7 ch	pek sou	630	20
42	Aberfoyle	1792	3 hf ch	bro or pek	180	33
44		1798	1 do	pek No 2	50	16
45		1801	6 do	pek sou	270	19
46		1804	1 do	con	50	12
47		1807	1 do	dust	86	18
52	Annandale	1822	4 hf ch	sou	188	25
53		1825	4 do	fans	240	30
54		1828	4 do	dust	304	20
58	Rothes	1840	3 ch	pek sou	255	22
59		1843	3 hf ch	bro or tea	180	26
60		1846	1 do	dust	95	22
62	Ingeriya	1852	6 ch	bro or pek	660	27
65		1861	3 do	dnst	375	19
72	Moosa Eliya	1882	2 ch	pek sou 3 oz lead	200	17
73		1885	2 ch	fans 3 oz lead	290	20
79	Rayigam	4	8 hf ch	dust	640	20
80	A B C	7	8 hf ch	bro pek	360	10
84	Deledene	19	4 hf ch	dust	320	19
86	Blackburn	25	8 hf ch	fans	560	24
87		28	8 do	dust	640	19
95	Beausejour	52	8 ch	pek sou	600	16
96		55	3 do	dust	380	17
97	Mudukiriyakanda	58	6 ch	bro pek	630	22 bid
99		61	3 do	sou	285	10
100		67	1 do	fans	115	18
105	Murraythwaite	82	8 ch	pek sou	640	18
106		85	3 do	fans	375	21
107		88	1 do	dust	180	14
111	Malawasawa	100	3 ch	bro pek	300	32
112		103	3 do	or pek	240	33
113		106	4 do	pek	280	24
114		109	3 do	pek sou	240	15
115		112	1 do	fans	110	17
116	Alntkelle	115	11 hf ch	bro pek	550	21 bid
117		118	6 do	pek	300	13 bid
118		121	4 do	sou	184	8 bid
119		124	1 ch	sou	92	out
129	Neboda	154	4 ch	dust	360	17
133	Ravenscraig	166	6 hf ch	pek sou	540	24
165	Monrovia	262	2 ch	green tea dust	250	11
169	Grange Garden	274	1 ch	pek sou	100	18
170		277	1 do	fans	100	21
171		280	1 do	dust	170	18
176	Honiton	295	3 ch	dust	210	19
177		298	7 hf ch	bro or pek	350	45
181	A A	310	8 ch		640	out
183	Ferriby	316	5 hf-ch	or pek	225	30
185		322	8 ch	pek sou	640	19
190	Oaklands	337	3 ch	or pek No 1	312	34
191		340	7 do	or pek No 2	630	29
192		343	7 do	pek No 1	616	25
194		349	6 do	pek sou	480	12
195		355	2 do	bro pek fans	200	28
196		358	2 do	pek fans	224	20
197		3·8	3 hf ch	dust	295	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
200	Elchico	367	4 hf ch	fans	280	17
201		370	1 do	dust	85	12
202		373	5 do	young hyson	245	out
204		379	2 do	hyson No. 2	100	10 bid
205		382	1 do	twanky	65	10 bid
206	P B D	385	2 do	bro pek	100	28
207		388	2 do	pek	100	20
208		391	1 do	pek sou	45	15
209		394	3 ch	pek	239	13 bid
210	Greenwich	397	1 hf ch	small leaf hyson	44	30
211		400	1 do	bold leaf hyson	33	15 bid
212		403	1 do	hyson	44	9 bid
217	Cotswold	418	6 ch	bro or pek	480	53
218		421	6 do	or pek	465	39
220		427	4 do	pek sou	320	20
221		430	1 do	dust	112	19
226	Kallebokka	445	2 do	pek sou	210	withd'n
227		448	2 hf-ch	dust	170	
238	Theberton	481	3 ch	pek sou	255	21
239		484	4 do	fans	400	22
240		487	1 do	dust	100	16

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	G K W	131	3 ch	or pek	270	37
7	Glentilt	146	10 hf ch	bro mix	600	27
13	Eila	164	3 ch	or pek fans	350	32
18	Whyddon	179	4 do	pek sou	384	37
19		182	2 do	bro pek fans	244	32
20		185	1 do	dust	150	21
24	Kandaloya	197	3 hf ch	pek sou	120	32
28	Kelaneiya and Braemar	209	5 ch	sou	500	28
29		212	8 hf ch	dust	640	22
33	O A S, in estate mark	224	2 ch	fans	226	10
34		227	2 do	mix	180	7
42	Kandaloya	251	9 hf ch	pek sou	360	32
43	Doonvale	254	4 ch	dust	600	15
44	A A	257	1 do	dust	115	20
57	Callander	305	5 hf ch	pek sou	200	37
58		308	6 do	bro pek fans	420	32
62	Peru	320	2 ch	pek fans	224	24
79	Ferndale	371	7 do	sou	595	28
80	Long Velle	374	8 hf ch	bro pek	480	38
81		377	3 ch	or pek	270	28
82		380	4 do	pek	360	24
86	Brownlow	392	6 hf-ch	dust	510	20
90	Kolapatna	404	6 do	pek sou	300	43
91		407	5 do	br or pek fans	300	39
92		410	5 do	fans	350	33
95	P K T	419	5 do	dust	450	15
97	M P	425	4 ch	bro pek	400	14 bid
98		428	3 do	pek	300	12 bid
102	Maryland	440	6 do	pek	600	26
104	Anamallai	446	1 hf-ch	dust	85	14
105	P K T	449	1 do	dust	80	15
108	Gampai	458	10 ch	pek sou	670	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
109		461	1 hf ch	dust	70	withd'n
110		464	1 ch	red leaf	80	
114	Rookwood	476	5 do	faus	370	34
116		479	1 do	pek dust	92	20
120	Warleigh	494	5 do	pek sou	400	34
125	Mossend	509	3 hf ch	fans	180	39
126		512	3 do	dust	195	25
136	Little Valley	542	7 ch	pek sou	560	28
137		545	1 hf ch	dust	80	16
138		548	5 do	fans	250	52
143	R P K	563	8 ch	pek sou	600	out
147	Cresta	575	4 hf ch	dust	300	18

CEYLON COFFEE SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, Feb. 15.

"Awa Maru."—Blackwood OO, 2 casks and 1 barrel sold at 95s; ditto EF, 1 tierce sold at 66s; ditto F, 1 barrel sold at 52s; ditto PB, 1 barrel sold at 65s; BKW T, 1 barrel sold at 34s.

The above was left out of last week's list by mistake.

CEYLON COCOA SALES IN LONDON

MINCING LANE, Feb. 22.

"Inaba Maru."—Ditto T, 2 bags sold at 64s 6d; ditto 2, 2 bags sold at 60s; ditto T, 2 bags sold at 61s 6d; ditto 2, 1 bag sold at 55s 6d; ditto T, 2 bags sold at 63s 6d.

"Socotra."—L ditto, 2 bags sold at 55s 6d.

"Dordyone."—Maria, 19 bags sold at 64s; 2, 6 bags sold at 60s; 3, 7 bags sold at 48s.

"Inaba Maru."—2, 3 bags sold at 68s; 3, 3 bags sold at 60s 6d; North Matale, 11 bags sold at 61s 6d; B, 15 bags sold at 88s 6d; KK, 6 bags sold at 68s; 20 bags sold at 39s 6d.

"Patroclus."—* MAK in estate mark, Estate Cocoa, 8 bags sold at 57s 6d.

"Wakata Maru."—Meegama A, 1 bag sold at 75s.

"Inaba Maru."—Ditto 2, 10 bags sold at 59s 6d.

"Awa Maru."—Ditto B, 1 bag sold at 47s.

"Omrah."—Bandarapola T, 1 bag sold at 55s.

"Inaba Maru."—Hylton OO, 3 bags sold at 65s 6d; ditto T, 3 bags sold at 60s 6d.

"Derbyshire."—Ditto T, 1 bag sold at 57s.

"Inaba Maru."—GBEC in estate mark, Mahaberia Ceylon O, 4 bags sold at 85s; ditto 1 C, 6 bags sold at 69s; ditto OC, 9 bags sold at 101s; ditto 1 C, 10 bags sold at 84s 6d; ditto 2 O, 1 bag sold at 49s; 2 bags sold at 63s.

OBSERVER PRINTING WORKS.

No. 12. COLOMBO, MARCH 25, 1901. PRICE :—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[32,395 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	58	19 hf ch	bro pek fans	1425	32
2	Battalgalla	61	33 ch	or pek	3135	42 bid
3		64	28 do	pek	2380	38
4		67	18 do	pek sou	1440	35
5	Bunyan and Ovoca	70	37 hf ch	bro or pek	2035	60 bid
6		73	28 do	or pek	1400	44 bid
7		76	27 ch	pek	2430	39
8		79	18 do	pek sou	1620	32
11	Torrington	88	21 ch	or pek	1785	44 bid
12		91	16 do	bro or pek	1520	51 bid
13		94	27 do	or pek No. 2	2160	33 bid
14		97	45 do	pek	4050	33
15		100	47 do	pek sou	3525	28
16		3	12 do	or pek fans	1380	36
18	Lunugalla	9	9 ch	bro pek	900	23 bid

Messrs. Forbes & Walker.

[630,579 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Wewawatte	2017	15 ch	bro pek	900	30
6	New Peacock	2029	15 ch	pek fans	1125	22
7	Pendle	2032	13 ch	bro pek	1300	42
8		2035	15 do	pek	1350	36
9		2038	8 do	pek sou	720	31
13	Great Valley Ceylon, in est. mark	2050	32 ch	bro or pek	1760	50 bid
14		2053	11 do	or pek	935	42
15		2056	25 do	pek	2125	36
16		2059	10 do	pek sou	750	31
18		2065	9 do	dust	765	19
19	B, in estate mark	2068	10 ch	sou	900	14 bid
20		2071	10 do	dust	1400	17
21	Theddon	2074	17 ch	bro pek	1700	38
22		2077	11 do	pek	990	33
25	Avoca	2086	23 ch	bro or pek	2530	69
26		2089	36 do	bro pek	3960	47 bid
27		2092	32 do	pek	3040	43
28		2095	12 do	pek sou	1140	37
29		2098	7 do	bro pek fans	945	29
30	Lavrawatte	2101	10 ch	bro or pek	1080	39
31		2104	9 do	or pek	900	35
32		2107	17 do	pek	1632	28
34	Weyunga-watte	2113	19 ch	bro pek	1900	35
35		2116	19 do	pek	1805	30
36		2119	16 do	pek sou	1280	24
39	Sylvakandy	2128	89 hf-ch	bro or pek	4895	51
40		2131	17 ch	bro pek	1700	39
41		2134	45 hf ch	or pek	2250	41
42		2147	15 ch	pek	1425	37
43		2140	17 do	pek sou	1700	30
45	Chesterford	2146	32 ch	bro pek	3200	48
46		2149	38 do	pek	2610	33
47		2152	16 do	pek sou	1440	25
51	Ardlaw and Wishford	2164	18 hf-ch	bro or pek	1026	62
52		2167	13 ch	bro pek	1183	49
53		2170	9 do	or pek	756	45
54		2173	15 do	pek	1275	42
58	E D P	2185	13 ch	sou	1040	18
59		2188	9 hf ch	dust	720	18
60	Bickley	2191	15 do	bro or pek	1030	65
62		2197	15 do	or pek	975	51
63		2200	20 do	pek	1200	41
69	Yuillefield	2218	21 ch	or pek	1050	50
70		2221	35 hf ch	pek	3150	38
73	Yogama	2230	25 ch	bro pek	2500	37
74		2233	18 do	pek	1620	28
76		2239	10 do	pek sou	800	23
77	Udaveria	2242	40 hf ch	bro or pek	2320	withd'n.
78		2245	30 do	pek	1500	withd'n.
79		2248	25 do	pek sou	1250	withd'n.
81	Yatiyana	2254	23 ch	bro pek	2392	29
82		2257	8 do	pek	800	22
85	Naseby	2266	35 hf ch	bro or pek	2100	75
86		2269	25 hf ch	or pek	1175	72
87		2272	9 do	fans	720	42
88	Panawatte	2275	8 ch	bro pek	896	40
89		2278	11 do	or pek	990	39
90		2281	13 do	pek	1170	33
91		2284	22 do	pek sou	2090	23
92	Penrhos	2287	24 hf ch	bro or pek	1344	56
93		2290	30 do	or pek	1440	47
94		2293	33 ch	pek	3036	37
95		2296	10 ch	pek sou	800	32
97	C R D	2302	12 ch	dust	1200	17
103	Erlsmere	2320	25 hf ch	bro pek	1400	48
104		2323	16 ch	pek	1280	44
107	Polatagama	2332	36 ch	bro pek	3600	49
108		2335	11 do	or pek	1100	37
109		2338	24 do	pek	2280	32
110		2341	11 do	pek sou	1100	23
113	Dammeria	2350	28 ch	or pek	2520	38
114		2353	20 hf ch	or pek	1800	34
115		2356	11 ch	bro pek	1100	41
116		2359	27 do	pek	2430	31
118	Dea Ella	2365	19 hf ch	bro or pek	1045	48
119		2368	50 do	or pek	2500	38
120		2371	23 do	pek	1150	31
122	Hayes	2377	17 ch	bro or pek	1750	52
123		2380	23 do	bro pek	2415	45
124		2383	90 do	pek	7650	30
125		2386	20 do	pek sou	1800	22
127	St. Narmans	2392	44 ch	bro pek	4620	44 bid
128		2395	40 do	pek	3600	39
129		2398	13 do	pek sou	1105	34
131	Ruanwella	2404	10 ch	or pek	850	31
132		2407	20 do	bro pek	2000	37
133		2410	44 do	pek	3960	28
134		2413	8 do	pek sou	720	20
135		2416	9 do	dust	720	16
136	Kirklees	2419	24 hf ch	bro or pek	1320	52
137		2422	25 do	bro pek	1625	38
138		2425	26 ch	pek	2210	35
139	Ganapalla	2428	19 ch	bro or pek	2166	35
140		2431	23 do	or pek	2024	36
141		2434	24 do	pek No. 1	2160	29
142		2437	28 do	do No 2	2408	26
143		2440	15 do	pek sou	1230	22
145	K	2446	8 ch	sou	720	38
146		2449	5 do	dust	750	27
147	Lucky Land	2452	28 hf ch	bro or pek	1680	47
148		2455	23 do	or pek	1150	48
149		2458	33 do	pek	1485	44
150		2461	21 do	pek sou	945	36
152	Inverness	2467	43 hf ch	or pek	2150	67 bid
153		2470	40 do	bro or pek	2400	56 bid
154		2473	32 ch	pek	2880	55 bid
155	Theydon Bois	2476	8 ch	or pek	760	41
156		2479	22 do	pek	1650	32
157		2482	10 do	pek sou	800	23
158	Palmerston	2485	13 hf ch	bro or pek	741	73
159		2488	10 do	pek	870	50
164	Yataderia	2503	19 ch	bro or pek	2052	39 bid
165		2506	24 do	or pek	2592	28
166		2509	49 do	pek No. 1	4655	21 bid
167		2512	30 do	pek	2940	19 bid
168		2515	14 do	pek sou	1260	16
180	N W D	2551	15 do	fans	1845	28
184	Mawiliganga-watte	2563	28 ch	bro pek	2800	36
185		2566	24 do	pek sou	1920	24
187	Shrubs Hill	2572	22 ch	bro pek	2354	37
188		2575	19 do	pek	1615	31
189		2578	22 do	bro pek	2354	57
190		2581	47 do	or pek	3995	34
191		2584	25 do	pek	2200	30
193		2590	11 do	bro pek fans	880	20
194	Digdola	2593	13 ch	bro pek	1235	38
196		2599	18 do	pek	1530	29
198		2605	12 do	pek sou No. 2	900	18
199	Parsloes	2608	35 ch	bro pek	3500	37
200		2611	18 do	pek	1620	27
204	P C H Galle, in estate mark	2623	19 hf ch	hyson No. 2	950	out
210	Cullen	2641	47 ch	bro or pek	4888	52
211		2644	55 do	pek	4510	34
212	Roeberry B	2647	9 ch	bro or pek	900	64
213		2650	15 do	bro pek	1500	48
214		2653	16 do	pek	1440	37
215		2656	10 do	pek sou	860	32
216	Roeberry C	2659	14 ch	bro or pek	1400	64
217		2662	27 do	bro pek	2700	48
218		2665	30 do	pek	2700	37

Lot.		Box.	Pkgs.	Name.	lb.	c.
219		2668	9 cb	pek sou	774	33
220		2671	9 do	dust	900	18
221		2674	12 do	fans	1200	27
222	Roeberry X	2677	26 do	bro or pek	2600	66
223		2680	39 do	bro pek	3900	49
224		2683	44 do	pek	3930	37
225		2686	10 do	pek sou	860	33
226	Ouvahkellie	2689	14 do	pek sou	1260	40
227		2692	9 do	dust	720	26
228	Ella Oya	2695	13 cb	young hyson	1235	out
229		2698	16 do	hyson	1280	out
230	Nahalma	2701	50 do	bro pek	4800	33 bid
231		2704	55 do	pek	5225	24 bid
232		2707	19 do	pek sou	1710	18 bid
236	Clyde	2719	10 ch	bro or pek	1000	54
237		2722	23 do	or pek	2116	38
238		2725	19 do	pek	1767	29
241	Harrow	2734	9 ch	or pek	915	48
242		2737	18 hf ch	bro or pek	1080	53 bid
243		2740	8 ch	pek No 1	800	42
244		2743	22 do	do „ 2	2310	39
245		2746	10 do	pek sou	900	35
247	Kincora	2752	19 cb	bro pek	1805	54 bid
248		2755	19 do	pek	1520	41 bid
249		2758	27 do	do No 2	2025	35
251	R M, in est. mark	2764	25 ch	bro pek	2500	39
252		2767	18 do	pek	1530	34
257	St. Paul's	2782	34 hf ch	or pek No. 1	1768	49
258		2785	55 do	or pek No.	2530	40
259		2788	33 do	pek	1716	37
264	Udapolla	2803	7 ch	br pek	700	33
265		2806	10 do	pek	900	26
275	Strathspey	2836	14 do	or pek	1400	49 bid
276		2839	14 do	pek	1274	44
279	Freds Ruhe	2848	45 do	bro pek	4500	36
280		2851	44 do	pek	3960	24
281		2854	15 do	pek sou	1500	18
283	Wattawalla	2860	18 do	bro or pek	1800	57 bid
284		2863	30 do	bro pek	3000	43 bid
285		2866	15 do	or pek	1350	44 bid
286		2869	18 do	pek No. 1	1620	35 bid
287		2872	26 do	pek No. 2	2340	33 bid
292	Tismoda	2887	20 hf-ch	bro pek	1100	34
293		2890	10 ch	pek	900	29
294		2898	9 hf-ch	dust	720	19
295	Sutton	2896	11 cb	bro or pek	1210	76 bid
296		2899	30 do	or pek	3000	66 bid
297		2902	13 do	pek	1170	57
301	Dindupatna	2914	33 do	br pek	3627	38 bid
302		2917	27 do	pek	2562	42 bid
303	Deaculla	2920	20 do	pek sou	1397	20
304	Hanwella	2923	10 do	young hyson	1000	out
305		2926	7 do	hyson No.1	700	ont
308	Weoya	2935	9 do	bro or pek	990	32
309		2938	46 do	bro pek	5060	40 bid
310		2941	25 do	pek No. 1	2250	35
311		2944	33 do	pek	2970	31
312		2948	14 do	pek sou	1120	23
314	High Forest	29.3	66 hf-ch	or pek	3960	64
315		2956	43 do	or pek	2365	54
316		2959	33 do	pek	1650	54
317	Erracht	2962	10 ch	bro pek	1000	40
318		2965	13 do	or pek	1040	40 bid
319		2968	11 do	pek	880	31
320		2971	27 do	pek sou	2160	28
321		2974	14 do	br pek fans	1610	27
323	High Forest	2980	49 hf-cb	bro or pek	3430	39
324		2983	20 do	pek sou	920	42
325		2986	13 do	pek dust	1144	23
326	Glengeriffe	2989	21 do	pek sou	1572	18 bid
331	Arapolakande	3004	100 hf-ch	young hyson	5500	30
332		3007	44 do	hyson	4400	22 bid
333		3010	15 do	hyson No. 2	1575	16 bid
337	M	3022	10 cb	pek	947	19
338	Marlborough	3025	93 hf-ch	bro or pek	6208	59
339		3028	12 ch	or pek	984	39
340		3031	42 do	pek	3570	34
357	W V R A	3082	13 hf-cb	fans	1040	17
358	B D W G	3085	63 do	bro pek	6150	33
359	Algooltenne	3088	15 ch	bro or pek	1500	35
360		3091	31 do	or pek	2790	40
361		3094	52 do	pek	4160	32
362		3097	20 do	pek sou	1800	23
363	Middleton	3100	18 hf ch	bro or pek	1008	73
364		3103	40 ch	br pek	4000	50 bid
365		3106	14 do	pek	3485	40 bid
366	Ella Oya	3109	14 do	young hyson	1330	out
367		3112	15 do	hyson	1200	out
368	Queensland	3115	8 do	pek sou	717	20
369	Ella A	3118	15 hf-ch	bro or pek	870	52
370		3121	18 ch	pek	1620	34 bid
371		3124	9 do	pek sou	720	28 bid
372	Ingragalla	3127	13 do	bro pek	1300	43
		3130	12 do	pek	1020	34

Lot.		Box.	Pkgs.	Name.	lb.	c.
374	Puspone	3133	28 cb	or pek	2800	35
375		3136	25 do	br pek	3000	33
376		3139	19 do	pek sou	1710	22
377		3142	5 do	dust	750	16
379	Drayton	3148	43 hf-ch	bro or pek	2580	62 bid
380		3151	58 do	or pek	2900	44 bid
381		3154	47 cb	pek	3995	40 bid
382		3157	16 do	pek sou	1360	37
386	Palmgarden	3169	9 do	br pek	900	29
387		3172	9 do	pek	900	20
390	Villehena	3181	25 hf-ch	br pk dust	2500	32
391		3184	15 do	pek	1500	24
395	Knavesmire	3196	10 ch	or pek	900	40
396		3199	41 do	bro pek	4109	37
397		3202	45 do	pek	3825	33
398		3205	30 do	pek sou	2400	29
399		3208	20 hf-ch	dust	1600	20
400		3211	12 do	bro pek fans	780	26
401		3214	45 do	sou	3375	22
402	Passara Group	3217	14 ch	bro or pek	1400	48
403		3220	22 do	bro pek	2090	41
404		3223	14 do	pek sou	1260	32
405	H G M	3226	13 hf cb	flo or pek	780	64
406		3229	19 ch	bro pek	1900	42
407		3232	14 do	pek	1330	38
408	G T D	3235	13 do	br pek	1300	35
409		3238	8 do	pek	720	29
410	Kemvali	3241	22 do	pek	1760	19
416	St. Heliers	3259	30 bf-ch	bro or pek	1680	38
417		3262	18 cb	pek	1620	32
422	Patiyagama	3277	17 do	bro or pek	935	58
424		3283	42 do	pek	3570	37
425		3286	10 do	pek sou	850	34
426	Maha Uva	3289	32 bf ch	bro or pek	1920	39
427		3292	25 do	or pek	1400	41
428		3295	25 ch	pek	2250	41
429		3298	9 hf-ch	pek sou	720	32
432	Pallagodda	3307	9 ch	bro or pek	900	34
433		3310	14 do	br pek	1400	40
434		3313	12 do	or pek	1050	35
436		3319	8 do	pek sou	760	31
437		3322	8 do	sou	760	20
438		3325	11 do	dust	990	20
440	Galkadua	3331	14 do	bro pek	1540	29 bid
441		3334	15 do	pek	1500	20
442		3337	9 do	pek sou	900	18
445	Fairlawn	3346	31 hf-ch	bro pek	1550	57
446		3349	15 ch	or pek	1125	39
447		3353	24 do	pek	2040	35
451	Akaroa	3364	45 do	bro or pek	4500	52
452		3367	46 do	pek	3680	36
453		3370	20 do	pek sou	1360	30
454	Adisham	3373	13 hf-ch	bro or pek	780	64 bid
455		3376	11 ch	bro pek	1100	46 bid
457		3382	28 do	pek	2380	38 bid
459	Laxapana	3388	33 hf ch	bro pek	1980	53 bid
460		3391	30 cb	or pek	2550	44
461		3394	44 do	pek	3470	35 bid
462	Dunnottar	3397	32 hf-ch	bro or pek	1600	49 bid
464		3403	43 do	pek	3655	36 bid
469	Woodend	3418	27 cb	bro pek	2700	40 bid
470		3421	38 do	pek	3420	30
471		3424	11 do	pek sou	880	23
475	Ugieside	3436	20 do	bro mixed	1800	7 bid
476	Stamford Hill	3439	26 hf-ch	bro pek	1560	60 bid
477		3442	20 ch	pek	1800	47
480	Walton	3451	14 do	bro pek	1540	43
481		3454	10 do	or pek	900	37
482		3457	9 do	pek	810	32
484	M'Kelle	3463	13 do	bro or pek	1294	out
485		3466	8 do	or pek	800	10 bid
486		3469	8 do	pek	720	8 bid
487		3472	10 do	pek sou	935	8 bid
488	W'tenne	3475	8 do	or pek	794	10 bid
490		3481	8 do	pek sou	800	8 bid
491	St. Clive	3484	24 do	young hyson	1179	out
492		3487	20 do	hyson	897	out
493		3490	25 do	hyon No. 2	987	out

Messrs. Somerville & Co.—

[274,034 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	K G	490	15 cb	sou	1470	6 bid
3	G B L, in estate mark	496	12 do	bro pek	1200	33
4		499	13 cb	pek	1170	25
6	Kurulugalla	505	14 ch	bro pek	1400	33
7		508	16 do	pek	1440	25
12	Siriniwasa	523	20 ch	bro pek	2000	35
13		526	29 do	pek	2755	27
14		529	19 do	pek sou	1805	22
18	Mahatenne	541	14 ch	bro pek	1400	37
19		544	17 do	pek	1615	31
20		547	9 do	pek sou	810	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
22	Derby	553	35 hf ch	bro pek	1777	33
23		556	23 do	pek	1166	24
25	Rambodde	562	25 hf ch	bro pek	1500	44
26		565	45 do	pek	2250	40
27		568	44 do	pek sou	1980	30
29	Blinkbonnie	574	35 hf ch	bro pek	2100	47 bid
30		577	23 ch	or pek	2070	47
31		580	30 do	pek	2640	39 bid
32		583	13 do	pek sou	1066	36
35	Kallebokka	592	14 ch	bro or pek	1400	59
36		595	30 do	bro pek	3150	36
37		598	22 do	pek	1980	39
40	Kumaragala	607	14 hf ch	bro pek	770	38
41		610	11 ch	pek	935	31
42		613	13 do	pek sou	1040	22
45	Citrus	622	22 ch	bro pek	2084	31
46		625	33 do	pek	3300	26
49	B V	634	13 ch	bro pek	1430	45 bid
50		637	11 do	pek	1034	39
54	Horagoda	649	10 ch	bro or pek	1000	36
55		652	11 do	or pek	990	32
56		655	14 do	pek	1330	25
57		658	8 do	pek sou	720	21
59	Warakamure	664	31 ch	bro pek	3100	35
60		667	25 do	pek	1875	26
62	Wyamita	673	8 ch	pek	720	29
65	Nyanza	682	11 hf ch	bro pek	770	48
66		685	12 ch	or pek	1080	40
67		688	18 do	pek	1530	32
70	New Valley	697	26 ch	bro or pek	2600	55
71		700	19 do	or pek	1710	45
72		703	14 do	pek	1400	42
73		706	15 do	pek sou	1350	40
76	N I T	715	9 ch	unas No 2	720	16 bid
85	Rahatungoda	742	22 hf ch	bro or pek	1100	60 bid
86		745	23 do	or pek	1150	49 bid
87		748	21 do	pek	1050	42
88	Owillkande	751	24 ch	bro pek	2280	30 bid
89		754	16 do	pek	1440	23 bid
90		757	14 do	pek sou	1260	19 bid
92	Nugawella	763	19 do	bro pek	1045	34
97	Moragalla	778	10 ch	Hyson	1000	out
105	Agra Elbedde	802	28 hf ch	bro or pek	1680	51
106		805	20 do	or pek	1100	46
107		808	49 do	pek	2450	45
108		811	22 do	pek sou	990	40
111	Harrangalla	820	11 ch	or pek	935	36
112		823	14 do	bro pek	1330	38
113		826	33 do	pek	2640	32
114		829	16 do	pek sou	1280	23
115		832	11 ch	sou	880	16
116		835	8 do	bro pek fans	800	29
118	Kerenvilla	841	9 ch	pek	855	12 bid
120	Cooroondoo-watte	847	12hf ch	bro pek	707	53
121		850	13 ch	pek	1300	37
133	Glenalmond	886	19 hf ch	bro pek	1140	38 bid
137	Doragalla	898	19 ch	bro pek	1900	43
138		901	9 do	or pek	855	45
139		904	35 do	pek	2975	38
143	Tavalamtenne	916	20 hf ch	bro pek	1100	43
146	Galphele	925	24 ch	bro or pek	2400	38
148		931	13 do	pek	1040	30
156	Narangoda	955	22 ch	bro pek	1980	32
157		958	18 do	pek	1620	22
160	Meddegodde	968	29 hf ch	bro or pek	1305	38 bid
161		970	25 do	o6 pek	1000	36 bid
162		973	45 do	pek	1575	21
163		976	25 do	pek sou	1000	24
166	Woodthorpe	985	8 ch	bro pek	800	42
167		988	13 do	pek	1105	32
168		991	15 do	pek sou	1200	21
171	Lyndhurst	1000	36 hf ch	bro pek	1800	32
172		1003	32 do	pek	1440	24
176	I P	1015	18 ch	pek sou	1710	14 bid
177		1018	25 hf ch	dust	2150	16 bid
178	Beauesjour	1021	8 ch	bro or pek	800	31 bid
179		1024	12 do	or pek	1080	32
180		1027	12 do	pek	960	26
181	Pindenioya	1030	10 ch	bro or pek	900	31 bid
182		1033	15 do	pek	1425	26 bid
186	Paragaha-kande	1045	14 ch	bro pek	1400	24
187		1048	17 do	pek	1615	14 bid
191	Ravana	1060	39 hf ch	or pek	1950	40
192		1063	15 do	bro pek	900	36
193		1066	30 do	pek	1350	35
194		1069	18 do	pek sou	810	34
195	Mt Vernon	1072	67 ch	pek	6365	42
196		1075	27 do	pek sou	2376	37
197	Ambalawa	1078	16 hf ch	bro pek	918	32
201	K D C	1090	9 ch	sou	855	5 bid
203	Columbia	1096	23 hf ch	bro or pek	1196	65 bid
204		1099	29 do	or pek	1305	48
105		1102	22 do	pek	1012	46
206	Mary Hill	1105	18 do	bro pek	1080	41
207		1108	35 do	pek	1750	34

Lot.		Box.	Pkgs.	Name.	lb.	c.
211	Ranasingha-patna	1120	46 hf ch	or pek	2203	34 bid
212		1123	32 do	bro or pek	1856	37
213		1126	31 ch	pek	2263	26
214		1129	23 do	pek sou	[illegible]	23
215	South Africa	1132	28 ch	bro pek	[illegible]	35
216		1135	30 do	pek	[illegible]	30
217		1138	17 do	pek sou	1360	24
221	N L, in estate mark	1150	13 ch	pek	1170	18 bid
222	Dryburgh	1153	7 ch	bro or pek	714	37
223		1156	9 do	or pek	729	36
224		1159	14 do	pek	1092	30
225	Hanagama	1162	19 ch	pek sou	1710	19
226		1165	11 do	sou	888	14
228	Mousa Eliya	1171	17 ch	bro or pek 3 oz lead	1700	37 bid
230		1177	15 do	pek 3 oz lead	1275	33
233	Nellicollay watte	1186	14 ch	pek	1316	33
241	Yarrow	1210	14 hf ch	flowy or pek	700	53
242		1213	33 do	or pek	1650	36
243		1216	13 do	bro or pek	780	45
244		1219	32 do	pek	1440	34
249	Annandale	1234	18 hf ch	or pek	1008	53
250		1237	16 do	pek	912	45
251		1240	15 do	pek sou	840	40
255	Lachine	1252	33 hf ch	bro pek	1716	35 bid
256		1255	24 ch	pek	2280	27
259	St Catherine	1264	17 ch	bro pek	16 8	45
260		1267	10 do	pek dust	853	33
263	Panmure	1276	9 ch	sou	855	18
265	Attiville	1282	13 ch	pek	1197	out
267	R K P	1288	18 ch	or pek	1620	39
268		1291	12 do	bro or pek	1200	36
274	Kosgahawelle	13 9	10 ch	bro pek	997	12 bid
283	Annandale	1336	20 ch	pek sou	1047	16 bid
290	Oonankande	1357	20 hf ch	bro pek	1000	43
291		1360	30 do	pek	1500	29
292		1363	12 ch	pek sou	840	21
294	Forest Hill	1369	14 ch	bro pek	1400	35
295		1372	16 do	pek	1552	28
296		1375	9 do	pek sou	801	21
298	Havilland	1381	8 ch	bro or pek	800	35
300		1387	20 do	pek	1600	26
302	Kannattote	1393	15 ch	bro pek	1350	21 bid
304		1399	9 do	pek No 2	720	16

[Mr. E. John.—272,444 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Theresia	581	12 ch	pek sou	1020	39
5	Bittacy	590	26 do	bro pek	2600	50
6		593	8 do	pek sou	720	42
7		596	17 do	pek	1530	46
11	Gingranoya	608	10 do	bro or pek	1000	50
12		611	9 do	or pek	810	48
13		614	21 do	pek	1785	40
14	Kuruwathai	617	14 do	pure bro or pek	1135	40
19	Iona	632	39 hf-ch	bro or pek	2340	58
20		635	31 ch	or pek	2945	47
21		638	28 do	pek	2520	41
24	Perth	647	54 do	or pek	4590	32 bid
25		650	33 do	bro or pek	3465	35 bid
26		653	20 do	pek	1500	29 bid
29	Templestowe	662	30 do	bro or pek	2340	51
30		665	14 hf-ch	bro pek	882	38
31		668	45 do	or pek	1935	52
32		671	39 ch	pek	3237	38 bid
33		674	12 do	pek sou	1030	37 bid
34		677	10 do	fans	850	31
35	Lameliere	680	18 do	or pek	1710	43 bid
36		683	18 do	bro pek	1620	37 bid
37		686	26 do	pek	2210	33 bid
38		689	9 hf ch	sou	774	6 bid
39	Cleveland	692	36 do	flow or pek	2016	56
40		695	36 do	pek	1944	38 bid
43	Mocha	704	23 ch	bro or pek	2300	56 bid
44		707	14 do	or pek	1330	56
45		710	26 do	pek	2470	46
46		713	9 hf ch	fans	720	36
47	Elston	716	18 ch	pek	1530	34
48		719	44 do	pek sou	3960	32
49		722	24 do	or pek	2160	40
50	Mahapahagalla	725	29 do	pek sou	2320	18 bid
51		728	28 do	pek	2380	33
52		731	15 hf ch	bro or pek	825	43
53	Troup	734	19 ch	sou	1710	20
54		737	8 do	bro mix	800	10
55	Higham	740	29 do	bro pek	2900	38
56		743	23 do	pek	2070	30
57		746	31 do	pek sou	2790	21 bid
59	R W	752	26 hf ch	dust	2080	17
60	M P	755	7 ch	bro pek	700	20
62		761	22 do	pek dust	1980	17
64	M P S	767	7 do			

Lot.		Box.	Pkgs.	Name.	lb.	c.
			1 hf ch	pek fans	910	22
65		770	25 do	pek dust	2250	17
66	M K A	773	29 do	bro pek	1653	withd'n
67	Rondura	776	19 ch	bro pek	1805	36
68		779	20 do	or pek	1700	35 bid
69		782	11 do	bro or pek	1100	30
70		785	34 do	pek	2720	29
71		788	9 do	pek sou	720	20
74	Agra Ouvab	797	23 hf ch	pek fans	1840	31
76	Glasgow	803	31 ch	bro or pek	2337	68
77		806	20 do	or pek	1400	55
78		809	15 do	pek	1380	46
79		812	12 do	pek sou	1200	42
80		815	12 do	or pek fans	1200	31
81	Agra Ouvah	818	30 hf ch	bro or pek	1740	67
82		821	36 ch	or pek	3600	44
83		824	14 do	pek	1288	42
84	Bowhill	827	24 do	bro pek	2400	38
85		830	18 do	pek sou	1620	35 bid
86	Rookwood	833	53 hf ch	bro or pek	3180	63
87		836	22 ch	or pek	2112	45
88		839	30 do	pek	2700	42
89	Morton	842	7 do	bro or pek	735	51
90		845	26 do	or pek	2340	34
91		848	36 do	pek	3240	31
92		851	26 do	pek sou	2210	18
93		854	11 do	sou	880	14
94		857	7 do	pek fans	770	19 bid
96	Kandaloya	863	28 hf-cb	bro pek	1260	44 bid
77		866	27 do	or pek	1080	47
98		869	52 do	pek	2080	35
100	M N	875	9 ch	or pek	900	50
102		881	23 do	pek	2185	40
107	Suduganga	896	9 do	or pek	765	32 bid
108		899	14 hf ch	bro or pek	700	55
109		902	24 cb	pek sou	1800	23 bid
112	Brownlow	911	21 bf-ch	bro or pek	1260	58
113		914	13 ch	or pek	1209	46
114		917	23 do	pek	2017	42
116	Maskeliya	923	34 hf ch	bro or pek	1700	37 bid
117		926	19 ch	or pek	1710	38
118		929	23 do	pek	2300	32
119		932	9 hf ch	dust	810	18
120	Eladuwa	935	8 ch	or pek	760	27 bid
122		941	23 do	pek	2185	24
123		944	8 do	pek sou	720	15
125	Lameliere	950	25 do	or pek	2375	42 bid
126		953	26 do	bro pek	2340	39
127		956	40 do	pek	3400	35
128		959	9 do	sou	774	out
129	Ettumaley	962	21 do	or pek	1785	36
130		965	24 do	pek	1920	26
131		968	12 do	pek sou	900	18
132	Leymastotte	971	33 bf-ch	or pek	1584	35
133		974	27 do	bro or pek	1593	41
134		977	24 ch	pek	1752	26 bid
135		980	16 do	pek sou	1344	22
136	Rookwood	983	24 hf ch	bro or pek	1440	58 bid
137		986	10 ch	or pek	960	45
138		989	11 do	pek	990	41
139		992	11 do	fans	770	32 bid
141	Kelaneiya and Braemar	998	27 do	bro or pek	2700	46
142		1	23 do	or pek	2300	38
143		4	22 do	pek	2200	34
147	Dalbousie	16	20 hf cb	or pek	1100	51
149		22	26 do	pek	1170	43
152	M S, in estate mark	31	15 ch	pek sou	1080	13 bid
153	Glentilt	34	30 do	bro pek	3000	49
154		37	25 do	or pek	2250	44
155		40	18 do	pek	1440	37
156		43	10 do	pek sou	900	35
157	Leymastotte	46	44 bf cb	or pek	2112	35 bid
158		49	38 do	bro or pek	2280	42
159		52	24 ch	pek	1776	24 bid
160		55	23 do	pek sou	1863	23 bid
161	Elston	58	17 do	or pek	1530	40
162		61	27 do	pek	2295	36
164	Gansarapola	67	24 bf ch	bro pek	1320	38
165		70	13 cb	or pek	1710	32
166		73	18 do	pek	1710	27
168	Gangawatte	79	12 do	bro or pek	1260	63
169		82	16 do	bro pek	1600	48
170		85	22 do	pek	1980	42
174	Glassaugb	97	29 bf cb	or pek	1595	76
175		100	24 do	bro or pek	1560	57
176		103	18 ch	pek	1800	56
178	Kandy	109	24 do	pek sou	2160	16 bid
179	Ferndale	112	13 do	bro pek	1300	57
180		115	18 do	pek	1530	43
181		118	10 do	pek sou	850	37
184	Glasgow	127	34 do	bro or pek	2618	65
185		130	18 do	or pek	1260	61
186		133	14 do	pek	1288	53
187		136	11 do	pek sou	1100	44
188	G W	139	22 do	pek sou	1980	31 bid
189	Natuwakella	142	19 ch	bro or pek	1900	45
196	Ottery	163	9 do	pek	810	30
197		166	19 do	bro or pek	1995	53
198		169	19 do	or pek	1520	50
199		172	19 do	pek	1615	40

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	
9	Bunyan and Ovoca	82	7 bf ch	pek fans	490	24
10		85	2 do	dust	180	16
17	Torrington	6	6 do	dust	540	16

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Mattakelle	2014	1 ch	bro pek	85	47
3	Wewawatte	2020	9 ch	pek	485	24
4	New Peacock	2023	3 do	pek sou	270	32
5		2026	6 do	bro mix	300	16
10	Pendle	2041	1 ch	pek sou No. 2	90	26
11		2044	2 do	brd mix	100	16
12		2047	4 do	pek fans	300	22
17	Great Valley Ceylon, in est. mark	2062	2 cb	sou	170	
23	Tbedden	2030	4 ch	pek sou	320	23
24		2083	1 do	dust	123	16
33	Laurawatte	2110	5 hf cb	fans	440	19
37	Weyunga-watte	2122	1 ch	bro tea	100	17
38		2124	2 bf-ch	dust	170	17
44	Sylvakandy	2143	3 ch	dust	300	20
48	Chesterford	2155	7 do	fans	630	20
49		2158	2 do	congou	180	14
50		2161	6 bf cb	dust	480	16
55	Digdolla	2176	1 ch	green tea bro mix	70	11
56		2179	1 bf cb	siftings	75	10
57	Carolina	2182	3 ch	siftings	336	withd'n.
61	Bickley	2194	9 hf ch	bro pek	648	55
64	S	2203	1 ch	bro pek	100	withd'n.
65		2206	5 do	pek	490	withd'n.
66		2209	2 do	fans	216	withd'n.
67		2212	3 do	sou	254	withd'n.
68	Yulefield	2215	8 ch	bro or pek	480	57
71		2224	1 hf ch	sou	50	25
72		2227	1 do	dust	80	17
75	Yogama	2236	6 ch	pek No. 1	540	28
80	Udaveria	2251	5 hf cb	fans	425	out
83	Yasiyana	2260	6 ch	pek sou	588	14
84		2263	1 do	do No. 2	96	7 bid
96	Penrhos	2299	3 bf ch	fans	225	23
98	C R D	2305	1 ch	pek	90	21
99	Ookoowatte	2308	2 hf-ch	dust	210	13
100		2311	2 ch	fans	260	18
101	Erlsmere	2314	9 bf cb	bro or pek	468	60
102		2317	6 cb	or pek	480	47
105		2326	5 do	pek sou	410	37
106		2329	1 hf ch	dust	85	20
111	Polatagama	2344	5 ch	bro pek fans	550	28
112		2347	1 do	dust	150	17
117	Dammeria	2362	6 do	pek sou	540	25
121	Dea Ella	2374	8 hfch	fans	480	27
126	Hayes	2389	4 ch	bro or pek fans	250	30
130	St. Normans	2401	1 do	dust	135	17
144	Ganapalla	2443	4 hf-cb	dust	336	17
151	Lucky Land	2464	2 do	dust	180	17
160	Palmerston	2491	2 cb	pek sou	160	44
161		2494	7 hf ch	dust No. 1	581	24
162		2497	2 do	bro or pek fans	136	33
163		2500	1 do	dust No 2	97	20
169	Kennington	2518	5 ch	dust	690	17
170		2521	2 do	unas	160	10
171	Weemalla	2524	4 ch	bro or pek	400	41
172		2527	4 do	or pek	340	36
173		2530	7 do	pek	630	30
174		2533	1 do	pek sou	90	20
175		2536	1 hf ch	bro tea	85	14
176	N W D	2539	6 cb	bro pek	636	38
177		2542	7 do	pek	609	33
178		2545	1 do	pek	87	30
179		2548	6 do	pek sou	576	35 bid
181		2554	4 do	dust	668	18
182	Mawiliganga-watte	2557	5 ch	bro or pek	500	47
183		2560	4 do	or pek	320	38
186		2569	4 do	dust	400	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
192	Sbrubs Hill	2587	8 ch	pek sou	640	22
195	Digdola	2596	8 do	or pek	640	34
197		2602	6 do	pek sou No. 1	450	20
201	Parloes	2614	3 ch	pek sou	240	20
202		2617	2 hf ch	dust	180	17
203	P C H Galle, in estate mark	2620	11 hf ch	young hyson	550	19
205		2626	7 do	hyson	350	15
206		2629	2 do	siftings	120	10
207		2632	1 do	do	70	9
208		2635	1 do	gunpowder	50	9
209		2638	1 do	twankey	57	8
233	Nahalma	2709	12 hf ch	bro pek fans	672	30
234		2713	6 do	dust	480	17
235	D, in estate mark	2716	4 ch	hyson fans	480	8
239	Clyde	2725	8 do	pek sou	645	20
240		2731	4 do	dust	600	19
246	Kincora	2749	6 ch	bro or pek	690	50
250	R M, in estate mark	2761	8 hf ch	bro or pek	448	46
253		2770	5 ch	pek sou	415	27
254		2773	3 do	sou	240	21
255		2776	8 hf ch	fans	480	26
256		2779	2 ch	dust	272	19
260	O K in est. mark	2791	13 hf ch	bro pek	668	32
261		2794	12 do	pek	608	20
262		2797	4 do	sou	208	out
263	Udapolla	2800	4 ch	or pek	360	36
266		2809	2 do	pek sou	160	18
267		2812	1 hf ch	dust	80	17
268	S K M	2815	1 ch	bro pek	110	19
269		2818	1 do	pek	100	14
270		2821	1 do	pek sou	100	12
271	K D A	2824	2 do	bro pek	220	28
272		2827	1 do	pek	100	22
273		2830	1 do	pek sou	100	14
274	Strathspey	2833	4 do	bro or pek	400	30 bid
277		2842	4 do	pek sou	360	38
278		2845	2 do	dust	186	21
282	W A	2857	2 do	dust	300	17
288	Wattawalla	2875	3 do	fans	300	24
289		2878	3 do	sou	285	22
290		2881	3 do	pek dust	195	31
291		2884	4 do	dust	340	18
298	Sutton	2905	1 hf ch	pek sou	55	44
299		2908	3 ch	bro mixed	360	16
300		2911	3 hf-ch	dust	420	22
306	Hanwella	2929	2 ch	hyson No. 2	180	12
307		2932	1 do	hyson siftings	130	10
313	Weoya	2950	2 do	dust	320	18
322	Erracht	2977	1 do	dust	173	17
327	B B in est mark	2992	3 hf ch	bro pek	110	20 bid
328		2995	2 do	pek	85	14
329	G in est mark	2998	1 do	or pek	95	18
330	C in est. mark	3001	1 ch	pek sou	88	18
334	Arapolakande	3013	4 hf ch	young hyson fan	240	11
335		3016	7 do	siftings	560	8
336	Sirikandure	3019	8 ch	pek	697	20
341	Kennington	3034	4 do	dust	580	17
342		3037	4 do	unast	372	10
343	B D W P	3040	2 do	sou No. 2	160	12
344		3043	7 hf-ch	br pek fans	455	28
345		3046	1 do	pek sou	50	23
346		3049	1 do	dust	95	17
347		3052	1 do	young hyson	70	19
348		3055	2 do	hyson	120	14
349		3058	2 do	hyson No 2	100	11
350		3061	1 do	green tea dust	75	9
351		3064	3 ch	bro pk fans	330	28
352		3067	1 hf-ch	dust	85	16
353		3070	3 do	youug hyson	150	19
354		3073	6 do	hyson	300	1
355		3076	6 ch	hyson No. 2	300	11
356		3079	1 hf-ch	siftings	60	9
378	Puspone	3115	5 ch	bro mixed	440	13
383	Drayton	3160	1 do	sou	85	withd'n
384		3163	7 hf-ch	pek fans	455	29
385		3166	5 do	dust	425	20
388	Palmgarden	3175	5 ch	pek sou	500	14
389		3178	1 do	congou	100	9
392	Villehena	3187	6 hf-ch	pek sou	540	16
393		3190	5 do	sou	250	12
394		3193	3 ch	dust	240	17
411	Amblakande	3244	5 do	bro or pek	500	38
412		3247	7 do	or pek	560	32
413		3250	6 do	pek	480	28
414		3253	3 do	pek sou	240	22
415		3256	6 do	dust	600	18
418	Patiagama	3265	1 hf-ch	bro or pek	58	46
419		3268	1 do	pek	52	32
420		3271	1 do	pek sou	50	26
421		3274	1 ch	bro mixed	113	12
423		3280	7 do	or pek	630	46
430	Maha Uva	3301	1 hf-ch	fans	70	29
431		3304	4 hf ch	dust	320	19
435	Pallagodda	3316	8 ch	pek	680	33
439	Galkadua	3328	2 do	bro or pek	240	38
443		3340	2 do	fans	240	20
444		3343	1 do	congou	100	10
448	Fairlawn	3355	8 do	pek sou	600	35
449		3358	8 hf ch	fans	480	36
450		3361	3 do	dust	240	25
453	Adisham	3370	8 do	or pek	400	52
458		3385	4 ch	pek sou	340	36
463	Dunnottar	3400	12 hf-ch	bro pek	600	41
465		3406	5 do	sou	425	30
466	Kotua	3409	2 ch	br pek	200	25
467		3412	2 do	pek	200	18
468		3415	2 do	pek sou	200	10 bid
472	Woodend	3427	2 do	dust	260	19
473		3430	3 do	fans	354	28
474	Ugieside	3433	5 do	dust	400	13
478	Stamford Hill	3445	5 do	pek sou	450	40
479		3448	3 hf-ch	dust	255	20
483	Walton	3460	2 ch	bro tea	160	19
489	W'tenne	3478	3 do	pek	240	13
494	St. Clive	3493	11 do	hyson fans	547	out

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Donside	493	7 hf ch	dust	560	16
5	G B L, in estate mark	502	7 ch	pek sou	630	16
8	Kurulugalla	511	5 ch	pek sou	450	16
9		514	4 do	Hyson No 1	360	} out
10		517	5 do	Twanky	450	} out
11		520	1 do	Green tea dust	99	} out
15	Siriniwasa	532	6 ch	bro pek fans	630	28
16		535	2 do	dust	310	16
17	Mahatenne	538	4 ch	bro or pek	400	47
21		550	1 do	dust	100	18
24	Derby	559	11 hf ch	pek sou	550	16 bid
28	Rambodde	571	3 hf ch	dust	240	19
33	F, in estate mark	586	5 ch	pek sou	495	37
34		589	5 hf ch	dust	380	18
38	Kellehokka	601	2 ch	pek sou	210	30
39		604	2 hf ch	dust	170	18
43	Kumaragala	616	3 ch	sou	228	12
46		619	1 hf ch	dust	71	17
47	Citrus	628	6 ch	pek sou	600	19
48		631	5 do	bro pek fans	500	18
51	B Y	640	5 ch	pek sou	450	19
52		643	1 hf ch	fans	72	26
53		646	1 do	dust	91	18
58	Horagoda	661	1 ch	dust No 1	100	16
58a		661a	1 do	dust No 2	100	15
61	Wyamita	670	6 do	bro pek	600	37
63		676	3 do	pek sou	225	19 bid
64		679	1 hf ch	dust	80	17
68	Nyanza	691	2 ch	pek sou	200	28
69		694	2 do	dust	200	19
74	N I T	709	2 hf ch	dust	140	16
75		712	4 ch	unas No 1	400	18
77	Allagolla	718	6 ch 1 hf ch	bro pek	619	30
77a		718a	1 ch	or pek	72	26
78		721	6 do	pek	426	22
79		724	5 do	pek sou	380	18
80		727	1 do	fans	96	18
81		730	1 ¾ch	bro mix	59	12 bid
82		733	1 hf ch	dust	87	16
83		736	1 ch	unas	100	17
84	St Leys	739	1 hf ch	fans	85	20
91	Nugawella	760	13 do	or pek	585	30
93		766	6 do	pek	270	26
94		769	11 do	pek sou	440	17
95		772	2 do	dust	170	17
96	Moragalla	775	5 ch	Young Hyson	500	out
98		781	4 do	Hyson No 2	400	out
99		784	1 do	dust	169	10
100	Primrose Hill	787	3 ch	bro pek	300	39
101		790	6 ch	pek	510	33
102		793	7 do	pek sou	560	21
103		796	1 do	sou	76	15
104		799	1 hf ch	dust	50	17
109	X X	814	3 hf ch	bro or pek fans	165	34
110		817	5 do	pek dust	375	19
117	Kerenvilla	835	5 ch	bro pek	500	23
119		844	6 do	pek sou	570	8 bid
122	Cooroondoowatte	853	5 ch	pek sou	500	21
123	O O R, in estate mark	856	1 ch	bro pek	78	21
124		859	2 ch	pek	142	14
125		862	1 do	pek sou	71	10
126		865	1 hf ch	bro tea	39	5
126		868	1 do	dust	71	16
128	Cork	871	5 ch	bro pek	500	42

Lot.		Box.	Pkgs.	Name.	lb.	c.
129		874	5 ch	pek	400	33
130		877	3 do	pek sou	240	24
131		880	1 do	fans	94	22
132		883	1 hf ch	dust	67	18
134	Glenalmond	889	8 ch	pek	680	28
135		892	4 do	pek sou	320	20
136		895	1 do	dust	82	18
140	Doragalla	907	7 ch	p·k sou	560	32
141		9.0	3 do	bro or pek fans	390	27
142		913	2 do	bro mix	290	12
144	Tavalamtenne	919	13 hf ch	pek	585	41
145		922	9 do	pek sou	405	39
147	Galphele	928	5 ch	or pek	450	35
149		934	3 do	pek sou	270	20
150		937	1 do	sou	90	18
151		940	2 do	fans	300	16
152	Galphele B	943	2 ch	bro or pek	200	33
153		946	1 do	or pek	90	30
154		949	2 do	pek	140	23
155		952	1 do	pek sou	90	18
158	Narangoda	961	7 ch	pek sou	030	16
159		964	5 hf-ch	dust	400	16
164	Meddegodde	979	3 hf ch	dust	180	16
165		982	5 do	sou	175	14
169	Woodthorpe	994	2 hf ch	dust	134	16
170		997	3 ch	sou	228	17
173	Lyndhurst	1006	12 hf ch	pek sou	504	18
174		1009	2 do	dust	174	17
175		1012	7 do	bro or pek	420	28
183	Pindenioya	1036	0 ch	pek sou	570	20
184		1039	7 do	bro pek fans	630	35
185		1042	2 do	dust	290	16
188	Paragaha-kande	1051	6 ch	pek sou	600	out
189		1054	7 do	fans	665	out
190		1057	2 do	red leaf	200	out
198	Ambalawa	1081	9 hf ch	fans	540	22
199	San Cio	1084	7 ch	sou	546	12 bid
200		1087	3 hf ch	dust	189	16
202	H Gama	1093	8 hf ch	dust	680	out
208	Mary Hill	1111	11 hf ch	pek sou	550	23
209		1114	2 do	unas	110	22
210		1117	4 do	dust	320	15
218	Golgedi Oya	1141	2 ch	bro pek No 2	200	23
219		1144	4 hf ch	dust	328	17
220	Graston	1147	7 ch	bro pek	628	21
227	Hanagoma	1168	5 hf ch	dust 2 oz lead	400	10
229	Mousa Eliya	1174	7 ch	or pek 3 oz lead	630	36
231	Nellicollay watte	1180	4 hf ch	bro or pek	280	33
232		1183	7 do	or pek	413	39
234		1189	7 ch	pek sou	579	25
235		1192	1 hf ch	dust	90	18
236	Dessa	1195	3 ch	bro pek	339	31
237		1198	2 do	pek	150	26
238		1201	2 ch	pek sou	162	19
239		1204	1 box	dust	25	15
240	K T, in estate mark	1207	2 ch	bro pek	180	out
245	Yarrow	1222	8 hf ch	pek sou	400	28
246		1225	3 do	bro pek fans	210	28
247		1228	1 do	pek dust	87	18
248	Annandale	1231	10 hf ch	bro or pek	580	82
252	Daiville	1243	5 ch	bro pek	521	out
253	F A, in estate mark	1249	1 ch	pek sou	128	23
			1 hf ch			
254		1249	4 do	dust	324	20
257	E A B	1258	4 ch	pek sou	380	18
258		1261	3 hf ch	dust	240	16
261	St. Catherine	1270	9 ch	pek sou	678	20
262		1273	2 do	dust	223	22
264	Panmure	1259	7 hf ch	pek sou	397	out
260	R K P	1294	8 ch	pek	640	31
270		1297	3 do	pek No 2	255	26
271		1300	5 do	pek fans	500	22
272		1303	5 do	pek sou	375	21
273		2306	5 do	dust	500	20
275	Kotgahawelle	1312	5 ch	pek	497	6
276	Amupitiya	1315	2 ch	bro or pek	250	32
			1 hf ch			
7		1318	1 ch	pek	131	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
			1 hf ch			
278		1321	1 ch	pek sou	82	14
279	W S	1324	1 ch	bro or pek	139	49
			1 hf ch			
280		1327	3 ch	or pek	300	20
281		13 0	3 do	pek	268	27
282		1333	1 do	dust	61	18
284	O	1339	3 ch	bro pek	300	22
285		1342	7 do	pek	595	12 bid
286		1345	7 do	pek sou	665	10 bid
287		1348	7 do	bro mix	700	5 bid
288		1351	0 hf ch	fans	420	9
289		1354	4 do	pek dust	320	11
293	Oonankande	1366	3 hf ch	dust	189	18
297	Forest Hill	1379	9 hf ch	fans	693	20
299	Haviland	1384	4 ch	or pek	320	32
301		1390	5 do	pek sou	375	16
302	Kannattote	1396	8 ch	pek No 1	680	17
305		1402	6 do	fans	600	16
306		1405	2 do	dust	260	14

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	578	1 ch	dust	115	18
3	Theresia	584	5 hf-ch	dust	400	20
4		587	1 do	sou	50	27
8	Bittacy	599	4 ch	fans	400	37
9		602	5 hf ch	or pek	250	74
10		605	3 do	dust	240	21
15	Kuruwathai	620	6 ch	pek	595	32
16		623	2 do	pek sou	170	25
17		626	2 do	bro pek fans	270	22
18		629	1 do	bro tea	95	8
22	Iona	641	4 hf-ch	dust	320	21
23		644	4 do	br or pek fans	300	24
27	Perth	656	9 ch	pek sou	630	23
28		659	5 hf ch	pek dust	375	20
41	Cleveland	698	10 do	pek sou	500	29
42		701	3 do	fans	240	25
58	R W	749	6 ch	bro pek	600	22
61	M P	758	3 do	pek	300	out
63	M P S	764	4 do			
			1 hf ch	bro pek	500	22
72	Roudura	791	3 ch	dust	450	17
73	Agra Ouvah	794	7 do	pek sou	630	40
75		800	3 hf ch	dust	288	21
95	Morton	860	3 do	dust	240	17
99	Kandaloya	872	13 do	pek sou	520	32
101	M N	878	8 do	bro or pek	456	56
103		884	5 ch	pek sou	453	37
104		887	4 hf ch	fans	268	36
105		890	3 do	dust	285	21
106	N	893	5 do	dust	425	23
110	Suduganga	905	4 do	pek fans	280	34
111		908	9 ch	sou	630	21
115	Brownlow	920	6 hf-ch	pek fans	408	25
121	Eladuwa	938	6 ch	bro pek	650	22 bid
124		947	3 do	mix	420	8
140	Rookwood	995	4 do	pek dust	376	22
144	Kelaniya and Braemar	7	4 do	fans	400	35
145		10	4 do	sou	400	30
146		13	6 hf ch	dust	480	25
148	Dalhousie	19	11 do	bro pek	660	70
150		25	14 do	pek sou	630	39
151		28	3 do	bro pek fans	210	33
163	Gansarapolla	64	25 boxes	bro or pek	500	38 bid
167	E E T	76	4 ch	bro pek	338	22 bid
171	Gangawatte	88	2 do	pek sou	180	37
172		91	4 do	dust	520	19
173		94	4 do	fans	480	34
177	M G	106	6 hf ch	fans	504	26
182	Ferndale	121	6 ch	sou	480	33
183		124	3 do	fans	390	30
190	L'Espoir	145	8 hf-ch	bro pek	432	40
191		148	6 ch	pek	540	28
192		151	4 do	pek sou	340	19
193		154	1 hf ch	dust	83	19
194	Ottery	157	6 ch	bro or pek	600	34
195		160	8 do	or pek	680	42

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 13. COLOMBO, APRIL 1, 1901.

PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[28,997 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Uduweria	59	16 hf ch	bro pek	800	32
2		62	16 do	pek	720	2
5	Battalgalla	71	35 ch	or pek	3610	45
6		74	38 do	pek	3230	37
7		77	13 do	pek sou	1040	34
8		80	18 hf ch	bro pek fans	1440	30
11	Hensey	89	47 hf ch	bro pek	2820	49 bid
12		92	40 ch	pek	3400	36 bid
13		95	15 do	pek sou	1200	35
14	L V	98	25 ch	bro pek	2305	30 bid
15		1	18 do	pek	1620	25 bid
16		4	12 do	pek sou	1080	22 bid
17	M L	7	20 ch	bro pek	2000	26 bid
18		10	17 do	pek	1632	23 bid
19	H	13	12 ch	pek sou	960	20

Messrs. Forbes & Walker.

[577,659 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Galkanda	3496	25 hf-ch	bro pek	1680	48
2		3499	44 do	or pek	2200	44
3		3502	50 ch	pek	2550	43
4		3505	10 do	pek sou	850	33
5	Kotagaloya	3508	26 ch	bro pek	2730	39
6		3511	37 do	pek	3145	32
7		3514	13 do	pek sou	1105	27
12	Torwood	2529	15 ch	bro or pek	1500	41 bid
13		3532	12 do	or pek	984	34 bid
14		3535	24 do	pek	1920	30
15		3538	10 do	pek sou	800	25
16		3541	10 hf ch	dust	700	28
17	Robgill	3544	25 ch	bro pek	2500	49 bid
18		3547	22 do	pek	2090	42
19		3550	11 hf ch	dust	1100	20
21	Stafford	3556	15 ch	or pek	1425	54
22		3559	14 do	pek	1190	49
25	Mansfield	3568	56 hf ch	bro pek	3360	51
26		3571	18 ch	pek	1710	42
27		3574	9 do	pek sou	810	35
28		3577	8 hf ch	dust	720	26
34	O B E C, in estate mark Summer Hill	3595	37 ch	bro pek	2368	50 bid
35		3598	36 do	pek	3240	47
36		1	40 do	pek sou	3320	42
37	O B E C in estate mark Nillomally	4	32 cb	or pek	2944	51
38		7	16 do	bro or pek	1600	62 bid
39		10	16 do	pek No. 1	1280	44
40		13	10 do	do No 2	900	39
44	St. Paul's	25	27 bf cb	or pek No. 1	1404	51
45		28	42 do	or pek No. 2	1932	42
46		31	40 do	pek	2160	40
48	Ninfield	37	10 ch	bro or pek	3000	41
50		43	20 do	pek	1800	30
51		46	8 do	pek sou	720	24
54	Queensland	55	14 hf ch	bro or pek	700	71
55		58	7 ch	bro pek	700	49 bid
56		61	8 do	or pek	720	48
57		64	11 do	pek	1045	44
60	M'Golla	73	14 hf cb	dust	1120	18
64	Mabayaya	85	10 ch	pek	890	30
68	Corfu	97	40 bf ch	or pek	2000	41
69		100	17 do	bro pek	935	54
70		103	17 do	pek	765	38
76	Kukul Oya	121	10 ch	or pek	750	39
80	Sylvakandy	133	67 bf ch	bro or pek	3685	53
81		136	14 ch	bro pek	1400	39
82		139	27 hf ch	or pek	1350	42
83		142	16 ch	pek	1440	41
5	Ardlaw and Wishford	148	18 bf ch	bro or pek	1062	60
86		151	34 ch	bro pek	3060	47
87		154	11 do	or pek	924	44
88		157	16 do	pek	1376	43
89		160	8 do	fans	976	30
90	Ellamulle	163	11 ch	bro pek	1210	42 bid
93	Maba Eliya	172	21 hf-ch	bro or pek	1155	71
94		175	22 ch	or pek	2200	55
95		178	28 do	pek	2800	48
96	Loinorn	181	18 ch	or pek	1620	55 bid
97	Ireby	184	30 hf ch	bro pek	1650	60
98		187	15 ch	pek	1275	49
99	Ladysmith	190	21 hf ch	bro pek	1785	15
100		193	9 ch	pek fans	900	18
102	Pretoria	199	7 ch	bro pek	700	34
103		202	6 do	bro pek fans	720	29
106	Choisy	211	20 ch	bro or pek	2000	60
107		214	15 do	or pek	1425	47
108		217	22 do	pek	1870	42
109	Norton	220	32 hf ch	bro or pek	1920	53
110		223	10 ch	or pek	800	46
111		226	15 do	pek	1350	41
112		229	10 do	pek sou	800	38
113	Preston	232	37 ch	bro pek	3700	61 bid
114		235	13 do	pek	1105	52
115		238	20 do	pek sou	1600	45
118	Hayes	247	7 ch	bro or pek	700	50
119		250	19 do	bro pek	1900	45
120		253	40 do	pek	3400	32
121		256	18 do	pek sou	1620	25
122	High Forest	259	55 bf cb	or pek No 1	3300	63 bid
123		262	36 do	or pek	1980	54
124		265	30 do	pek	1440	50
125	Rookatenne	268	13 ch	bro pek	1365	41
126		271	14 do	pek	1260	34
129	Killarney	280	15 hf cb	bro or pek	900	57
130		283	11 ch	bro pek	1210	44
131		286	11 do	pek	990	40
132	Dunkeld	289	65 hf cb	bro or pek	3770	48
133		292	18 ch	or pek	1710	40
134		295	27 do	pek	2430	39
135	Castlereagh	298	26 hf ch	bro or pek	1300	59
136		301	17 ch	bro pek	1700	46
137		304	11 do	or pek	800	42
138		307	14 do	pek	1190	40
139		310	10 do	pek sou	800	34
140	Lochiel	313	31 cb	bro or pek	3224	51
141		316	28 do	or pek	2604	43
142		319	11 do	pek	913	38
144	Wallah	325	20 cb	bro or pek	2000	50 bid
145		328	47 do	bro pek	4794	36 bid
146		331	28 do	or pek	2296	33 bid
147		334	21 do	pek	2100	out
148	Summer Ville	337	25 hf cb	bro pek	1750	48
149		340	21 cb	pek	2520	39
151	Mariawatte	346	19 do	bro tea	1938	22
152		349	25 do	dust	2125	21
155	Hentleys	358	16 ch	pek	1330	29
159	Cullen	370	58 ch	bro or pek	6032	53
160		373	35 do	or pek	2975	39
161		376	13 hf ch	dust	1105	21
162	Tonacombe	379	33 ch	or pek	2970	45
163		382	30 do	bro pek	3000	50
164		385	28 do	pek	2520	40
165		388	15 do	pek sou	1350	39
166		391	10 bf ch	dust	850	23
167	Galapitakande	394	16 ch	or pek	1360	42
168		397	13 do	bro pek	1300	47
169		400	38 do	pek	3420	38
172	Doorooma-della	409	20 cb	pek sou	1560	20
174	Gallaheri	415	17 hf cb	bro or pek	935	58
175		418	37 ch	bro pek	3515	43
176		421	27 do	pek	2295	36 bid
177		424	14 do	pek sou	1260	31
179	Gonapatiya	430	36 bf ch	or pek	1800	58
180		433	29 do	bro pek	1595	69
181		436	39 do	pek	1989	47
183		442	12 do	pek fans	816	38
185	Anningkande	448	21 ch	bro pek	2100	41
186		451	19 do	pek	1805	33
187	Delta	454	59 ch	bro pek	6136	44
188		457	88 do	pek	7392	36
189		460	23 do	pek sou	1932	34
190		463	12 do	pek fans	1440	33
191		466	12 hf cb	pek dust	1020	23
192	Agra Oya	469	14 ch	bro or pek	1260	34
193		472	12 do	bro pek	1200	33
194		475	12 do	or pek	1020	33
195		478	9 do	pek	720	26
196		481	8 do	pek sou	720	23
197	Rawley	484	21 bf ch	pek	1050	31
200	Carberry	493	11 ch	bro pek	1045	38
210	Ketadola	523	9 do	pek	900	18
215	Tismoda	538	15 hf ch	bro pek	825	38

Lot.		Box.	Pkgs.	Name.	lb.	c.
16		541	15 ch	pek	1350	31
217		544	11 do	pek sou	880	23
220	Seengolla	553	27 hf ch	bro or pek	16 0	63
221		556	14 do	or pek	700	61
222		559	29 do	pek	16 4	51
223	Carfax	562	16 ch	bro or pek	1600	58
224		565	19 do	or pek	1710	47
225		568	19 do	pek	1710	45
226	Dammeria	571	10 ch	bro or pek	1000	38
227		574	27 do	or pek	2430	40
2 8		577	14 do	bro pek	1400	40
229		580	17 do	or pek	1530	37
230		583	15 do	pek	1350	35
231		586	8 do	pek sou	720	30
232		589	11 hf ch	bro pek fans	880	30
234	D M	595	15 ch	bro pek	1500	29
235		598	10 do	pek	900	24
236	Battawatta	601	22 do	bro or pek	2420	49
237		604	21 do	pek	1995	37
238		607	14 do	pek sou	1120	26
240	Gampaha	613	34 do	bro or pek	3737	49
241		616	14 do	bro or pek	1540	49
242		619	11 do	or pek	1045	49
243		622	19 do	pek	1650	44
244		625	12 do	pek sou	1080	39
245	Palmerston	628	13 hf-ch	bro or pek	741	75
246		631	14 ch	bro pek	798	55
247		634	13 do	pek	1131	51
248	Hopton, Invoice No. 3	637	11 ch	bro or pek	1100	53 bid
249		640	21 do	or pek	2100	41 bid
250		643	23 do	pek	2185	39 bid
251		646	12 do	pek sou	1080	35 bid
252	Hopton, Invoice No. 4	649	10 do	bro or pek	1000	51 bid
253		652	13 do	or pek	1300	41 bid
254		655	14 do	pek	1330	36 bid
255		658	8 do	pek sou	720	34 bid
258	Dambagastalawa	667	16 ch	bro or pek	1760	58
259		670	25 do	bro pek	2750	45 bid
260		673	20 do	pek	1960	41
261		676	8 do	pek sou	800	33
264	D G T	685	9 do	pek	914	26 bid
265	Lesmoir	688	10 do	or pek	900	37
266		691	11 do	bro pek	1100	37
267		694	16 do	pek	1440	31
268	Ambragalla	697	36 hf ch	or pek	1728	37
269		700	28 do	bro or pek	1680	43 bid
270		703	18 ch	pek	1356	33
271		706	17 do	pek sou	1411	27
274	Hilton	715	10 do	bro pek	950	36
275		718	19 do	pek	1615	30
276		721	11 do	pek sou	935	24
277	Glencorse	724	27 do	br pek	2700	48
278		727	28 do	or pek	2520	38
279		730	28 do	pek	2240	32
280		733	35 do	pek sou	2625	28
281	Dunbar	736	19 hf ch	bro or pek	950	77
283		742	24 ch	or pek	2088	50
284		745	26 do	pek	2002	44
288	Forest Creek	757	19 do	bro or pek	1900	67
289		760	29 do	bro pek	2900	49
290		763	16 do	or pek	1440	47
291		766	19 do	pek No. 1	1710	44
262		769	20 do	pek No. 2	1800	41
293	Carendon	772	7 do	bro pek	700	23
296	Avoca	781	36 do	bro pek	3957	44 bid
297	Tempo	784	11 do	bro pek	1120	39
298		787	8 do	or pek	720	36
299		790	21 do	pek No. 1	1575	32 bid
300		793	10 do	pek No. 2	700	30
301	Penrhos	796	20 hf ch	bro or pek	1120	59
302		799	23 do	or pek	1104	46
303		802	22 ch	pek	2046	38
304		805	9 do	pek sou	774	34
308	Deaculla	817	45 hf-ch	br pek	2475	40
309		820	48 ch	pek	3360	37
310		823	20 do	pek sou	1400	33
311		826	10 hf ch	dust	800	22
312	Good Hope	829	20 ch	br pk No. 1	1800	37
313		832	11 do	br pk No. 2	990	33
314		835	7 do	bro or pek	700	38
319	Agra Oya	850	9 do	bro pek	900	36
320		853	10 do	pek	800	32
321		856	10 hf-ch	bro pek fans	700	31
322	Sutton	859	30 ch	or pek	2097	61 bid
323	Yataderia	862	21 do	bro or pek	2289	39
324		865	33 do	or pek	3564	30
325		868	46 do	pek No. 1	4462	28
326		871	16 do	pek	1600	23
327		874	12 do	pek sou	1164	16
328	Forres	877	25 hf-ch	bro or pek	1503	54
329		880	25 do	bro pek	1581	42
330		883	22 ch	or pek	1375	41
331		886	28 do	pek	2387	37
32	nde	889	25 do	br pek	2775	42
333		892	19 ch	or pek	1900	38
334		895	26 do	pek No. 2	2496	32
335		898	20 do	pek sou	1860	25
336	Marlborough	901	60 hf ch	bro or pek	3 00	66
337		904	18 ch	or pek	1476	38
338		907	37 do	pek	3145	37
339	Tory	910	7 do	sou	714	out
340	Kincora	913	19 do	br pek	1903	51 bid
341	Rowley	916	29 hf ch	bro or pek	1450	46
342		919	16 do	or pek	800	37
343		922	25 do	pek	1300	33
346	Errolwood	931	24 do	young hyson	1440	26 bid
347		934	23 ch	hyson	2415	20 bid
348		937	14 do	hyson No. 2	1428	18 bid
351	B D W G	946	46 hf-ch	bro pek	2300	40
352		949	25 do	pek	1250	34
360	B Talawa in est mak	973	8 do	pek	720	41
361		976	10 do	pek sou	900	38
362	Sirikandura	979	14 ch	bro pek	1400	37
363		982	13 do	pek	1235	32
364		985	12 do	pek sou	1080	24
368	Coldstream Group	997	84 hf-ch	bro pek	4620	48
369		1000	37 ch	pek	2960	39 bid
370		1003	18 do	pek sou	1440	35
374	Munukattia, Ceylon, in est mark	1015	12 do	or pek	1080	45
375		1018	41 hf-ch	bro pek	2542	57
376		1021	29 ch	pek	23 0	37
377		1024	7 do	pek sou	700	32
379		1030	13 hf-ch	dust	1010	20
380	Drayton	1033	43 do	bro or pek	2577	69
381	Udabage	1036	48 do	bro pek	2640	38
382		1039	28 do	pek	1400	31
384	Matale	1045	31 do	bro pek	2205	39
385		1048	22 ch	pek	1870	36
386		1051	13 do	pek sou	1105	28
389	K V R	1060	18 do	pek sou	1728	22 bid
394	Bargany	1075	22 hf-ch	bro or pek	1320	51
395		1078	17 do	or pek	850	41
396		1081	18 ch	pek	1710	39
397		1084	21 do	pek sou	1680	36
402	Tunisgalla	1099	48 hf-ch	bro pek	2880	41
403		1102	44 do	or pek	2420	38 bid
404		1105	30 do	pek	2700	39
405		1108	12 ch	pek sou	1080	35
407	Pallagodda	1114	13 do	bro or pek	1300	33
408		1117	19 do	bro pek	1900	49
409		1120	14 do	or pek	1260	36
410		1123	13 do	pek	1105	35
411		1126	8 do	pek sou	760	32
412	K	1129	7 do	dust	1050	35
413	Aberdeen	1132	27 do	bro pek	2700	41
414		1135	30 do	pek	3120	33
419	Widmore	1150	36 hf-ch	bro or pek	2160	53 bid
420		1153	43 do	or pek	2021	50 bid
421		1156	87 do	pek	4524	40 bid
422		1159	39 do	pek sou	1755	36
424	Dunnottar	1165	32 do	bro or pek	1597	51 bid
425		1168	43 do	pek	3652	38
430	Vogan	1183	8 ch	bro pek	800	63
431		1186	17 do	or pek	1615	39 bid
432		1189	16 do	pek No. 1	1440	34
433		1192	25 do	pek No. 2	2250	32
437		1204	13 do	bro pek	1235	58
438		1207	20 do	or pek	1900	41 bid
439		1210	19 do	pek No. 1	1710	34
440		1213	25 do	pek No. 2	2125	32
441		,,	24 do	pek No. 2	2040	32
445	Lindupatne	1225	20 do	bro pek	2000	out
446	Woodend	1228	13 do	pek sou	1040	18 bid
147	Ardlaw and Wishford	1231	16 do	bro pek	1408	out
448	M C in est. mark	1234	20 do	pek sou	1700	out
450	Onama	1240	10 do	pek	900	13

Messrs. Somerville & Co.—

[249,817 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Mousakande	1420	18 hf ch	bro or pek	954	37
6		1423	18 ch	bro pek	1530	34
7		1426	18 do	pek	1440	28
8	Aviswella	1429	18 ch	bro pek	1800	36
9		1432	20 hf ch	bro or pek	1000	49
10		1435	23 ch	pek	1955	38
11		1438	15 do	pek sou	1200	23
12		1441	5 do	dust	700	18
13	Mahalla	1444	20 hf ch	bro pek	1000	34 bid
17	Yspa	1456	9 ch	pek dust	1260	19
18		1459	15 do	pek sou	1275	31
19	Harangalla	1462	9 ch	or pek	765	36
20		1465	12 do	bro pek	1140	40

Lot.		Box.	Pkgs.	Name.	lb.	c.
21		1468	25 ch	pek	2000	31
22		1471	9 do	pek sou	720	28
23	Bollagalla	1474	43 do	bro pek	4300	37
24		1477	31 do	pek	2480	33
25		1480	30 do	pek sou	2100	27
26	Rayigam	1483	36 ch	bro pek	3600	40
27		1486	30 do	or pek	2700	33
28		1489	23 do	pek	1955	30
29		1492	20 do	pek sou	2000	25
30		1495	9 hf ch	dust	720	22
31	Old Madda-gama	1498	13 ch	bro or pek	975	43 bid
32		1501	10 do	or pek	750	43
33		1504	17 do	pek	1445	38
37	Gamgoda	1516	14 hf ch	bro pek	700	out
43	South Africa	1534	21 ch	or pek	1827	36 bid
44		1537	20 do	bro pek	2000	34
45		1540	21 do	bro pek No 2	2100	28
46		1543	24 do	pek	2208	31
47		1546	15 do	pek sou	1350	27
48	Fairfield	1549	19 hf ch	bro or pek	950	72 bid
49		1552	36 ch	bro pek	3600	54 bid
50		1555	18 do	or pek	1440	49 bid
51		1558	30 do	pek	2550	46
52	Kudagana	1561	13 ch	bro pek	1300	33
58	D M O G, in est. mark	1579	12 hf ch	bro pek	720	34
59		1582	19 ch	pek	1425	30
60		1585	17 do	pek sou	1190	26
61		1588	17 hf ch	or pek	850	38 bid
66	N O	1606	10 ch	pek sou	800	28 bid
68	H rtfield	1609	16 ch	bro or pek	1680	30 bid
69		1612	14 do	bro pek	1400	36 bid
70		1615	23 do	pek	1955	32
71		1618	15 do	pek sou	1200	28
72	S L A	1621	22 ch	bro pek	2090	26 bid
73	Beausej ur	1624	7 ch	bro or pek	700	30 bid
74		1627	14 do	pek sou	910	25
75		1630	10 do	sou	700	22
76	Monrovia	1633	12 ch	Young Hyson	1200	out
77		1636	15 do	Hyson	1425	out
78		1639	6 do	Hyson No 2	700	out
79	Cairn Hill	1642	8 ch	or pek	720	35
80		1645	12 do	bro pek	1200	33 bid
81		1648	20 do	pek	1800	29
82		1651	8 do	bro pek	800	32 bid
83		1654	10 do	pek	900	29
86	Deniy ya	1663	33 ch	bro pek	3300	39 bid
87		1666	24 do	pek	2400	32
88		1669	21 do	pek sou	2100	23
89	M D R, in estate mark	1672	55 ch	bro pek	5500	28 bid
90		1675	32 do	pek	2560	24 bid
93	Findlater	1684	35 ch	bro pek	2815	54
94		1687	43 do	pek	4085	38
95		1690	12 do	pek sou	1104	34
97	Jak Tree Hill	1696	15 ch	bro pek	1570	37
98		1699	7 do	pek	700	29
101	Hangranoya	1708	15 ch	bro or pek	1425	46 bid
102		1711	22 do	bro pek	2200	33
103		1714	18 do	pek	1530	32
104		1717	15 do	pek sou	1200	26
105	Ravenscraig	1720	15 hf ch	bro pek	825	50
106		1723	30 do	pek	2700	36
108	Ranasinghapatna	1729	35 hf ch	or pek	1680	35 bid
109		1732	25 do	bro or pek	1500	42
110		1735	19 ch	pek	1482	30
111		1738	17 do	pek sou	1411	25
114	C C	1747	25 ch	bro pek	5500	28 bid
115		1750	44 do	pek	3740	22 bid
116	Gwernet	1753	10 ch	bro pek	1050	36
117		1756	22 do	pek	1870	30
118		1759	12 do	pek sou	960	23
119		1762	11 do	or pek	935	37
126	G D	1783	33 ch	bro pek	3465	33 bid
127		1786	20 do	pek	1700	29
128		1789	51 hf ch	pek sou	2550	22
129	Labugama	1792	27 hf ch	bro pek	1350	34
130		1795	13 ch	pek	1235	25
131		1798	12 do	pek sou	1020	21
132	M B L	1801	19 hf ch	dust	1520	18
133		1804	19 ch	pek	1805	18 bid
134		1807	11 do	sou	880	12 bid
135		1810	11 hf ch	dust	935	21
136	Neuchatel	1813	41 ch	bro pek	4100	37
137		1816	31 do	or pek	2430	33
138		1819	17 do	pek	1360	25
139		1822	9 do	pek sou	720	22
141	I A	1828	41 ch	bro pek	3895	29 bid
142		1831	14 do	pek	1400	22 bid
143		1834	24 hf ch	pek sou	1288	20 bid
146	Florida	1843	7 ch	bro pek	700	12 bid
147		1846	8 do	pek	768	10 bid
157	M P T	1876	21 hf ch	dust	1680	18
158	California	1879	11 ch	bro pek	1045	26
159		1882	11 do	pek	1045	18
166	Neboda	4	19 ch	bro or pek	1900	39 bid
167		7	57 do	bro pek	5415	30 bid
168		10	9 do	pek	810	28
169		13	12 do	pek sou	960	23
172	T B A	22	20 ch	bro or pek	1900	26 bid
173	Black Heath	25	8 ch	bro or pek	760	36 bid
174		28	10 do	pek	900	32
177	G H W	37	10 hf ch	dust	800	19
178	Gampolawatte	40	9 ch	bro mix	990	8 bid
179	Mt Vernon	43	39 ch	pek	3366	41
180	C I V	46	25 ch	sou	2125	18 bid
181	Glenalla	49	8 ch	bro or pek	800	39
182		52	9 do	or pek	765	36
183		55	22 do	pek	1870	28
184		58	12 do	pek sou	1020	24
187	Havilland	67	18 ch	bro or pek	1800	38
188		70	12 do	or pek	960	35
189		73	26 do	pek	2080	30
192	Polgahakande	82	10 ch	or pek	860	38
193		85	8 do	bro pek	800	29
194		88	12 do	pek	1032	31
195		91	12 do	pek sou	1056	26
196	Murrythwaite	94	19 ch	bro pek	1900	36
197		97	14 do	pek	1200	31
199	P	103	6 ch 1 hf ch	dust	917	14
200	Lindula	106	14 hf ch	dust	1257	17
201	B, in estate mork	109	19 hf ch	bro pek dust	1703	9 bid
202	Mawiligangawatte	112	12 ch	dust	1281	18
203	P H L	115	9 hf ch	dust	782	15
204	Rockside	118	6 ch	dust	1017	18
205	Harangalla	121	11 ch	or pek	935	39 bid
206		124	9 do	bro pek	810	40 bid
207		127	25 do	pek	2000	34
208		130	10 do	sou	800	20
209		133	11 hf-ch	dust	825	

[Mr. E. John.—205,369 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Troup	184	21 ch	pek sou	1890	40
6	Mahapahagalla	190	17 do	or pek	1700	37
7		193	18 do	pek	1620	34
8		196	10 do	bro or pek	1400	43 bid
9	Cabin Ella	199	10 do	bro pek	1100	39
10		202	7 do	pek No 1	700	34
16	Vincit	220	14 do	or pek	1260	33
17		223	12 do	pek	1080	23
18		226	8 do	pek sou	720	21
20	Oonoogaloya	232	17 do	or pek	1530	45
21		235	16 do	bro or pek	1600	49 bid
22		238	20 do	pek	2000	42
23		241	16 do	pek sou	1440	35
24		244	8 do	dust	1200	21
25	Harrisland	247	16 hf ch	bro or pek	896	45 bid
27		253	18 ch	pek	1584	31
29	Kandaloya	259	19 hf ch	bro pek	855	47 bid
30		262	21 do	or pek	840	41 bid
31		265	31 do	pek	1240	35
33	St. Andrew's	271	28 ch	or pek	2520	30 bid
34		274	35 do	bro pek	1925	38 bid
35		277	26 do	pek	2340	32
37	Kandaloya	283	22 hf ch	fans	1100	28
38		286	15 ch	dust	750	20
41	Bowella	295	13 hf ch	pek	715	27
42		298	11 ch	pek sou	920	22
44	Rondura	304	18 do	bro pek	1710	40
45		307	15 do	or pek	1275	40
46		310	7 do	bro or pek	700	31
47		313	38 do	pek	3040	34
48		316	12 do	pek sou	960	29
50	Agra Ouvah	322	27 hf-ch	bro or pek	2146	67
51		325	69 do	or pek	3726	51
52		328	19 ch	pek	1748	45
53	Ben Nevis	331	16 hf-ch	bro pek	960	58
55		337	12 ch	pek	1080	45
58	Mount Clare	346	19 do	bro or pek	1900	40 bid
59		349	9 do	or pek	900	34
60		352	9 do	pek	810	27
61	Elston	355	11 do	pek	935	35
62		358	34 do	pek sou	3060	31
63		361	9 do	or pek	810	44
64		364	11 hf ch	dust	990	20
65	Brownlow	367	24 do	bro or pek	1440	55 bid
66		370	15 ch	or pek	1395	50
67		373	25 do	pek	2200	44
69	Nahavilla	379	30 do	or pek	2700	41
70		382	32 do	bro pek	3200	39 bid
71		385	10 do	pek	900	35
72		388	9 do	pek sou	720	29
73	Caragahawatte	371	9 do	pek sou	720	19 bid
74	Perth	394	20 do	bro or pek	2100	37
75		397	31 do	or pek	2635	35
76		400	18 do	pek	1350	32

Lot.		Box.	Pkgs.	Name.	lb.	c.
79	M	409	57 hf ch	or pek	2565	25 bid
80		412	34 ch	bro or pek	3400	25 bid
81		415	31 do	pek	2263	19 bid
82		418	49 do	pek sou	3822	16 bid
83	OAS, in estate mark	421	7 do	bro pek	700	25 bid
84		424	11 do	pek	1045	16 bid
87	Manickwatt	433	30 hf ch	or pek	1440	32 bid
88		436	24 do	bro or pek	1440	26 bip
89		439	15 ch	pek	1155	28
90		442	17 do	pek sou	1594	23
93	Templestowe	451	25 do	bro or pek	1950	58
94		454	13 bf ch	bro pek	819	41
95		457	25 do	or pek	1125	53
96		460	25 ch	pek	2125	45
97		463	9 do	pek sou	810	41
98		466	13 do	dust	1040	23
99	Coundon	469	24 bf-cb	bro or pek	1200	36
100		472	12 ch	or pek	960	35
101		475	21 do	pek	1890	30
102		478	12 do	pek sou	960	22
103		481	13 hf ch	bro pek fans	845	35
106	Taunton	490	13 ch	pek	975	21 bid
107		493	14 do	pek sou	1050	18 bid
108		496	22 hf-ch	bro pek fans	1320	31
109		499	7 cb	pek fans	700	20
111	Eilandu	505	19 do	bro pek	1900	24 bid
112		508	20 do	pek	1800	18 bid
115	Lameliere	517	25 do	or pek	2375	49
116	Poonagalla	520	21 do	or pek	1995	37
117		523	21 do	bro pek	2310	41 bid
118		526	31 do	pek	2635	32 bid
119		529	22 do	pek sou	1650	26
120		532	24 do	fans	1800	24 bid
121		535	11 hf ch	dust	990	20
122	P G A	538	17 ch	pek sou	1445	19
123	B W	541	14 do	or pek	1302	51
124		544	23 do	pek	1078	43
125	M N	547	10 do	or pek	1000	56
126		550	15 hf-cb	bro or pek	870	68
127		553	23 ch	pek	2116	44
129	Natuwakella	559	26 do	bro pek	2600	34
130		562	25 do	pek	2250	30
121		565	12 do	pek sou	1050	26
132	Rookwood	568	23 bf ch	bro or pek	1380	76
133		571	21 cb	or pek	2016	49
134		574	29 do	pek	2610	46
135	P H	577	50 hf cb	or pek	3000	30 bid
137	St. C	583	18 do	pek sou	1620	35
138	Delpotonoya	586	13 do	dust	910	19
140	Ouvah	592	15 ch	pek sou	1350	36
141	Evalgolla	595	22 bf ch	or pek	880	39
142		598	26 do	bro or pek	1170	39
143		601	40 do	pek	1400	33
144		604	23 do	pek sou	920	25
147	Maskeliya	613	34 do	bro or pek	1700	38 bid
148	A Y	616	12 ch	bro pek	1140	30 bid
149		619	11 do	pek	825	23 bid
150		622	11 do	pek sou	990	19
151	L	625	8 do	fans	800	out
152	Morahela	628	17 do	or pek No. 1	1530	39 bid
155		631	20 do	or pek No. 2	1740	33 bid
154		634	13 do	bro pek	1274	44 bid
155		637	13 do	pek	1131	29 bid
157	M V	643	6 do	bro pek fans	750	out
158		646	10 hf cb	dust	800	out
160	G W	652	17 ch	pek sou	1530	30 bid
161	Lameliere	655	26 do	pek	2210	38
162	K and B	658	7 do	dust	980	12 bid
164	A	664	17 hf cb	dust	1360	16
165	S	667	24 ch	bro pek	2400	42
166		670	24 do	pek	1920	35
167		673	13 do	pek sou	910	24

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	V, in estate mark	65	2 ch	unas	190	7
4		68	3 bf ch	dust	285	17
9	V, in estate mark	83	4 cb	unas	380	7 bid
10		86	3 hf ch	dust	285	17

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Kotagaloya	3517	7 hf ch	dust	560	16
9	I N G, in est. mark	3520	5 ch	pek sou	425	29
10		3523	4 do	sou	320	17
11		3526	3 do	pek fans	300	24
20	Stafford	3553	11 hf ch	bro or pek	660	71
23		3562	1 bf ch	fans	80	30
24	Kelvin	3565	2 do	dust	160	16
29	Wellagalla	3580	5 ch	bro pek	450	9
30		3583	2 do	pek	150	5
31		3586	1 do	pek sou	100	4
32	Wewawatte	3589	6 bf ch	bro pek	380	32
33		3592	3 do	pek	152	25
41	Nillomally O B E C, in est. mark	16	6 ch	pek sou	540	33
42		19	5 bf ch	bro pek fans	350	37
43		22	7 do	fans	490	25
47	Drayton	34	1 ch	sou	85	20
49	Ninfield	40	3 do	or pek	240	36
52		49	6 do	sou	480	20
53		52	3 do	fans	336	16
58	Queensland	61	4 ch	pek sou	360	37
59		70	1 bf ch	bro pek fans	60	33
61	M'Golla	76	3 cb	fans	285	5 bid
62	Mahayaya	79	3 ch	bro or pek	342	35
63		82	6 do	bro pek	588	32
65		88	6 do	pek sou	564	24
66		91	2 do	sou	188	20
67		94	1 hf ch	dust	94	18
71	Corfu	106	4 do	bro pek fans	280	33
72	Hunasgeria	109	2 ch	pek	190	23
73		112	2 do	pek sou	180	22
74	Spring Valley	115	1 ch	bro pek	96	43
75	Kukul Oya	118	3 ch	bro or pek	300	46
77		124	4 do	bro pek	360	38
78		127	6 do	pek	510	30
79		130	5 do	sou	400	25
84	Sylvakandy	145	2 ch	dust	200	21
91	Ellamulle	166	5 ch	pek No. 1	500	35
92		169	4 do	do No 2	380	28
101	Ladysmith	196	2 hf-ch	dust	190	15
104	Pretoria	205	5 ch	pek sou	450	18
105		208	1 do	bro or pek	100	33
116	Preston	241	4 ch	bro or pek fans	448	41
117		244	2 do	unas	210	26
127	Rookatenne	274	7 ch	pek sou	630	28
128		277	4 hf ch	dust	320	20
143	Lochiel	322	2 do	dust	180	21
150	C N	343	8 ch	bro tea	640	11 bid
153	Hentleys	353	12 bf ch	bro pek	600	39
154		356	10 do	or pek	480	34
156		301	6 ch	pek sou	468	23
157		364	2 hf cb	fans	150	20
158		367	1 do	pek dust	97	15
170	Galapitakande	403	4 ch	pek sou	360	32
171		406	3 bf ch	dust	285	21
173	Doorooma-della	412	6 do	dust	420	20
178	Gallaheria	427	1 ch	dust	100	20
182	Gonapatiya	439	13 hfch	pek sou	824	44
184		445	2 do	dust	176	23
198	Rowley	487	12 do	pek sou	600	23
199		490	2 do	dust	100	21
201	Carberry	496	3 ch	pek	240	32
202		499	5 do	pek sou	375	27
203		502	3 do	sou	195	24
204		505	1 do	bro pek sou	90	31
205		508	3 do	bro pek fans	336	30
206		511	1 do	dust	156	20
207	G K	514	10 ch	sou	650	27
208		517	3 do	dust	468	21
209	Ketadola	520	6 ch	bro pek	620	28
211		526	3 do	pek sou	285	18
212		529	1 do	sou	86	13
213		532	1 do	dust	127	18
214		535	1 do	red leaf	86	5
218	Tasmania	547	4 hf ch	fans	230	29
219		550	3 do	dust	240	21
233	Dammeria	592	4 bf ch	dust	400	21
239	Battawatte	610	2 ch	dust	200	21
256	Hopton, Invoice No. 4	661	2 ch	fans	220	24
257		664	2 do	dust	220	20
262	Dambagastalawa	679	4 cb	bro pek fans	540	18
263	D G T	682	5 ch	bro pek	550	35 bid
272	Ambragalla	709	3 ch	dust	225	20
273		712	1 hf-ch	red leaf	74	8
282	Dunbar	739	6 do	bro pek	342	53
285		748	1 ch	pek sou	94	38
286		751	5 hf-ch	bro pek fans	310	39
287		754	1 do	dust	136	26
294	Clarendon	775	6 ch	pek	600	22
295		778	5 do	pek sou	500	18
305	Penrhos	808	2 hf-ch	fans	150	27
306		811	2 do	pek dust	196	20
307	O K in est mark	814	4 do	sou	205	8 bid
315	Good Hope	838	6 ch	pek	540	28
316		841	6 do	pek sou	510	24
317		844	2 hf-ch	bro pek fans	140	24
318		847	2 do	dust	180	18

Lot.		Box.	Pkgs.	Name.	lb.	c.
344	Rowley	925	3 hf-ch	pek seu	150	23
345		923	3 do	dust	150	21
349	Errolwood	940	3 do	siftings	279	13
350	Elk dua	943	1 ch	p ek	80	27
353	B D W G	952	5 hf ch	pek sou	250	27
354		955	3 do	dust	270	21
355	Ugurassa	958	1 do	br pek	47	withd'n
356		961	1 dc	bro pek No. 2	40	withd'n
357		964	1 do	pek	44	withd'n
358		967	1 do	sou	33	withd'n
359	B Talawa in est mark	970	6 do	bro or pek	300	54
365	Sirikandura	988	2 ch	congou	198	14
366		991	1 do	br pk dust	133	21
367		994	1 do	dust	169	17
371	Coldstream Group	1006	9 hf ch	fans	585	31
372		1009	5 do	dust	400	22
373		1012	2 ch	bro mixed	200	9
378	Munukettia, Ceylon in est mark	1027	1 do	sou	100	24
383	Udabage	1042	13 hf ch	pek sou	650	23
387	Matale	1054	5 do	fans	330	28
388		1057	5 do	dust	425	17
390	B G	1063	7 do	bro pek	350	24
391		1066	7 do	pek	350	24
392		1069	13 do	pek sou	585	21
393		1072	1 do	dust	60	16
398	B V	1087	8 ch	fans	480	36
399		1090	3 do	dust	270	18
400		1093	1 do	red leaf	80	4
401	Tunisgalla	1096	10 hf-ch	bro or pek	550	61
406		1111	6 do	dust	510	18
415	Oodooweire	1138	5 ch	bro pek	510	37
416		1141	4 do	pek	360	30
417		1144	3 do	pek sou	270	27
418		1147	1 do	dust	82	19
423	Widmore	1162	5 hf-ch	pek fans	425	19
426	Kotua	1171	2 ch	pek sou	197	11
427	M E L in est mark	1174	4 hf-ch	bro pek	212	20
428		1177	3 do	pek	150	15
429		1180	3 do	pek sou	150	11
434	Vegan	1195	3 ch	pek sou	270	25
435		1198	3 hf-ch	dust	255	20
436		1201	3 ch	bro pek fans	360	27
442		1216	7 do	pek sou	630	25
443		1219	5 hf-ch	dust	425	20
444		1222	4 ch	br pk fans	480	27
449	A A	1237	6 hf-ch	bro tea	330	5 bid

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	O O R, in estate mark	1408	2 ch	bro pek	186	18
2		1411	2 hf ch	pek	119	10
3		1414	1 ch	sou	76	9
4		1417	2 hf ch	pek dust	179	15
14	Mahalla	1447	8 ch	pek	664	28
15		1450	6 do	pek sou	480	23
16		1453	1 hf ch	dust	70	18
34	Old Madde-game	1507	6 ch	pek sou	510	37
35		1510	3 do	bro pek fans	225	36
36		1513	1 do	dust	110	21
38	Gamagoda	1519	8 hf ch	pek	400	10 bid
39		1522	3 do	pek sou	150	6 bid
40		1525	1 do	sou	48	5
41		1528	1 do	bro tea	56	7 bid
42		1531	1 do	dust	87	12
53	Kudagana	1564	5 ch	pek	475	26
54		1567	5 do	pek sou	450	24
55		1570	4 do	bro pek fans	400	27
56		1573	1 do	dust	150	20
57		1576	2 do	sou	180	22
62	Maligatenne	1591	3 ch	bro pek	282	22
63		1594	4 do	pek	376	10 bid
64		1597	7 do	pek sou	652	out
65		1600	5 do	bro tea	504	6
66	P	1603	4 ch	unas	407	7
84	Cairn Hill	1657	8 ch	pek sou	646	22
85		1660	3 hf ch	dust	240	19
91	J K	1678	1 do	Young Hyson	58	out
92		1681	1 ch	Hyson	56	out
96	Findlater	1693	7 hf ch	dust	630	23
99	Jak Tree Hill	1702	7 ch	pek sou	695	22
100		1705	2 hf ch	dust	180	18
107	Ravenscraig	1726	3 hf ch	dust	240	22
112	Ranasingha patna	1741	2 hf ch	dust	150	18
113		1744	1 ch	red leaf	67	7
120	Goodwood	1765	11 hf ch	or pek	550	50
121		1768	8 do	bro pek	440	56 bid
122		1771	13 do	pek	650	42

Lot.		Box.	Pkgs.	Name.	lb.	c.
123		1774	4 hf ch	pek sou	188	39
124		1777	3 do	pek fans	204	36
125		1780	1 do	dust	87	20
140	Neuchatel	1825	4 ch	dust	640	19
144	S L G	1837	4 hf ch	sou	220	out
145		1840	6 ch	red leaf	300	6
148	Florida	1849	2 ch	pek sou	200	out
149		1852	3 do	fans	288	10
150		1855	2 do	dust	272	17
151		1858	1 do	red leaf	95	5
152	Polduwa	1861	4 ch	bro pek	400	20 bid
153		1864	6 do	pek	570	out
154		1867	2 do 1 hf ch	pek sou	240	12 bid
155		1870	1 do	fans	90	10
156		1873	1 ch	dust	103	14
160	California	1885	6 ch	pek sou	600	12
161		1888	1 hf ch	dust	80	15
162	P T	1891	1 ch	bro pek	85	20 bid
163		1894	1 do	pek	75	18
164		1897	2 do	pek sou	150	14 bid
165		1	1 do	dust	85	15
170	Neboda	16	1 ch	sou	107	15
171		19	4 hf ch	dust	360	19
175	Black Heath	31	6 ch	pek sou	510	21
176		34	3 hf ch	fans	210	19
185	Glenalla	61	3 ch	sou	240	16
186		64	1 do	dust	145	19
190	Havilland	76	3 ch	pek sou	225	21
191	B & O	79	5 hf ch	dust	450	18
193	N, in estate mark	100	7 hf ch	dust	697	17

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	K P	175	3 hf ch	dust	318	15
2		178	8 do	pek fans	496	27
3		181	7 do	fans	553	22
5	Tebuwana	187	7 ch	sou	560	19
11	Cabin Ella	205	5 do	pek No. 2	475	29
12	Wendura	208	6 do	bro pek	600	36
13		211	7 do	pek	595	30
14		214	5 do	pek sou	425	25
15		217	3 do	pek sou No. 2	306	22
19	Vincit	229	4 do	bro pek fans	480	26
26	Harrisland	250	13 hf-ch	or pek	624	39 bid
28		256	5 ch	pek sou	415	24
32	Kandaloya	268	8 hf-ch	pek sou	320	32
36	St. Andrew's	280	4 do	dust	340	18
39	Bowella	289	7 do	bro or pek	380	31
40		292	6 ch	or pek	494	28 bid
43		301	1 hf ch	dust	83	19
49	Rondura	319	1 ch	dust	120	20
54	Ben Nevis	334	5 do	or pek	430	52 bid
56		340	3 do	pek sou	255	37
57		343	1 hf ch	dust	85	20
68	Brownlow	376	8 ch	bro pek fans	560	38
77	Perth	403	6 do	pek sou	450	28
78		406	4 hf ch	pek dust	300	20
85	OAS, in estate mark	427	4 ch	pek sou	400	8
86		430	5 do	sou (paper lined)	441	withd'n
91	Manickwatte	445	2 do	dust	148	17
92		418	1 do	red leaf	65	6
104	Coundon	484	7 hf ch	fans	420	27
105		487	1 do	dust	90	17
110	Tauntou	502	2 do	dust	180	15
113	Eilandu	511	2 ch	bro mix	150	6
114		514	1 do	dust	145	16
128	Y	556	6 do	red leaf	540	9
136	M P	580	3 do	pek	300	14
139	Delpotonoya	589	3 hf ch	sou	150	6
145	Evalgolla	607	4 do	sou	140	15
146		610	3 dc	dust	180	16
156	Morahela	640	6 ch	sou	540	20
159	M V	649	2 hf ch	fans	140	10
163	M S O	661	3 do	dust	184	14 bid
168	S	676	4 do	fans	232	10 bid
169	Ferndale	679	3 ch	dust	390	withd'n

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, Feb. 28.

"Statesman."—Ditto B, 2 bags sold at 62s.

"Shinano Maru."—Jack Tree Hill 1, 8 bags sold at 62s 6d; 2, 14 bags sold at 60s; 3, 9 bags sold at 56s 6d; Meegama B, 8 bags sold at 59s; B 1, 1 bag sold at 58s; C, 3 bags sold at 60s 6d; B, 3 bags sold at 58s 6d; 2, 10 bags sold at 61s; Broken, 2

bags sold at 65s ; T, 6 bags sold at 61s ; 1 bag sold at 66s 6d ; 1 bag sold at 56s 6d.

"Awa Maru."—AGB, 2 bags sold at 59s ; C, 4 bags sold at 60s.

"Statesman."—D, 1 bag sold at 48s ; A No. 2, 1 bag sold at 60s 6d ; B No. 2, 2 bags sold at 60s 6d ; C No. 1, 6 bags sold at 62s 6d ; C No. 2, 1 bag sold at 60s 6d.

"Clan Ronald."—Katugastota, 20 bags out at 68s.

"Shinano Maru."—Old Haloya, 4 bags sold at 62s 6d ; 5 bags sold at 55s 6d ; Kepitigala, 1 bag sold at 58s.

"Statesman."—Ditto 1, 6 bags sold at 70s ; ditto G, 9 bags sold at 57s.

"Patroclus."—O MAK in estate mark, Plantation Ceylon, 1 bag sold at 66s.

"Shinano Maru."—Hamburg ditto T, 7 bags sold at 60s 6d ; Palli London 2, 2 bags sold at 61s 6d ; ditto T, 3 bags sold at 62s ; ditto 2, 1 bag sold at 58s ; ditto T, 4 bags sold at 62s 6d ; ditto Lights, 4 bags sold at 56s 6d ; ditto Blacks, 4 bags sold at 60s.

"Statesman."—Ditto C, 4 bags sold at 56s ; ditto G, 14 bags sold at 61s ; ditto Pieces, 2 bags sold at 62s 6d.

CEYLON COFFEE SALES IN LONDON

MINCING LANE, March. 1.

"Bravo."—GTL M in estate mark, Riga, 3 tierces sold at 64s 6d.

"Statesman."—Needwood F, 1 tierce sold at 111s 6d ; ditto 1, 1 cask sold at 107s ; ditto 2, 2 casks sold at 95s ; ditto S, 1 barrel sold at 47s ; ditto PB, 1 barrel sold at 90s.

"Clan Ronald."—Middlemarch, 5 bags sold at 35s ; 2 bags sold at 41s ; 1 bag sold at 16s.

CEYLON CARDAMOMS SALES IN LONDON.

"Kamakura Maru."—Ditto 2, 1 case sold at 1s 10d ; ditto Seeds, 1 case sold at 2s 6d ; W 2, 9 cases sold at 1s 9d ; ditto 4, 4 cases sold at 1s 5d ; DG 2, 3 cases sold at 1s 9d ; ditto 3, 2 cases sold at 1s 5d ; ditto Seeds, 1 case sold at 2s 5d.

"Statesman."—Gammadna Mysore OO, 1 case sold at 4s ; ditto 1, 3 cases sold at 3s 3d ; ditto 2, 5 cases sold at 2s 6d ; ditto 3, 3 cases sold at 1s 8d ; ditto Seed 1 oase sold at 2s 6d.

"Socotra."—Wariagala A, 4 cases sold at 2s 5d ; ditto B, 2 cases sold at 1s 6d ; 2 cases sold at 1s 7d ; ditto C, 1 case sold at 1s 4d ; ditto D, 5 cases sold at 1s 5d.

"Cheshire."—Ditto AA, 6 cases sold at 2s 7d ; ditto A, 2 cases sold at 1s 9d ; ditto B, 1 case sold at 1s 4d ; ditto C, 1 case sold at 1s 5d.

"Shinano Maru."—Vedehette Cardamoms AA, 12 cases sold at 2s 8d ; ditto A, 2 cases sold at 1s 8d ; ditto C, 2 cases sold at 1s 4d ; ditto D, 1 case sold at 2s 4d.

"Inaba Maru."—Galaha Cardamoms Ex, 6 cases sold at 2s 7d ; ditto A, 2 cases sold at 1s 8d ; ditto B, 2 cases sold at 1s 4d ; ditto AA, 6 cases sold at 2s 7d ; 1 case sold at 2s 7d ; ditto B, 3 cases sold at 1s 4d.

"Patroclus."—Pingarawa Cardamoms Ex, 1 case sold at 3s 4d ; ditto AA, 3 cases sold at 2s 7d ; ditto A, 3 cases sold at 1s 9d ; ditto B, 1 case sold at 1s 4d.

"Sanuki Maru."—Pingarawa Cardamoms AA, 2 cases sold at 3s ; Kandaloya Cardamoms A, 4 cases sold at 1s 3d.

"Dordogne."—Gallantenne Cardamoms AA, 2 cases sold at 3s ; 2 cases sold at 2s 11d ; ditto B, 6 cases sold at 2s ; ditto D, 4 cases sold at 1s 6d ; ditto C, 2 cases sold at 2s 5d.

"Statesman."—Altwood Ceylon Cardamoms 1, 6 cases sold at 2s 7d ; ditto 2, 4 cases sold at 2s ; 2 cases sold at 2s 1d ; ditto 3, 3 cases sold at 1s 6d ; Gerinde Ella Estate Ceylon Cardamoms 1, 7 cases sold at 2s 7d ; ditto 2, 1 case sold at 1s 4d.

CEYLON CINNAMON SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, March 1.

"Ceylon."—ASGP Kaderane in estate mark, 14 bales sold at 1s 6d ; 22 bales sold at 1s 5d ; 20 bales sold at 1s 4d ; 2 bales sold at 1s 2d ; 10 bales sold at 11d ; 15 bales sold at 9½d ; 1 bale sold at 7½d ; 1 box sold at 8d overtakers broken ; 6 bags sold at 8d clippings.

"Sanuki Maru."—2 bales and 1 parcel sold at 1s 6d ; 6 bales sold at 1s 5d ; 7 bales sold at 1s 4d ; 1 bale sold at 1s 1d ; 6 bales sold at 9½d ; 1 bale sold at 8½d ; 1 bag sold at 10d broken ; 1 bag (clippings) sold at 8d.

"Alcinous."—J D C Thornwood, 6 bales sold at 9½d ; 2 bales sold at 9d ; 1 bale sold at 8d ; 2 bales sold at 7½d ; 1 bag (overtakers broken) sold at 10d ; Thornwood J D C, 1 bag (tips) sold at 7½d ; 36 bags (chips) 3½d.

"Senai."—Horabena Estate JDSR in estate mark, Kadirane Plantation, 7 bales and 3 parcels sold at 1s 4d ; 12 bales and 1 parcel sold at 1s 3d ; 2 bales sold at 11½d ; 1 bale sold at 9d ; 1 box (overtakers broken) sold at 10d ; JRKP in estate mark, 1 bale sold at 10d sea damaged ; 2 bales sold at 9½d ; 11 bales and 1 parcel sold at 9½d ; 6 bales sold at 8½d ; 1 bale sold at 8d ; 2 bales sold at 7½d ; 1 box sold at 9d ; JDSR in estate mark, 1 bag (pieces and chips) sold at 9d ; 11 bags (clippings) sold at 11½d.

"Statesman."—FSWS in estate mark, North Kaderane, 6 bales sold at 1s 4d ; 8 bales sold at 1s 3d ; FSWS in estate mark Kaderane, 2 bales sold at 9½d ; 4 bales sold at 9d ; 1 bag sold at 9½d ; 2 bales sold at 9½d ; 4 bales sold at 9d ; 1 bag sold at 9½d ; FSK Kaderane, 4 bales sold at 9½d ; 6 bales sold at 8½d ; 3 bales sold at 8d ; 1 box sold at 9½d ; FSWS in estate mark Kaderane, 10 bags (chips) sold at 3½d.

"Shenano Maru."—JDSR in estate mark, 156 bags sold at 3½d ; J in estate mark, 10 bags sold at 2¾d ; 1 bag sold at 2⅝.

"Bingo Maru."—Ditto 1, 1 bale sold at 8½d ; ditto 2, 1 bale sold at 9d.

"Clan Ross."—C H De S Kurunwitte, 7 bales sold at 11d ; 18 bales sold at 10d ; 16 bales sold at 9½d ; 4 bales sold at 8½d ; C H De S Ratmalane, 2 bales sold at 11d ; 9 bales sold at 10d ; 12 bales sold at 9½d ; 12 bales sold at 9d ; C H De S Rustoom, 3 bales sold at 10½d ; 11 bales sold at 10d ; 12 bales sold at 9½d ; 3 bales sold at 9d ; C H De S Bagatele, 8 bales sold at 11d ; 12 bales sold at 10d ; 5 bales sold at 9½d ; 1 bale sold 9d ; C H De S Morotto, 1 bale sold at 10½d ; 6 bales sold at 10d ; 10 bales sold at 9½d ; 8 bales sold at 9d ; C H De S Koottariawatte, 1 bale sold at 10½d ; 8 bales sold at 10d ; 7 bales sold at 9½d 2 bales sold at 8½ C H De S BOK in estate mark 3 bales sold a 10½d 7 bales sold at 10d ; 6 bales sold 9½d ; 1 bale sold at 9d ; C H De S DWK in estate mark, 5 bales sold at 10½d ; 5 bales sold at 10d ; 2 bales sold at 9½d ; 2 bales sold at 9d ; C H De S TPW in estate mark, 1 bale sold at 10½d ; 2 bales sold at 10d ; 3 bales sold at 9½d ; 3 bales sold at 9d ; C H De S Kandewatte 1 bale sold at 10½d ; 1 bale sold at 9d.

"Candia."—GR SA in estate mark 13 bales sold at 9½d ; 8 bales sold at 9d ; 76 bales sold at 3½d.

"Clan McLean."—C H De S Kandawalla, 2 bales sold at 10½d ; 14 bales sold at 10d ; 14 bales sold at 9½d ; 12 bales sold at 9d ; C H De S, Salawa, 1 bale sold at 10½d ; 8 bales sold at 10d ; 10 bales sold at 9½d ; 21 bales sold at 9d ; C H De S, Kurunwitte, 2 bales sold at 10½d ; 9 bales sold at 10d ; 9 bales sold at 9½d ; bale sold at 9d ; C H De S, Kaderane, 2

bales so d 10d ; 5 bales sold at 9½d ; 6 bales sold at 9d bales sold at 8½d ; C H De S, Hunupitiya, 2 bales sold at 10½d ; 2 bales sold at 10d ; 2 bales sold at 9½d ; 1 bale sold at 9d.

"Clan McNeill."—C H De S, Innegaltuduwe, 1 bale sold at 10½d ; 4 bales sold at 10d ; 4 bales sold at 9½d ; 1 bale sold at 9d ; C H De S, Morotto, 18 bags sold at 9d.

"Ceylon."—GRSA in estate mark, 11 bales sold at 9½d ; 3 bales and 1 parcel sold at 9d ; 3 bags (chips) sold at 3⅜d.

"Kamakura Maru."—C H De S Kandawatte, 4 bales sold at 10½d ; 10 bales sold at 10d ; 10 bales sold at 9½d ; 4 bales sold at 9d ; C H De S, Rustoon, 1 bale sold at 10½ ; 9 bales sold at 10d ; 9 bales sold at 9½d ; 4 bales sold at 9d ; C H De S, Ratmalane, 1 bale sold at 10d ; 5 bales sold at 9½d ; 11 bales sold at 9d ; C H De S, Koottariavalle, 1 bale sold at 10½d ; 5 bales sold at 9½d ; 5 bales sold at 9d ; C H De S, Morotto, 2 bales sold at 9½d ; 2 bales sold at 9d ; 1 bale sold at 8½d ; C H De S, TPW in estate mark, 1 bale sold at 9½d ; 1 bale sold at 9d ; H V 694 in estate mark, 100 bags (chips) sold at 3d.

"Tonkin."—Ditto 3, 21 bales sold at 8½d ; 9 bales sold at 4d.

"Glaucus."—S in estate mark, Ekelle Plantation, 6 bales sold at 9½d.

"Clan McKay."—FPA Watakanda Estate, 1 bale sold at 9½d ; 2 bales sold at 9d ; FPA, 2 bales sold at 8½d.

"Glaucus."—R and C, 10 bales sold at 9d.

"Lancashire."—AL in estate mark, Ekelle Plantation, 33 bales sold at 11d ; 23 bales sold at 10½d ; 26 bales sold at 10¼ ; 14 bales sold at 10d ; 6 bales sold at 9d ; 1 bale sold at 8½d.

"Sinai."—AL in estate mark, Ekelle Plantattion, 23 bales sold at 1s ; 1 bale sold at 9½d ; 13 bales sold at 11½d ; 15 bales sold at 11d ; 20 bales sold at 10½d ; 1 bale sold at 9d ; 7 bales sold at 10d ; 5 bales sold at 9d ; 4 bales sold at 8½d.

"Kawachi Maru."—AL in estate mark, Ekelle Plantation, 32 bales sold at 9d ; 15 bales sold at 8½d ; 3 bales sold at 8d.

"Clan McLean."—No. 3 ditto, 2 bales sold at 9d ; No. 4 ditto, 2 bales sold at 8½d.

"Cheshire."—Ekelle Plantation, D, 3 bales sold at 10d ; 2 bales sold at 9d ; 18 bales sold at 8½d ; 8 bales sold at 8d ; 3 bales sold at 6d.

"Clan McNeill."—No. 3 ditto, 2 bales sold at 8½d: No. 4 ditto, 1 bale sold at 8d; EPA, No. 3, 2 bales sold at 9d ; No. 4, 3 bales sold at 8½d.

CEYLON COFFEE SALES IN LONDON.

Mincing Lane, March 8.

"Kamakura Maru."—Poonagala A, 1 barrel sold at 115s ; ditto B, 2 casks sold at 109s ; ditto PB, 1 barrel sold at 100s ; ditto T, 1 barrel sold at 40s ; Poonagala, 1 barrel sold at 75s.

CEYLON COCOA SALES IN LONDON.

"Magician."—OBEC F in estate mark Kondesalle Ceylon O, 1 bag sold at 69s ; ditto O, 1 bag sold at 67s (sea damaged bulked) ; ditto 1, 29 bags sold at 76s 6d.

"Statesman."—Warriapola, 10 bags sold at 61s 6d ; 5 bags sold at 65s ; 20 bags sold at 56s 6d.

"Kamakura Maru."—Suduganga, 24 bags sold at 100s 6d ; 5 bags sold at 67s ; 8 bags sold at 60s ; 4 bags sold at 61s 6d ; 2 bags sold at 51s ; Dodantalawa No. 1, 8 bags out at 84s ; ditto No. 2, 4 bags sold at 65s 6d ; Vratimalie Pieces, 9 bags sold at 67s.

OBSERVER PRINTING WORKS.

No. 14. COLOMBO, APRIL 8, 1901. Price :—12½ cents each, 3 copies 30 cents ; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[56,863 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	60	47 hf ch	bro pek	2820	50 bid
2		63	45 ch	pek	3825	39
3		66	17 do	pek sou	1275	35
9	Battalgalla	84	26 ch	or pek	2470	42 bid
10		87	27 do	pek	2295	38
11		90	20 do	pek sou	1500	35
13	M	96	10 do	or pek	1000	out
14		99	18 do	pek	1512	out
15	Bunyan and Ovoca	2	59 hf ch	bro or pek	3540	51 bid
16		5	33 do	or pek	1815	4 bid
17		8	26 ch	pek	2600	35 bid
18		11	36 do	pek sou	3240	30
19		14	12 hf ch	pek fans	972	29
21	L O	20	26 ch	bro pek	2522	out
22		23	31 do	pek	2666	out
23		26	22 do	pek sou	1870	out
24	J	29	31 ch	bro tea	2666	out
25	X Y Z	32	8 ch	bro pek	874	22 bid
26	Mapitigama	35	22 ch	or pek	1980	out
27		38	21 do	pek No. 2	1680	27 bid
28		41	19 do	pek sou	1482	23
30		47	8 do	bro or pek	752	47 bid
31		50	18 do	pek No 1	1530	withd'n.
32	Manickwatte	53	23 ch	or pek	1886	30 bid
33		56	17 do	bro or pek	1700	30 bid
34		59	20 do	pek	1480	22 bid
35		62	16 do	pek sou	1280	20 bid

Messrs. Forbes & Walker.

[729,702 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Halbarawa	1252	30 ch	bro pek	3000	33
5		1255	18 do	pek	1620	26
9	Clarendon	1267	37 hf ch	bro pek	2331	48 bid
10		1270	29 do	or pek	1566	47
11		1273	23 ch	pek	2185	40
12		1276	16 do	pek sou	1600	36
15	R M, in estate mark	1285	25 ch	bro pek	2500	39
16		1288	14 do	pek	1190	34
21	Haputelle-wella	1303	25 hf-ch	bro pek	1500	40
22		1306	23 do	pek	1150	35
26	Nillomally, O B E C in estatemark	1318	19 ch	or pek	1748	51
27		1321	10 do	pek No 1	800	40 bid
28		1324	13 do	d No 2	1144	38 bid
29	Putupaula	1327	9 ch	bro or pek	1080	39 bid
30		1330	60 do	bro pek	5400	35 bid
31		1333	48 do	pek	3600	30
32		1336	10 do	pek sou	700	27
33	Waitalawa	1339	45 hf ch	bro pek	2250	47 bid
34		1342	87 do	pek	4350	37 bid
35		1345	18 do	pek sou	900	33 bid
36		1348	9 do	dust	810	24
39	Laxapana	1357	31 hf ch	pek fans dust	2625	23
40	Naseby	1360	30 do	bro or pek	1500	73
41		1363	29 do	or pek	1334	66
42		1366	30 do	pek	1440	59
43	Waratenne, Invoice No. 6	1369	17 ch	bro or pek	1870	32
44		1372	21 do	bro pek	1890	30
45		1375	57 do	pek	4275	24
49	O F, in es ate mark	1387	7 ch	dust	882	15
50		1390	16 do	fans	1442	12 bid
51	Sylvakandy	1393	75 hf ch	bro or pek	4125	52
52		1396	14 ch	bro pek	1400	38
53		1399	29 hf ch	or pek	1450	40
54		1402	15 ch	pek	1425	35
62	St. Heliers	1426	21 hf ch	bro or pek	1176	39
63		1429	14 ch	pek	1260	32
64	Queensland	1432	7 ch	bro pek	700	53
65		1435	10 do	pek	950	46
69	Theydon Bois	1447	10 ch	bro or pek	950	5
70		1450	8 do	or pek	760	44
71		1453	25 do	pek	1875	35
73	Clyde	1459	10 do	bro or pek	1000	52 bid
74		1462	27 ch	or pek	2430	35
75		1465	18 do	pek	1620	30
80	Bickley	1480	14 hf ch	bro or pek	1008	58 bid
81		1483	13 do	bro pek	936	46 bid
82		1486	24 do	or pek	1560	50
83		1489	33 do	pek	1980	40
84	O B E C, in estate mark Newmarket	1492	46 ch	bro pek	5060	44
85		1495	25 do	or pek	2250	41
86		1498	24 do	pek	2160	38
87		1501	9 do	pek sou	810	32
89	Drayton	1507	77 hf ch	bro or pek	4620	60 bid
90		1510	80 do	or pek	4000	47 bid
91		1513	54 ch	pek	4590	43 bid
92		1516	18 do	pek sou	1530	40
93	Great Valley Ceylon in est. mark	1519	52 hf ch	bro or pek	2860	51
94		1522	31 ch	or pek	2635	42
95		1525	51 do	pek	4080	34
96		1528	17 do	pek sou	1275	30
97	Oakham	1531	21 hf-ch	bro pek	1260	50
98		1534	16 do	or pek	945	44
99		1537	15 ch	pek	1350	38
102	S R, in est. mark	1546	13 ch	congou	1300	21
103	Walpita	1549	28 ch	bro pek	2800	37
104		1552	22 do	or pek	2200	31
105		1555	17 do	pek	1530	28
114	Rockcave	1582	10 ch	bro or pek	1000	34
117		1591	24 do	pek	1920	29
118		1594	12 do	pek sou	960	21
119		1597	12 do	sou	960	16
125	Nakiadeniya	1615	16 ch	bro or pek	1600	37
126		1618	9 do	or pek	810	33
127		1621	7 do	bro pek fans	770	27
128	Laxapana	1624	30 hf ch	bro pek	1800	48 bid
129		1627	30 ch	or pek	2700	45
130		1630	35 do	pek	3150	36 bid
131	Kitulgalla	1633	11 ch	or pek	1045	36
132		1636	9 do	pek	900	33
133		1639	8 do	pek sou	720	29
136	Tymawr	1648	18 hf ch	bro or pek	1080	44 bid
137		1651	30 do	or pek	1650	38 bid
138		1654	37 do	pek	1850	34 bid
139		1657	25 do	pek sou	1250	32
140	Monkswood	1660	20 hf ch	bro pek	1100	out
141		1663	29 do	or pek	1450	60 bid
142		1666	20 ch	pek	1800	52
143	Rowley	1669	16 hf ch	pek	800	30
144	Gallawatte	1672	12 ch	bro or pek	1200	39
145		1675	20 do	bro pek	1800	31
146		1678	31 do	pek	2480	30
147	Ella Oya	1681	13 ch	young hyson	1300	28
149		1687	24 do	hyson No. 2	2040	20
151	Bogahagoda-watte	1693	9 ch	bro pek	900	33
152		1696	10 do	pek	950	26
154	O B E C, in estate mark Forest Creek	1702	14 ch	bro or pek	1400	62 bid
155		1705	20 do	bro pek	[illegible]	47 bid
156		1708	12 do	or pek	1080	47
157		1711	14 do	pek No. 1	1260	49
158		1714	19 do	do No 2	1710	38 bid
159	P	1717	21 do	pek sou	2100	out
160	Nugagalla	1720	21 hf ch	bro pek	1050	43 bid
161		1723	44 do	pek	2200	30
6	Wewelkande	1732	21 do	bro pek	1155	26
167	O B E C, in estate mark Forest Creek	1741	11 ch	fans	1100	34
168		1744	9 do	sou	810	29
170		1750	21 do	pek dust	1365	35
171		1753	16 do	dust	1360	28
173	O B E C, in estate mark Waitalawa	1759	8 ch	bro pek	800	39 bid
180	Dunbar	1780	25 hf ch	or pek	1175	48
181		1783	13 ch	pek	1001	44
183	Choisy	1789	17 do	bro or pek	1700	52
184		1792	14 do	or pek	1330	45
185		1795	22 do	pek	1870	40
189	Macaldenia	1807	18 hf ch	bro pek	1800	52
190		1810	19 do	pek No. 1	950	38
191		1813	32 do	pek	1600	36
194	Palmerston	1822	13 hf ch	bro or pek	741	72
195		1825	13 ch	pek	1131	49
197	Coombe Court	1831	19 hf ch	bro or pek	1045	58 bid
198		1834	20 do	pek	1800	41
202	Ambalan-					

Lot.		Box.	Pkgs.	Name.	lb.	c.
	goda	1846	17 ch	or pek	1700	45 bid
203		1849	18 do	pek	1620	37 bid
204		1852	8 do	pek sou	720	31 bid
207	Kincora	1861	14 do	bro pek	1540	48 bid
209		1867	19 do	pek	1615	38 bid
210		1870	11 do	pek No 1	880	31 bid
211	Coreen	1873	43 hf ch	bro or pek	2580	48 bid
212		1876	24 ch	or pek	2208	41 bid
213		1879	22 do	pek	1936	40
216	Glendon	1888	21 ch	or pek	1785	38
217		1891	24 do	bro pek	2420	39
218		1894	32 do	pek	2720	33
219		1897	15 do	pek sou	1275	29
221	Ismalle	1903	7 ch	dust	1085	18
222	Robgill	1906	25 ch	bro pek	2497	48 bid
225	Massena	1915	14 hf ch	or pek	700	58
226		1918	41 do	pek	2050	32
227		1921	18 do	pek sou	900	26
231	High Forest	1933	59 hf ch	or pek No 1	3422	58
232		1936	40 do	or pek	2200	47 bid
233		1939	31 do	pek	1457	45
234	High Forest	1942	75 hf ch	or pek No. 1	4350	58
235		1945	45 do	or pek	2475	50
236		1948	37 do	pek	1776	45
237	Polatagama	1951	13 ch	bro pek	1300	49
238		1954	21 do	or pek	1995	39
239		1957	11 do	pek No. 1	990	33
240		1960	35 do	pek No. 2	2975	32
241		1963	13 do	pek sou	1170	28
244	Bandara-polla	1972	47 hf ch	bro pek	3055	39
245		1975	25 ch	or pek	2375	31
246		1978	18 do	pek	1710	28
247	Clunes	1981	14 ch	or pek	1190	38
248		1984	23 do	bro pek	2415	38
249		1987	18 do	pek No 1	1440	33
250		1990	39 do	pek No 2	3120	30
251		1993	12 do	pek sou	960	25
252		1996	9 do	sou	720	19
253	Erracht	1999	15 ch	bro pek	1500	41
254		2002	21 do	or pek	1785	39
255		2005	35 do	pek	2975	33
256		2008	13 do	pek sou	1105	27
257		2011	15 do	bro pek fans	1800	29
259	Widmore	2017	36 hf ch	bro or pek	2157	52 bid
260		2020	43 do	or pek	2018	47 bid
261		2023	87 do	pek	4521	39 bid
262	Avanna	2026	8 ch	bro pek	840	10 bid
268	Yuillefield	2044	26 hf-ch	or pek	1300	46 bid
269		2047	37 ch	pek	3145	37
272	Ingrogalla	2056	17 ch	bro pek	1700	40
273		2059	17 do	pek	1445	36
274	O B E E, in estate mark Summer Hill	2062	49 ch	bro or pek	2989	64 bid
275		2065	18 do	or pek No 1	1628	49 bid
276		2068	21 do	or pek	1827	46 bid
279	Pretoria	2077	11 ch	bro mix	1045	8
280		2080	11 hf ch	bro pek dust	990	21
281		2083	11 do	bro pek fans	759	22
282	Torwood	2086	20 ch	bro or pek	2000	40
283		2089	20 do	or pek	1340	33
284		2062	25 do	pek	2900	29
285		2095	13 do	pek sou	1040	26
286	Callabeck	2098	13 do	pek sou	1300	39
287		2101	8 do	bro pek fans	1090	35
292	Maragalla	2119	15 do	br pek	1650	45
294		2122	11 do	or pek	990	38
295		2125	9 do	pek	810	32
298	Dromoland	2134	15 do	or pek	1500	35
299		2137	22 hf-ch	bro or pek	1210	38
300		2140	19 ch	pek	1710	28
304	Weyunga-watte	2152	22 do	bro pek	2200	35
305		2155	20 do	pek	1900	31
306		2158	19 do	pek sou	1520	27
309	Maryland	2167	18 do	br pek	1800	41
310		2170	25 do	or pek	2250	36
311		2173	25 do	pek	2250	32
312		2176	11 do	pek sou	990	28
316	Marlborough	2188	100 hf-ch	bro or pek	6050	52
317		2191	15 ch	or pek	1200	41
318		2194	38 do	pek	3078	36
320	Erlsmere	2200	15 hf-ch	bro or pek	780	62
322		2206	25 do	bro pek	1400	52
323		2209	20 ch	pek	1700	50
326	Torwood	2218	12 do	or pek	931	33
327	Stamford Hill	2221	28 hf-ch	br pek	1680	56 bid
328		2224	13 ch	or pek	1105	56 bid
329		2227	24 do	pek	2160	44
332	Tempo	2236	21 do	pek No. 1	1572	30 bid
433	Dunbar	2239	27 do	pek	1998	42 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
334	Ardlaw and Wishford	2242	13 hf-ch	bro or pek	728	55 bid
335		2245	12 ch	br pek	1080	42
336		2248	10 do	or pek	870	40
337		2251	9 do	pek	747	36
338		2254	8 do	pek sou	776	35
339	Pansalatenne	2257	35 do	bro pek	3325	39 bid
340		2260	20 do	pek	1600	32
341		2263	20 do	pek sou	1600	28
342		2266	6 do	br pek fans	750	32
343	Tory	2269	7 do	sou	711	out
344	Tonacombe	2272	36 do	or pek	3420	43
345		2275	35 do	bro pek	3500	44
346		2278	38 do	pek	3420	35 bid
347		2281	14 do	pek sou	1260	35
348	Glendon	2284	19 do	or pek	1615	39
349		2287	24 do	bro pek	2520	39
350		2290	24 do	pek	2040	32
351		2293	13 do	pek sou	1105	28
352	G	2296	12 hf-ch	dust	960	20
353	H N G	2299	23 ch	bro or pek	2300	out
354	Sylvakandy	2302	58 hf-ch	bro or pek	3480	51
355		2305	16 ch	bro pek	1600	37
356		2308	27 hf ch	or pek	1350	40
357		2311	15 ch	pek	1425	36
359	Kenmare	2317	24 hf-ch	bro pek	1632	39
360		2320	28 do	fans	2296	40
361	Dunnottar	2323	32 do	bro or pek	1594	47 bid
362	Digdola	2326	7 ch	bro or pek	770	40
363		2329	9 do	or pek	855	36
364		2332	8 do	br pek	720	26
365		2335	14 do	pek	1190	31
368	New Pera-deniya	2344	15 do	bro pek	1500	45 bid
369		2347	12 do	br pk No. 2	1260	38
370		2350	12 do	or pek	1020	35 bid
371		2353	18 do	or pek	1080	32
372		2356	29 do	pek	2465	32
373		2359	35 do	pek sou	2800	28
375		2365	35 do	fans	2100	29
377		2371	29 hf-ch	or pk No. 1	1450	42
378		2374	24 do	pek	1248	38
379		2377	26 do	or pk No. 2	1300	48
380	Karawakettia	2380	9 ch	bro pek	988	22
381		2383	8 do	pek	826	14
382	Kirklees	2386	11 do	or pek	1095	46
383		2389	13 do	pek	1170	34
386	G Gampaha	2398	13 do	bro or pek	1430	48
387		2401	14 do	br pek	1330	50
388		2404	21 do	pek	1785	43
390	Maha Uva	2410	19 hf-ch	bro or pek	1140	36 bid
391		2413	23 do	or pek	1288	39
392		2416	19 ch	pek	1710	35
393		2419	12 do	pek sou	960	32
394	Ruanwella	2422	23 do	or pek	1955	32 bid
395		2425	15 do	bro pek	1500	37
396		2428	27 do	pek	2430	30
397		2431	10 do	pek sou	900	27
399	Dea Ella	2437	20 hf-ch	bro or pek	1100	44
400		2440	30 do	or pek	1650	37
401		2443	26 do	pek	1390	31
402		2446	16 do	pek sou	800	26
405	Akaroa	2455	57 ch	bro pek	5700	44 bid
466		2458	62 do	pek	4960	30 bid
407		2461	20 do	pek sou	1360	26 bid
408	Ganapalla	2464	18 do	or pk No. 1	1674	47 bid
409		2467	25 do	or pk No. 2	2550	33 bid
410		2470	23 do	bro or pek	2645	35 bid
411		2473	32 do	pek No. 1	2752	31
412		2476	32 do	pek No. 2	2752	29
413		2479	29 do	pek sou	2320	27
415	Hanwella	2485	10 hf ch	young hyson	1000	30
416		2488	7 ch	hyson No. 1	700	22
419	Inverness	2497	26 do	or pek	2340	71
420		2500	41 hf-ch	bro or pek	2460	56 bid
421		2503	34 ch	pek	3060	55
422		2506	10 hf-ch	dust	850	27
423	Memorakande	2509	17 do	dust	1360	23
424	Tembiligalla	2512	35 ch	bro or pek	3325	40
425		2515	23 do	pek	2070	31
429	Penrhos	2527	21 hf-ch	bro or pek	1197	56
430		2530	26 do	or pek	1248	45 bid
431		2533	30 ch	pek	2820	33 bid
435	K P W	2545	43 hf-ch	bro pek	2365	36
436		2548	30 do	bro or pek	1950	39
437		2551	57 do	pek	2850	29
438		2554	21 do	pek sou	1050	25
442	Nakiadeniya	2566	15 ch	pek	1200	29
443	Irex	2569	23 do	bro or pek	2300	43
444		2572	34 do	pek	3060	34
445		2575	13 do	pek sou	1040	28
448	Bandara Eliya	2584	76 hf-ch	or pek	3420	48
449		2587	72 do	bro or pek	3888	out
450		2590	87 do	pek	3654	38 bid
451		2593	49 do	pek sou	2254	31 bid
454	P	2602	17 ch	bro pek	1575	23 bid
455		2605	30 do	pek	2550	22 bid
456		2608	10 do	sou	800	18 bid

Lot.		Box.	Pkgs.		Name.	lb.	c.
257	Bandara Eliya	2611	52	hf-ch	or pek	2496	45 bid
458		2614	61	do	bro or pek	3416	50 bid
459		2617	71	do	pek	3195	36 bid
460		2620	38	do	pek sou	1596	30 bid
463	H G M	2629	35	do	bro or pek	2380	42
464		2632	13	ch	pek	1170	34 bid
465		2635	9	do	pek sou	720	29
466	Pine Hill	2638	41	hf-ch	bro or pek	2460	46 bid
467		2641	51	ch	or pek	4080	44
468		2644	45	do	pek	4275	34 bid
469		2647	15	do	pek sou	1350	31
470		2650	11	hf ch	dust	935	23
471	Adisham	2653	19	ch	bro or pek	1140	52 bid
472		2656	20	do	bro pek	1900	48
473		2659	31	do	pek	2635	40
474		2662	11	do	pek sou	935	33 bid
476	Passara Group	2668	19	do	bro or pek	1900	43
477		2671	23	do	bro pek	2185	40
478		2674	30	do	pek	2700	37
479		2677	23	do	pek	2070	37
480		2680	17	do	pek	1530	32
482		2686	10	hf-ch	fans	700	24
483	Harrow	2689	10	ch	or pek	1000	out
484		2692	24	hf-ch	bro or pek	1440	out
485		2695	16	ch	pek	1600	out
486		2698	18	do	pek No. 2	1800	out
488	Ireby	2704	30	hf-ch	bro pek	1650	54
489		2707	15	ch	pek	1275	46
490		2710	10	do	pek sou	850	40
493	Dehiowita	2719	24	hf-ch	bro or pek	1200	52
494		2722	18	ch	bro pek	1800	38 bid
496		2728	45	do	pek	4050	31
497		2731	23	do	pek sou	1840	28
498		2734	13	do	sou	1040	24
499		2737	9	do	sou	720	24
503	Poonagalla	2749	24	do	bro pek	2640	43 bid
504		2752	21	do	bro pek	2310	43 bid
505		2755	32	do	pek	2720	33 bid
506		2758	15	do	pek sou	1125	28
507	T C L in est mark	2761	14	do	congou	1400	22
509	Carlabeck	2767	11	do	pek sou	1045	41
510		2770	7	do	bro pek fans	980	29
511	C B	2773	9	do	br pek	990	out
512		2776	9	do	pek	945	28
515	Algooltenne	2785	26	do	bro or pek	2600	39
516		2788	41	do	or pek	3690	41
517		2791	79	do	pek	6320	31 bid
518		2794	25	do	pek sou	2250	29
522	W V R A	2806	16	hf-ch	bro or pek	880	51 bid
523	B D W G	2809	57	do	bro pek	2850	40
524		2812	26	do	pek	1300	38
526	G	2818	14	ch	pek sou	1092	23
535	Panawatte	2845	8	do	br pek	880	40
536		2848	8	do	or pek	744	40
537		2851	13	do	pek	1235	32
538		2854	10	do	pek sou	980	27
539		2857	22	do	pek sou	1870	27
542	Talgaswela	2866	29	do	or pek	2465	36
543		2869	31	do	pek	2480	29
544		2872	16	do	pek sou	1200	26
545	Fetteresso	2875	29	hf-ch	bro or pek	1798	53 bid
546		2878	35	ch	bro pek	2240	44 bid
547		2881	24	do	bro pek A	1536	42 bid
548		2884	30	do	pek	2850	37 bid
5 9	Purana	2887	11	do	bro pek	1100	out
551		2893	33	do	pek	2640	32
552		2896	12	do	pek sou	864	27

[Mr. E. John.—252,296 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
2	Mel Villa	685	22	hf ch	bro pek	1100	31
3		688	20	do	pek	1000	22
7	T S T	700	12	ch	pek	1080	36 bid
8	Poilakande	703	43	do	bro pek	4300	32 bid
9		706	31	do	pek	2790	27
14	Mount Everest	721	28	hf ch	bro or pek	1540	57 bid
15		724	30	do	or pek	1500	50 bid
16		727	34	ch	pek	3400	37 bid
17	Kandaloya	730	21	hf ch	bro pek	945	43 bid
18		733	20	do	or pek	800	42 bid
19		736	28	do	pek	1120	32 bid
26	Elston	757	30	ch	pek	2550	34 bid
27		760	27	do	pek sou	2430	30
28	Glassaugh	763	26	hf-ch	or pek	1430	68
29		766	22	do	bro or pek	1430	53
30		769	15	ch	pek	1500	52
33	G T	778	11	do	sou	990	20 bid
34		781	8	hf ch	dust	760	19
35	Glentilt	784	33	do	bro pek	3300	48 bid
36		787	26	do	or pek	2470	37 bid
37		790	17	do	pek	1445	34 bid
38		793	18	hf-ch	fans	1440	27
39	Koslande	796	28	do	bro pek	1540	45
40		799	23	ch	pek	1955	31
44	St. John's	811	25	hf-ch	bro or pek	1500	out
45		814	25	do	or pek	1250	55 bid
46		817	30	do	pek	1680	47
47		820	16	do	pek fans	1120	38
48	S J	823	33	do	bro pek	2046	43
49		826	18	do	pek	1044	30
50	G H	829	25	do	or pek	1375	62 bid
51		832	27	do	bro or pek	1735	52 bid
52	Glasgow	835	35	ch	bro or pek	2695	60
53		838	19	do	or pek	1330	49
54		841	13	do	pek	1196	47
55		844	9	do	pek sou	900	44
56	Callander	847	22	hf ch	bro or pek	1320	44
57		850	24	do	or pek	1248	41
58		853	46	do	pek	2208	40
61	M T V	862	20	ch	pek	1860	36 bid
64	Mount Clare	871	12	do	hyson No. 2	1200	out
68	Ottery	883	18	ch	bro or pek	1890	50 bid
69		886	23	do	or pek	1840	45 bid
70		889	16	do	pek	1360	43
71		892	8	hf ch	dust	720	22
72	Bowhill	895	22	ch	bro pek	2200	37
73		898	19	do	pek	1710	28
76	Gingranoya	907	7	do	bro or pek No. 2	700	37
77		910	20	do	pek	1700	33
78		913	9	do	pek sou	765	33
79	Templestowe	916	19	do	bro or pek	1482	50 bid
80		919	21	hf ch	or pek	903	47 bid
81		922	28	ch	pek	2380	38 bid
82		925	11	do	fans	1045	37
83	Mocha	928	36	do	bro or pek	3600	52 bid
84		931	20	do	or pek	1900	47 bid
85		934	28	do	pek	2604	41 bid
86		937	16	do	pek sou	1280	38
87	Warleigh	940	15	hf ch	bro or pek	900	65 bid
88		943	17	do	or pek	935	46 bid
89		946	27	ch	bro pek	2565	32 bid
90		949	25	do	pek	2125	33 bid
92	Bowella	955	17	hf ch	or pek	952	24 bid
93		958	19	do	pek	875	25 bid
94	Coslanda	967	27	do	bro pek	1485	45
. 5		964	23	cb	pek	1955	31
101	Doonevale	982	11	do	bro or pek	1232	35
103		988	15	do	pek	1425	25
104		991	9	do	pek No 2	810	22
107	Maskeliya	1000	39	hf ch	bro or pek	1950	36 bid
108		3	16	ch	or pek	1440	33 bid
109		6	25	do	pek	2600	31 bid
110	Peru	9	8	do	bro pek	880	42 bid
111		12	13	do	pek	1170	31 bid
112		15	8	do	pek sou	720	35
114	Rondura	21	16	do	bro pek	1520	39
115		24	15	do	or pek	1275	40
116		27	12	do	bro or pek	1200	31
117		30	22	do	pek No. 1	1760	32
118		33	13	do	pek No. 2	1040	31
119		36	11	do	pek sou	880	27
121	Brownlow	42	25	hf ch	bro or pek	1450	51 bid
122		45	19	ch	or pek	1748	43 bid
123		48	25	do	pek	2375	41
125	Gangawatte	54	17	do	bro or pek	1700	53 bid
126		57	15	do	bro pek	1500	48
127		60	28	do	pek	2520	40
130	G B	69	17	do	pek sou	1530	32
131	Weke	72	15	do	pek	1523	10 bid
133	Y K	78	13	do	sou	1105	7 bid
135	B D	84	14	do	bro or pek	840	56
136		87	37	do	bro pek	2220	42 bid
137		90	59	do	pek	2600	33 bid
138		93	20	do	pek sou	1840	28
140	S A	99	21	do	bro pek	2310	28 bid
141		102	31	do	pek	2480	24 bid
142		105	10	do	sou	770	18 bid
143	N W	108	16	do	bro or pek	1600	withd'n
144		111	51	hf ch	or pek	2397	39 bid
145		114	17	ch	bro pek	1615	32 bid
146		117	16	do	pek sou	1440	23 bid
147	Glassaugh	120	35	hf ch	or pek	1925	69
148		123	29	do	bro or pek	1885	55
149		126	22	ch	pek	2200	55
150	Dickapittia	129	31	do	bro pek	3100	38 bid
151		132	35	do	pek	3500	32 bid
154	Rookwood	141	71	hf-ch	bro or pek	4260	59 bid
155		144	26	ch	or pek	2496	42 bid
156		147	37	do	pek	3330	49 bid
157		150	13	do	fans	910	36
158	St. Andrew's	153	30	hf-ch	bro pek	1650	39 bid
159		156	24	ch	or pek	2160	30 bid
160		159	37	do	pek	3320	24
162	N T K	165	28	do			
			2	hf ch	pek sou	2586	withd'n
163	Mount Clare	168	9	ch	bro or pek	900	42 bid
164		171	7	do	or pek	700	40
165		174	11	do	pek	880	31 bid
166		177	14	do	pek sou	1120	27 bid
167		180	7	do	fans	700	30
168	Ferndale	183	12	do	bro pek	1200	49 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
169		186	11 ch	pek	935	40
173	Troup	198	19 do	sou	1710	28
174	Glasgow	201	33 do	bro or pek	2541	60 bid
175		204	18 do	or pek	1260	45 bid
176		207	12 do	pek	1104	49
177		210	7 do	pek sou	700	44
182	Galloola	225	26 do	bro pek	2600	44
183		228	42 do	pek	3350	37
184		231	17 do	pek sou	1360	26 bid
187	S	240	17 hf-ch	dust	1360	16 bid
189	Kelaneiya and Braemar	246	12 ch	bro or pek	1200	47
190		249	13 do	or pek	1200	41
191		252	16 do	pek	1520	31 bid
192	Oonoogaloya	255	19 do	bro or pek	1900	42
193		258	18 do	or pek	1620	43
194		261	27 do	pek	2700	35 bid
195	M	264	6 do	bro pek fans	750	17
196	K	267	7 do	dust	980	12

Messrs. Somerville & Co.—

[277,452 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
6	Meetiyagoda	151	8 ch	bro pek	800	10 bid
9	Labuduwa	160	7 ch	bro pek	795	27
11		166	10 do	pek sou	1029	22
12	Avisawella	169	21 ch	bro pek	2100	38
13		172	15 hf ch	bro or pek	750	46 bid
14		175	25 ch	pek	2125	31
15		178	18 do	pek sou	1440	24
17	Hapugasmulle	184	16 do	bro pek	1760	38
18		187	23 do	unas	2346	24
20	Invery	193	8 hf ch	dust	720	27
21	Yarrow	196	13 hf ch	flowy or pek	715	50
22		199	30 do	or pek	1500	43
23		202	13 do	bro or pek	715	40
24		205	28 do	pek	1260	39
28	Bodava	217	32 hf ch	bro pek	1760	33
29		220	11 ch	pek	990	28
33	H J S	222	13 hf ch	pek	780	27
34		235	21 do	pek sou	1260	24
35	Wilpita	238	14 ch	or pek	1400	30
36		241	14 do	bro pek	1400	23
37		244	12 do	pek	1200	15
43	Z, in estate mark	262	12 ch	pek sou	1008	16
44		265	7 do 1 hf cb	fans	740	18
46	Kelani	271	23 ch	or pek	2070	38 bid
47		274	14 do	bro or pek	1400	33
48		277	12 do	pek	1080	30 bid
49		280	10 do	pek sou slack-packed	750	26
50	Nyanza	283	8 ch	or pek	760	40 bid
51		286	19 hf ch	bro pek	1140	46 bid
52		289	15 ch	pek	1200	33
67	Ravenoya	334	19 ch	pek	1520	33
70	Mora Ella	343	30 hf cb	bro or pek	1740	49
71		346	27 do	or pek	1350	42
72		349	30 ch	pek	2610	34
73		352	12 do	pek sou	960	28
75		358	14 hf cb	bro or pek fans	910	28
76	D M O G, in estate mark	361	14 hf cb	bro or pek	700	46 bid
77		364	18 ch	pek	1350	30
78		367	27 do	pek sou	1890	35
79	Labugama	370	15 hf ch	bro pek	825	33
83	Monrovia	382	20 ch	bro pek	1900	32
84		385	24 do	pek	2160	27
85		388	11 do	pek sou	1100	17
92	Mawatura	409	18 hf ch	pek	900	28
95	St. Catherine	418	10 ch 1 hf ch	bro or pek	1003	46 bid
100	Citrus	433	14 ch	bro pek	1364	33
101		436	13 do	pek	1300	26
106	Farnham	451	12 ch	bro pek	1080	36 bid
107		454	10 do 1 hf ch	or pek	843	37
108		457	15 ch	pek No 1	1500	30 bid
109		460	16 do	pek	1440	28 bid
110		463	20 do	pek sou	1700	25
116	H, in estate mark	481	32 ch	pek	2976	out
117	Rayigam	484	27 ch	bro pek	2700	38 bid
118		487	22 do	or pek	1980	31 bid
119		490	25 do	pek	2125	30
120		493	18 do	pek sou	1800	27
121		496	8 do	bro pek fans	800	28 bid
124	Annandale	505	19 hf ch	or pek	1064	62
125		508	17 do	pek	986	50
126		511	13 do	pek sou	715	42
129	Warakamure	520	27 ch	bro pek	2700	37
130		523	29 do	pek	2291	28
131		526	13 do	pek sou	1170	23
132	Ossington	529	13 ch	pek	1267	out
133		532	18 do	bro pek	1776	14 bid
136	Ravana	541	35 hf ch	or pek	1750	43
137		544	18 hf cb	bro pek	1080	39
138		547	28 do	pek	1260	39
139		550	20 do	pek sou	900	30
140	Ambalawa	553	16 do	bro pek	928	32
141		556	13 ch	pek	1092	26
142		559	11 do	pek sou	847	22
143	Cooroondoowatte	562	9 ch	bro pek	900	49
144		565	21 do	pek	2100	30
145		568	7 do	pek sou	700	22
148	Yspa	577	15 ch	pek sou	1275	29
149	Ravenscraig	580	18 ch	pek	1620	31
151	Ingeriya	586	12 do	or pek	1260	36
152		589	11 do	bro pek	1100	33
154		595	10 do	pek	950	28
155		598	11 do	pek sou	990	24
157	T R H	604	23 ch	bro or pek	2300	out
158	Gangwarily	607	13 ch	red leaf	845	5 bid
161		616	11 do	sou	770	6
163	Havilland	622	11 ch	sou	880	6
171	Mousa Eliya	646	9 ch	bro or pek	900	40 bid
172		649	10 do	bro pek 2 oz lead	1000	39
174		655	11 ch	pek 2 oz lead	1045	36
175	Rambodde	658	22 hf ch	bro pek	1320	45
176		661	46 do	pek	2300	36
177		664	27 do	pek sou	1215	30
179	Mt Vernon	670	30 ch	pek	2520	40 bid
180		673	24 do	pek sou	2024	37
181	Columbia	676	19 hf ch	bro or pek	988	53 bid
182		679	28 do	or pek	1400	42 bid
183		682	19 do	pek	874	39
184	Selvawatte	685	18 ch	bro pek	990	33
185		688	9 do	pek hooped	720	23
187	Rabatungoda	694	25 hf ch	bro or pek	1250	51 bid
188		697	22 do	or pek	1100	47
189		700	20 do	pek	1000	39
192	Deniyaya	709	26 ch	bro pek	2600	26 bid
193		712	13 do	pek	1300	29 bid
194	Buona Vista	715	17 hf ch	bro or pek	986	27 bid
196	Atabahena	721	13 hf ch	bro pek	702	24
197		724	16 do	pek	800	12
200	Avisawelle	733	16 ch	bro pek	1600	36
201		736	27 do	pek	2295	31
202		739	13 do	pek sou	1040	23
203	B	742	20 ch	pek fans	2000	21
205	J L	748	14 hf cb	dust	1120	17
212	Cotswold	769	11 ch	bro or pek	825	45 bid
214		775	16 do	pek	1330	35
218	M	787	13 ch	pek sou	1800	out
219		790	16 do	pek	1504	7 bid
220	S L	793	12 hf ch	dust	960	18
226	Tallegallekande	811	12 ch	bro mix	1200	12
227	N	814	13 ch	bro or pek	1300	out
228		817	16 do	pek	1280	19
229		820	25 do	pek sou	2000	18
230	V G, in estate mark	823	23 hf ch	bro pek	1380	22 bid
231		826	15 do	pek	900	16 bid
234	K	835	20 ch	pek sou	1600	out
235	Mahatenne	838	15 ch	bro pek	1500	39
236		841	18 do	pek	1710	31
241	Etcie	856	15 ch	bro pek	1500	32
242		859	17 do	pek	1700	23
243		862	13 do	pek sou	1235	18
244	C C	865	23 ch	pek fans	2300	22
245	I X	868	20 ch	pek sou	1800	20
246	New Valley	871	26 cb	bro or pek	2600	47 bid
247		874	19 do	or pek	1710	45
248		877	15 do	pek	1500	42
249		880	16 do	pek sou	1360	37 bid
251	N I T	886	14 ch	unas No 2	1120	18
252	J J	889	13 hf ch	dust	988	10 bid
253	Ferriby	892	23 ch	bro pek	2300	out
255		898	26 do	pek	2210	30
256		901	13 do	pek sou	1040	24
257	P L	904	22 ch	pek sou	1870	14 bid
264	Sinda	925	16 ch	bro mix	992	10 bid
265	Kaln	928	14 ch	bro pek	1428	30
266	Wewa	931	35 hf ch	pek sou	1750	with dn
267	H G	934	42 ch	bro pek	4116	23 bid
268	Endon	937	13 cb	bro pek	1300	with dn
269	X, in estate mark	940	66 ch	bro tea	5808	4 bid
270	Ranasinghapatna	943	81 hf ch	or pek	3726	28 bid
271		946	65 do	bro or pek	3640	22 bid
272		949	45 ch	pek venesta pkgs	3600	21 bid
273		952	46 do	pek sou venesta pkgs	4002	18 bid
274	Yatagala	955	6 ch 2 hf ch	bro pek	710	24
275		958	11 ch 3 hf cb	pek	1138	12
276		961	4 ch 7 hf ch	pek sou	712	8

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Mapitigama	69	6 ch	pek	510	26
5		72	5 do	pek sou	425	22
6		75	3 do	sou	240	19
7		78	4 do	or pek fans	400	23
8		81	2 do	pek fans	186	17
12	Battalgalla	93	9 hf ch	bro pek fans	639	31
20	Bunyan and Ovoca	17	6 do	dust	570	23
29	Mapitigama	44	4 ch	bro or pek fans	440	32
36	Manickwatte	65	2 ch	dust	170	18
37		68	1 do	red leaf	60	6

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	P F	1243	3 ch	or pek	309	41
2		1246	4 do	bro or pek	480	52
3		1249	4 do	pek	392	36
6	Halbarawa	1258	7 ch	pek sou	560	22
7		1261	1 ch 2 hf ch	dust	303	16
8		1264	1 ch	red leaf	55	16
13	Clarendon	1279	2 ch	sou	160	28
14		1282	3 do	pek dust	240	20
17	R M, , in est. mark	1291	8 ch	pek sou	664	28
18		1294	2 do	sou No. 2	180	22
19		1297	8 hf ch	fans	480	35
20		1300	1 do 1 hf ch	dust	205	20
23	Haputale-wella	1309	14 hf ch	pek sou	560	27
24		1312	2 do	fans No 1	140	20
25		1315	2 do	do ,, 2	160	21
37	Elfindale	1351	5 ch	dust	500	19
38	I K V	1354	4 ch	pek fans	480	18
46	Varatenne, Invoice No.6	1378	3 ch	pek sou	255	20
47	O F, in estate mark	1381	2 ch	bro pek	195	27
48		1384	3 do	pek sou	222	15
55	Sylvakandy	1405	1 do 1 hf ch	dust	170	20
56	Aneimudi	1408	6 ch	young hyson No 1	258	23
57		1411	4 do	young hyson No 2	344	17
58		1414	3 do	hyson No 1	246	15
59		1417	3 do	do ,, 2	240	9
60		1420	2 do	fans	100	8
61		1423	1 do	dust	64	7
66	Queensland	1438	4 ch	pek sou	380	36
67		1441	1 hf ch	bro pek dust	77	26
68		1444	1 do	bro pek fans	70	29
72	Theydon Bois	1456	8 ch	pek sou	640	30
76	Clyde	1468	7 ch	pek sou	504	23
77	New Galway	1471	4 hf ch	bro pek	240	55
78		1474	8 do	pek	440	45
79		1477	1 do	pek sou	50	35
88	O B E C, in est. mark Newmarket	1504	3 ch	dust	459	20
100	Oakham	1540	4 ch	pek sou	380	32
101		1543	2 hf-ch	pek fans	150	23
106	Walpita	1558	4 ch	pek sou	340	24
107		1561	2 do	sou	180	18
108		1564	2 do	dust	280	19
109	Rockcave	1567	4 ch	sou	320	30
110		1570	1 do	bro mix	90	12
111		1573	3 do	dust	405	22
112		1576	3 do	dust No 2	519	18
113		1579	5 do	bro pek fans	600	34
115	Rockcave	1585	3 ch	bro pek	300	30
116		1588	3 do	or pek	240	34
120		1600	5 do 1 hf ch	fans	696	18
121	A B F (Packed 2 oz. lead	1603	2 ch	bro pek	200	26
122		1606	2 do	pek	200	15
123		1609	2 do	pek sou	200	12
124		1612	1 do	congou	85	6
134	Kitulgalla	1642	3 hf ch	dust	240	20
135		1645	4 ch	bro or pek fans	440	26
148	Ella Oya	1684	8 ch	hyson	680	21
150	Bogahagoda-watte	1690	4 ch	bro or pek	440	28
153		1699	7 do	pek sou	630	18
162	Nugagalla	1726	10 hfch	pek sou	500	19
163		1729	4 do	dust	360	17
165	Wewelkande	1735	8 do	pek	416	19
166		1738	6 hf ch	pek sou	300	18
169	O B E C, in estate mark Forest Creek	1747	3 ch	red leaf	255	17
172	O B E C, in estate mark Waitalawa	1756	11 hf ch	bro or pek	550	51
174		1762	4 ch	or pek	340	38 bid
175		1765	5 do	pek No 1	450	31 bid
176		1768	6 do	pek No 2	540	29 bid
177		1771	2 do	fans	180	25
178		1774	1 do	sou	63	18
179		1777	3 do	dust	240	26
182	Dunbar	1786	3 hf ch	bro pek fans	186	38
186	R	1798	1 ch	bro pek	76	28
187		1801	1 do	pek sou	99	16
188		1804	1 hf ch	dust	60	14
192	Macaldenia	1816	9 do	pek sou	450	28
193		1819	2 do	dust	150	20
196	Palmerston	1828	2 ch	pek sou	146	40
199	Coombe Court	1837	1 hf ch	dust	115	20
200		1840	7 do	fans	455	36
201	Amblangoda	1843	6 ch	bro or pek	600	51 bid
205		1855	1 do	fans	110	27
206		1858	2 do	dust	220	18
208	Kincora	1864	7 do	or pek	630	45 bid
214	Coreen	1882	2 ch	pek sou	180	34
215		1885	6 hf ch	dust	480	23
220	Ismalle	1900	3 ch	fans	387	19
223	Massena	1909	5 hf ch	bro or pek	250	43
224		1912	13 do	bro pek	650	33
228		1924	8 do	bro pek fans	440	31
229		1927	4 do	fans	180	29
230		1930	3 do	dust	210	20
242	Polatagama	1966	6 ch	bro pek fans	570	29
243		1969	2 do	dust	300	20
258	Erracht	2014	1 ch	dust	175	19
263	Avanna	2029	5 do	pek	560	8
264		2032	5 1 hf ch	sou	530	5
265		2035	5 do	dust	450	8
266		2038	1 do	bro pek fans	70	12
267	Yuillefield	2041	10 do	bro or pek	600	51
270		2050	1 do	sou	50	22
271		2053	1 do	dust	70	18
277	Pretoria	2071	2 ch	pek	182	18
278		2074	5 do	congou	400	10
288	Kumaradolla	2104	6 ch	bro pek	660	41
289		2107	4 do	or pek	360	34
290		2110	4 do	pek	360	30
291		2113	1 do	bro tea	80	22
292		2116	1 do	dust	150	19
296	Maragalla	2128	3 do	bro tea	240	24
297		2131	1 do	dust	150	19
301	Dromoland	2143	6 do	pek sou	510	24
302		2146	4 hf-ch	fans	280	21
303		2149	2 do	dust	172	18
307	Weyunga-watte	2161	2 ch	bro tea	200	16
308		2164	3 hf-ch	dust	255	19
313	Maryland	2179	6 ch	sou	540	20
314		2182	2 hf-ch	dust	160	21
315		2185	2 ch	fans	130	29
319	C N	2197	8 do	bro tea	637	22
321	Erlsmere	2203	8 do	or pek	640	50
324		2212	5 do	pek sou	425	36
325		2215	2 hf ch	dust	170	24
330	Stamford Hill	2230	5 ch	pek sou	450	38
331		2233	3 hf-ch	dust	255	23
358	Sylvakandy	2314	2 ch	dust	200	
366	Digdola	2338	6 do	pek sou	480	25
367		2341	2 do	br pek fans	200	35
374	New Pera-deniya	2362	6 do	sou	456	22
376		2368	3 do	dust	246	21
384	Kirklees	2392	8 do	pek sou	680	30
385		2395	3 hf ch	dust	270	19
389	G Gampaha	2407	6 ch	pek sou	540	39
398	Ruanwella	2434	8 do	dust	640	19
403	Dea Ella	2449	5 hf-ch	fans	325	28
404		2452	7 do	dust	560	19
414	Ganapalla	2482	8 do	dust	696	20
417	Hanwella	2491	2 ch	hyson No. 2	190	16
418		2494	1 do	hyson siftings	130	10
426	Tembiligalla	2518	1 do	pek sou	90	22
427		2521	1 do	bro pk fans	125	27
428		2524	1 do	dust	150	18
432	Penrhos	2536	7 do	pek sou	567	29
433		2539	1 hf ch	fans	75	32
434		2542	1 do	pek dust	97	22
439	K P W	2557	3 do	br pk fans	210	26
440		2560	3 do	dust	255	20
441		2563	1 do	pek fans	70	23
447	Nahakettia	2581	6 ch	twankey	468	8
452	Bandara Eliya	2596	2 do	dust		16
454		2599	9 do	pek fans	675	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
461		2623	2 hf-ch	dust	172	13
462		2626	7 do	pek fans	546	25
475	Adisham	2665	4 ch	fans	280	31
481	Passara Group	2683	2 hf-ch	dust	170	18
487	Harrow	2701	5 ch	pek sou	475	26
491	Ireby	2713	5 do	fans	280	36
492		2716	7 do	dust	490	27
495	Dehiowita	2725	15 hf-ch	or pek	600	36
500		2740	2 ch	fans	182	29
501	R W T	2743	2 do	dust	240	18
502		2746	1 do	congou	90	12
508	T C L in est. mark	2764	6 do	pek fans	600	25
513	C B	2779	3 do	pk sou	300	22
514		2782	1 hf ch	br pk fans	83	19
519	C R D	2797	4 ch	pek	360	21
520		2800	5 do	dust	500	21
521		2803	4 do	s u	320	19
525	B D W G	2815	2 hf-ch	dust	150	19
527	B D W P	2821	5 ch	br pk fans	550	31
528		2824	1 do	sou No. 2	90	out
529		2827	1 hf-ch	dust	90	20
530		2830	1 do	hyson	60	24
531		2833	2 do	hyson No 2	100	17
532		2836	1 do	green tea dust	75	11
533	Gama	2839	2 ch	congou	190	10
534		842	6 do	bro mixed	690	7 bid
540	Panawatte	2860	4 do	dust	620	16
541	B B in est mark	2863	5 hf-ch	dust	450	16
550	Purana	2890	4 ch	br pk No 2	360	34
553		2899	1 hf ch	dust	80	16

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name.	lb.	c.
1	Malawasawa	136	2 ch	bro pek	200	39
2		139	2 do	or pek	160	36
3		142	4 do	pek	320	29
4		145	2 do	pek sou	160	22
5		148	1 do	dust	171	18
7	Meetiyagoda	154	3 ch	pek sou	300	8
18		157	1 do	fans	110	8
10	Labuduwa	163	3 ch	pek	305	23
16	Avisawella	181	5 ch	fans	500	24
29	Hapugasmulle	190	2 ch	dust	300	19
25	Yarrow	208	12 hf ch	pek sou	600	28
26		11	3 do	bro pek fans	210	31
27		214	2 do	pek dust	166	23
30	Bodava	223	7 ch	pek sou	595	19
31		226	1 do	dust	145	17
32		229	1 do 1 hf ch	red leaf	145	8
38	Wilpita	247	2 ch	fans	200	10
39		250	2 do	bro mix	200	7
40		253	1 do	dust	150	14
41	Z, in estate mark	256	5 hf ch	bro pek	300	21
42		259	9 do	pek	495	18
45		268	2 do	dust	126	14
53	Nyanza	292	4 ch	pek sou	400	26
54		295	2 do	dust	200	20
55	D	298	3 hf ch	bro pek	150	25
56		301	7 do	pek	350	19
57		304	2 ch	pek sou	158	16
58	Handrookande	307	2 ch	bro pek	200	30
59		310	5 do	pek	425	24
60		313	3 do	pek sou	240	19
61	S	316	5 hf ch	dust	400	22
62		319	6 do	sou	300	10
63	A	322	3 hf ch	dust	240	22
64		325	3 do	sou	150	10
65	Ravenoya	328	6 ch	bro pek slack packed	600	39
66		331	2 do	bro pek No 2	180	33
68		337	6 do	pek sou	432	26
69		340	1 hf ch	dust	80	18
74	Mora Ella	355	6 hf ch	dust	940	22
80	Labugama	373	7 ch	pek	665	24
81		376	7 do	pek sou	595	16
82	Cairnton	379	2 hf ch	dust	157	17
86	Monrovia	391	2 ch	bro tea	200	8
87		394	2 do	pek dust	310	19
88		397	3 do	Twanky	300	8
89		400	1 do	green tea dust	150	10
90	Mawatura	403	7 hf ch	bro or pek	420	36
91		406	11 do	bro pek	605	32
93		412	13 do	pek sou	650	22
94		415	1 do	dust slack packed	85	17
96	St Catherine	421	6 hf ch	or pek	543	36
97		424	6 do	pek	513	30
98		427	5 do	pek sou	403	25
99		430	2 do	bro or pek fans	162	28
102	Citrus	439	3 ch	pek sou	300	19
103		442	2 do	bro pek fans slack-packed	200	16
104		445	2 ch	dust	320	14
105	Farnham	448	11 hf-ch	bro or pek	649	48 bid
111		466	7 do	bro pek fans	462	36
112	Primston	469	12 hf ch	bro pek	660	30
113		472	10 do	pek	500	15 bid
114		475	7 do	pek sou	350	15 bid
115		478	2 do	sou	100	10
122	Rayigam	499	8 hf ch	dust	640	22
123	Annandale	502	10 hf ch	bro or pek	570	80 bid
127		514	4 do	fans	256	35
128	G M	517	1 ch	pek	95	24
134	Ossington	535	7 ch	pek sou	675	out
135		538	1 do	dust	132	12
146	Cooroondoo watte	571	4 ch	con	338	10
147		574	5 hf ch	pek fans	420	19
150	Ravenscraig	583	5 ch	pek sou	475	26
153	Ingeriya	592	3 ch	bro or pek	350	28
156		601	2 do	dust	216	20
159	Gangwarily	610	10 ch	sou	650	6 bid
160		613	5 do	red leaf	325	6
161		619	2 do	red leaf	140	5
164	Havilland	625	7 ch	sou	560	6
165		628	5 do	pek sou	400	20
166		631	2 do	dust	170	15
167		634	4 do	fans	480	19
168		637	1 do	dust	90	16
169		640	4 do	fans	480	19
170		643	10 do	bro mix	800	7 bid
173	Mousa Eliya	652	4 ch	or pek 2 oz lead	316	40
158	Rambodde	667	3 hf ch	pek dust	210	22
186	Selvawatte	691	1 ch	fans	76	15
190	M V O, in estate mark	703	10 hf ch	bro pek fans	510	17
191	E R, in estate mark	706	5 hf ch	bro or pek	255	out
195	Buona Vista	718	11 hf ch	pek	550	22 bid
198	Kurulugalla	727	4 ch	Hyson No 1	380	11
199		730	5 do	Twanky	450	out
204	B	745	7 hf ch	dust	630	15
213	Cotswold	772	7 ch	or pek	490	42
214		778	4 do	pek sou	340	28
216		778	1 do	bro pek fans	80	26
217		781	1 do	dust	110	20
221	M R T	799	1 hf ch	bro pek slack packed	50	24
222		799	1 do	pek	50	19
223		802	1 do	bro tea slack packed	45	8
224		805	1 do	dust slack packed	60	16
225	Tallegalle kande	808	3 ch	sou	285	10
232	V G in estate mark	829	11 hf ch	pek sou	660	12
233		832	3 do	sou	195	out
237	H R	844	2 hf ch	bro pek	86	22
238		847	3 do	pek	140	18
239		850	1 do	dust slack packed	56	14
240		853	1 do	Hyson	60	6
250	N I T	883	2 ch	unas	200	22
254	Ferriby	895	13 hf ch	or pek	624	31
258	S, in estate mark	907	1 ch	bro pek	110	22
259		910	1 do	pek	105	18
260		913	2 do 1 hf ch	pek sou	250	9
261		916	1 ch	dust	140	14
262		919	2 do	red leaf	200	4 bid
263		922	1 hf ch	Hyson	40	8
277	Wallasmulle	964	5 ch	pek fans	600	22
278		967	4 do	dust slack	660	16
279		970	2 do	dust slack	330	16
280		973	4 do	pek fans	520	22
281		976	3 do	dust slack	525	16
282		979	1 do	sou	70	8
283		982	4 do	fans	480	22
284	Mahatenne	985	3 ch	pek sou	270	22
285		988	1 do	dust	100	16

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	682	1 ch	dust	115	14
4	Mel Villa	691	6 hf ch	pek sou	300	17
5		694	1 do	bro pek dust	70	out
6		697	1 do	pek dust	57	18
10	Allington	709	6 ch	bro pek	600	37
11		712	6 do	pek	540	27
12		715	5 do	pek sou	450	24
13		718	1 do	bro pek fans	120	24
20	Kandaloya	739	6 hf ch	pek sou	240	29
21	Galpotta	742	10 do	young hyson	500	28
22		745	6 do	hyson	240	20

Lot.		Box.	Pkgs.		Name.	lb.	c.
23	Cabin Ella	748	6	do	dust	480	20
24		751	4	do	br or pek fans	300	24
25		754	4	ch	sou	360	23
31	G T	772	2	do	bro pek	230	27
32		775	6	do	pek	570	20
41	Koslande	802	2	do	pek sou	180	27
42		805	2	do	fans	220	28
43		808	1	do	dust	80	19
59	Callander	856	7	hf-ch	pek sou	301	32
60		859	5	do	bro pek fans	350	31
62	Mount Clare	865	3	ch	young hyson	300	29
63		868	3	do	hyson	300	21
65		874	1	do	fans	100	out
66		877	1	do	green tea dust	100	8
67		880	2	do	swiftings	192	12
74	B H	901	4	do	red leaf	400	5
75		904	1	do	dust	150	16
91	Warleigh	952	3	do	pek sou	240	32
96	Coslanda	967	2	do	pek sou	180	27
97		970	2	do	fans	220	29
98		973	1	hf ch	dust	80	20
99	Maryland	976	5	ch	bro pek	500	28
100		979	5	do	pek	500	18 bid
102	Doonevale	985	6	do	or pek	600	29
105		994	4	do	sou	380	out
106		997	5	do	bro pek fans	525	22
113	Peru	18	1	do	dust	150	22
129	Rondura	39	3	do	dust	450	19
128	Gangawatte	63	2	do	pek sou	200	33
129		66	8	hf ch	fans	560	40
132	Mapitigama	75	2	ch	sou	160	out
134	K	81	1	do	bro pek	85	22
139	B D	96	3	do	br or pek fans	63	44
152	Dickapittia	135	3	do	sou	300	19
153	R K T	138	8	do	pek sou	600	19
161	St. Andrew's	162	5	hf-ch	dust	425	withd'n
170	Ferndale	189	8	ch	pek sou	680	35
171		192	3	do	sou	240	29
172		195	3	do	dust	390	31
178	Longville	213	4	do	bro pek	220	32
179		216	3	do	or pek	165	26
180		219	2	do	pek	100	20
181	Y K D, in est. mark	222	10	do	pek sou	650	28 bid
185	Galloola	234	2	do	dust	200	18
186		237	4	do	fans	400	33
188	S	243	2	hf ch	fans	140	14

CEYLON COFFEE SALES IN LONDON

(*From Our Commercial Correspondent.*)

MINCING LANE, March 15.

"Caledonia."—M A F, 23 bags sold at 35s.

"Kamakura Maru."—Asgeria A, 1 cask sold at 90s ; ditto C, 1 barrel sold at 44s ; ditto B, 3 casks sold at 85s ; ditto PB, 1 barrel sold at 58s ; ditto T, 1 tierce sold at 37s ; 1 bag sold at 55s overtakers.

CEYLON COCOA SALES IN LONDON.

"Kamakura Maru."—Ditto B, 6 bags sold at 55s 6d ; ditto B 1, 2 bags sold at 60s ; ditto T, 2 bags sold at 46s.

"Magician."—Ditto 3, 2 bags sold at 54s.

"Kamakura Maru."—Ditto T, 2 bags sold at 55s 6d.

"Hitachi Maru."—Hylton OO, 1 bag sold at 65s ; ditto T, 3 bags sold at 56s ; A & J Autane, 28 bags sold at 78s ; A & J Hantane, 7 bags sold at 61s ; 9 bags sold at 49s 6d ; 2 bags sold at 60s 6d ; 2, 12 bags sold at 58s 6d ; Broken, 2 bags sold at 65s 6d ; Boliayala, 1 bag sold at 56s ; Roseneath, 6 bags sold at 65s 6d ; 4 bags sold at 54s 6d.

"Kamakura Maru."—No. II, 5 bags sold at 60s 6d ; No. III, 2 bags sold at 39s ; No. IV, 2 bags sold at 59s ; Gangavarily No. 1, 1 bag sold at 61s ; ditto No. 2, 5 bags sold at 64s ; ditto No. 3, 4 bags sold at 67s ; ditto No. 2, 12 bags sold at 63s ; ditto No. 3, 6 bags sold at 47s ; Kepitigala, 20 bags sold at 62s 6d.

"Magician."—Ditto, 4 bags sold at 63s ; C D G, 4 bags sold at 62s 6d ; 4 bags sold at 46s 6d ; 1 bag sold at 48s 6d ; Ross 2, 4 bags sold at 50s 6d ; B, 2 bags sold at 52s 6d ; No. 2 A, 5 bags sold 62s 6d ; B, 48 bags sold at 63s 6d ; No. 2 B, 4 bags sold at 58s ; C, 18 bags sold at 58s 6d.

"Lancashire."—T, 2 bags sold at 52s ; OG in estate mark, 20 bags sold at 58s ; 11 bags sold at 59s.

"Kamakura Maru."—Asgeria B, 3 bags sold at 64s ; T, 1 bag sold at 59s ; Warriagala, 1 bag sold at 60s ; Ratwatte, 15 bags sold at 57s.

"Hitachi Maru."—Monerakande Estate No. 1, 1 bag sold at 65s.

CEYLON CARDAMOMS SALES IN LONDON.

"Sanuki Maru."—F A & Co. in estate mark, 1 case sold at 2s 6d.

"Hitachi Maru."—Vedehette Cardamoms Ex, 1 case sold at 3s 7d ; ditto AA. 6 cases sold at 2s 9d ; ditto A, 2 cases sold at 1s 8d ; ditto B, 4 cases sold at 1s 4d ; ditto D, 1 case sold at 2s 3d ; Galaha Cardamoms Ex, 2 cases sold at 3s 8d ; ditto AA, 5 cases sold at 2s 11d ; ditto A, 2 cases sold at 1s 8d ; ditto B, 3 cases sold at 1s 5d ; ditto C, 1 case sold at 1s 4d ; ditto D, 2 cases (seeds) sold at 2s 2d ; 2 cases sold at 1s 3d.

"Magician."—Necholaoya Cardamoms Ceylon, 3 cases sold at 1s 4d.

"Bingo Maru."—Altwood Cardamoms, 2 cases sold at 1s 5d ; Galantenne Cardamoms, 1 case sold at 1s 10d.

"Statesman."—Midlands O, 4 cases sold at 2s 4d ; ditto 1, 5 cases sold at 2s ; ditto 2, 1 case sold at 1s 4d ; ditto B & S, 1 case sold at 1s 5d ; ditto Seed, 1 case sold at 1s 11d ; Elkadua O, 2 cases sold at 2s 9d ; 1 case sold at 2s 8d ; ditto 1, 4 cases sold at 2s ; ditto 2, 1 case sold at 1s 3d ; ditto Seed, 1 case sold at 1s 11d ; ditto B & S, 1 bag sold at 1s 3d.

"Magician."—Duckwari A 1, 2 cases sold at 4s 1d ; ditto B 1, 4 cases sold at 3s 3d ; ditto C 1, 4 cases sold at 2s 5d ; ditto D 1, 1 case sold at 1s 6d ; ditto A splits, 2 cases sold at 3s 4d ; ditto B splits, 4 cases sold at 2s 5d ; ditto C splits, 4 cases sold at 1s 10d ; ditto D splits, 1 case sold at 1s 4d ; ditto E splits, 6 cases sold at 1s 6d ; Kellie A, 3 cases sold at 3s 6d ; ditto B, 2 cases sold at 3s ; 2 cases sold at 2s 11d ; ditto C, 1 case sold at 2s 1d ; ditto A splits, 1 case sold at 1s 9d ; ditto B splits, 3 cases sold at 1s 6d.

"Shinano Maru."—Ditto B, 3 cases sold at 1s 8d ; ditto E, 1 case sold at 1s 5d.

CEYLON CINCHONA BARK SALES IN LONDON.

"Clan McNeil."—Wattakely C Succraubra Stem. 6 bales sold at $5\frac{1}{2}$d.

"Awa Maru."—Kerrimattia Succraubra Stem, 2 bales sold at $3\frac{7}{8}$d ; 3 bales sold at $3\frac{5}{8}$d.

No. 15. COLOMBO, APRIL 22, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. Forbes & Walker.

[813,817 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Lyegrove	2914	18 ch	hro pek	1890	40 bid
6		2917	12 do	pek	1140	35
7	Yogama	2920	16 ch	bro pek	1600	40
8		2923	21 do	pek	1890	30 bid
9		2926	11 do	pek sou	880	29
10		2929	7 do	fans	700	26
11	Trewardena	2932	15 ch	hro pek	1500	23 bid
12		2935	11 do	pek	1100	20
13		2938	8 do	sou	720	out
16	Ettapolla	2947	15 hf ch	pek	750	27
20	G	2959	12 ch	dust	1020	22
21		2962	10 do	fans	750	24
22	Galkande	2965	20 hf ch	hro pek	1200	43
23		2968	25 do	or pek	1250	45
24		2971	20 ch	pek	1800	39
26	Kotagaloya	2977	8 ch	bro pek	880	34 bid
27		2980	22 do	pek	1870	34
29	Nahalma	2986	21 ch	bro pek	2100	41
30		2989	48 do	pek	4512	33 bid
31		2992	23 do	pek sou	2116	26 bid
32	Laxapana	2995	39 hf-ch	bro pek	2340	55
33		2998	26 ch	or pek	2340	41 bid
34		3001	46 do	pek	4140	36 bid
35	Putupaula	3004	18 ch	bro pek	1800	40
36		3007	16 do	or pek	1360	37
37		3010	22 do	pek No 1	1760	31
38		3013	37 do	do No 2	2775	29
40	Chesterford	3019	56 ch	bro pek	5600	44 bid
41		3022	47 do	pek	4465	34
42		3025	36 do	pek sou	3420	27
43		3028	9 do	fans	810	23
44	Cullen	3031	34 ch	hro or pek	3638	51
45		3034	54 do	pek	4590	33 bid
46	Glengariffe	3037	49 hf ch	bro or pek	2695	54
47		3040	21 do	or pek	945	41
48		3043	37 ch	pek	3515	37
49		3046	17 do	pek sou	1411	34
50		3049	11 hf ch	bro pek fans	748	28
51	Maldeniya	3052	20 ch	bro pek	2000	44
52		3055	20 do	pek	1900	31
53		3058	26 do	pek sou	2210	26
62	O B E C, in estate mark Newmarket	3085	28 ch	bro pek	3080	45
63		3088	23 do	or pek	2070	39 bid
64		3091	15 do	pek	1350	36
65		3094	8 do	pek sou	720	34
67	D, in estate mark	3100	20 ch	hyson	2000	ou
69	Ella Oya	3106	8 ch 1 hf-ch	hyson	750	16 bid
70		3109	26 ch 1 hf ch	hyson No. 2	2280	13 bid
72	Arapolakande	3115	91 hf ch	young hyson	5005	28 bid
73		3118	39 ch	hyson	3900	22 bid
74		3121	13 do	hyson No 2	1430	17 bid
76	Arapolakande	3127	41 hf ch	young hyson	2255	28 bid
77		3130	19 ch	hyson	1900	22 bid
78		3133	8 do	hyson No 2	840	17 bid
80	O B E C, in estate mark Forest Creek	3139	14 ch	bro or pek	1400	53 bid
81		3142	29 do	hro pek	2900	42 bid
82		3145	17 do	or pek	1530	47
83		3148	20 do	pek No 1	1800	41 bid
84		3151	27 do	pek No 2	2430	37
90	Tismoda	3169	18 hf ch	bro pek	990	40 bid
91		3172	14 ch	pek	1260	29
93	Puspone	3178	26 do	or pek	2660	34
94		3181	23 do	bro pek	2645	40
95		3184	18 do	pek	1710	30 bid
96	L H O	3187	9 do	pek sou	900	out
97	Holton	3190	12 ch	bro pek	1140	38
98		3193	13 do	pek	1530	32
101	Great Valley Ceylon in est. mark	3202	24 hf-ch	bro or pek	1320	51
102		3205	20 do	or pek	1700	40
103		3208	36 do	pek	3060	37
104		3211	13 do	pek sou	975	32
105	St. Paul's	3214	25 do	or pek No 1	1350	57
106		3217	38 hf ch	or pek No 2	1976	44
107		3220	30 do	pek	1620	40
108	Weligoda	3223	12 ch	bro pek	1152	39
113	Madulkelle	3238	8 do	bro pek	760	41 bid
117	Avoca	3250	14 ch	hro or pek	1540	60
118		3253	22 do	bro pek	2420	45
119		3256	19 do	pek	1805	43
122	Ewhurst	3265	14 hf ch	bro or pek	798	withd'n.
123		3268	19 ch	hro pek	1900	withd'n.
124	Lindupatna	3271	26 do	bro or pek	2860	48 bid
125		3274	40 do	bro pek	4400	40 bid
126		3277	34 do	pek	3264	37
127		3280	12 do	pek sou	1200	33
128		3283	7 do	bro pek fans	945	24
131	O B E C, in estate mark Summer Hill	3292	27 ch	bro pek	1728	53
132		3295	34 do	pek	2992	41
133		3298	34 do	pek sou	2822	36
134	Hatton	3301	27 ch	bro pek	2835	55
135		3304	32 do	pek	2720	40
139	M A	3316	12 hf ch	dust	1080	19
141	S V, in est. mark	3322	11 ch	pek fans	1375	19
142	Sumerville	3325	19 ch	bro pek	2014	47 bid
143		3328	34 do	pek	2080	34 bid
144		3331	10 do	pek sou	1150	29 bid
145	Lochiel	3334	30 ch	bro or pek	3120	46 bid
146		3337	23 do	or pek	2070	38 bid
147		3340	11 do	pek	913	34 bid
149	Ingoya	3346	24 ch	bro pek	2448	30 bid
155	Ingoya	3364	15 ch	pek	1305	25 bid
156		2367	11 do	pek sou	891	23
157	Sembawatte	3370	12 do	bro pek	1140	withdn.
160	Morlborough	3379	59 hf ch	bro or pek	3245	53 bid
161		3382	13 ch	or pek	1066	8 bid
162		3385	40 do	pek	3200	35 bid
163	Beaumont	3388	13 ch	bro pek	1404	35 bid
164		3391	10 do	or pek	970	31 bid
165		3394	12 do	pek	1152	28
166		3397	8 do	pek sou	800	21 bid
168	Tillyrie	3403	18 hf ch	bro or pek	1080	ithdn.
169		3406	16 do	bro pek	880	ithdn.
170		3409	22 ch	pek	1870	ithdn.
171		3412	13 do	pek sou	1105	ithdn.
172	Dewalakande	3415	21 ch	bro pek	2310	41
173		3418	31 do	or pek	3348	40
174		3421	50 do	pek	4800	29 bid
175		3424	20 do	pek sou	1980	25
177	Lochiel	3430	37 hf ch	bro or pek	2331	51
178		3433	33 ch	or pek	3102	40 bid
179		3436	12 do	pek	1020	37
181	Lethenty	3442	17 hf ch	young hyson	935	36
182		3445	14 do	hyson	784	26 bid
183		3448	16 do	do No 1	912	25
187	Digalla	3460	20 hf ch	bro or pek	1575	38
188		3463	31 do	bro pek	2038	35
189		3466	48 do	pek	2916	30
190		2469	23 do	pek sou	1420	27
193	Yataderia	3478	26 ch	hro or pek	2808	36 bid
194		3481	20 do	or pek	2160	35
195		3484	41 do	pek No 1	3977	25 bid
196		3487	28 do	pek	2800	22
197		3490	12 do	pek sou	1188	18 bid
198	Castleregh	3493	48 hf ch	bro or pek	2400	52
199		3496	27 ch	bro pek	2700	37 bid
200		3499	20 do	or pek	1600	38
201		3502	18 do	pek	1620	33
202		3505	10 do	pek sou	800	33
203		3508	10 hf ch	fans	700	25
204	Strathspey	3511	8 ch	bro or pek	840	52 bid
205		3414	19 do	or pek	1995	44 bid
206		3517	17 do	pek	1581	42 bid
209	Mansfield	3526	48 hf ch	bro pek	2880	49
210		3529	22 do	pek	2090	36 bid
211		3532	9 do	pek sou	810	33
212	Morankande	3535	19 hf ch	bro or pek	1064	33
213		3538	21 ch	or pek	1785	34
214		3541	25 do	pek	2250	29
215		3544	17 do	pek sou	1530	21
216	Aberdeen	3547	37 ch	bro pek	3515	31
217		3550	53 do	pek	4187	26
218		3553	13 do	sou	975	20
219	Donkeld	3556	50 hf ch	bro or pek	2900	48
220		3559	13 ch	or pek	1255	42
221		3562	19 do	pek	1710	38
222	Widmore	3565	42 hf ch	bro or pek	2520	54
223		3568	36 do	or pek	1692	5
224		3571	87 do	pek	4524	40
225		3574	39 do	pek sou	1755	36

Lot.		Box.	Pkgs.	Name.	lb.	c.
227	Letchemy	3580	18 hf ch	dust	1440	24
229	Fairlawn	3586	25 do	bro pek	1250	53
230		3589	11 ch	or pek	825	38 bid
231		3592	24 do	pek	2040	35
235	Bandara-polla	4	61 hf ch	bro pek	5965	40 bid
236		7	34 ch	or pek	3570	31 bid
237		10	18 do	pek	1710	28
238	St. Norman's	13	61 ch	bro pek	6405	43 bid
239		16	40 do	pek	3600	38
240		19	15 do	pek sou	1275	30
243	Weoya	28	32 ch	bro pek	3200	38
244		31	24 do	pek No 1	2160	32
245		34	41 do	pek No 2	3485	28
246		37	21 do	pek sou	1785	23
249	High Forest	46	32 hf ch	or pek No 1	1856	56 bid
250		49	23 do	or pek	1242	48 bid
251		52	27 do	bro or pek	1890	38
252	Hayes	55	9 ch	bro or pek	900	47
253		58	10 do	bro pek	1000	42
254		61	52 do	pek	4420	32
255		64	16 do	pek sou	1440	26
257	Pallagodda	70	23 ch	bro or pek	2300	32
258		73	32 do	bro pek	3200	40
259		76	20 do	or pek	1700	35
260		79	18 do	pek	1530	32
261		82	18 do	pek sou	1620	27
262	Hayes	85	22 ch	bro pek	2310	42
263		88	56 do	pek	4760	33
264		91	18 do	pek sou	1620	27
265	High Forest	94	54 hf ch	or pek No 1	3132	58
266		97	40 do	or pek	2160	46
267		100	44 do	pek	2112	41
268	Polatagama	103	16 ch	bro pek	1600	47
269		106	19 do	or pek	1710	38
270		109	12 do	pek No. 1	1140	33
271		112	35 do	pek No 2	2975	29
272		115	11 do	pek sou	1100	26
273		118	10 do	fans	950	24
275	Kirklees	124	23 hf ch	bro or pek	1265	51
276		127	15 ch	or pek	1425	44
277		130	11 do	pek	1090	36
278		133	16 do	pek sou	1280	29
279	Clyde	136	12 ch	bro or pek	1200	47 bid
280		139	35 do	or pek	2320	36
281		142	14 do	pek	1260	33
285	Middleton	154	17 hf ch	bro or pek	952	69
286		157	34 ch	bro pek	3400	48 bid
287		160	37 do	pek	3145	39
289	Opalgalla	166	21 ch	dust	1722	21
291	Agra Oya	172	9 ch	bro pek	900	43
292		175	10 do	or pek	850	35
293		178	10 do	pek	850	32
294		181	9 do	pek sou	810	25
295	Middleton	184	15 ch	bro pek	1500	48 bid
296		187	15 do	pek	1275	39
297	Monkswood	190	20 hf ch	bro pek	1100	64
298		193	26 do	or pek	1300	63
299		196	19 ch	pek	1710	51
300		199	12 do	pek sou	1020	43
301	Devonford	202	30 hf ch	bro or pek	1650	70
302		205	10 ch	or pek	950	48 bid
303	Anningkande	208	25 ch	bro pek	2500	37
304		211	15 do	pek sou	1350	out
305	Tymawr	214	16 hf-ch	bro or pek	960	46
306		217	30 do	or pek	1650	40
307		220	32 do	pek	1600	36
308		223	21 do	pek sou	1050	32
309	Pendle	226	18 do	br pek	1800	45
310		229	19 do	pek	1710	39
311		232	11 do	pek sou	990	33
314	St. Normans	241	65 do	bro pek	6825	43 bid
315		244	28 do	pek	3420	35 bid
316		247	12 do	pek sou	1080	28 bid
318	Maha Uva	253	31 hf-ch	bro or pek	1860	37
319		256	23 do	or pek	1848	39
320		259	42 ch	pek	3780	33
321		262	19 do	pek sou	1520	29
324	Killarney	271	40 hf-ch	bro or pek	2400	48
325		274	25 ch	pek	2250	35
326		277	10 hf-ch	dust	895	27
327	Udabage	280	51 do	bro pek	2805	37
328		283	25 do	pek	1250	31
329	Geragama	286	16 ch	bro or pek	1760	36
330		289	26 do	bro pek	2340	32
331		292	35 do	pek	2975	28
332		295	17 do	pek sou	1360	24
340	Woodend	319	38 do	bro pek	3800	39
341		322	45 do	pek	4275	29
342		325	14 do	pek sou	1120	24
344		331	6 do	br pek fans	708	23
345	Dunbar	334	30 hf-ch	bro or pek	1500	63 bid
346		337	24 ch	or pek	2088	45 bid
347		340	21 do	pek	1617	39 bid
348		343	13 hf-ch	bro pek	741	44 bid
352	Vogan	355	12 ch	br pek	1200	50
353		358	20 do	or pek	1900	41
354		361	20 do	pek No. 1	1800	32
355		364	28 do	pek No. 2	2520	29
359	Tempo	376	18 do	bro pek	1800	39
360		379	12 do	or pek	1020	33
361		382	23 do	pek No. 1	1725	30
377	Vogan	430	14 do	bro pek	1400	53
378		433	22 do	or pek	1980	41
379		436	21 do	pek No. 1	1890	33
380		439	34 do	pek No. 2	3060	29
384	Laxapana	451	31 hf-ch	bro pek	1860	54
385		454	26 ch	or pek	2300	44 bid
386		457	44 do	pek	3960	35 bid
387	Maha Eliya	460	24 hf-ch	bro or pek	1320	68 bid
388		463	25 ch	or pek	2500	50 bid
389		466	35 do	pek	3500	45 bid
390	Kincora	469	16 do	bro pek	1760	56
391		472	15 do	or pek	1350	43
392		475	17 do	pek	1360	37
401	Tillyrie	502	13 hf-ch	bro or pek	780	57 bid
402		505	34 do	bro pek	1870	46 bid
403		508	22 ch	pek	1980	40 bid
404		511	8 do	pek sou	720	36
405	Bandara Eliya	514	48 hf-ch	or pek	2208	45
406		517	56 do	bro or pek	3136	out
407		520	61 do	pek	2684	35
408		523	39 do	pek sou	1638	29
410	Kotiyagalla	529	6 ch	dust	900	30
411	Mousakellie	532	36 do	bro or pek	3420	40
412		535	31 do	or pek	2635	33 bid
416	Uragala	547	9 do	pek	855	out
423	Rickarton	568	52 hf-ch	bro or pek	3276	49 bid
424		571	18 ch	or pek	1800	41 bid
425		574	12 do	pek	1056	36
430	B B in est. mark	589	13 hf-ch	bro pek	715	38
431		592	17 do	pek	765	27
437	Ugieside	610	25 ch	bro mixed	2250	19
438	Pansalatenne	613	43 do	bro pek	4085	42
439		616	16 do	pek No. 1	1360	34
440		619	22 do	pek No. 2	1760	28
441		622	15 do	pek sou	1200	26
443	W N	628	11 do	pek sou	990	20 bid
444		631	19 hf-ch	dust	1520	24
445	Waitalawa	634	87 do	pek	4347	38
446		637	18 do	pek sou	897	26 bid
447	Stamford Hill	640	13 ch	or pek	1102	58
448	St Heliers	643	14 hf-ch	br or pk No. 1	756	47
449		646	30 do	bro or pek	1680	41
450		649	16 ch	pek	1440	34
451		652	9 do	pek sou	855	27
453	Palmerston	658	15 hf ch	bro pek	855	55
454		661	14 do	pek	1218	48
455	Queensland	664	15 do	bro or pek	705	56 bid
456		667	7 ch	bro pek	700	44
457		670	8 do	or pek	720	42
458		673	10 do	pek	900	41
462	Non Pariel	685	26 hf-ch	br pek	1476	46
463		688	17 do	pek	837	36
464		691	17 do	pek sou	739	33
467	Ganapalla	700	11 ch	or pk No. 1	1100	42
468		703	30 do	or pk No. 2	2580	34 bid
469		706	15 do	bro or pek	1680	30 bid
470		709	31 do	pk No. 1	2666	29 bid
471		712	32 do	pk No. 2	2688	27
472		715	31 do	pek sou	2480	23
474	Waverley	721	22 do	pek sou	2112	38
479	Parsloes	736	43 do	br pek	4300	36
480		739	24 do	pek	2160	30
483	Nillomally	748	50 do	or pek	4600	46
484		751	28 do	pek No. 1	2240	40
485		754	24 do	pek No. 2	2112	33
486		757	24 do	pek sou	2160	32
487		760	19 do	bro or pek	1900	59
489		766	10 do	fans	700	30
491	Ewhurst	772	14 hf ch	bro or pek	798	41 bid
492		775	19 ch	br pek	1900	37 bid
493		778	31 do	pek	2945	35
494		781	9 do	pek sou	774	27 bid
495		784	10 do	pek fans	750	25
496	Munukattla, Ceylon in est mark	787	10 do	or pek	900	46
497		790	33 hf-ch	bro pek	1980	53
498		793	24 ch	pek	1920	35
500	Oakham	799	23 hf-ch	or pek	1035	45
501		802	22 do	br pek	1320	47
502		805	20 do	pek	1800	37
506	C P H Galle in est mark	817	7 do	or pek	700	33
507		820	9 do	pek	810	25
509	Ingrogalla	826	24 do	br pek	2400	36
510		829	22 do	pek	1870	35
513	New Peacock	838	13 hf-ch	pek fans	975	26
514	Sirikandura	841	18 ch	br pk	1800	35
515		844	15 do	pek	1425	28
516		847	16 do	pek sou	1440	23

Lot.		Box.	Pkgs.		Name.	lb.	c.
522	G T D	865	13	ch	br pek	1430	31
523		868	8	do	pek	720	28
524	Pine Hill	871	41	hf ch	oro or pek	2457	51
525		874	45	cb	pek	4272	34
527	Clarendon	880	37	hf ch	br pek	2328	49
528	Putupaula	883	9	ch	bro or pek	1077	35 bid
529	Summerhill	886	49	do	bro or pek	2986	55 bid
530		889	18	do	or pk No. 1	1535	43 bid
531		892	21	do	or pek	1824	41 bid
532	Hopton	895	28	do	bro or pek	2800	45
533		898	21	do	or pek	2100	36 bid
534		901	22	do	pek	1980	35
535		904	13	do	pek sou	1170	32
538	O F in est mark	913	16	do	fans	1429	14
539	P	716	21	hf ch	pek sou	2097	withd'n
540	Avanna	919	8	do	bro pek	837	,,
541	Coldstream Group	922	52	do	bro pek	2860	48
542		925	22	ch	pek	1760	39
543		928	11	do	pek sou	800	34
545	Talgaswela	934	15	hf-ch	bro or pek	900	32
546		937	32	ch	or pek	2720	33 bid
547		940	36	do	pek	2880	28 bid
548		943	17	do	pek sou	1275	25
550		949	10	hf ch	dust	800	17
551	Galapitakande	952	16	ch	br pek	1600	49 bid
552		955	19	do	or pek	1710	43 bid
553		958	48	do	pek	3600	36
558	Sindumallay	973	71	do	bro pek	7242	40 bid
559		976	42	do	or pek	2016	39 bid
560		979	57	do	pek	4788	33
561		982	28	do	pek sou	1988	28 bid
562		985	10	do	dust	780	24
563	Battawatte	988	28	do	bro or pek	3080	42 bid
564		991	25	do	pek	2375	36
565		994	15	do	pek sou	1200	30
567	Knavesmire	1000	15	do	or pek	1350	36
568		1003	22	do	bro pek	2000	33 bid
569		1006	39	do	pek	2925	27 bid
570		1009	19	do	pek sou	1425	25
571		1012	24	do	bro or pek	2400	29

[Mr. E. John.—285,543 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Cbapelton	270	8	hf ch	dust	720	25
4	Birnham	279	52	ch	pek sou	3536	28
5	Meeriabedde	282	10	do	bro mix	1250	10
6	S	285	8	do	bro pek	800	37
7		288	10	do	pek	850	31
9	Mabapabagalla	294	12	do	or pek	1200	31 bid
10		297	20	do	bro pek	2100	33 bid
11		300	15	do	pek	1350	30
13	Nabavilla	306	26	do	or pek	2340	38
14		309	30	do	bro pek	3000	35 bid
15		312	11	do	pek	990	33
16		315	10	hf ch	pek fans	700	23
17	Brownlow	318	27	do	bro or pek	1593	53
18		321	17	do	or pek	1598	42 bid
19		324	24	ch	pek	2232	33 bid
20		327	18	do	pek sou	1548	33
21	Cabin Ella	330	10	do	or pek	850	40
22		333	9	do	bro or pek	945	39
23		336	10	do	pek	900	33
24		339	8	do	pek sou	720	30
26	Elston	345	15	do	pek	1275	34
27		348	37	do	pek sou	3330	30
28		351	19	do	or pek	1615	37 bid
29		354	11	hf-ch	dust	990	23
30	Gingranoya	357	13	ch	bro or pek	1300	41 bid
31		360	13	do	or pek	1235	40
32	Wadhurst	363	13	do	or pek	1300	38
33		366	8	do	pek	720	34
34		369	8	do	pek sou	720	28
37	Iona	378	45	hf-cb	bro or pek	2700	56 bid
38		381	34	ch	or pek	3400	44 bid
39		384	34	do	pek	3060	39 bid
42	Agra Ouvah	393	45	hf-ch	bro or pek	2565	59
43		396	85	do	or pek	4590	47
44		399	26	ch	pek	2340	40
45	G W	402	18	do	pek sou	1620	38
46		405	52	hf ch	dust	4680	25
47	Glentilt	408	33	ch	bro pek	3300	47
48		411	26	do	or pek	2470	39
49		414	19	do	pek	1615	33
50	Templestowe	417	21	hf ch	or pek	903	44 bid
51	Mossend	420	14	do	bro or pek	770	78 bid
52		423	28	do	or pek	1540	66
53		426	41	do	pek	1845	51 bid
56	Cresta	435	16	do	bro or pek	800	45
57		438	20	ch	or pek	1800	30 bid
58		441	9	do	pek	810	25
60	Kelaneiya and Braemar	447	13	do	bro or pek	1300	56
61		450	13	do	or pek	1300	39
62		453	14	do	pek	1330	33
66	Agra Ouvah	465	39	hf-ch	bro or pek	1740	57
67		468	56	do	or pek	3024	47
68		471	20	ch	pek	1800	39
70	OAS, in estate mark	477	8	do	pek	800	14 bid
71		480	7	do	pek sou	700	10 bid
73	Oonoogaloya	486	19	do	bro or pek	1900	46
74		489	9	do	bro or pek No. 2	1125	32 bid
76		495	5	do	dust	750	24
77		498	6	do	fans	810	27
81	G B	510	17	hf ch	fans	1190	29
83	Wahagapitiya	516	7	ch	bro or pek	700	52
84		519	8	do	bro pek	800	34
85		522	25	do	pek	2250	29
89	Higham	534	16	hf cb	bro or pek	1040	37 bid
90		537	42	cb	bro pek	4200	34 bid
91		540	34	do	pek	3230	32
92		543	26	do	pek sou	2600	24
93	Eila	546	23	do	bro or pek	2530	40
94		549	32	do	bro pek	3040	35 bid
95		552	11	do	or pek	1045	39
96		555	49	do	pek	4655	30 bid
97		558	40	do	pek sou	3200	22 bid
98		561	6	do	pek fans	720	23
99	Gonavy	564	32	hf ch	bro pek	1600	44
100		567	14	ch	or pek	1190	37
101		570	36	do	pek	2700	31
107	New Tunisgalla	588	29	do	bro pek	2755	36 bid
108		591	11	do	pek	990	32
111	Coundon	600	28	hf ch	bro or pek	1400	34 bid
112		603	11	cb	or pek	902	37
113		606	24	do	pek	2112	32
114		609	10	do	pek sou	850	25
115		612	12	hf cb	bro pek fans	720	32
118	Peru	621	8	ch	bro pek	880	42 bid
119		624	13	do	pek	1170	34 bid
120	Orange Field	627	11	do	bro pek	1100	27
121		630	7	do	pek	700	16 bid
123	Eladuwa	636	11	do	or pek	1100	32 bid
124		639	7	do	bro pek	840	28 bid
125		642	26	do	pek	2470	22 bid
126		645	8	do	pek sou	720	16
129	Gallastane	654	10	do	bro or pek	1000	43
130		657	9	do	bro pek	810	34 bid
131		660	9	do	pek	810	35
134	Maskeliya	669	42	hf ch	bro or pek	2100	38 bid
135		672	14	ch	or pek	1760	34 bid
136		675	21	do	pek	2100	30 bid
137		678	7	do	pek sou	700	21 bid
138		681	21	hf cb	fans	1260	23
141	Elston	690	11	ch	or pek	990	40
142		693	13	do	pek	1105	34
143		696	39	do	pek sou	3510	30
144	Brownlow	699	30	hf ch	bro or pek	1770	53
145		702	15	ch	or pek	1410	43
146		705	24	do	pek	2203	38
147		708	16	hf cb	bro pek fans	1200	30
148	M P	711	12	cb	bro or pek	1260	25
149		714	18	do	bro pek fans	2160	23
150		717	30	hf-ch	dust	2700	20
151	MP, in estate mark	720	30	do	pek dust	2907	15
152	Koswatte	723	13	cb			
			2	hf-ch	bro or pek	1400	36
153		726	22	ch	or pek	1870	32 bid
154		729	14	do	pek	1050	28 bid
157	Perth	738	17	do	bro or pek	1785	33 bid
158		741	23	do	or pek	1955	32 bid
159		744	12	do	pek	900	27 bid
162	Kolapatna	753	24	hf ch	bro or pek	1296	68
163		756	24	do	or pek	1200	58
164		759	24	do	pek	1200	47
168	OAS, in estate mark	771	7	ch	bro pek	700	26
169		774	7	do	pek	700	22
172	KAS, in estate mark	783	9	do	bro pek	900	25
173		786	10	do	pek	950	17
175	J R H	792	13	do	bro tea	1300	7
177	A M S	798	27	do	sou	2025	out
178	A S L	801	12	do	pek sou	1020	out
179	Glasgow	804	40	do	bro or pek	3080	50 bid
180		807	22	do	or pek	1540	44 bid
181		810	15	do	pek	1380	47
182		813	9	do	pek sou	900	42
173		816	13	do	or pek fans	1300	27
184	Ottery	819	18	do	bro or pek	1890	46 bid
185		822	23	do	or pek	1840	50
186	Gingranoya	825	24	do	pek	2040	38
187	Woodstock	828	15	do	bro or pek	1200	41 bid
188		831	9	do	pek	855	37
191	Kandaloya	840	21	hf ch	bro pek	800	44
192		843	20	ch	or pek	2040	44
193	Cleveland	846	47	hf ch	flow or pek	2632	47 bid
194		849	47	do	pek	2538	37 bid
196		855	14	do	pek sou	700	33 bid
197	Lameliere	858	19	ch	or pek	1805	44

Lot.		Box.	Pkgs.	Name.	lb.	c.
198		861	28 ch	bro or pek	2688	46
199		864	40 do	pek	3600	36
200		867	18 hf ch	pek fans	1260	25
201	Kandaloya	870	41 do	bro pek	1845	42 bid
202		873	24 do	or pek	960	41 bid
203		876	56 do	pek	2240	33 bid
205	Warleigh	882	27 ch	bro pek	2565	35 bid
206	Little Valley	885	26 do	bro pek	2600	35 bid
207		888	20 do	pek No. 1	1700	33
208		891	8 do	pek No. 2	720	28
210	Dickapitiya	897	31 do	bro pek	3100	36 bid
211	Dalhousie	900	20 do	or pek	1100	52
212		903	17 do	bro pek	1020	60 bid
213		906	32 do	pek	1600	42
214		909	14 do	pek sou	1700	36
217	Gangawatte	918	16 do	bro or pek	1600	56
218		921	15 do	bro pek	1500	40 bid
219		924	32 do	pek	2800	37 bid
222		933	10 hf ch	fans	700	32

Messrs. Somerville & Co.—

[386,560 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Mossville	991	43 ch	dust	3870	18
3	K	997	8 ch	pek	800	13
6	Illukettia	1006	11 ch	pek 2 oz lead	1100	12 bid
7		1009	7 do	pek sou 2 oz lead	700	8 bid
9	Alpitakande	1015	12 hf ch	or pek	720	38
10		1018	24 do	pek	1200	30
11	Horagoda	1021	10 ch	bro or pek slack	1000	38
12		1024	12 do	or pek	1140	31
13		1027	19 do	pek	1805	28
14		1030	9 do	pek sou	810	25
17	Dikmukalana	1039	43 ch	pek sou	2064	24
18	Dartry	1042	16 hf ch	fans	1248	26
21	Lonach	1051	100 hf ch	bro pek	5500	38 bid
22		1054	43 ch	pek	3870	32
23		1057	22 do	pek sou	1980	28
24	G A	1060	12 ch	sou	816	18
25		1063	10 hf ch	dust	800	20
26	Wyamita	1066	7 ch	bro pek	735	29
27		1069	9 do	pek	810	31
30	Aberfoyle	1078	12 hf ch	bro or pek	720	46
31		1081	15 do	or pek	750	31 bid
32		1084	15 do	pek	825	30
37	Monte Christo	1099	12 ch	pek sou	960	21
38		1102	9 do	fans	1080	22
40	Doragalla	1108	20 do	bro pek	2000	37 bid
41		1111	16 do	or pek	1520	41
42		1114	38 do	pek	3420	37
43		1117	11 do	pek sou	935	27 bid
44		1120	10 do	fans	1300	26
49	Blinkbonnie	1135	23 hf ch	bro pek	1449	48
50		1138	13 ch	or pek	1235	46
51		1141	15 do	pek	1350	37
53	L	1147	20 hf ch	dust	1600	23
54		1150	12 ch	bro mix	1080	12
55	Nyanza	1153	13 hf ch	bro or pek	754	46
56		1156	20 ch	bro pek	2000	33 bid
57		1159	20 do	pek	1700	36
60	Avisawella	1168	16 hf ch	bro or pek	800	49
61		1171	18 ch	bro pek	1800	35
62		1174	24 do	pek	2040	30
63		1177	15 do	pek sou	1200	24
65		1183	5 do	dust	700	22
66	F F, in estate mark	1186	17 hf ch	bro pek	935	31
68	Polghakande	1192	8 ch	bro or pek	760	40
69		1195	7 do	bro pek	735	38
70		1198	9 do	or pek	774	36
71		1201	12 do	pek	1056	29 bid
72		1204	13 do	pek sou	1170	25
73		1207	6 do	dust slack-packed	780	20
74	Southwark	1210	38 do	bro pek	4180	36 bid
75		1213	20 do	pek	1900	34
77	Rothes	1219	14 hf ch	bro or pek	910	41
78		1222	16 do	or pek	800	41
79		1225	13 ch	pek	1170	37
83	Kurunegale est. Co	1237	20 hf ch	bro or pek	1300	42
84		1240	16 do	or pek	880	38
85		1243	20 ch	pek	1800	31
86		1246	12 do	pek sou	1080	25
88	Hangranoya	1252	10 ch	bro or pek	950	47
89		1255	34 do	bro pek	3400	33
90		1258	26 do	pek	2340	28 bid
91		1261	14 do	pek sou	1120	27 bid
93	Mary Hill	1267	33 hf ch	pek	1650	39
94		1270	21 do	pek sou	945	32
95	Harangalla	1273	12 ch	or pek	1020	33 bid
96		1276	10 do	bro pek	950	36 bid
97		1279	21 do	pek	1680	33
98		1282	11 do	pek sou	880	24 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
99		1285	9 ch	bro pek fan2	900	26 bid
101	Hatdowa	1291	22 do	bro pek	2200	38
102		1294	17 do	pek	1445	27 bid
103		1297	11 do	pek sou	880	24 bid
105	Lachine	1303	17 ch	bro pek	1632	30 bid
106		1306	16 do	pek	1472	27 bid
107	Owilikande	1309	21 ch	bro pek	2100	32 bid
108		1312	19 do	pek	1710	29
109		1315	12 do	pek sou	1080	20 bid
110	Warakamure	1318	28 ch	bro pek	2800	31 bid
111		1321	25 do	pek	2375	32
117	Carney	1339	17 hf ch	bro pek	850	37
119		1345	16 do	pek sou	800	19 bid
121	Neuchatel	1351	44 ch	bro or pek	4400	35 bid
122		1354	28 do	or pek	2240	32
123		1357	23 do	pek sou	1840	27
125	Neddegodde	1363	27 hf ch	bro or pek	1215	36
126		1366	28 do	or pek	1120	39
127		1369	50 do	pek	1750	32
128		1372	21 do	pek sou	840	27
131	Murray-thwaite	1381	20 ch	bro pek	2000	38
132		1384	16 do	pek	1360	32
136	Farnham	1396	14 hf ch	bro or pek	770	47
137		1399	11 ch	or pek	935	34
138		1402	11 do	bro pek	1140	36
139		1405	11 do	pek No 1	1100	30
140		1408	14 do	pek sou	1190	27
141	St Leonards on sea	1411	10 hf ch	Young Hyson	700	withdrawn
142		1414	17 do	Hyson	935	withdrawn
143		1417	8 ch	Hyson No 2	760	withdrawn
146	Kelani	1426	11 ch	bro or pek	1045	40 bid
147		1429	13 do	bro or pek No 2	1300	30
148		1432	16 do	pek	1440	28 bid
149		1435	23 do	or pek	2070	36
150		1438	7 do	dust	700	23
151	Nebeda	1441	21 ch	bro or pek slack packed	2100	33 bid
152		1444	68 do	bro pek	6460	28 bid
153		1447	13 do	pek	1170	28
154		1450	12 do	pek sou	960	25
156	H	1456	16 hf ch	bro pek	800	31 bid
157		1459	24 do	pek	1190	24 bid
158		1462	42 do	pek sou	2100	18 bid
159	Paradise	1465	28 ch	bro pek	2940	30 bid
160		1468	18 do	pek	1800	24 bid
161		1471	17 do	pek sou	1615	20 bid
163	R K P	1477	9 ch	bro or pek	900	41
164		1480	9 do	or pek	855	34
165		1483	30 do	pek	2550	30
170	Cooroodoo watte	1498	14 ch	pek	1400	32
171		1501	8 do	pek sou	800	21
171	Narangoda	1504	21 ch	bro pek	1890	35
173		1507	18 do	pek	1440	28
176	Lyndhurst	1516	19 hf ch	bro or pek	1140	34
177		1519	27 do	or pek	1350	34
179		1525	20 do	pek No 2	886	57
182		1534	25 do	pek sou No 2	1050	21 bid
183	Oaklands	1537	14 ch	or pek	1260	34 bid
185		1543	28 do	pek	2380	36 bid
186		1546	15 do	pek sou	1200	19 bid
190	Paragaba kande	1558	7 ch	bro pek	700	26
191		1561	12 do	pek	1140	18
194	Tyspane	1570	28 ch	bro or pek	2940	48
195		1573	37 do	bro pek	3700	44
196		1576	56 do	pek	5040	36
197	Harangalla	1579	11 ch	or pek	935	34 bid
198		1582	9 do	bro pek	855	37 bid
199		1585	29 do	pek	2320	33
200		1588	12 do	sou	960	23 bid
201	Kelani	1591	12 ch	bro pek	1140	39
202		1594	25 do	or pek	2125	39
203		1597	20 do	bro or pek	2000	30
204		1600	26 do	pek	2080	30
205		1603	9 do	pek No 2	810	29
206		1606	10 do	pek sou	750	25
207	Mt Vernon	1609	43 ch	pek	4085	40 bid
208		1612	20 do	pek sou	1760	39
209	Glenalmond	1615	26 hf ch	bro pek	1560	37
210		1618	11 ch	pek	935	27 bid
213	Horagalla K V	1627	13 hf ch	bro or pek	715	47
214		1630	8 ch	or pek colindia pkgs	800	35 bid
215		1633	9 do	pek	810	30
216		1636	11 do	or pek colindia pkgs	825	24 bid
217		1639	10 hf ch	fans	700	21
218	Agra Elbedde	1642	37 hf ch	bro or pek	2220	46
219		1645	19 do	or pek	1045	47
220		1648	46 do	pek	2300	41
221		1651	24 do	pek sou	1080	39
224	Cooroondoo-watte	1660	14 ch	pek	1100	27
229	Mahatenne	1675	13 ch	bro pek	1300	35

Lot.		Box.	Pkgs.	Name.	lb.	c.
230		1678	14 ch	pek	1330	27 bid
233	Theberton	1687	8 do	bro or pek	800	35
234		1690	11 do	or pek	990	31
235		1693	15 do	pek	1275	28
236	Allacolawewa	1696	22 hf ch	bro or pek	1166	39 bid
237		1699	22 do	or pek	1100	38
238		1702	15 do	pek	720	36
242	Marigold	1714	33 hf ch	bro or pek	1749	43
243		1717	34 do	or pek	1700	40
244		1720	21 do	pek	1029	41
245		1723	21 do	pek sou	987	36
246		1726	10 do	bro pek fans	630	32
247		1729	9 do	pek dust	648	26
248	Y R W	1732	9 ch	fans	1125	22
250		1738	20 do	bro tea	2000	12
251	South Africa	1741	22 ch	bro pek	2200	30
252		1744	20 do	bro pek No 2	2000	28 bid
253		1747	28 do	pek	2520	30
254		1750	21 do	pek sou	1638	21
255	Kurulugalla	1753	19 ch	bro pek	1900	34
256		1756	15 do	pek	1350	29 bid
257	Damblagolla	1759	13 ch	or pek	1620	36
258		1762	14 hf ch	bro pek	840	38
259		1765	42 ch	pek	3570	28 bid
260		1768	20 do	pek sou	1600	25 bid
264	G B	1780	10 hf ch	bro tea	500	out
265		1783	18 do	dust	900	24
266	M V, in estate mark	1786	37 ch	pek	3515	34 bid
267	D, in estate mark	1789	49 hf ch	pek	2450	27 bid
268	Rayigam	1792	24 ch	bro pek	2400	26
269		1795	21 do	or pek	1890	31
270		1798	19 do	pek	1615	27 bid
271		1801	20 do	pek sou	2000	25
273	Mora Ella	1807	28 hf ch	bro or pek	1680	46
274		1810	23 do	or pek	1196	39
275		1813	29 ch	pek	2610	33
276		1816	16 do	pek so	1280	28
279	D M O G, in est. mark	1825	12 hf ch	bro pe	720	36
280		1828	20 ch	pek	1500	29 bid
281		1831	18 do	pek sou	1260	24
285		1843	17 hf ch	or pek	850	39 bid
286	Nugawella	1846	24 hf ch	bro pek	1320	40
287		1849	20 do	or pek	900	32
294	Rahatungoda	1870	25 hf ch	bro or pek	1250	55 bid
295		1873	28 do	bro pek slack packed	1680	33 bid
296		1876	32 do	or pek slack packed	1600	36 bid
297		1879	32 do	pek	1600	38
298	Hanagama	1832	14 ch	pek sou	1230	21
299		1885	9 do	sou	720	18
301	Gangwarily	1891	35 ch	bro pek	3150	31 bid
302		1894	20 do	pek	1500	27 bid
303		1897	20 do	pek sou	1600	24
305		4	11 do	fans	1100	24
307		10	18 do	sou	1350	14
308	Havilland	13	18 ch	bro or pek	1800	35 bid
309		16	11 do	or pek	880	30 bid
310		19	34 do	pek	2720	29 bid
312	Doragalla	25	15 ch	bro pek	1500	45
313		28	10 do	or pek	950	42
314		31	28 do	pek	2520	36
316		37	7 do	fans	945	29
320	Meegama	49	16 ch 1 hf ch	pek sou	1493	16
321		52	9 ch	sou	855	4 bid
322	Yarrow	55	15 hf ch	flwy or pek	780	47
323		58	35 do	or pek	1680	34 b d
324		61	16 do	bro or pek	880	39
325		64	41 do	pek	1845	33
326		67	14 do	pek sou	700	28
329	Elchico	76	60 hf ch	bro pek	3000	32 bid
331		82	15 do	pek	750	26
338	Hartfield	103	10 ch	bro pek	1000	34 bid
339		106	10 do	bro or pek	1050	27 bid
340		109	25 do	or pek	1250	38 bid
341		112	17 do	pek	1496	29 bid
342		115	17 do	pek sou	1275	24 bid
343	Roseneath	118	20 ch	bro pek	2000	36 bid
344		121	13 do	pek	1170	30
345		124	26 do	pek sou	2210	26
346	Thia Sholah	127	16 hf ch	pek	848	out
347	Ladrum	130	21 ch	bro or pek	2100	40
348		133	26 do	or pek	2000	out
349		136	26 do	pek	2600	out
350		139	18 do	pek sou	1800	24
351		142	12 do	pek fans	1320	out

E. Benham & Co.

[26,626 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Manickwatte	61	23 do	or pek	1886	25 bid
2	Battalgalla	64	19 do	or pek	1805	42 bid
3		67	28 ch	pek	2380	35 bid
5	Hornsey	73	32 hf ch	bro pek	1760	55
6		76	26 ch	pek	2210	38 bid
7		79	13 do	pek sou	975	35
8	Mapitigama	82	18 ch	pek No 1	1530	28
10	Rasagalla	88	26 ch	bro or pek	2600	31 bid
11		91	23 do	pek	1955	23 bid
14		100	16 do	or pek No. 1	1392	31 bid
15		3	23 do	or pek No. 2	2001	27
17	Hornsey	9	28 hf ch	bro pek	1540	54 bid
18		12	20 ch	pek	1700	37 bid
19		15	12 do	pek sou	840	36

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Battalgalla	70	8 ch	pek sou	600	20 bid
9	L, in estate mark	85	1 do	pek	100	16
12	Rasagalla	94	3 do	sou	270	16
13		97	2 hf ch	dust	162	38
16		6	5 ch	bro pek	500	30
20	Hornsey	18	6 ch	bro pek fans	420	35

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	T, in estate mark	2902	3 ch	unas	298	21
2	Horagaskelle	2905	4 hf ch	bro pek	232	31
3		2908	6 do	pek	300	21
4		2911	5 do	pek sou	284	17
14	Trewardene	2941	1 ch	dust	135	18
15	Ettapolla	2944	10 hf ch	bro pek	560	34
17		2950	4 do	pek sou	200	22
18		2953	2 do	bro tea	100	19
19		2956	2 do	dust	112	22
25	Galkanda	2974	6 ch	pek sou	510	26
28	Kotagaloya	2983	5 do	pek sou	450	23
39	Putupaula	3016	5 ch	pek sou	350	23
54	Maldeniya	3061	5 do	dust	675	18
55	A	3064	1 ch	young hyson	90	26 bid
56	B	3067	1 do	young hyson	90	22 bid
57	Greenwich	3070	1 hf ch	bold leaf hyson	33	16 bid
58		3073	1 do	hyson	44	out
59	J E S, in estate mark	3076	3 ch	bro pek	274	26
60		3079	4 do	pek	352	16
61		3082	2 do	pek sou	160	12
66	O B E C, in est. mark Newmarket	3097	3 ch	dust	429	23
68	Ella Oya	3103	3 ch 1 hf ch	young hyson	374	27
71		3112	9 ch	siftings	603	11
75	Arapolakande	3124	5 hf ch	siftings	425	12
79	Arapolakande	3136	3 do	siftings	240	12
85	O B E C, in estate mark Forest Creek	3154	4 ch	fans	420	34
86		3157	3 do	sou	270	30
87		3160	1 do	red leaf	90	18
88		3163	3 do	pek dust	300	34
89		3166	8 do	dust	680	25
92	Tismoda	3175	7 ch	pek sou	560	24
99	Holton	3196	8 ch	pek sou	680	24
100	B A	3199	7 do	dust	560	20
109	Weligoda	3226	8 ch	pek	640	30
110		3229	4 do	pek sou	300	24
111		3232	3 do	dust	240	23
11	Madulkelle	3235	9 ch	or pek	675	43
114		3241	1 do	dust	220	22
115	A	3244	1 ch	hyson	93	22 bid
116	B	3247	1 hf-ch	hyson	47	18 bid
120	Avoca	3259	6 do	pek sou	600	27
121		3262	5 ch	bro pek fans	675	28
129	Lindupatna	3286	2 ch	bro pek	220	out
130		3289	2 do	pek	220	
136	Hatton	3307	6 do	pek sou	51[illegible]	
137		3310	3 do	dust		
138	M A	3313	6 ch	sou		
140	S, in estate mark	3319	4 ch	dust		
148	Lochiel	3343	2 hf ch	dust	1[illegible]	
150	Richmond	3349	2 do	bro or pek	1[illegible]	
151		3352	4 do	bro pek	26[illegible]	
152		3355	3 ch	or pek	285	
153		3358	3 do	pek	255	

Lot.		Box.	Pkgs.	Name.	lb.	c.
154	Ingoya	3361	8 ch	or pek	672	30
158	Sembawatte	3373	9 do	pek	693	withd'n.
159		3376	5 do	pek sou	340	withd'n.
167	Beaumont	3400	2 hf ch	fans	180	21
176	Lochiel	3427	7 do	bro or pek	455	61
180		3439	2 do	dust	180	23
184	Lethenty	3451	12 hf ch	hyson No 2	696	19
185		3454	3 do	siftings	165	8
186		3457	1 do	twankey	86	11
191	Digalla	3472	7 hf ch	sou	467	20
192		3475	2 do	dust	211	18
207	Strathspey	3520	4 ch	pek sou	360	38
208		3523	3 do	dust	330	25
226	Widmore	3577	4 hf ch	pek fans	240	23
228	Letchemy	3583	3 do	pek fans	225	22
232	Fairlawn	3595	8 ch	pek sou	600	32
233		3598	5 hf ch	fans	325	35
234		1	2 do	dust	160	23
241	St. Norman's	22	2 hf ch	dust	200	20
242	Weoya	25	6 ch	bro or pek	690	34
247		40	6 do	bro pek fans	660	25
248		43	4 do	dust	600	22
256	Hayes	67	6 hf ch	bro or pek fans	390	35
274	Polatagama	121	2 ch	dust	300	21
282	Clyde	145	7 do	pek sou	518	25
283		148	3 do	dust	435	21
284		151	2 do	pek fans	258	23
288	Aigburth	163	4 hf ch	dust	380	18
290	Ookoowatte, No. 1	169	3 ch	pek fans	390	24
312	Pendle	235	1 ch	sou	90	29
313		238	4 do	pek fans	300	27
317	St Norman's	250	2 do	dust	250	22
322	Maha Uva	265	1 hf-ch	fans	70	25
323		268	5 do	dust	400	22
333	Kotua	298	4 ch	bro pek	400	29
334		301	2 do	pek	190	22
335		304	1 do	pek sou	100	18
336		307	1 do	sou	90	15
337		310	1 do	dust	120	17
338		313	1 do	green tea	45	14
339	Weygalla	316	4 do	or pek	300	out
343	Woodend	328	3 do	dust	420	21
349	Dunbar	346	4 hf-ch	bro pk fans	248	33
350		349	1 ch	pek sou	91	33
351		352	1 do	dust	153	22
356	Vogan	367	4 do	pek sou	360	24
357		370	4 do	bro pek fans	480	29
358		373	4 hf-ch	dust	340	22
362	Tempo	385	7 ch	pek No. 2	490	26
363		388	7 do	pek sou	455	22
364		391	11 hf ch	br pk fans	605	25
365		394	7 do	dust	595	21
366		397	3 do	young hyson	163	out
367		400	4 do	hyson	240	out
368		403	1 do	hyson No 2	45	10 bid
368		406	1 ch	siftings	97	10
370	Vogan	409	4 do	br pek	400	50
371		412	5 do	or pek	450	39
372		415	5 do	pek No 1	450	32
373		418	8 do	pek No 2	680	28
374		421	2 do	pek sou	180	24
375		424	1 do	br pek fans	120	28
376		427	2 hf-ch	dust	170	22
381		442	4 ch	pek sou	360	24
382		445	4 do	bro pek fans	480	29
383		448	4 hf ch	dust	340	23
393	Kincora	478	5 ch	pek No 2	400	35
394		481	1 do	fans	135	35
395	Roscrea	484	2 do	bro pek	143	31
396		487	1 do	pek	82	25
397		490	1 do	pek sou	85	23
398	N	493	5 do	bro mixed	500	22
399		496	5 do	sou	475	23
400		499	1 hf-ch	dust	95	18
409	'Bandara Eliya	526	3 do	dust	264	21
413	Mousakellie	538	8 ch	pek sou	680	29
414		541	6 do	dust	450	24
415	Uragala	544	6 do	br pek	570	29
417		550	6 do	pek sou	540	16
418		553	2 do	bro pek fans	180	out
419		556	1 hf-ch	bro mixed	90	10 bid
420		559	1 do	dust	140	14
421		562	1 do	bro pek	50	26
422		565	1 do	dust	75	14
426	Rickarton	577	5 ch	pek sou	500	32
427		580	5 hf-ch	fans	400	23
428	Yempo	583	1 do	young hyson	53	14
429		586	2 ch	hyson	140	14
432	B in est. mark	595	10 hf-ch	pek sou	539	23
433		598	1 do	pek fans	59	18
434		601	1 do	congou	46	12
435		604	1 do	pek dust	84	15
436	Ugieside	607	5 ch	dust	400	18
442	Pansalatenne	625	4 do	br pk fans	480	35
451	St Heliers	655	7 hf-ch	dust	595	24
459	Queensland	676	5 ch	pek sou	435	35
460		679	1 hf-ch	br pk fans	70	34
461		682	1 do	or pk fans	62	30
465	Non Pariel	694	10 do	bro pek fans	610	41
466		697	4 do	dust	305	23
473	Ganapalla	718	5 ch	dust	550	21
475	Condegalla	724	2 do	pek sou	210	38
476	Ingurugalla	727	4 do	red leaf	360	out
477		730	2 do	pek sou	180	22
478	Springwood	733	1 do	br pek	50	28
481	Parsloes	742	5 do	pek sou	460	22
482		745	2 hf-ch	dust	150	20
488	Nillomally	763	5 ch	bro pek fans	500	32
490		769	1 hf ch	dust	100	18
499	Munukattiya, Ceylon, in est mark	796	6 ch	pek sou	600	31
503	Oakham	803	5 hf ch	pek sou	475	30
504		811	3 do	pek fans	225	24
505	P C H Galle in est mark	814	7 hf-ch	bro or pek	350	36
508		823	4 do	bro pk fans	240	24
511	New Peacock	832	6 ch	sou	540	27
512		835	3 hf ch	bro mixed	150	16
517	Sirikandura	850	1 ch	bro pek fans	107	20
518		853	1 do	fans	96	20
519		856	2 do	congou	147	
520		859	2 do	bro pek dust	245	21
521		862	2 do	dust	203	18
526	OF in est mark	877	2 do	dust	209	20
536	Hopton	907	4 do	fans	440	23
537		910	2 do	dust	220	18
544	Coldstream Group	931	7 hf-ch	dust	500	23
549	Talgaswela	946	10 do	br pek fans	600	22
554	Galapitakande	961	4 ch	pek sou	360	30
555		964	3 do	dust	300	20
556	Cairnton	967	2 hf ch	bro pek dust	174	20
557	Gama	970	6 ch	bro mixed	697	10
566	Battawatte	997	2 hf-ch	dust	200	22

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Chapelton	273	7 ch	bro mix	560	15
3	W H R	276	6 do	dust	600	17
8	S	291	7 do	pek sou	490	25
12	Mahapahagalla	303	12 hf ch	or pek	660	38
25	Cabin Ella	342	5 do	br or pek fans	330	29
35	Wadhurst	372	2 hf ch	dust	160	22
36		375	3 do	fans	165	30
40	Iona	387	4 do	dust	320	23
41		390	4 do	br or pek fans	320	26
54	Mossend	429	7 do	fans	420	38
55		432	2 do	dust	130	25
59	Cresta	444	4 do	dust	320	21
63	Kelaniya and Braemar	456	6 ch	bro pek fans	600	33
64		459	6 do	sou	570	26
65		462	5 hf ch	dust	400	22
69	OAS, in estate mark	474	6 ch	bro pek	600	26
72		483	2 do	bro mix	200	5
78	G B	501	2 do	bro pek	210	27
79		504	1 do	pek	90	23
80		507	6 ht-ch	dust	510	21
81		513	2 do	bro mix	170	10
86	Wabagapitiya	525	6 ch	pek sou	540	23
87		528	1 do	fans	100	20
88	Sanquhar	531	6 do	sou	510	17
102	Gonavy	573	7 do	pek sou	665	23
103	M	576	4 do	pek	400	20
104		579	4 do	pek	360	18
105		582	1 do	pek sou	90	14
106		585	1 do	pek sou	47	14
109	New Tunisgalla	594	4 do	pek sou	320	27
110		597	1 do	dust	106	19
116	Coundon	615	6 do	fans	390	25
117		618	1 do	dust	90	18
122	Orange Field	633	2 do	sou	180	13
127	Elkduwa	648	3 do	mix	420	12
128	K T	651	3 do	sou	270	5
132	Gallastare	663	4 do	pek sou	360	30
133		666	2 do	dust	180	20
139	Maskeliya	684	6 hf ch	dust	540	28
140	Nanuoya	687	2 ch	sou	172	16
155	Koswatte	732	3 do	pek sou	210	24
156		735	4 hf ch	pek dust	300	22
160	Perth	747	6 ch	pek sou	420	23
161		750	2 hf ch	pek dust	150	22
165	Kolapatna	762	8 do	pek sou	400	37
166		765	4 do	br or pek fans	240	42
167		768	5 do	fans	350	30
181	OAS, in estate mark	777	4 ch	pek sou	400	14

Lot.		Box.	Pkgs.	Name.	lb.	c.
171		780	2 ch	fans	220	18
174	KAS, in estate mark	789	2 do	pek sou	200	7 bid
176	Mt. Etna	795	23 hoxes	bro or pek	460	out
189	W K	834	1 ch	pek sou	107	23
190		837	2 do	dust	210	26
195	Cleveland	852	4 hf ch	fans	320	23
204	Kandaloya	879	10 do	pek sou	400	30
209	Little Valley	894	2 do	dust	160	22
215	Dalhousie	912	3 ch	bro pek fans	210	24
216	G K	915	1 do	bro pek	99	32
220	Gangawatte	927	2 do	pek sou	200	35
221		930	6 hf-ch	dust	480	24
223		936	2 ch	sou	200	23

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name.	lb.	c,
2	K	994	5 ch	hro pek	500	17
4		1000	2 do	fans	220	8
5		1000	3 do	pek sou	270	8
8	Illukettia	1012	2 ch	sou 2 oz lead	180	8
15	Horagoda	1033	2 ch	dust unbulked	200	19
16		1036	1 do	con	95	8
19	Dartry	1045	3	sou	324	17
20		1048	2 do	bro tea	164	11
28	Wyamita	1072	4 ch	pek sou	320	24
29		1075	1 hf ch	dust	80	20
33	Aherfoyle	1087	6 hf ch	pek sou	330	23
34		1090	1 do	hro or pek dust	64	20
5		1093	2 do	fans	144	20
6		1096	1 do	dust	85	18
9	Monte Christo	1105	8 hf ch	dust	6,0	20
45	Batgodde	1123	4 ch	bro pek	440	39
46		1126	3 do	pek	285	35
47		1129	2 do	pek sou	180	33
48		1132	1 do	pek dust	100	20
52	Blinkhonnie	1144	7 ch	pek sou	574	34
58	Nyanza	1162	6 ch	pek sou	540	27
59		1165	3 do	dust slack packed	300	20
64	Avisawella	1180	4 ch	sou	320	18
67	F F, in estate mark	1189	8 hf ch	pek	400	22 hid
76	Southwark	1216	8 ch	pek sou	640	27
80	Rothes	1228	2 ch	pek sou	170	22
81		1231	5 hf ch	bro tea	300	22
82		1234	2 do	dust	180	22
87	Kurunegale est. Co	1249	6 hf ch	dust	480	23
92	Mary Hill	1264	10 hf-ch	hro pek	600	46
100	Hatdowa	1288	5 ch	hro or pek	500	27 hid
104		1300	1 do	dust	150	16
112	Arcady	1324	8 hf ch	bro pek	400	30
113		1327	6 do	pek	300	24
114		1330	6 do	pek sou	300	20
115		1333	2 do	sou	100	13
116		1336	1 do	dust	52	16
118	Carney	1342	14 hf ch	pek	630	26 bid
120		1348	2 do	sou	100	16
124	Neuchatel	1360	3 ch	dust	420	21
129	Meddegodde	1375	4 hf ch	dust	240	20
130		1378	4 do	sou	140	20
133	Murraythwaite	1387	7 ch	pek sou	595	23
134		1390	5 do	hro pek fans	600	25
135		1393	2 do	dust	320	16
144	St Leonards on sea	1420	4 hf ch	dust No 1	320	with
145		1423	3 ch	fans	300	drawn
155	Neboda	1453	5 hf ch	dust	450	19
162	Paradise	1474	3 ch	dust	480	13
166	R K P	1486	7 ch	pek sou	560	24
167		1489	2 do	fans	210	25 hid
168		1492	1 do	dust slack packed	120	19
169	Cooroondoowatte	1495	5 ch	bro pek	500	44
174	Narangoda	1516	7 ch	pek sou	630	23 hid
175		1513	4 do	sou	200	out
178	Lyndhurst	1522	11 hf ch	pek No 1	506	25 bid
179		1525	20 do	pek No 2	886	27
181		1528	2 do	dust	160	20
182		1531	13 do	pek sou No 1	546	23
184	Oaklands	1540	6 ch	bro pek	560	36
187		1549	1 do	pek fans	112	22
188		1552	3 hf ch	dust	225	20
189		1555	5 ch	bro pek fans	520	26

Lot.		Box.	Pkgs	Name.	lb.	c.	
192	Paragahakande	1564	4 ch	pek sou	380	12	
193		1567	4 do	fans	380	8	d
211	Glenalmond	1621	5 ch	pek sou	400	24	
212		1624	1 hf ch	dust	80	20	
222	X X	1654	5 hf ch	bro or pek fans slack packed	275	27	
223		1657	6 do	pek dust	480	23	
225	California	1663	9 hf ch	bro pek	450	27	
226		1666	5 ch	pek	484	16	
227		1669	3 do	pek sou	295	10	
228	Mahatenne	1672	3 ch	bro or pek	300	48	
231		1681	7 do	pek sou	270	22	
232		1684	1 do	dust	100	18	
239	Allacolawewa	1705	13 hf ch	pek sou	611	34	
240		1708	6 do	hro pek fans	378	34	
241		1711	3 do	pek dust	216	24	
249	Y R W	1735	2 ch	dust	216	19	
261	D B G	1771	3 ch	bro mix	300	8	d
262		1774	3 do	fans	300	12	id
263		1777	7 hf ch	dust	560	16	d
264	G B	1780	10 hf-ch	hro tea	500		
272	Rayigam	1804	5 hf-ch	dust	400	23	
277	Mora Ella	1819	1 hf-ch	dust	95	18	
278		1822	5 do	bro or pek fans	350	28	
282	D M O G, in est. mark	1834	5 ch	bro mix	425	16	
283		1837	2 hf ch	dust	170	20	
284		1840	5 do	fans	300	23	
288	Nugawela	1852	5 do	pek (slack packed)	225	25	d
289		1855	8 do	pek sou	360	24	
290		1858	1 do	dust	85	17	
291	S, in est. mark	1861	1 do	bro pek	57	25	
292		1864	2 ch	pek	162	13	
293		1867	2 hf ch	dust	120	13	
300	Hanagama	1888	5 do	(dust 2 oz. lead)	425	15	
304	Gangwarily	1	6 do	dust	480	17	
306		7	6 ch	hro mix	480	33	
311	Havilland	22	4 do	pek sou	300	23	
315	Doragalla	34	7 do	pek sou	595	31	
217	B	40	3 do 1 hf ch	bro pek	360	33	
318		43	4 ch	pek	360	26	
319		46	2 do	pek sou	170	23	
327	Yarrow	70	3 hf ch	br or pek fans	210	29	
328		73	2 do	hro pek dust	160	23	
330	Elchico	79	3 ch	hro pek	300	30	
332		85	3 do	pek	285	25	
333		88	2 hf ch	dust	170	21	
334		91	3 do	fans	225	12	d
335		94	4 do	bro pek	200	30	
336		97	3 do	pek	150	24	
337		100	4 do	pek sou	220	21	

CEYLON COCOA SALES IN LONDON.

(From Our Commercial Correspondent.)

MINCING LANE, March 22.

"Magician."—Kandie Cocoa, 4 bags sold at 61s.
"Dordogne."—2 ditto, 1 bag sold at 62s.

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, March. 26.

"Statesman."—Wiharagala F, 1 tierce sold at 106s; ditto 1, 2 casks sold at 92s 6d; ditto PB, 1 tierce sold at 94s; WHG T in estate mark, 1 cask sold at 34s.

"Craftsman."—Wiharagala F, 1 cask sold at 107s; ditto 1, 1 cask and 1 barrel sold at 87s 6d; ditto 2, 4 casks and 1 barrel sold at 87s 6d; WP 1, 1 tierce and 3 casks sold at 60s; ditto S, 1 cask and 1 barrel sold at 43s 6d; ditto PB, 1 cask sold at 60s; WP T in estate mark, 1 tierce sold at 30s; WP in estate mark, 1 tierce sold at 28s; 1 barrel sold at 28s; WP, 1 bag sold at 30s.

No. 16. COLOMBO, APRIL 29, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[40,285 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
2	Coodoogalla	65	25	hf ch	bro pek	1250	withd'n.
3		68	20	do	pek	1000	
6	Battagalla	77	19	ch	or pek	1805	41 bid
7		80	23	do	pek	1955	33 bid
8		83	10	do	pek sou	700	31 bid
10	Torrington	89	70	ch	or pek	6300	38 bid
11		92	64	do	or pek No 2	5120	30 bid
12		95	42	do	bro or pek	4200	44 bid
13		98	74	do	pek	7030	29 bid
14		1	89	do	pek sou	7120	25 bid
18		7	12	do	or pek fans	1380	28
17	Bunyan and Ovoca	10	65	hf ch	bro or pek	3900	48 bid
18		13	36	do	or pek	1800	38 bid
19		16	43	do	pek	4085	34 bid
20		19	24	do	pek sou	2160	32 bid
21		22	11	do	pek fans	770	26

Messrs. Forbes & Walker

[684,526 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
6	Eria Colla	1030	8	ch	bro pek	752	32
8		1036	9	do	pek No 2	720	23
9	St. Paul's	1039	36	hf ch	bro or pek	2376	50
10		1042	26	do	or pek No 1	1482	48 bid
11		1045	30	do	or pek	1560	38 bid
12		1048	27	do	pek	1566	36
13	Great Valley Ceylon in est. mark	1051	39	hf ch	bro or pek	2145	43 bid
14		1054	12	ch	or pek	1020	37
15		1057	29	do	pek	2465	35
18		1066	14	hf ch	dust	1190	23
19	Fredsruhe	1069	28	ch	or pek	2520	30
20		1072	28	do	bro pek	3080	34
21		1075	50	do	pek	4500	27
22		1078	14	do	pek sou	1400	22
24	Glencorse	1084	28	ch	bro pek	2800	35
25		1087	27	do	or pek	2430	31
26		1090	20	do	pek No 2	1600	28
27		1093	45	do	pek sou	3375	25
28	Galkanda	1096	37	hf ch	or pek	1850	42
29		1099	20	ch	pek	1800	38
31	Kotagaloya	1105	9	ch	bro pek	990	34
32		1108	20	do	pek	1700	29
34	O B E C, in estate mark Newmarket	1114	18	hf ch	bro or pek	1188	54
35		1117	20	ch	bro pek	2200	43½ bid
36		1120	26	do	or pek	2340	40
37		1123	24	do	pek	2160	34
38		1126	10	do	pek sou	900	24
40	Obodde	1132	19	ch	bro pek	2128	34
41		1135	16	do	or pek	1600	30
42		1138	15	do	pek	1350	29
44	Kitulgalla	1144	11	hf-ch	bro or pek	715	36
45		1147	10	ch	pek	1000	29
46		1150	9	do	pek sou	810	25
49		1159	8	do	or pek	720	32
51	Tymawr	1165	30	hf ch	or pek	1650	38
52		1168	33	do	pek	1650	35
53		1171	25	do	pek sou	1250	33
54		1174	13	do	dust	1105	22
55		1177	18	do	bro pek	080	44
57	Bickley	1183	19	hf ch	bro or pek	1368	58 bid
58		1186	13	do	bro pek	936	40 bid
59		1189	24	do	or pek	1536	44 bid
60		1192	40	do	pek	2320	34 bid
61		1195	22	do	pek sou	1210	32
63		1201	15	do	dust	1500	23
64	Panawatte	1204	11	ch	bro pek	1232	40 bid
65		1207	11	do	or pek	1078	39
66		1210	23	do	pek	2185	33
67		1213	12	do	pek sou	1140	28
68	Naseby	1216	30	hf-ch	bro or pek	1800	75
69		1219	29	do	or pek	1334	64
70		1222	25	do	pek	1250	52
71		1225	8	do	dust	744	27
73	M P	1231	5	ch	dust	700	19
75	E D P	1237	12	ch	sou	900	18
77	Findlater	1243	24	ch	bro pek	2520	45
78		1246	34	do	pek	3230	31
86	Tillyrie	1270	18	hf ch	bro or pek	1080	52
87		1273	16	do	bro pek	880	45 bid
88		1276	22	ch	pek	1870	34 bid
89		1279	13	do	pek sou	1105	33
92	Stafford	1288	14	hf ch	bro or pek	910	58
93		1291	14	ch	or pek	1400	45
94		1294	19	do	pek	1710	41
96	Queensland	1300	7	ch	bro pek	700	44
97		1303	10	do	pek	850	34 bid
102	Coombe-court	1318	20	ch	pek	1800	37 bid
104	Ouvahkellie	1324	14	ch	pek sou	1260	36
105		1327	11	do	dust	880	26
106	Palmerston	1330	13	hf ch	bro or pek	741	74
107		1333	14	ch	or pek	770	50
108		1336	10	hf ch	pek	870	51
109	Theydon Bois	1339	11	ch	or pek	1045	40
110		1342	17	do	pek	1275	30
111		1345	17	do	pek sou	1360	25 bid
112		1348	9	do	fans	855	23
113	Roeberry, D	1351	25	ch	bro or pek	2500	52
117		1354	40	do	bro pek	4000	36 bid
115		1357	45	do	pek	4050	35
116		1360	13	do	pek sou	1118	33
117		1363	7	do	fans	700	26
118	A	1366	12	ch	pek sou	1080	18
119	New Angamana	1369	20	ch	bro pek	2000	35
120		1372	26	do	pek	2340	29
121		1375	23	do	pek No 2	2070	25
122		1378	10	do	pek sou	900	23
125	Halbarawe	1387	27	ch	bro pek	2700	28
126		1390	25	do	pek	2250	23
132	B, in estate mark	1408	10	ch	sou	900	23
133		1411	10	do	dust	1394	19
134	P	1414	45	hf ch	fans	2925	30
137	Matale	1423	50	do	bro pek	2750	35
138		1426	25	do	pek	2125	29 bid
139		1429	13	do	pek sou	1105	25
142	Ambalangoda	1438	7	ch	bro or pek	700	
143		1441	9	do	or pek	900	44 bid
144		1444	9	do	pek	810	39
147	Amblakande	1453	13	ch	bro or pek	1300	34
148		1456	18	do	or pek	1440	36
149		1459	17	do	pek	1360	32
150		1462	13	do	pek sou	1040	28
151	Corfu	1465	21	hf-ch	bro pek	1155	24
152		1468	22	do	or pek	1100	45 bid
153		1471	38	do	pek	1900	38 bid
154	Good Hope	1474	40	ch	bro pek	3600	33 bid
155		1477	21	do	bro or pek	1200	33 bid
156		1480	12	do	pek	1080	36 bid
159	Malvern	1489	55	hf ch	bro pek	3025	28
160		1492	50	ch	pek	3500	42
161		1495	20	do	pek sou	1400	36
164	Middleton	1504	13	hf ch	bro or pek	728	31
165		1507	14	ch	bro pek	1400	70
166		1510	14	ch	pek	1190	40 bid
167		1513	13	hf ch	dust	1040	38 bid
168	Errollwood	1516	16	do	bro or pek	880	25
169		1519	13	ch	or pek	1300	59
170		1522	19	do	pek	1805	33 bid
171		1525	8	do	pek sou	800	29 bid
181	B D W G	1555	44	hf ch	bro pek	2200	39
182		1558	28	do	pek	1400	33
185	Ella Oya	1567	24	ch	bro or pek	2517	40
186		570	17	do	or pek	1530	31
187		1573	33	do	pek	2640	28
188		1576	20	do	pek sou	1600	23
189	Kalupahana	1579	9	ch	bro pek	924	34
191		1585	11	do	pek	959	22
196	Ardlaw and Wishford	1600	24	hf ch	bro or pek	1344	58
197		1603	27	ch	bro pek	2430	41 bid
198		1606	16	ch	or pek	1360	37 bid
199		1609	33	do	pek	2706	35
200		1612	9	do	fans	1107	27
206	Preston	1630	34	ch	bro pek	3400	60
207		1633	14	do	pek	1190	49
208		1636	22	do	pek sou	1760	41
210	Digdola	1642	8	ch	bro pek	800	43 bid
211		1645	15	do	pek	1350	30 bid
214	K P W	1654	43	hf ch	bro pek	2365	37
215		1657	31	do	bro or pek	2015	38
216		1660	83	do	pek	4150	28
217		1663	33	do	pek sou	1650	26
221	Tembiligalla	1675	27	ch	bro or pek	2565	38
222		1678	20	do	pek	1800	30

Lot.		Box.	Pkgs.	Name.	lb.	c.
225	Kimberley	1687	10 ch	pek	950	24
226		1690	12 hf ch	bro pek dust	1020	20
227	Pretoria	1693	10 ch	sou	900	12 bid
228		1696	10 hf ch	bro pek dust	850	19
229	Sylvakandy	1699	46 ch	or pek	4600	45
230		1702	22 do	bro pek	2200	34 bid
221		1705	18 do	or pek	1710	36 bid
232		1708	17 do	pek	1615	34
235	Widmore	1717	36 bf cb	bro or pek	2154	53
236		1720	87 do	pek	4518	37 bid
237	Carfax	1723	16 ch	bro or pek	1600	46
238		1726	16 do	or pek	1440	43
239		1729	16 do	pek	1440	37
240	Hanwella	1732	8 ch	young byson	800	34
241		1735	7 do	hyson No. 1	700	28
244	Dunkeld	1744	69 hf ch	bro or pek	4002	45
245		1747	20 ch	or pek	1900	37
246		1750	26 do	pek	2340	35
247	Seenagolla	1753	20 bf ch	bro or pek	1200	51
248		1756	14 do	or pek	700	50
249		1759	25 do	pek	1400	49
250		1762	16 do	pek sou	832	38
251		1765	10 do	dust	800	25
252	Akaroa	1768	51 ch	bro pek	5355	40bid
253		1771	58 do	pek	4950	35 bid
254		1774	62 do	pek	4957	33 bid
255		1777	44 bf cb	pek sou	3256	30 bid
256		1780	12 do	dust	960	22
257	Inverness	1783	46 bf ch	bro or pek	2760	57
258		1786	29 cb	or pek	2755	67
259		1789	34 do	pek	3060	49
260		1792	7 do	pek sou	700	41
261	Oodoowere	1795	8 ch	bro pek	800	36
265	Gampaba	1807	39 ch	bro or pek	4290	46
266		1810	35 do	or pek	3325	47
267		1813	56 do	pek	2760	39
268		1816	30 do	pek sou	2700	37
270	Clunes	1822	21 cb	or pek	1785	36
271		1825	35 do	bro pek	3500	36
272		1828	15 do	pek No. 1	1200	29 bid
273		1831	40 do	pek No. 2	3200	27
274		1834	12 do	pek sou	960	23
276	Ruanwella	1840	30 do	or pek	2550	33 bid
277		1843	17 do	bro pek	1700	34
278		1846	36 do	pek	3240	28 bid
279		1849	8 do	pek sou	720	24 bid
281	Pallagodda	1855	18 do	bro or pek	1800	33 bid
282		1858	22 do	bro pek	2800	41
283		1861	22 do	or pek	1980	34 bid
284		1864	18 do	pek	1530	33
285		1867	15 do	pek sou	1425	29
286		1870	12 hf-ch	dust	1080	22
287	Higb Forest	1873	40 do	or pek	2197	50
288		1876	55 do	or pk No. 1	3297	53 bid
289	Pine Hill	1879	37 do	bro or pek	2220	48
290		1882	59 do	or pek	3304	40
291		1885	36 ch	pek	3420	35
292	H G M	1888	18 bf-ch	flo or pek	1080	59
293		1891	26 cb	br pek	2600	37 bid
294		1894	14 do	pek	1260	34 bid
296	Hopton	1900	28 do	bro or pek	2797	39 bid
297		1903	13 do	or pek	1297	40 bid
298	Yogama	1906	12 do	br pek	1200	37 bid
299		1909	23 do	pek	2070	29 bid
303	Yataderia	1921	23 do	bro or pek	2484	36 bid
304		1924	39 do	or pek	4056	33 bid
305		1927	60 do	pek No. 1	5580	26
306		1930	33 do	pek	3135	23
307		1933	16 do	pek son	1504	22
308	Weyunga-watte	1936	24 do	bro pek	2400	34
309		1939	23 do	pek	2070	28
310		1942	20 do	pek sou	1700	24
315	Weemalla	1957	9 do	pek	810	29
318	Dewalakande	1966	18 do	bro pek	1998	35 bid
319		1969	23 do	or pek	2392	34
320		1972	34 do	pek	3168	29
321		1975	25 do	pek sou	2475	23
323	Amblangoda	1981	8 do	pek sou	717	27 bid
324	Tymawr	1984	30 bf-ch	or pek	1650	34 bid
325	Meemora-kande	1987	43 ch	br pek	4300	31
326	Yaha Ella	1990	8 do	br pek	800	34
327		1993	13 do	pek	1170	26 bid
332	Relugas	2008	6 do	dust	990	20
333	Penrbos	2026	34 bf cb	bro or pek	1938	53
339		2029	34 do	or pek	1632	43
340		2032	34 cb	pek	3255	35
341		2035	17 do	pek sou	1360	29
343	Torwood	2041	22 do	bro or pek	2200	33
344		2044	22 do	or pek	1804	30
345		2047	26 do	pek	2028	27 bid
346		2050	23 do	pek sou	1610	23 bid
348	Algooltenne	2056	29 do	bro or pek	2900	39 bid
349		2059	48 do	or pek	4320	34 bid
350		2062	58 do	pek	4640	31 bid
351		2065	19 do	pek sou	1900	26 bid
352	J M K	2068	24 bf-ch	dust	2040	24
354	Harrow	2074	10 cb	or pek	997	30
355		2077	24 hf cb	bro or pek	1437	34
356		2080	16 cb	pek	1597	30
357		2083	18 do	pek No. 2	1797	26
358	Adisham	2086	13 bf ch	bro or pek	715	58
359		2089	10 cb	br pek	950	47
360		2092	23 do	pek	2070	34 bid
363	Harrow	2101	7 do	fans	945	24
364	Bandara Ellya	2104	60 bf-ch	or pek	3000	36 bid
365		2107	54 do	bro or pek	3240	40 bid
366		2110	82 do	pek	3690	33 bid
367		2113	20 do	pek sou	960	30
370	Panilkande	2122	17 cb	or pek	1700	35
371		2125	10 do	bro or pek	1000	42
372		2128	15 do	pek	1350	31
381	Tismoda	2155	10 hf-cb	bro pek	990	32
382		2158	16 ch	pek	900	29
385	Drayton	2167	55 do	or pek	2750	41 bid
386		2170	45 do	pek	3825	37 bid
387		2173	13 do	pek sou	1105	36
389	Laxapana	2179	54 bf-cb	bro pek	3240	44 bid
390		2182	22 ch	or pek	1980	37 bid
391		2185	53 do	pek	4770	30 bid
392	Nahalma	2188	34 do	br pek	3638	33 bid
393		2191	44 do	pek	4312	26 bid
394		2194	24 do	pek sou	2280	25
396		2200	12 bf-ch	dust	1020	20
397	Dewalakande	2203	50 ch	pek	4797	24 bid
398	Tillyrie	2206	22 do	pek	1977	37 bid
301	Harrow	2215	11 do	or pek	1100	30 bid
402		2218	25 hf-ch	bro or pek	1500	44 bid
403		2221	34 cb	pek	3400	35 bid
404	L B	2224	30 do	dust	2400	20
406	Udapolla	2230	7 do	br pek	700	32
407		2233	9 do	pek	810	28
410	Forest Creek	2242	15 do	bro or pek	1500	48 bid
411		2245	14 do	bro or pek	1397	49 bid
412		2248	27 do	bro pek	2700	withd'n
413		2251	14 do	or pek	1260	withd'n
414		2254	15 do	pk No. 1	1350	withd'n
415		2257	21 do	pk No. 2	1890	withd'n
416	S G	2260	11 do	pek sou	990	19
418	Summerville	2266	34 do	pek	4077	30 bid
419		2269	10 do	pek sou	1147	26 bid
421	H	2275	6 do	dust	750	20
422	Puspone	2278	18 do	pek	1707	28 bid
423	Uragalla	2281	9 do	pek	852	20
426	Dunnottar	2290	7 do	pek fans	700	25
427		2293	8 do	br or pek fans	1040	28
430	Weygalla	2302	8 do	fans	760	55 bid
431		2305	23 do	pek	1955	36 bid
432		2308	14 do	pek sou	1400	29 bid
435	Fairlawn	2317	11 do	or pek	822	36 bid
436	L B K	2320	9 do	bro mixed	900	out
437	Tonacombe	2323	39 do	or pek	3705	39
438		2326	38 do	bro pek	4180	40 bid
439		2329	46 do	pek	4140	34
440		2332	11 do	pek sou	990	33
441		2335	10 bf-cb	dust	900	22
442	Doorooma-della	2338	24 do	or pek	1248	38
443		2341	23 cb	bro pek	1955	32
445	Avanna	2347	8 do	bro pek	834	12
446	Palmerston	2350	14 hf-cb	bro or pek	798	64
447		2353	12 ch	pek	1044	46
449	Dambagas-talawa	2359	15 do	bro or pek	1650	47 bid
450		2362	22 do	bro pek	2420	36 bid
453		2365	18 do	pek No. 2	1800	36
454	Pungetty	2374	16 bf-cb	bro or pek	1120	42 bid
455		2377	15 ch	or pek	1800	38 bid
456		2380	17 do	pek	1836	34 bid
456	Kincora	2386	14 do	bro pek	1537	42 bid
459		2389	15 do	or pek	1347	39 bid
460	Cullen	2392	29 do	bro or pek	2900	47
461		2395	34 do	or pek	2958	37 bid
462		2398	30 do	pek	2550	30
463		2401	22 do	pek sou	1892	27
464		2404	14 bf-ch	dust	1204	23
465	Ardlaw and Wisbford	2407	16 do	bro or pek	864	49
466		2410	23 cb	bro pek	2070	37 bid
467		2413	10 do	or pek	850	34 bid
468		2416	15 do	pek	1230	32
469		2419	10 do	pek sou	979	27
470	Talgaswela	2422	32 do	or pek	2717	35
471		2425	36 do	pek	2877	26 bid
472	Kotiyagalla	2428	7 do	dust	1050	25 bid
474	Laxapana	2434	26 do	or pek	2337	39 bid
475		2437	44 do	pek	3957	31 bid
476	Marlborough	2440	51 do	bro or pek	2856	53
477		2443	42 do	pek	3948	33 bid
470		2446	9 do	pek sou	765	27 bid
479	Yataderiya	2449	26 do	bro or pek	2805	35 bid
480		2452	41 do	pk No. 1	3974	26
481	Ambragalla	2455	51 hf ch	bro or pek	3060	38 bid
482		2458	52 do	or pek	2496	36 bid

Lot.	Box.	Pkgs.	Name.	lb.	c.
483	2461	31 ch	pek	2387	29
484	2464	33 do	pek sou	2772	27

Messrs. Somerville & Co.—[218,509 lb.]

Lot.	Box.	Pkgs.	Name.	lb.	c.
1 Bodava	145	24 hf ch	bro pek	1320	33
10 Gigranella	172	16 ch 1 hf ch	bro or pek	1590	44
11	175	7 ch	bro pek	770	28 bid
14 G. Ceylon	184	16 ch 1 hf ch	pek sou	1575	10 bid
15 W K	187	26 hf ch	dust	2080	21
16 Charlie Hill	190	26 hf ch	bro pek	1300	33
17	193	23 do	pek	1150	27
18	196	18 do	pek sou	810	21
20 Kannatotta	202	19 ch	bro pek	1710	24 bid
21	205	14 do	pek No 1	1190	22
25 Oolapane	217	11 hf ch	dust	935	22
28 Dartry	226	10 hf ch	dust	960	17
29	229	11 do	fans	847	20
30 Glenanore	232	16 ch	bro mix	1600	27
32	238	13 do	sou	1300	26
33 Dikmukalana	241	27 hf ch	or pek	1350	33
34	244	20 do	pek fans	1000	25
35	247	24 do	pek	1200	27
36 H J S	250	14 hf ch	bro pek	840	32 bid
37	253	20 do	pek sou	1200	24
38 Kumaragalla	256	16 hf ch	bro pek	880	40 bid
39	259	14 ch	pek	1190	29 bid
40	262	16 do	pek sou	1280	24
43 Ravenscraig	271	24 hf ch	bro pek	1320	38 bid
44	274	45 do	pek	2250	33
48 Old Maddegama	286	11 ch	bro or pek	825	43 bid
49	289	10 do	or pek	700	41
50	292	19 do	pek	1615	38
52 W S	298	12 ch	or pek	1200	27 bid
56 Blackheath	310	7 ch	bro or pek	700	36
57	313	9 do	pek	810	30
69 Bryburgh	349	18 hf ch	bro or pek	1026	34 bid
70	352	10 ch	or pek	870	32 bid
71	355	22 do	pek	1804	27 bid
72 Alpitakande	358	24 ch	pek	1200	30
73 S R K	361	12 ch	pek sou slack	1140	33
76 Wavena	370	21 ch	pek sou	1680	25
81 Mahalla	385	9 ch	pek	810	29 bid
85 Ahamed	397	7 ch	pek	700	20
88 Avisawella	406	18 ch	bro pek	1800	36
89	409	22 do	pek	1870	26 bid
90	412	13 do	pek sou	1040	24
92 Salawe	418	10 ch	or pek	950	31 bid
93	421	22 do	bro pek	2200	32
94	424	22 do	pek	2090	26
95	427	12 do	pek sou	1080	23
97 Rayigam	433	24 ch	bro pek	2400	36
98	436	21 do	or pek	1890	32
99	439	21 do	pek	1785	28
100	442	20 do	pek sou	1900	24
102 Ravenoya	448	7 ch	bro pek	700	35 bid
103	451	20 do	pek	1600	33
108 Siriniwasa	466	29 ch	bro pek	2900	34
109	469	36 do	pek	3420	28
110	472	22 do	pek sou	1980	24
117 Jak Tree Hill	493	21 ch	bro pek	2100	34
118	496	9 do	pek	900	25 bid
119	499	9 do	pek sou	900	23
125 I P	517	6 ch	pek sou venesta	702	20
126	520	15 hf ch	dust	1290	21
127 Mudikiriyakande	523	7 ch	bro pek	770	28
131 Harangalia	535	10 ch	bro pek	900	36 bid
132	538	12 do	pek	960	31
133	541	9 do	pek sou	720	24 bid
136 Monte Christo	550	16 hf ch	pek fans	880	25 bid
139 K L	559	21 ch	fans	1890	21
140	562	16 do	pek fans	1008	23
141	565	10 do	dust	800	16 bid
144 Derby	574	25 hf ch	bro pek	1500	36
145	577	13 do	pek	715	27
147 Hangranoya	583	16 ch	sou No 1	1280	18
149	589	14 do	fans	1680	23
151 Mt. Vernon	595	57 ch	pek	5301	37 bid
152 H	598	7 ch	Hyson No 1	700	24
154 Y S P A	604	17 ch	pek sou	1445	27
155 Pindenioya	607	12 ch	bro or pek	1080	28 bid
156	610	13 do	pek	1235	25 bid
163 Depedene	631	52 hf ch	bro pek	2860	36
164	634	55 do	pek	2750	27
165	637	26 do	pek son	1430	24
167 K G	643	15 hf ch	pek fans	975	with
168 B	646	20 hf ch	pek fans	1300	drawn
169 Ranasinghapatna	649	65 hf ch	or pek	3120	26
170	652	49 do	bro or pek	2940	40
171	655	33 ch	pek	2640	29 bid
172	658	28 do	pek sou	2408	25 bid
174 V O	664	17 hf ch	pek fans	1105	with
175 S H	667	18 hf ch	pek fans	1170	drawn
176 Suriawatte	670	26 ch	bro pek	2522	25 bid
177	673	16 do	pek	1232	23 bid
178	676	41 do	pek sou	3280	19
179	679	11 do	sou	880	10 bid
180 N	682	31 ch	fans	2666	10 bid
182 Ferriby	688	25 hf ch	bro or pek	1400	36
183	691	18 ch	bro pek	1620	33
184	694	27 do	pek	2430	26 bid
185 Grange Garden	697	12 ch	bro or pek	1200	50
186	700	15 do	or pek	1500	41
187	703	14 do	pek	1400	37
191 P B	715	24 ch	fans	2160	9 bid
192 H	718	23 ch	pek fans	2300	17 bid
193 Columbia	721	32 hf ch	bro or pek	1664	56
194	724	45 do	or pek	2250	37 bid
195	727	34 do	pek	1700	36
196 M	730	10 hf ch	fans	700	20 bid
199 Waganilla	739	17 ch	bro pek	1700	34 bid
200	742	14 do	or pek	1260	36 bid
205 G O L G	757	13 hf ch	bro pek	780	24 bid
206	760	10 ch	pek	900	22
208 Rahatungoda	766	25 hf ch	bro or pek	1250	33 bid
209	769	28 do	bro pek	1680	35
210	772	32 do	or pek	1600	43 bid
211 Hartfield	775	10 ch	bro or pek	1050	27 bid
212	778	10 do	bro pek	1000	34 bid
213	781	25 hf ch	or pek	1250	35 bid
214	784	17 ch	pek	1496	30 bid
215	787	17 do	pek sou	1275	26
220 G T	802	9 hf ch	pek dust	790	20
222 Annandale	808	13 hf ch	bro or pek	767	71 bid
223	811	25 do	or pek	1350	55 bid
224	814	21 do	pek	1197	44 bid
225	817	16 do	pek sou	880	40

[Mr. E. John.—313,655 lb.]

Lot.	Box.	Pkgs.	Name.	lb.	c.
1 Theresia	939	19 ch	pek sou	1615	34
4 Bittacy	948	17 do	or pek	1615	44 bid
5	951	13 do	bro pek	1300	46 bid
6	954	14 do	pek	1260	48
11 Rookwood	969	40 hf-ch	bro or pek	2400	53 bid
12	972	23 ch	or pek	2208	38 bid
13	975	35 do	pek	3150	35 bid
15 Natuwakelle	981	17 do	bro pek	1700	37
16	984	13 do	bro or pek	1300	43
17	987	25 do	pek	2250	29
18	990	10 do	pek sou	900	24
19	993	7 do	dust	700	22
20 Mount Everest	996	38 hf-ch	bro or pek	2090	60
21	999	43 do	or pek	2150	47
22	2	47 ch	pek	4700	39
23 Templestowe	5	26 do	bro or pek	2028	49
24	8	18 do	bro pek	1656	37
25	11	21 hf ch	or pek	945	46
26	14	32 ch	pek	2880	39
27	17	12 do	pek sou	1080	40
29 Fordyce	23	17 hf-ch	dust	1615	23
30 Koslande	26	20 do	bro pek	1100	36 bid
31	29	14 ch	pek	1260	28
36 Whyddon	44	18 do	bro pek	1980	48
37	47	17 do	or pek	1530	40
38	50	15 do	pek	1350	38
42 B K	62	14 hf-ch	dust	1414	20
44 Cosiande	68	20 do	bro pek	1100	36 bid
45	71	14 ch	pek	1260	29
51 Elston	89	19 do	pek	1615	30 bid
52	92	22 do	pek sou	1980	28
54 Glassaugh	98	33 do	or pek	3300	68
55	101	41 hf ch	bro or pek	2665	57
56	104	37 ch	pek	3700	49 bid
57	107	10 do	pek sou	1000	42
58 M N	110	10 do	or pek	1000	45
59	113	12 hf ch	bro or pek	720	61
60	116	20 ch	pek	1900	46
61	119	8 do	pek sou	720	34
67 Doonhinda	137	34 do	bro pek	3400	37
68	140	41 do	pek	4100	29
69	143	9 do	pek sou	900	24 bid
71 Ohiya	149	20 do	pek sou	1700	28 bid
74 Elston	158	31 do	pek sou	2635	28 bid
75	161	8 do	pek sou	720	28
76 Shawlands	164	22 do	or pek	2090	33
77	167	28 do	bro pek	2800	35
78	170	18 do	pek	1620	28
79	173	9 do	pek sou	765	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
81	Ratwatte	179	37 ch	bro pek	3700	31 bid
82		182	66 do	pek	5940	25 bid
83		183	13 do	pek sou	1040	21
84	Dickapitiya	188	28 do	bro pek	2800	36 bid
85		191	35 do	pek	3500	29 bid
86		194	10 hf ch	dust	800	20
87	Mahapahagalla	197	20 ch	or pek	200	31 bid
88		200	10 do	pek	900	29
89		203	11 do	pek sou	935	23 bid
91		209	15 hf ch	fans	1125	24 bid
92	St. John's	212	25 do	or pek	1250	61
93		215	29 do	pek	1566	48
94		218	17 do	pek sou	850	42
95	Bowella	221	16 hf ch	or pek	880	37
96		224	19 do	pek	928	23
97	G M	227	14 ch	pek	1523	13 bid
98	S W	230	10 hf ch	dust	800	18
99	Morahela	233	22 ch	pek	1870	27
100		236	23 do	bro or pek	2300	38
101		239	21 do	or pek No.2	1827	31
102		242	20 do	or pek	1740	35 bid
103		245	10 do	sou	900	21 bid
105		251	9 do	bro pek	864	38 bid
106	Ottery	254	28 do	bro or pek	2940	47
107		257	28 do	or pek	2210	45
108		260	24 do	pek	2040	43
109		263	9 do	sou	720	37
111	Mount Clare	269	15 do	bro or pek	1500	42
112		272	8 do	or pek	760	34
118	Seaford	290	17 do	bro or pek	1785	32 bid
119		293	23 do	or pek	1955	29 bid
120		296	12 do	pek	900	28
121	Agra Ouvah	299	39 hf ch	bro or pek	2262	50 bid
122		302	74 do	or pek	4070	45
123		305	26 ch	pek	2392	38
124		308	9 do	pek sou	810	25
125		311	22 hf ch	pek fans	1760	31
127	Arncliff	317	51 do	or pek	2397	withd'n
128		320	47 do	bro or pek	2491	39 bid
129		323	81 do	pek	5726	28 bid
130		326	44 do	pek sou	1980	23 bid
131	Harrisland	329	14 do	bro or pek	770	44
133		335	13 ch	pek	1105	39
137	Bowhill	347	18 do	bro pek	1800	39
138		350	18 do	pek	1620	29
140	Oonoogaloya	356	20 do	or pek	1800	40
141		359	19 do	bro or pek	1900	45
142		362	23 do	pek	2300	35
143	Vincit	365	16 do	or pek	1440	33 bid
144		368	12 do	pek	1080	24 bid
147	G	377	12 hf ch	bro pek	700	26
148	Glentilt	380	29 ch	bro pek	2900	44 bid
149		383	21 do	or pek	1995	38
150		386	15 do	pek	1275	33
151	Mocha	389	27 do	bro or pek	2700	47 bid
152		392	13 do	or pek	1235	44 bid
153		395	30 do	pek	2790	37 bid
154		398	10 hf ch	fans	760	30
155	M	401	31 do	bro or pek	1860	30 bid
156		404	71 do	pek	3195	26 bid
157		407	16 ch	pek sou	1328	19 bid
158	L	410	15 do	bro pek fans	1350	8 bid
159	Glasgow	413	32 do	bro or pek	2464	58
160		416	23 do	bro pek	1610	45 bid
161		419	16 do	pek	1472	47
162		422	10 do	pek sou	1000	41
163	H	425	13 do	fans	1709	withd'n
164	Maskeliya	428	42 hf ch	bro or pek	2100	35 bid
165		431	21 ch	pek	2100	28 bid
467	Mahapahagalla	437	20 do	bro pek	2100	34
168	M P S	440	10 do	bro pek	1050	23
169		443	11 do			
			1 hf ch	bro pek fans	1390	20
170		446	30 do	bro pek dust	2700	24
171	Brownlow	449	23 do	bro or pek	1357	49
172		452	17 ch	or pek	1479	40
173		455	22 do	pek	1958	35
174	Waragalande	458	10 do	bro or pek	1000	42
175		461	14 do	bro pek	1400	31 bid
176		464	15 do	pek	1350	28 bid
180	A	476	20 do	bro tea	2000	withd'n
181	L E L	479	21 do	bro or pek	2310	42 bid
182		482	41 do	bro pek	4100	36 bid
183		485	33 do	or pek	3135	34 bid
184		488	18 do	pek	1530	36
186	Gingranoya	494	12 do	bro or pek	1200	47
187		497	9 do	or pek	855	41
188	Galloola	500	25 do	bro pek	2500	35 bid
189		503	39 do	pek	3120	27 bid
190		506	23 do	pek sou	1840	23 bid
193	Loughton	515	37 hf ch	bro pek	1850	32 bid
194		518	67 do	pek	3350	26
195		521	45 do	pek sou	2250	22
198	Evalgolla	530	24 do	or pek	960	35
199		533	24 do	bro or pek	1080	41
200		536	41 do	pek	1435	29
205	Kandaloya	551	18 hf-ch	fans	900	25
207	N H	557	44 ch	bro or pek	4400	35 bid
208		560	87 hf ch	pek	3654	26 bid
209		563	23 ch	pek sou	1863	18 bid
210	Elemane	566	38 do	bro pek	3800	36 bid
211		569	29 do	or pek	2465	29 bid
212		572	12 do	pek	1080	24 bid
214	Suduganga	578	9 do	or pek	765	32 bid
215		581	18 do	bro or pek	900	47
216		584	15 do	pek sou	1125	26
219	Cabin Ella	593	14 do	or pek	1190	40
220		596	24 do	bro or pek	1344	40
221		599	12 do	pek	1080	36
222		602	11 do	pek sou	990	30
224	Troup	608	25 do	sou	2375	21

SMALL LOTS.

[E. Benham & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Coodoogalla	62	10 hf ch	bro or pek	500	withdn.
4		71	10 do	pek sou	450	withdn.
5		74	7 do	dust	490	28
9	Battalgalla	86	8 hf ch	bro pek fans	560	28
15	Torrington	4	5 ch	dust	425	15
22	Bunyan and Ovoca	25	5 hf ch	dust	475	18

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	R G	1015	3 ch	bro or pek	300	32 bid
2		1018	4 do	or pek	340	30
3		1021	8 do	pek	640	28
4		1024	3 do	pek sou	240	22
5		1027	1 do	dust	80	20
7	Eria Oya	1033	9 ch	pek	684	26
16	Great Valley Ceylon, estate mark	1060	4 ch	pek sou	320	26
17		1063	2 do	bro mix	170	12
23	W A	1081	3 ch	dust	420	21
30	Galkanda	1102	3 do	pek sou	270	33
33	Kotagaloya	1111	4 ch	pek sou	360	21
39	O B E C, in est. mark Newmarket	1129	3 ch	dust	360	21
43	Obodde	1141	4 ch	pek sou	340	25
47	Kitulgalla	1153	3 hf ch	dust	240	18
48		1156	3 ch	bro or pek	315	23
50	K G L	1162	3 hf ch	dust	210	withdn.
56	K W D, in estate mark	1180	5 ch	bro pek fans	375	23
62	Bickley	1198	3 hf ch	fans	240	31
72	M P	1228	7 ch	sou	595	16 bid
74		1234	2 do	pek fans	340	16
76	E D P	1240	8 hf ch	dust	640	18
79	Findlater	1249	5 ch	pek sou	460	24
80		1252	6 hf ch	dust	552	21
81	C T L	1255	4 hf ch	bro pek	200	28
82		1258	3 do	pek	150	23
83		1261	4 do	pek sou	220	17
84		1264	2 do	dust	170	21
85		1267	6 do	fans	450	17
90	Debatgama	1282	2 hf-ch	dust	160	17
91	Rajawatte	1285	3 hf ch	bro mix	255	16
95	Stafford	1297	1 ch	fans	145	24
98	Queensland	1306	1 ch	sou	100	14
99		1309	1 do	bro pek No 2	100	30
100	Coombe-court	1312	12 hf ch	bro pek	660	41 bid
101		1315	6 ch	or pek	540	41 bid
123	New Anga-mana	1381	5 ch	fans	560	23
124		1384	2 do	dust	320	19
172	Halbarawe	1393	6 ch	pek sou	480	18
128		1396	2 do	dust	336	16
129	Nakiadeniya	1399	4 ch	bro pek fans	400	23
130		1402	6 do	bro tea	456	15
131		1405	2 do	dust	390	15
135	P	1417	6 ch	dust	660	25
136	O K, in estate mark	1420	4 hf ch	sou	202	12
140	Matale	1432	2 do	fans	150	24
141		1435	3 ch	dust	270	21
145	Ambalan-goda	1447	4 ch	pek sou	360	2 bid
146		1450	1 do	dust	110	18
157	Good Hope	1483	6 ch	pek sou	540	23
158		1486	3 hf ch	dust	253	20
162	Ookoowatte, No. 1	1498	1 ch	sou	90	12 bid
163		1501	1 do	dust	105	4
172	Agra Oya	1528	6 ch	bro pek	600	39

Lot.		Box.	Pkgs.	Name.	lb.	c.
173		1531	6 ch	pek	510	27
174		1534	4 do	pek sou	360	21
175		1537	1 do	unas	81	32
176		1540	3 hf ch	bro pek fans	210	23
177		1543	5 do	dust	400	18
178		1546	7 ch	or pek	595	31
179		1549	1 do	bro pek	90	28
180		1552	3 do	bro mix	255	16
183	B D W G	1561	7 hf ch	pek sou	350	25
184		1564	2 do	dust	180	22
190	Kalupahana	1582	4 ch	or pek	380	25
192		1588	8 do	pek sou	670	16
193		1591	4 do	bro mix	410	out
194		1594	2 do	pek	180	19
195		1597	2 do	dust	288	16
201	B B, in estate mark	1615	1 do	pek	90	20
202		1618	1 do	pek sou	80	16
203		1621	1 hf ch	bro pek	60	26
204		1624	1 do	bro pek	60	25
205		1627	1 do	bro pek	60	26
209	Preston	1639	4 ch	bro or pek fans	448	39
212	Digdolla	1648	3 ch	pek sou	240	22
213		1651	5 do	dust	600	20
218	K P W	1666	2 hf ch	bro pek fans	150	22
219		1669	2 do	pek fans	150	21
220		1672	2 do	dust	160	18
223	Tembiligalla	1681	1 ch	bro pek fans	120	21
224		1684	1 do	dust	155	21
233	Sylvakandy	1711	5 ch	pek sou	475	26
234		1714	3 do	dust	390	21
242	Hanwella	1738	3 ch	hyson No 2	300	18
243		1741	2 do	hyson siftings	260	9
262	Oodoowere	1798	7 ch	pek	630	30
263		1801	5 do	pek sou	440	23
264		1804	1 do	dust	152	18
269	Gampaba	1819	6 hf ch	pek fans	540	24
275	Clunes	1837	5 ch	sou	400	18
280	Ruanwella	1852	8 hf-ch	dust	640	20
300	Yogamma	1912	7 do	pek sou	560	24
301		1915	4 do	fans	400	26
302		1918	3 do	dust	450	20
311	Weyunga-watte	1945	1 do	bro tea	100	18
312		1948	3 do	dust	255	21
313	Weemalla	1951	5 do	bro or pek	500	33 bid
314		1954	5 do	or pek	425	31 bid
316		1960	1 do	pek sou	90	21
317		1963	2 hf-ch	bro tea	170	21
322	Dewalakande	1978	4 do	dust	348	20
328	Yaha Ella	1996	3 ch	pek s u	270	22
329		1999	1 do	pek fans	130	22
330		2002	1 do	dust	95	18
331	Relugas	2005	2 do	sou	200	18
333		2011	1 do	dust	152	16
334	L V	2014	1 do	bro or pek	101	46
335	Woodend	2017	10 hf-ch	bro pek	500	40
336		2020	10 do	pek	500	30
337	Narangalla	2023	1 ch	or pek	94	26
342	Penrhos	2038	4 hf-ch	fans	300	25
347	Torwood	2053	7 do	dust	490	21
353	Weygalla	2071	4 ch	or pek	297	31
361	Adisham	2095	7 do	pek sou	595	33 bid
362		2098	7 hf-ch	or pek	350	out
368	Bandara Eliya	2116	1 do	dust	95	21
369		2119	6 do	pk fans	450	22
373	Panilkan	2131	8 ch	pek sou	680	24
374		2134	2 do	sou	160	21
375		2137	2 hf ch	dust	220	19
376	F F in estate mark	2140	9 do	br pek	495	26
377		2143	9 do	pek	450	23
378		2146	10 do	pek sou	450	20
379		2149	3 do	bro pek fans	195	18 bid
380		2152	5 do	bro mixed	250	16
383	Tismoda	2161	3 do	fans	210	24
384		2164	6 do	dust	480	22
388	Draytou	2176	1 ch	sou	85	31
[illegible]	Nahalma	2197	8 do	bro pek fans	464	22
399	Maha Uva	2209	2 do	pek	154	29
400	Birtacy	2212	15 do	pek No 1	166	35
405	Udapolla	2227	4 do	or pek	360	32
408		2236	3 do	pek sou	240	21
409		2239	1 hf-ch	dust	80	17
417	Ingurugalla	2263	4 ch	red leaf	369	9 bid
420	H	2272	4 do	sou	288	16
424	Uragalla	2284	2 do	br pek fans	177	24
425		2287	1 hf-ch	bro mixed	87	16
428	Dunnottar	2296	2 ch	bro mixed	200	out
429		2299	2 do	dust No. 2	260	18
433	Weygalla	2311	1 do	sou	95	17
434		2314	4 do	dust	402	20
444	Angramally	2344	1 do	unast	90	21
448	Palmerston	2356	2 do	pek sou	160	39
451	Bambagas-talawa	2362	6 do	pek sou	600	32
453		2371	4 do	hr pek fans	540	28
457	Pungetty	2383	7 do	pek sou	672	31
473	Kotiyagalla	2431	6 do	sou	540	out
485	Ambragalla	2467	4 do	dust	340	20

[Messrs. Somerville & Co.]

Lot,		Box.	Pkgs,	Name.	lb.	c.
2	Bodava	148	7 ch	pek	630	24
3		151	5 do	pek sou	425	17 bid
4		154	2 do	fans	270	19
5		157	2 do	red leaf	204	8
6	St. Joseph's land	160	2 hf ch	bro pek	114	25
8		163	1 do	pek	52	20
9		166	1 do	pek sou	50	14
12	Illukettia	169	2 ch	bro pek	200	27
17	Girgaanella	178	3 ch	or pek	240	30 bid
18		181	9 hf ch	pek	495	20
19	Charlie Hill	199	7 hf ch	pek fans	420	18
22	Kanatotta	208	5 ch	pek No 2	400	20
23		211	4 do	fans	400	18
24		214	1 do	dust	140	17
26	Oolapane	220	7 hf ch	fans	455	23
27	Dartry	223	4 ch	bro tea	380	9
31	Glenanora	235	6 hf ch	dust	480	22
41	Kumaragalla	265	2 ch	sou	152	18
42		268	1 hf ch	dust	91	18
45	Ravenscraig	277	5 ch	pek sou	475	27
46		280	4 do	sou	400	17 bid
47		283	5 hf-ch	dust	400	22
51	W S	295	5 ch	bro or pek	500	35 bid
53		301	7 do	pek	630	23 bid
54		304	6 hf ch	pek	300	21 bid
55		307	2 do	dust	128	19
58	Blackheath	316	6 ch	pek sou	510	22
59		319	2 hf ch	fans	160	20
60	F, in estate mark	322	4 ch	pek sou	408	37
61		325	5 hf ch	dust	400	23
62	Galgedioya	328	10 boxes	bro or pek	200	51
63		331	2 ch	or pek	200	32
64		334	5 do	bro pek	500	34
65		337	5 do	pek	475	26 bid
66		340	5 do	pek sou	450	21
67	F A, in estate mark	343	1 ch	pek sou	95	30
68		346	4 hf ch	dust	360	23
74	S R K	364	4 ch	dust slack	600	18 bid
75		367	2 do	bro mix	200	11
77	A B	373	6 ch	bro pek	600	20 bid
78		376	1 do	dust	125	15
79	Mahalla	379	9 hf ch	bro pek	522	50
80		382	12 do	or pek	624	31 bid
82		388	6 ch	pek sou	516	24
83		391	1 do	dust	110	19
84	Ahamed	394	6 ch	bro pek	600	24
86		400	5 do	pek sou	450	16
87		403	2 do	fans	200	10
91	Aviswella	415	3 ch	fans	300	22
96	Salawe	430	2 ch	dust	316	18
101	Rayigam	445	6 hf ch	dust	480	22
104	Ravenoya	454	9 ch	pek sou	648	31
105		457	2 hf ch	dust	160	17
106		460	3 do	fans	228	28
107		463	1 box	bro mix	112	12
110	Siriniwasa	475	5 ch	bro pek fans	525	24
112		478	4 do	dust	450	19
113	Cork	481	6 ch	bro pek	600	38 bid
114		484	8 do	pek	640	32
115		487	4 do	pek sou	312	25 bid
116		490	1 do	fans	27	18
120	Jak Tree Hill	502	2 ch	sou	200	16
121		505	1 hf ch	dust	90	17
122	Malabar	508	5 ch	bro pek	500	38
123		511	5 do	pek	400	32
124		514	3 do	pek sou	240	26
128	Mudikiriya-kande	526	5 ch	pek	525	18
129		529	2 do	pek sou	190	16
130		532	1 do	fans	115	24
134	Harangalla	544	6 hf ch	dust	450	22
135	Monte Christo	547	9 hf ch	dust	675	21
137	Galgedioya	553	5 ch	bro pek	500	33
138		556	4 do	fans	440	22
141	Donside	568	6 hf ch	dust	510	22
142		571	3 ch	sou	270	18
146	Derby	580	10 hf ch	pek sou	500	24
148	Hangranoya	586	8 ch	sou No 2	680	16
150		592	4 do	bro tea	360	11 bid
153	H	601	2 ch	Hyson No 2	190	18
155	Pindenioya	613	7 ch	bro pek fans	630	24
158		616	4 do	pek sou	380	20
159		619	2 ch	sou	255	20
160		622	1 do	dust	150	16
161	X	525	1 ch	Hyson	77	8
162	K	628	5 ch	Twanky	450	6 bid

Lot.	Box.	Pkgs.	Name.	lb.	c.
166 Depedene	640	4 hf ch	dust	320	20
173 Ranasinghapatna	661	4 hf ch	dust	320	22
181 M, in estate mark	685	1 ch	dust	96	16
188 Grange Garden	706	3 ch	pek sou	300	27
189	709	1 do	fans	100	20
190	712	2 hf-ch	dust	170	22
197 K T, in estate mark	733	2 ch	bro pek	177	18
198 Darville	736	5 ch 1 hf ch	bro pek	518	14 bid
201 Waganilla	745	7 ch	pek	630	31
202	748	8 do	pek sou	640	25
203	751	4 hf ch	dust	320	22
204 Gartmore	754	1 ch	red lead paper lined	95	7 bid
207 G O L G	763	2 ch	dust	170	15
216 Orion	790	5 ch	bro pek	500	34
217	793	10 boxes	bro or pek	200	52 bid
218	796	5 ch	pek	475	29
219	799	5 do	pek sou	450	24
221 G T	805	3 ch 1 hf-ch	red leaf	342	7
226 Annandale	820	3 hf ch	dust	270	23

[Mr. E. John.]

Lot.	Box.	Pkgs.	Name.	lb.	c.
2 Theresia	942	6 hf-ch	dust	480	20
3	945	1 do	sou	50	29
7 Bittacy	957	6 ch	pek sou	540	39
8	960	6 do	fans	600	41
9	963	5 hf ch	bro or pek	250	75
10	966	6 do	dust	480	25
14 Rookwood	978	9 do	fans	630	27 bid
28 Fordyce	20	8 do	fans	600	32
32 Koslande	32	3 ch	pek sou	270	25
33	35	1 do	fans	110	24
34	38	1 hf ch	dust	80	20
35 Whyddon	41	6 do	bro or pek	396	51
39	53	7 ch	pek sou	630	30
40	56	1 do	fans	100	30
41	59	2 hf ch	dust	174	20
43 E E E	65	3 do 1 ch	red leaf	298	5
46 Coslande	74	3 do	pek sou	270	24
47	77	1 do	fans	110	24
48	80	1 do	dust	80	20
49 Bowella	83	9 hf-ch	or pek	531	27
50	86	10 do	pek	450	21
53 N	95	6 do	dust	510	21
62 M N	122	8 do	fans	640	31
63	125	4 do	bro pek No. 2	220	34
64	128	3 ch	pek	285	26
65	131	1 do	pek sou	90	22
66	134	1 hf ch	dust	92	18
70 Doonhinda	146	4 ch	dust	440	22
72 Ohiya	152	7 hf ch	dust	560	18
73	155	5 ch	sou	450	16
80 Shawlands	176	3 do	dust	360	19
90 Mahapahagalla	206	4 hf ch	dust	320	21
104 Morahela	248	4 do	dust	336	19
110 Ottery	266	4 do	dust	360	24
113 Mount Clare	275	8 ch	pek	640	28
114	278	6 do	pek sou	480	22
115	281	4 do	bro tea	320	8
116	284	4 do	dust	400	24
117 G	287	7 hf ch	dust	560	18
126 Agra Ouvah	314	4 do	dust	400	22
132 Harrisland	332	10 do	or pek	470	35
134	338	5 ch	pek sou	390	21 bid
135	341	4 hf ch	fans	300	24
136	344	1 do	pek dust	100	18
139 Bowhill	353	2 ch	dust	300	20
145 Vincit	371	1 do	dust	140	20
146	374	1 do	red leaf	130	12
166 Mahapahagalla	434	12 hf ch	bro or pek	660	38
177 Waragalande	467	7 ch	pek sou	630	22 bid
178	470	2 do	dust	220	20
179 Ellakande	473	5 hf ch	dust	375	18
185 M	491	2 do	bro pek fans	155	22
191 Galloola	509	2 ch	dust	200	21
192	512	4 do	fans	400	26
196 Loughton	524	6 hf ch	dust	300	18
197	527	10 do	fans	500	23
201 Evalgolla	539	17 do	pek sou	680	21
202	542	3 do	sou	105	18
203	545	3 do	dust	180	18
204 Farm	548	2 do	dust	180	19
206 Kandaloya	554	7 do	dust	350	20
213 Elemane	575	4 ch	fans	400	20
217 Suduganga	587	3 do	pek fans	200	26
218	590	7 do	sou	490	21
223 Cabin Ella	605	7 do	br or pek fans	462	28

CEYLON COFFEE SALES IN LONDON

(From Our Commercial Correspondent.)

MINCING LANE, March 29.

"Clan Ferguson"—CTPC Pita Ratmalie, 1 tierce sold at 109s; ditto B, 2 casks sold at 107s.

"Kamakura Maru"—London A, Pingarawa O, 1 barrel sold at 77s ; 1, 2 barrels sold at 66s ; 3, 1 barrel sold at 27s; T, 1 barrel sold at 24s.

CEYLON COCOA SALES IN LONDON.

" Craftsman "—Ditto C, 1 bag sold at 61s; ditto 1, 20 bags sold at 66s; ditto B, 6 bags sold 54s; ditto B 1, 2 bags sold at 53s.

" City of Perth "—ditto B, 5 bags sold at 56s 6d ; ditto T, 4 bags sold at 50s; ditto 2, 5 bags sold at 57s 6d; ditto T, 2 bags sold at 51s 6d.

" Orizaba "—ditto 1, 13 bags sold at 90s; ditto B, 8 bags sold at 51s 6d; ditto T, 5 bags sold at 54s 6d.

" Hitachi Maru "—ditto B, 5 bags sold at 51s; ditto T, 2 bags sold at 53s; ditto B, 3 bags sold at 57s 6d ; ditto C, 10 bags sold at 54s.

" Wakasa Maru "—Hylton OO, 1 bag sold at 67s ; ditto O, 10 bags sold at 92s; 1 at 61s: ditto T, 4 bags sold at 54s 6d; 1 at 53s; ditto B, 2 bags sold at 54s.

" Lancashire "—ditto T, 3 bags sold at 62s; ditto TF, 2 bags sold at 60s.

" City of Perth "—ditto GA, 5 bags sold at 64s; Kondesalle, OBEC 1, 20 bags sold at 66s; ditto 1, 7 bags sold at 67s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

" City of Perth "—Delpotonoya, 1 case sold at 3s 8d; 1 at 3s 2d; 1 at 3s 3d; 3 at 3s 2d; 3 at 3s 7d; 1 at 2s; 3 at 1s 10d ; 1 at 1s 5d ; 3 at 1s 7d.

" Craftsman "—E Mysore O, 2 cases sold at 3s 6d; ditto 1, 3 cases sold at 2s 6d; ditto S, 1 case sold at 1s 5d; ditto B, 1 case sold at 1s 6d; ditto 2, 1 case sold at 1s 5d; ditto 1, 6 cases sold at 2s 4d.

"Clan McNeil "—Knuckles Group, Madulkelle, Mysore A, 4 cases sold at 2s 2d; ditto B, 4 cases sold at 1s 8d ; ditto D, 4 cases sold at 1s 4d; seeds 1 case sold at 2s 1d.

CEYLON COCOA SALES IN LONDON.

(From Our Commerical Correspondent.)

MINCING LANE, April 4th.

" Wakasa Maru."—Middlemarch, 9 bags sold at 64s ; 1 bag sold at 51s ; 4 bags sold at 446d.

" Hitachi Maru."—Middlemarch, 18 bagss sold 63s ; 3 bags sold at 44s 6d.

" Shinano Maru."—Middlemarch, 11 bags sold at 63s ; 2 bags sold at 57s ; 10 bags sold at 59s.

" Statesman."—Maria 3, 3 bags sold at 45s 6d.

" Hitachi Maru."—2, 2 bags sold at 57s 6d.

" Wakasa Maru."—2, 2 bags sold at 57s 6d ; Batagolla C, 3 bags sold at 52s ; D, 2 bags sold at 50s.

" Kamakura Maru."—Strathesla D, 2 bags sold at 49s ; O, 4 bags sold at 40s ; E, 1 bag sold at 51s ; Owelia A, 1 bag sold at 66s ; Alloowihare A, 2 bags sold at 65s ; B, 8 bags sold at 56s ; C, 4 bags sold at 60s ; D, 16 bags sold at 44s 6d ; A, 8 bags sold at 62s ; B, 1 bags sold at 51s.

" Wakasa Maru."—HK 1, 1 bag sold at 60s ; ditto 2, 2 bags sold at 53s; ditto T, 1 bag sold at 59s.

" Logician."—OBEC in estate mark, Kondesalle Ceylon O F, 28 bags sold at 77s ; ditto 1 F, 8 bags sold at 66s ; ditto O, 14 bags sold at 85s 6d ; 3 bags sold at 77s ; ditto 1, 10 bags sold at 70s 6d ; OEC in estate mark, Mahaberia Ceylon O C, 10 bags sold at 93s 6d; 11 bags sold at 90s 6d ; 4 bags sold at 72s ; ditto 1, 12 bags sold at 79s ; ditto D, 5 bags sold at 57s 6d ; Weharagama 1, 1 bag sold at 58s 6d ; ditto 2, 2 bags sold at 58s 6d ; ditto 3, 4 bags sold at 58s 6d.

" Wakasa Maru."—Polwatta A, 1 bag sold at 63s ; ditto D, 2 bags sold at 46s 6d ; 1 bag sold at 44s.

" Hitachi Maru."—Warriapola, 6 bags sold at 60s ; 15 bags sold at 50s ; 9 bags sold at 56s.

" Wakasa Maru."—Warriapola, 34 bags sold at 100s ; 1 bag sold at 65s ; 1 bag sold at 58s ; 6 bags sold at 59s ; 1 bag sold at 30s ; 11 bags sold 56s ; Suduganga, 5 bags sold at 60s 6d ; 1 bag sold at 59s ; 6 bags sold at 57s ; 8 bags sold at 54s.

No. 17. COLOMBO, MAY 6, 1901. { PRICE :—12½ cents each, 3 copies 30 cents ; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. Forbes & Walker.

[727,770 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
6	Yatiyana	2485	8 ch	bro pek No. 1	800	29
8		2491	8 do	pek	768	22
9	Great Valley Ceylon in est. mark	2494	42 hf ch	bro or pek	2520	44
10		2497	30 do	or pek	2700	37
11		2500	42 do	pek	3780	26
12		2503	15 do	pek sou	1200	28
13	Shrubs Hill	2506	22 ch	bro pek	2464	36
14		2509	35 do	or pek	3080	35
15		2512	19 do	pek	1710	30
18	St. Pauls	2521	30 hf ch	or pek No 1	1710	48
19		2524	50 do	or pek	2500	38
20		2527	28 do	pek	1596	27
22	Adisham	2533	8 ch	bro pek	800	39 bid
23		2536	15 do	pek	1425	31 bid
26	Ireby	2545	30 ch	bro pek	3150	42 bid
27		2548	22 do	pek	1870	35 bid
29	Sembawatte	2554	12 ch	bro pek	1140	25 bid
32	Tory	2563	7 do	sou	714	14
33	Matale	2566	17 hf ch	bro pek	1020	50
34		2569	16 ch	pek	1440	29
38	A O, in estate mark	2581	12 ch	pek sou	1187	12
40	Nakiadeniya	2587	34 hf ch	sou	1360	14 bid
42		2590	10 ch	congou	760	10 bid
43	Wewewatte	2596	11 do	bro pek	715	33
47	Choisy	2608	20 do	bro or pek	2000	42 bid
48		2611	16 do	or pek	1520	39
49		2614	22 do	pek	1870	40
50	O B E C, in estate mark Summerhill	2617	41 hf ch	bro or pek	2378	60
51		2620	12 do	bro pek	768	48
53		2626	15 ch	or pek	1305	51
54		2629	18 do	pek	1584	47
55		2632	27 ch 1 hf ch	pek sou	2187	35
56		2635	22 do	pek sou	1540	27
57		2638	25 ch	fans	2100	26
58	Coldstream Group	2641	53 hf ch	bro pek	2915	36 bid
59		2644	20 ch	pek	1600	33
63	B W	2656	8 ch	bro or pek	840	26 bid
65		2662	11 ch	pek	1056	23 bid
66		2665	10 do	pek sou	950	18
67		2568	12 do	dust	1032	21
68	Kincora	2671	15 ch	bro pek	1650	45
69		2674	9 do	or pek	765	42
70		2677	19 do	pek	1615	35
71		2680	10 do	pek sou	800	33
72	Loinorn	2683	26 ch	or pek	2340	54 bid
73	K, in estate mark	2686	60 ch	bro mix	6000	11
75	Putupaula	2692	13 ch	bro or pek	1560	35
76		2695	14 do	bro pek	1330	35
77		2698	15 do	or pek	1350	31
78		3601	21 do	pek No 1	1680	28
79		2604	24 do	pek No 2	1800	25
80		2707	11 do	pek sou	770	22
82	Kimberly	2713	9 ch	pek sou	807	14
83		2716	10 do	bro mix	900	11
84		2719	15 hf ch	bro pek dust	1275	21
85	P	2722	17 ch	bro pek	1572	out
86	Thedde	2725	24 do	bro pek	2400	30
87		2728	19 do	pek	1710	32
91	Monkswood	2740	26 hf ch	bro pek	1560	51 bid
92		2743	30 do	or pek	1650	58
93		2746	30 ch	pek	2700	56
94		2749	17 do	pek sou	1445	39
95		2752	18 hf-ch	fans	1260	35
100	Anningkande	2767	18 ch	bro pek	1800	33
101		2770	20 do	pek	1900	29
105		2782	15 hf ch	dust	1117	22
107	Rowley	2788	33 do	bro or pek	1650	44
108		2791	35 do	or pek	1750	36
109		2794	45 do	pek	2250	30
112	Gallawatte	2803	24 ch	bro pek	2160	29
113		2806	10 do	bro or pek	1000	35
114		2809	40 do	pek	3200	26
115		2812	26 ch	pek sou	2210	20
116		2815	11 do	sou	960	16
117		2818	16 do	pek fans	1600	24
118		2821	9 hf ch	dust	900	22
119		2824	11 ch	bro pek No 2	990	23
120		2827	9 do	pek No 2	720	20
125	Gonapatiya	2842	35 hf-ch	bro pek	1995	52 bid
126		2845	51 do	or pek	2550	55
127		2848	60 do	pek	3060	46
128		2851	22 do	pek sou	1122	38
129		2854	21 do	pek fans	1407	36
131	Erlsmere	2860	18 hf ch	bro or pek	936	48 bid
132		2863	10 ch	or pek	800	47
133		2866	27 hf ch	bro pek	1512	36
134		2869	25 ch	pek	2075	37
137	C N N	2878	11 do	bro pek	1210	30 bid
139		2884	19 hf ch	fans	1425	25
140	Weligoda	2887	11 ch	bro pek	1100	27 bid
144	Sylvakandy	2899	46 ch	bro or pek	4600	40
145		2902	18 do	bro pek	1800	30 bid
146		2905	18 do	or pek	1620	33
147		2908	20 do	pek	1800	29
149	Elldalua	2914	35 ch	bro pek	2675	31 bid
150		2917	32 do	pek	3040	26
151		2920	10 do	pek sou	920	20
153	M T P, in est. mark	2926	22 ch	bro tea	1980	15
154		2929	9 do	pek dust	990	21
156	New Galway	2935	15 hf-ch	pek	825	43
158	Clyde	2941	14 ch	bro or pek	1400	52
159		2944	24 do	or pek	2232	33
160		2947	9 do	pek No 1	756	30
161		2950	17 do	pek No 2	1530	24
163	S R, in estate mark	2956	16 ch	congou	1600	22
164	Waratenne, Invoice No 8	2959	14 ch	bro or pek	1540	29
165		2962	15 do	bro pek	1350	26
166		2965	28 do	pek	2380	22
167		2968	21 do	pek sou	1680	20
168	Geragama, Invoice No 9	2971	11 ch	bro or pek	1210	31
169		2974	17 do	bro pek	1530	27
170		2977	14 do	pek	1190	24
171		2980	17 do	pek sou	1360	20
172	Delta	2983	29 ch	bro pek	2842	40 bid
173		2986	20 do	pek	1680	36
174		2989	22 do	pek sou	1702	30
175	Macaldeniya	2992	19 hf ch	bro pek	1140	45 bid
176		2995	17 do	pek No 1	935	37
177		2998	20 do	pek	1100	35
178		3001	14 do	bro mix	840	18
179	Queensland	3004	15 hf ch	bro or pek	705	61
180		3007	7 ch	bro pek	700	45
181		3010	7 do	or pek	700	39
182		3013	12 do	pek	1020	31
183		3016	9 do	pek sou	765	27
185	Waitalawa	3022	64 hf ch	bro pek	3200	51
186		3025	108 do	pek	5400	32
187		3028	19 do	pek sou	950	28
189	Preston	3034	36 ch	bro pek	3600	56 bid
190		3037	13 do	pek	1105	53
191		3040	21 do	pek sou	1680	38
193	Harrow	3046	25 hf ch	bro or pek	1497	37 bid
194		3049	11 ch	or pek	1097	37
195		3052	34 do	pek	3397	withdn.
196	Yelatenne	3055	38 hf ch	bro or pek	2280	37 bid
197		3058	35 do	pek	1750	33
198		3061	40 do	pek sou	2000	24 bid
201	Bickley	3070	20 do	bro or pek	1440	withd'n.
202		3073	26 do	or pek	1716	withd'n.
203		3076	41 do	pek	2378	withd'n.
204	Drayton	3079	61 hf ch	or pek	3050	42
205		3082	46 ch	pek	3910	38
206		3885	13 do	pek sou	1105	36
212	Ingrogalla	3103	19 ch	bro pek	1900	34
213		3106	19 do	pek	1615	30
214	Haputelewella	3109	28 hf ch	bro pek	1680	37
215		3112	23 do	pek	1150	31
228	Aberdeen	3151	37 ch	bro pek	3700	32
229		3154	54 do	pek	4374	25
230		3157	16 hf ch	bro pek fans	1120	23
231	Dunkeld	3160	14 ch	pek sou	1260	26
232		3163	17 hf ch	pek fans	1156	24 bid
233		3166	10 do	dust	900	22
234	Widmore	3169	43 hf ch	bro or pek	2580	49
235		3172	35 do	or pek	1645	37 bid
236		3175	85 do	pek	4420	33
237		3178	87 do	pek	4515	31 bid
238		3181	43 do	pek sou	1935	29
240	Kotiyagalla	3187	6 ch	dust	900	27 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
142	Morankande	3 90	36 ch	bro pek	3600	28
242		3193	20 do	pek	2710	24
243		3196	24 do	pek sou	1920	19
244		3199	14 hf ch	fans	840	22
246	Fairlawn	3205	23 hf ch	bro or pek	1150	41
248		3211	39 ch	pek	3515	27 bid
249		3214	10 do	pek sou	800	22 bid
251	Killarney	3220	22 hf ch	bro or pek	1320	46
252		3223	10 ch	or pek	900	37
253		3226	12 do	pek sou	1080	30
254	Seenagolla	3229	17 hf ch	bro or pek	1020	32
255		32 2	19 do	pek	1064	50
260	Hanwella	3247	9 ch	young hyson	900	40
265	Battawatte	3259	10 ch	or pek	1000	39
265		3262	22 do	bro or pek	2420	38
266		3265	26 do	pek	2470	32
267		3268	13 do	pek sou	1040	28
269	Hayes	3274	13 ch	bro pek	1235	43
270		3277	9 do	or pek	720	40
271		3280	53 do	pek	4505	26 bid
272		3283	12 do	pek sou	1080	19 bid
273	St. Normans	3286	65 ch	bro pek	6322	33 bid
274		3289	43 do	bro pek	4515	33 bid
275		3292	23 do	pek	2116	30
276		3295	8 do	pek sou	760	27
278	Polatagama	3301	21 ch	bro pek	21 0	46
279		3 04	18 do	or pek	1710	36
280		3307	13 do	pek No 1	1235	32
281		3310	30 do	do No 2	2700	26 bid
282		3313	9 do	pek sou	900	23
283		3316	8 do	bro pek fans	800	23
285	Erracht	3322	17 ch	bro pek	1700	35
286		3325	17 do	or pek	1445	39
287		3328	38 do	pek	3270	28
288		3331	16 do	pek sou	1360	24
289		3334	14 do	bro pek fans	1680	24
291	Clunes	3340	16 ch	bro pek	1680	35
292		3343	16 do	or pek	1360	36
293		3346	22 do	pek No 1	1760	28
294		3349	37 do	do No 2	2960	24
295		3352	9 do	pek sou	720	21
296	Dammeria	3355	40 ch	or pek	3600	41
297		3358	42 do	pek	3780	37
298		3361	11 do	bro or pek	1100	42
299		3364	19 do	bro pek	1900	39
300		3367	9 do	pek sou	810	32
302	Weoya	3373	20 ch	bro pek	2000	36
303		3376	16 do	pek No 1	1440	28
304		3379	42 do	pek No 2	3570	22 bid
305		3 82	20 do	pek sou	1600	18 bid
308	B D W G	3391	33 hf-ch	br pek	1650	40
309		3394	23 do	pek	1150	34
312	Nugagalla	3403	31 do	br pek	1550	45
313		3406	69 do	pek	3450	30
316	Digdola	3415	7 ch	bro pek	8 5	37 bid
317		3418	23 do	pek	1105	34
319	Sirikandura	3424	16 do	bro pek	1600	33
320		3427	12 do	pek	1140	26
321		3430	10 do	pek sou	900	20
328	Great Valley, Ceylon in est. mark	3451	37 hf-ch	bro or pek	2220	41
329		3454	14 do	or pek	1330	37
330		3457	21 do	pek	1890	34
331		3460	9 do	pek sou	765	27
332	Ninfield	3463	13 ch	br pek	1300	30
333		3466	35 do	pek	3150	24 bid
334		3469	11 do	pek sou	880	out
335	Castlereagh	3472	43 hf ch	bro or pek	2150	42
336		3475	28 ch	bro pek	2800	35
337		3478	14 do	or pek	1120	33
338		3481	17 do	pek	1445	35
339		3484	10 hf-ch	fans	700	20
340	Yataderia	34 7	25 ch	bro pek	2675	32
341		3490	29 do	or pek	3103	29
342		3493	34 do	pek No. 1	3162	24
343		3496	28 do	pek	2660	22
344		3499	12 do	pek sou	1128	17
345	Poonagalla	3502	31 do	or pek	2945	38
346		3505	13 do	bro pek	1430	34
347		3508	30 do	pek	2550	30
348		3511	15 do	pek sou	1125	21
350		3517	14 do	fans	1050	25
351		3520	21 do	dust	1890	23
352	Maragalla	3523	13 do	bro pek	1430	39
353		3526	9 do	or pek	810	33
354		3529	9 do	pek	810	29
364	Maryland	3559	24 do	bro pek	2400	38
365		3562	36 do	or pek	3240	31
366		3565	26 do	pek	2340	27
366		3568	13 do	pek sou	1170	22 bid
371	Weyunga-watte	3580	21 do	bro pek	2100	32
372		3583	20 do	pek	1900	27
373		3586	18 do	pek sou	1400	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
378	Mawaliganga-watte	1	37 do	bro pek	3700	28
379		4	26 do	pek sou	2000	21 bid
381	W H R	10	23 do	pek sou	1955	41
382		13	19 hf ch	dust	1615	26
383	Tillyrie	16	25 do	br or pek	1500	47
384		19	34 do	br pek	1870	38
385		22	31 do	pek	2635	37
386		25	18 do	pek No. 2	1530	36
387	Bargany	28	27 do	bro or pek	1620	42
388		31	25 do	bro pek	1250	31
389		34	15 ch	pek	1425	34
390		37	22 do	pek sou	1870	23 bid
393	Memorakande	46	9 do	pek fans	720	23
394		49	17 do	dust	1360	20
395	Woodend	52	41 do	br pek	4100	35
396		55	48 do	pek	4560	25 bid
397		58	14 do	pek sou	1190	22
398		61	10 do	bro pek fans	1180	24
402	Cullen	73	64 hf-ch	bro or pek	3840	44
403		76	42 ch	pek	3360	34
404	Monkswood	79	2 hf-ch	bro pek	1320	55 bid
405		82	2 do	bro pek	1540	53
406		85	2 ch	pek	2250	41
407	Middleton	88	19 hf-ch	bro or pek	1064	67
408		91	41 ch	bro pek	4100	34 bid
409		94	37 do	pek	3145	33 bid
410	Devonford	97	20 hf ch	bro or pek	1 60	64
411		100	12 ch	pek	1080	46
412	Locbiel	103	32 do	bro or pek	3296	39 bid
413		106	19 do	br pek	1900	33 bid
414		109	47 do	pek	4089	32 bid
415		112	18 do	pek sou	1530	27 bid
416	Marlborough	115	49 hf-ch	bro or pek	2744	36 bid
417		118	10 ch	or pek	10 0	30 bid
418		121	28 do	pek	2632	28 bid
419		124	43 do	pek	3948	30 bid
420		127	9 do	pek sou	765	24 bid
425	St. Paul's	142	26 hf-ch	or pk No. 1	1479	37 bid
426		145	30 do	or pek	1.57	36
431	I N G in est mark	160	10 ch	pek fans	1000	25
434		169	5 do	br pk dust	700	22
436	Pretoria	175	10 hf-ch	sou	897	13
437	Vogan	178	20 ch	bro or pek	2000	52
438		181	30 do	or pek	3000	37
439		184	43 do	pek	36 5	28
442		193	9 do	br pek	900	53
443		196	19 do	or pek	1710	38
444		199	16 do	pek No. 1	1440	31
445		202	28 do	pek No. 2	2 20	27
449	Panawatte	214	11 do	bro pek	1229	37 bid
451	Pine Hill	220	21 hf ch	bro or pek	1 60	47
452		223	32 do	or pek	1792	34
453		226	19 ch	pek	1805	29
454		229	12 do	pek sou	1080	24
456	H G M	235	26 hf ch	bro pek	2597	32 bid
457		238	14 ch	pek	1257	30 bid
458	Dunbar	241	21 hf-ch	bro or pek	10 0	58
459		244	35 do	or pek	1680	40
460		247	17 ch	pek	1326	37
464	Walpita	259	47 do	br pek	4700	30
465		262	29 do	pek	2755	22 bid
466		265	12 do	pek sou	960	20 bid
467	Yogama	268	12 do	br pek	1197	36
468		271	23 do	pek	2067	26 bid
469	Nahalma	274	34 do	br pek	3635	30 bid
470		277	44 do	pek	4309	27
471	Harrow	280	14 do	or pek	1400	35
472		283	26 do	bro or pek	1569	45
473		286	34 do	pek	3400	30 bid
474		289	8 do	pek sou	720	32
476	Weygalla	295	23 do	pek	1952	32 bid
477		298	14 do	pek sou	1397	26 bid
478	Mount Clare	3 1	13 do	bro or pek	1300	withd'n
479		304	8 do	or pek	700	,,
483	L B K	316	9 do	bro mixed	897	11 bid
485	Chesterford	322	56 do	br pek	5600	34 bid
486		325	46 do	pek	4140	24 bid
487		328	40 do	pek sou	3600	out
489	Corfu	334	21 hf-ch	br pek	1152	45 bid
490		337	22 do	or pek	1097	39 bid
491		340	38 do	pek	1897	28 bid
492	Deaculla	343	40 hf ch	br pek	2200	40
493		346	60 ch	pek	4200	30
494		349	25 do	pek sou	1750	22
495	Yaha Ella	352	13 do	pek	1167	24 bid
496	Coreen	355	62 hf-ch	bro or pek	3720	43 bid
497		358	32 ch	or pek	2880	37 bid
498		361	17 do	pek	1496	34 bid
501	Carberry	370	27 do	br pek	2430	29
507		388	7 do	bro pek fans	784	27
509	G K	394	12 do	sou	720	19
510		397	25 do	pek sou	1750	23
511		400	12 do	dust	1872	20
512	Forres	403	30 hf-ch	bro or pek	1803	35 bid
513		406	20 do	br pek	1202	32 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
514		409	22 ch	or pek	1872	29 bid
516		415	20 do	pek sou	1602	20 bid
523	Sylvakandy	436	22 do	br pek	2197	32
424	H G M	439	36 hf-ch	bro or pek	2040	50 bid
525		442	10 do	fans	700	24
526	G T D	445	11 ch	br pek	1210	27
527		448	8 do	pek	760	21
528	Ruanwella	451	30 do	or pek	2547	25 bid
531	Adisham	460	16 hf-ch	pek	1410	31 bid

Messrs. Somerville & Co.—

[255,039 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
9	Hurstpierpoint	847	7 ch	bro pek	735	20
13	Kudaganga	859	13 ch	bro pek	1300	29
14		862	17 do	pek	1710	25
18	Harangalla	874	11 ch	or pek	935	35
19		877	11 do	bro pek	1045	40
20		880	23 do	pek	1810	2 bid
21		883	10 do	pek sou	800	20 bid
22		886	10 do	sou	800	19
23	Gangwarily	889	39 ch	bro pek	3510	3 bid
24		892	20 do	pek	1500	25 bid
25		895	28 do	pek	2240	25 bid
26		898	29 do	pek sou	2175	19 bid
27	Oonankande	901	24 hf ch	bro pek	1200	40
28		904	35 do	pek	1925	28
29		907	14 ch	pek sou	980	23 bid
31	South Africa	913	29 ch	or pek	2610	31 bid
32		916	30 do	pek	2520	26 bid
33		919	20 do	pek No 2 slack-packed	1700	22 bid
35	Cooroondoo-watte	922	12 ch	bro pek	1200	30 bid
35		925	10 do	pek	1000	27
36		928	10 do	pek sou	1000	18 bid
39	Warakamure	937	7 ch	bro or pek	805	out
40		940	28 do	bro pek	2800	32
41		943	20 do	bro pek	2000	28 bid
42		946	16 do	pek	15 0	21 bid
43		949	13 do	pek sou	1170	17 bid
44		952	9 hf ch	dust	855	20
45	Karangalla	955	20 ch	bro pek	2200	29 bid
46		958	21 do	pek	1785	26 bid
47		961	20 do	pek sou slack-packed	1600	21 bid
49	Mousa Eliya	967	33 ch	bro pek	3300	33 bid
50		970	16 do	pek	1520	31
52		976	7 do	dust 2 oz lead	700	2
53	Nyanza	979	15 hf ch	bro or pek	900	41
54		982	18 ch	bro pek	1800	34 bid
55		985	16 do	pek	1440	32
58	Kallebokka	949	7 ch	bro or pek	700	58
59		997	13 do	bro pek	1365	39
60		1003	13 do	pek	1141	40
64	Goodwood	1012	15 hf ch	or pek	750	44 bid
66		1018	17 do	pek	867	36
70	Ewadugama	1030	19 ch	bro pek	1976	30 bid
71		1033	12 do	pek	1200	3 bid
81	Ladrum	1063	26 ch	or pek	2600	27 bid
82		1066	26 do	pek	2600	26 bid
84	F F	1072	13 hf ch	fans	910	24
87	Ambalawa	1081	15 hf ch	bro pek	870	26 bid
88		1084	16 do	pek	1328	22 bid
89		1087	11 do	pek sou	836	17 bid
90	Bollagalla	1090	26 ch	bro pek	2600	33
91		1093	19 do	pek	1520	29
92		1096	16 do	pek sou	1280	21
93	New Valley	1099	15 ch	bro or pek	1500	48
94		1102	27 do	or pek	2430	41
95		1105	24 do	pek	2400	37
96		1108	27 do	pek sou	2430	36
98	Woodthorpe	1 14	11 ch	bro pek	1100	38
99		1117	17 do	pek	1445	26 bid
100		1120	20 do	pek sou	1600	20 bid
103	Morantenne	1129	24 hf-ch	bro pek	1330	24 bid
104		1132	24 do	pek	1200	25 bid
107	Lonach	1141	55 hf ch	bro or pek	3300	39
108		1144	47 do	or pek	2350	36
109		1147	40 ch	pek	3400	31
110		1150	24 do	pek son	2160	26
111	Avisawella	1153	23 hf ch	bro or pek	1150	43
112		1 56	23 ch	pek	1955	23 bid
113		1159	13 do	pek sou	1040	21 bid
114	Neuchatel	1162	38 ch	bro or pek	3800	29 bid
115		1165	31 do	or pek	24 0	28 bid
116		1168	23 do	pek sou	1840	21 bid
117		1 71	6 do	dust	8 0	2
118	Tientsin	1174	19 ch	pek sou	1615	37
119		1177	11 do	dust slack unbulked	1540	23
120	Carney	1180	23 hf ch	bro pek	1150	33
121		1183	19 do	pek	855	25 bid
130	Neboda	1210	17 ch	bro or pek	1700	31
131		1213	21 do	bro or pek	2100	32
132		1216	52 do	bro pek	4940	26 bid
133		1219	8 do	pek	720	25
136	Old Maddegama	1228	9 ch	bro or pek	720	47
137		1231	10 do	pek	850	40
138		12 4	10 do	pek sou	850	34
141	Depedene	1 43	6 hf ch	bro pek	2530	29 bid
142		1 46	42 do	pek	2100	27
143		1249	23 do	pek sou	1150	21
149	Rambodde	1267	25 ch	bro pek	1500	54
150		1270	45 do	pek	2250	37
151		1273	27 do	pek sou	1350	31
155	Monrovia	1285	29 ch	bro pek	2755	31
157		1291	33 do	pek	2970	27 bid
1 8		1294	8 do	pek sou	800	19
165	Yspa	1315	11 ch	pek dust	1540	23
167	Forest Hill	1321	15 ch	bro pek	1300	32
168		1324	21 do	pek	1995	28 bid
169	Mousa	1 27	25 ch	pek	2000	27
169	Labugama	1339	2 hf ch	bro pek	1215	28 bid
174		1342	16 ch	pek	1520	25
175		1345	21 do	pek sou	1785	20 bid
102	Rayigam	13 6	33 ch	bro pek	3300	34
183		1369	27 do	or pek	2430	26 bid
184		1372	25 do	pek	2000	24 bid
185		1375	23 do	pek sou	2185	23
186		1378	9 hf ch	dust	720	24
186	G	1381	16 ch 1 hf ch	pek sou	1575	6 bid
189	A G K	1387	19 ch	pek	1805	28 bid
190	E O, in estate mark	1390	26 ch 1 hf ch	Hyson	2280	out
191	Dumbarton	1393	7 ch	pek sou	700	5
19	A V E	1396	8 ch	pek sou	742	11 bid
19	L O N	1399	25 ch	pek sou	2025	12 bid
194	R, in estate mark	1402	37 ch	pek sou	3142	12 bid
195	D, in estate mark	1405	6 ch	Hyson fans	720	8 bid
196	L H O	1408	10 ch	pek sou	950	6 bid
197	R A, in estate mark	1411	10 ch	pek No 1	850	9 bid
200	Cooroodoo watte	1420	13 ch	pek	1300	22 bid
201	Blinkbonnie	1423	37 hf ch	bro pek	2331	41 bid
202		1426	18 ch	or pek	1710	41 bid
203		1429	19 do	pek No 1	1482	38
204		1432	14 do	pek No 2	1330	42
205		1435	13 do	pek sou	1040	36
206	Mt. Vernon	1438	50 ch	pek	4590	38
207		1441	33 do	pek sou	2739	35
208	Nellicollay watte	1444	12 hf ch	bro pek	720	35
210		1450	14 do	or pek	784	34
211		14 3	15 ch	pek	1410	29
221	S W E	1483	26 ch	bro pek	2522	25 bid
222		1486	11 do	sou	880	7 bid
223		1489	24 do	fans	2160	7 bid
224	G M	1492	23 ch	dust	1840	22
225	L B	1495	18 ch	dust	1440	23
226	M V O, in estate mark	1498	15 ch	pek	1200	20 bid
227	Keston	1501	14 ch	or pek	1400	18 bid
228	Cairnton	1504	13 ch	pek	1300	22 bid
229		1507	21 do	pek sou	1785	16 bid
2 0	H	1510	23 ch	pek	2070	20 bid
231		1513	18 do	pek sou	1617	17 bid

[Mr. E. John.—181,042 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Little Valley	614	13 ch	bro pek	1300	30 bid
3		617	17 do	pek No. 1	1445	28
4		620	8 do	pek No. 2	720	20 bid
6	Glassaugh	626	14 do	or pek	1400	67
7		629	18 hf-ch	bro or pek	1170	58
8		632	14 ch	pek	1400	56
10	Morton	638	12 do	bro pek	1200	30 bid
11		641	16 do	or pek	1520	37
12		644	37 do	pek	3330	28
13		647	14 do	pek sou	1190	19
16	Mocha	656	21 do	bro or pek	2100	46 bid
17		659	11 do	or pek	1045	45 bid
18		662	18 do	pek	1710	41
19		665	12 do	pek sou	1080	36
20	Eila	668	32 do	bro pek	3040	35
21	Manickwatte	671	53 hf-ch	or pek	2544	33
22		674	43 do	bro or pek	2580	33 bid
23		677	23 ch	pek	1840	27 bid
24		680	23 do	pek son	1932	19 bid
26	Warleigh	686	1 hf ch	bro or pek	0120	55 bid

Lot.		Box.	Pkgs.		Name.	lb.	c.
27		689	16	do	or pek	880	51 hid
28		692	26	ch	bro pek	2470	36 hid
29		695	21	do	pek	1785	33 hid
31		701	11	hf-ch	dust	880	24
32	Templestowe	704	24	ch	bro or pek	1872	48
33		707	12	do	or pek	840	45
34		710	28	do	pek	2520	37
35		713	10	do	fans	950	31
36		716	11	hf-ch	dust	935	24
37	Gingranoya	719	9	ch	bro or pek No. 2	1035	28 bid
38		722	11	do	or pek	1045	39
39		725	28	do	pek	2380	35
46	Allington	746	7	do	bro pek	700	34
51	Kadienlena	761	58	hf ch	pek fans	4350	21
52	Elston	764	21	ch	or pek	1890	40 bid
53		767	45	do	pek sou	4050	21 bid
54	Rookwood	770	46	hf ch	bro or pek	2760	45 hid
55		773	27	ch	or pek	2592	40
56		776	38	do	pek	3420	34 hid
58	Ottery	782	13	do	bro or pek	1300	43 bid
59		785	17	do	or pek	1360	45
60		788	19	do	pek	1615	39
63	Brownlow	797	20	hf ch	bro or pek	1120	45 bid
64		800	13	ch	or pek	1131	39
65		803	22	do	pek	1914	34
67	Poilakande	809	62	do	bro pek	6200	28 bid
68		812	45	do	pek	4050	20 bid
70	Glentilt	818	32	do	bro pek	3200	41 bid
71		821	24	do	or pek	2280	32 bid
72		824	17	do	pek	1445	33
73		827	11	do	pek sou	990	30
74	Callander	830	23	hf ch	br or pe (H)	1380	47
75		833	25	do	or pek	1300	41
76		836	45	do	pek	2160	42
77	Agra Ouvah	839	32	do	bro or pek	1856	53
78		842	61	do	or pek	3355	38 hid
79		845	20	ch	pek	1840	37
80	Glasgow	848	40	do	bro or pek	3080	54
81		851	22	do	or pek	1540	44
82		854	15	do	pek	1380	42
83		857	10	do	pek sou	1000	40
84	Rondura	860	18	do	bro pek	1710	29 bid
85		863	20	do	or pek	1700	35
86		866	9	do	bro or pek	900	24 bid
87		869	18	do	pek No 1	1440	29
88		872	23	do	pek No. 2	1840	27
91	Ferndale	881	25	do	bro pek	2680	49
92		884	20	do	or pek	1730	35 bid
93		887	23	do	pek	2005	32 bid
94		890	13	do	pek sou	1070	27 bid
97	Peru	899	10	do	bro pek	1100	39 bid
98		902	10	do	pek	900	33
99		905	11	do	pek sou	990	26 hid
102	Y K	914	8	do	dust	1200	20
111	Elston	941	29	do	pek	2465	29
112		944	23	do	pek sou	1955	25
113	Syston	947	12	hf ch	bro or pek	720	26 bid
114		950	34	do	bro pek	1904	29 bid
115		953	19	ch	pek	1520	26 bid
116		956	10	do	pek sou	700	22 bid
117		959	10	hf ch	dust	750	23
119	Oonoogaloya	965	15	ch	hro or pek	1500	51
120		968	18	do	or pek	1620	38
121		871	18	do	pek	1800	37
122	Morahela	974	20	do	or pek	1740	34
123		977	9	do	hro pek	864	41
124		980	10	do	sou	900	18 bid
125	Gallastane	983	8	do	bro or pek	800	28 bid
127	Little Valley	989	10	do	hro pek	1000	31 bid
128		992	12	do	pek	960	30
132	Maskeliya	4	30	hf ch	bro or pek	1500	out
133		7	11	ch	or pek	990	30 hid
134		10	41	do	pek	4100	28 bid
135	Evalgolla	13	40	hf ch	pek	1400	25 bid
136	Mount Clare	16	13	ch	bro or pek	1300	33 bid
137		19	8	do	or pek	760	34

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Bogahagodawatte	2470	2	ch	hro or pek	220	27
2		2473	5	do	hro pek	500	27
3		2476	7	do	pek	665	24
4		2479	6	do	pek sou	540	15
5	Yatiyana	2482	2	ch	hro pek	242	26
7		2488	5	do	hro pek No 2	470	24
16	Shrubs Hill	2515	5	ch	pek sou	410	22
17		2518	6	do	bro pek fans	480	21
21	Adisham	2530	7	hf ch	hro or pek	385	67
24		2539	3	ch	pek sou	255	28
25		2542	5	hf ch	dust	425	23
28	Ireby	2551	8	ch	pek sou	680	28 hid
30	Sembawatte	2557	9	do	pek	693	21
31		2560	5	do	pek sou	340	16 bid
35	Matale	2572	3	ch	sou	300	12
36	Ardross	2575	4	hf ch	dust	320	19
37		2578	2	do	sou	100	10
39	A O, in estate mark	2584	1	ch	hyson	76	12
41	Nakiadeniya	2590	3	do	dust	390	17
44	Wewewatte	2599	8	hf ch	pek	480	26
45		2602	7	do	pek sou	392	15
46		2605	1	do	dust	81	withd'n.
52	O B E C, in est. mark Summerhill	2623	7	ch	or pek No. 1	630	45
60	Coldstream Group	2647	8	ch	pek sou	640	24
61		2650	7	hf ch	fans	455	26
62		2653	2	ch	bro mix	200	8
64	B W	2659	7	do	or pek	672	33
74	Udawera	2689	4	ch	sou	320	5
81	Putupaula	2710	3	ch	dust	450	18
88	Thedden	2731	6	do	pek sou	540	25
89		2734	1	do	dust	160	20
90	M'golla	2737	2	do	sou	180	10
96	Monkswood	2755	6	hf ch	dust	540	26
97	B D W P	2758	9	hf ch	bro pek fans	585	28
98		2761	1	ch	sou No 2	95	12
99		2764	1	hf ch	dust	95	19
102	Anningkande	2773	7	ch	pek sou	630	21
103		2776	2	do	sou	180	11
104		2779	1	ch			
			1	hf-ch	sou	150	13
106		2785	1	do	red leaf	40	5
110	Rowley	2797	6	do	pek sou	300	21
111		2800	2	do	dust	100	20
121	Ella Oya	2830	6	ch			
			1	hf ch	pek	539	24
122		2833	5	ch			
			1	hf ch	pek sou	500	18
123		2836	2	do	hro pek fans	128	22
124		2839	2	do	dust	160	18
130	Gonapattiya	2857	5	hf ch	dust	435	24
135	Erlsmere	2872	7	ch	pek sou	574	29
136		2875	2	hf ch	dust	160	22
138	C N N	2881	7	ch	pek sou	560	31
141	Weligoda	2890	3	ch	pek	255	22
142		2893	8	do	pek sou	600	19
143		2896	5	do	dust	480	19
148	Sylvakandy	2911	3	ch	dust	300	19
152	Elldalua	2923	4	hf ch	dust	368	20
155	New Galway	2932	11	do	hro pek	660	50
157		2938	2	do	pek sou	100	29
162	Clyde	2953	7	ch	pek sou	497	19
184	Queensland	3019	1	do	pek No 2	95	16
188	Waitalawa	3031	6	hf ch	dust	540	2[illegible]
192	Preston	4043	3	ch	bro or pek fans	336	40
199	Yalatenne	3064	4	hf ch	sou	340	18
200		3067	4	do	fans	356	20
207	Rockside	3088	6	ch	sou	480	19
208		3091	2	do	hro mix	160	8
209		3094	5	do	bro pek fans	600	26
210		3097	4	do	dust	540	19
211		3100	1	do	dust No 2	170	16
216	Haputelewella	3115	9	hf ch	pek sou	405	26
217		3118	2	do	fans No 1	140	25
218		3121	2	do	dust	160	20
219	J E S, in estate mark	3124	2	ch	hro pek	194	28
220		3127	4	do	pek	352	18
221		3130	2	do	pek sou	160	11
222	L N S, in est. mark	3133	1	hf ch	bro pek	35	21
223		3136	2	ch	pek sou	180	13
224		3139	1	do	dust	109	15
225	Tempo	3142	2	hf ch	young hyson	110	23
226		3145	2	do	hyson	100	15
227		3148	1	do	hyson No 2	45	11
239	Widmore	3184	4	do	pek fans	340	20
245	Morankande	3202	8	do	dust	560	21
247	Fairlawn	3208	10	do	or pek	450	38
50		3217	4	do	dust	320	20
256	Hanwella	3235	6	ch			
			1	hf ch	hro pek	632	25 hid
257		3238	6	ch	pek	539	21
258		3241	2	do	pek sou	164	16
259		3244	3	do	bro pek fans	360	20
261	Hanwella	3250	6	ch	hayson No 1	600	29
262		3253	3	do	do No 2	300	22
263		3256	2	do	hyson siftings	260	12

Lot		Box.	Pkgs.	Name.	lb.	c.
265	Battawatte	2271	3 ch	dust	300	21
277	St. Norman	3298	1 ch	dust	150	18
284	Polatagamo	3319	3 ch	dust	450	19
290	Erracht	3337	1 ch	dust	148	18
301	Weoya	3370	6 hf ch	bro or pek	690	33
306		3385	5 ch	bro pek fans	500	26
307		3388	3 do	dust	450	17
310	B D W G	3397	3 hf-ch	pek sou	150	21
311		3400	4 do	dust	360	20
314	Nugagalla	3409	9 do	pek sou	450	18
315		3412	3 do	dust	270	20
318	Digdola	3421	2 ch	bro pek fans	200	25
322	Sirikandure	3433	1 do	bro pek fans	94	23
323		3436	1 do	pek fans	75	20
324		3439	1 do	fans	69	14
325		3442	1 do	congou	85	10
326		3445	2 do	bro pek dust	235	25
327		3448	1 do	dust	140	17
349	Poonagalla	3514	7 do	sou	595	21
355	Maragalla	3532	2 hf-ch	bro tea	160	21
356	Laurawatte	3535	6 ch	bro pek	660	33
357		3538	6 do	or pek	582	31
358		3541	7 do	pek	672	29
359		3544	4 do	pek sou	400	21
360	Kumara Dolla	3547	6 do	br pek	660	34
361		3550	4 do	or pek	360	29
362		3553	4 do	pek	360	24
363		3556	1 do	bro tea	80	18
368	Maryland	3571	4 do	sou	360	15
369		3574	4 do	dust	320	20
370		3577	4 hf ch	fans	260	26
374	Weyunga-watte	3589	1 ch	bro tea	100	17
375		3592	2 do	dust	170	19
376	Mawaliganga-watte	3595	5 do	bro or pek	500	33
377		3598	3 do	or pek	225	28
380		7	3 do	dust	318	20
391	B N Y in est. mark	40	8 do	pk fans	520	24
392		43	2 do	dust	190	19
399	Woodend	64	3 do	dust	420	16
400	Augusta	67	4 do	dust	580	18
401		70	1 do	dust No. 2	170	16
421	U N	130	6 do	sou	528	7
422	Waverley	133	1 do	pek	98	37
423	Meddecombra	136	1 do	bro or pek	112	37
424	Maryland	139	1 hf ch	dust	80	18
427	Mahayaya	148	5 ch	bro pek	505	}
428		151	1 do	bro or pek	114	} withd'n
426		154	2 do	pek	182	}
430	I N G in est. mark	157	3 do	br pk No. 2	270	24
432		163	6 do	pek sou	510	18
433		166	5 do	sou	400	11
435	M P	172	7 do	sou	592	withd'n
440	Vogan	187	5 do	pek sou	450	20
441		190	4 hf ch	pek	340	19
446		205	5 ch	pek sou	450	19
447		208	2 do	bro pk fans	240	24
448		211	4 hf-ch	dust	340	19
450	Kalupahana	217	4 do	bro mixed	407	11
455	Pine Hill	232	4 ch	sou	280	9
461	Dunbar	250	5 hf-ch	br pk fans	310	35
462		253	2 ch	pek sou	134	5
463		256	1 do	dust	153	20
475	Dunnottar	292	2 do	bro mixed	197	12
480	Mount Clare	307	7 do	pek	595	}
481		310	5 do	pek sou	400	} withd'n
482		313	4 do	fans	400	}
484	Kotiyagalla	319	6 do	sou	537	24
488	Chesterford	331	7 do	fans	630	21
499	Coreen	364	1 do	pek sou	100	25
500		367	4 hf-ch	dust	330	20
502	Carberry	373	6 ch	pek	450	27
503		376	8 do	pek No 2	600	23
504		379	4 do	sou	240	18
505		382	3 do	pek sou	210	19
506		385	4 do	bro pek sou	360	20
508		391	2 do	dust	312	18
515	Forres	412	8 do	pek	681	26 bid
517		418	2 hf-ch	fans	150	24
518		421	6 do	dust	540	20
519	Kennington	424	4 ch	dust	546	18
520	R in est mark	427	1 do	bro pek	87	24
521		430	1 do	pek sou	75	18
522		433	1 hf-ch	dust	82	16
529	Adisham	454	7 ch	bro or pek	385	61
530		457	6 hf ch	bro pek	330	45
532		463	6 do	pek sou	510	30
533		466	6 do	or pek	510	38

[Messrs. Somerville & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A B C	823	8 hf ch	bro pek	384	16
2	S L G	826	6 ch	sou	540	16
3		829	2 do	red leaf	180	6
4	Malmasama	832	2 ch	bro pek	200	31
5		835	3 do	or pek	255	32
6		838	3 do	pek	255	24
7		841	2 do	pek sou	170	18
8		844	1 do	dust	147	19
10	Hurstpierpoint	850	6 ch	pek	600	12
11		853	4 do	pek sou	400	10
12		856	2 do	dust	255	17
15	Kudaganga	865	3 ch	sou	270	14
16		868	4 do	fans slack packed	400	22
17		871	1 do	dust	160	19
30	Oonankande	910	4 hf ch	dust	264	21
37	Cooroondoo watte	931	4 hf ch	pek fans	336	21
38		934	4 do	dust	400	16
48	Karangalla	964	2 hf ch	dust	170	18
51	Mousa Eliya	973	2 ch	pek sou 2 oz. (lead)	190	20
56	Nyanza	988	4 ch	pek sou	360	20
57		991	3 hf ch	dust slack packed	300	18
60	Kallebokka	1000	7 ch	or pek	616	44
62		1006	1 do	pek fans	125	22
63		1009	2 hf-ch	dust	180	18
65	Goodwood	1015	12 hf ch	bro pek	660	52
67		1021	7 do	pek sou	343	31
68		1024	6 do	pek sou	402	30
69		1027	1 do	dust	89	20
72	Ewadugama	1036	8 ch	pek sou	640	out
73		1039	1 hf ch	dust	105	18
74	S	1042	7 hf ch	dust	560	22
75		1045	5 do	sou	250	8 bid
76	A	1048	4 hf ch	dust	320	18
77		1051	3 do	sou	150	8 bid
78	Derby	1054	3 hf ch	sou	150	10 bid
79		1057	3 do	pek fans	180	22 bid
80		1060	5 do	dust slack packed	360	18
83	F F	1069	7 ch	pek sou slack packed	665	33
85		1075	3 hf ch	dust	285	20
86	Ambalawa	1078	5 hf ch	or pek	240	31
97	N I T	1111	2 hf ch	dust	170	16
101	Woodthorpe	1123	1 hf ch	dust	65	18
102		1126	3 ch	sou	228	15
105	Morantenne	1135	11 hf ch	pek sou	550	19 bid
106		1138	1 do	dust	80	out
122	Carney	1186	11 hf ch	pek sou	550	out
123		1189	2 do	br pek fans	100	22
124		1192	2 do	sou	100	out
125		1195	2 do	dust	100	18
126	T W	1198	4 ch	bro pek	400	22
127		1201	4 do	pek	400	15
128		1204	3 do	pek sou	300	11
129		1207	1 do	fans	80	12
134	Neboda	1222	8 ch	pek sou	640	19
135		1225	4 hf ch	dust	360	19
139	Old Madde gama	1237	4 ch	bro pek fans	360	29
140		1240	2 do	dust	220	24
144	Depedene	1252	3 hf ch	dust	240	20
145	Kerenvila	1255	4 ch 1 hf ch	bro pek	455	29
146		1258	6 ch	pek	600	16
147		1261	3 do	pek sou	280	11
148		1264	2 do	pek fans	200	12
152	Ramhodde	1276	3 hf ch	bro pek dust	210	24
153	R, in estate mark	1279	4 hf ch	con	200	24
154		1282	2 do	dust	170	20
156	Monrovia	1288	3 ch	bro or pek	330	26
159		1297	3 do	bro tea	300	8
160		1300	2 do	pek dust	320	19
161	D B R, in estate mark	1303	2 ch	bro pek	192	21
162		1306	1 ch 1 hf ch	pek	148	15
163		1309	2 ch	pek sou	166	11
164		1312	2 hf ch	fans	146	15
166	Forest Hill	1318	8 hf ch	bro or pek	448	34 bid
170	Havilland	1330	2 ch	dust	180	16
171		1333	3 do	pek fans	345	19
172		1336	1 do	bro mix	85	10
176	L	1348	4 ch	unas	400	21 bid
177	S R	1351	2 hf ch	bro pek	115	22
178		1354	2 do	pek	110	14
179		1357	2 do	pek sou	180	10
180		1360	1 do	dust	150	15
181		1363	1 box	Hyson	18	8
188	G T	1384	6 hf ch	Hyson	240	16 bid
198	A, in estate mark	1414	5 ch 1 hf ch	bro pek	550	10 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
199	B, in estate mark	1417	5 ch	bro pek	505	20 bid
209	Nellicollay watte	1447	8 bf ch	bro or pek	560	30 bid
212		1456	8 ch	pek sou	624	31
213		1459	1 hf ch	dust slack	65	18
214		1462	1 do	fans	75	18
215	S M A C	1465	2 hf cb	bro pek slack	96	23
216		1468	1 do	pek	42	16
217	Tavalamtenne	1471	5 hf cb	bro or pek	300	48
218		1474	11 do	or pek	495	39
219		1477	14 do	pek	630	31 bid
220		1480	5 do	pek sou	225	27 bid

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	St. Andrew's	611	8 hf ch	dust	680	22
5	Little Valley	623	2 do	dust	160	18
9	Morton	635	5 ch	bro or pek	560	42 bid
14		650	6 do	pek fans	690	18
15		653	3 hf ch	dust	270	17
25	Manickwatte	683	2 ch	dust	270	19
30	Warleigh	698	4 do	pek sou	320	28 bid
40	A W T	728	1 do	bro pek	100	35
41		731	1 do	or pek	90	38
42		734	1 do	pek	90	22
43		737	1 do	bro pek fans	100	24
44		740	3 hf ch	dust	264	19
45		743	2 do	congou	180	10
47	Allington	749	5 ch	or pek	450	27
48		752	6 do	pek	540	20
49		755	4 do	pek sou	360	18
50		758	1 bf ch	dust	85	19
57	Rookwood	779	5 do	fans	350	28
61	Ottery	791	6 cb	sou	480	24
62		794	3 bf ch	dust	255	20
66	Brownlow	806	9 do	bro pek fans	693	24 bid
69	Poilakande	815	7 do	dust	630	19
89	Rondura	875	8 cb	pek sou	640	20 bid
90		878	4 do	dust	600	18
95	Ferndale	893	2 do	bro pek fans	230	25 bid
96		896	2 do	dust	282	20
100	Peru	908	1 do	pek fans	110	23
101		911	1 do	dust	150	19
103	Maskeliya	917	10 hf ch	bro or pek	500	37 bid
104		920	3 cb	or pek	270	33
105		923	3 do	pek	300	23 bid
106		926	1 do	pek sou	100	20
107		929	9 hf ch	fans	540	23
108	Taunton	932	5 cb	pek fans	500	18
109		935	1 hf ch	dust	90	16
110	K	938	1 cb	bro pek fans	96	25
118	Syston	962	2 do	sou	180	16
126	Little Valley	986	6 do	or pek	480	33
129		995	6 do	pek sou	540	10 bid
130		998	2 do	dust	160	21
131		1	7 do	bro or pek	350	50 bid
138	Mount Clare	22	7 do	pek	595	28 bid
139		25	5 do	pek sou	400	22 bid
140		28	4 do	fans	400	24

No. 18. COLOMBO, MAY 13, 1901. { PRICE :—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

[E. Benham & Co.]

[23,088 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Torrington	72	35 ch	or pek	3150	32 bid
5		75	25 do	or pek No 2	2000	27 bid
6		78	20 do	bro or pek	2000	38 bid
7		81	21 do	pek	1995	25 bid
8		84	24 do	pek sou	1920	21 bid
9	Battalgalla	87	27 ch	or pek	2565	42 bid
10		90	21 do	pek	1785	33 bid
11		93	17 do	pek sou	1275	24 bid
12	Hornsey	96	39 hf ch	bro pek	2145	51 bid
13		99	24 ch	pek	2040	33 bid
14		2	14 do	pek sou	980	25 bid

Messrs. Forbes & Walker

[551,048 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
10	Choisy	496	21 ch	bro or pek	2100	41 bid
11		499	16 do	or pek	1520	35
12		502	26 do	pek	2210	34
13	Yullefield	505	28 hf ch	or pek	1400	43
14		508	42 ch	pek	3570	36
16	Walton	514	13 ch	bro pek	1430	36
17		517	9 do	or pek	810	33
18		520	8 do	pek	720	28
20	St. Paul's	526	35 hf ch	or pek No 1	1960	45
21		529	29 do	or pek	1450	39
22		532	42 do	pek	2352	35
23	O B E C, in estate mark Nillamally	535	10 ch	bro or pek	1000	59
24		538	31 do	or pek	2852	48 bid
25		541	17 do	pek No. 1	1360	36 bid
26		544	19 do	pek No. 2	1672	34
27		547	9 do	pek sou	810	32
30	Hatton	556	23 ch	bro pek	2415	51
31		559	25 do	pek	2250	40
36	St. Martin	574	23 ch	bro pek	920	34
37		577	33 do	pek	1320	23
40	Irex	586	23 ch	or pek	2300	39
41		589	32 do	pek	2880	30
42		592	12 do	pek sou	960	26
45	N	601	7 ch	sou	700	13
46		604	10 do	pek fans	1300	19
47	Robgill	607	13 ch	pek sou	1170	26
49	Ismalle	613	19 do	sou	1425	16
51		619	8 do	dust	1000	20
52	Torwood	622	18 ch	bro or pek	1800	30
53		625	16 do	or pek	1280	28
54		628	24 do	pek	1872	24
55		631	17 do	pek sou	1190	20
56		634	11 do	sou	880	16
57	Arapolakande	637	67 ch	bro pek	6030	36
58		640	39 do	pek	3510	25
61	Norton	649	43 ch	bro or pek	2580	50
62		652	17 do	pek	1700	38
63		655	14 do	pek sou	1162	36
64	Glengariffe	658	46 hf ch	bro or pek	2530	50
65		661	18 do	or pek	810	39
66		664	40 ch	pek	3300	35
67		667	9 do	pek sou	747	28
68		670	12 hf ch	pek fans	816	31
60	Pansalatenne	673	53 ch	bro pek	5035	36
70		676	38 do	pek	3040	28
71		679	25 do	pek sou	2000	23
72		682	6 do	bro pek fans	720	31
74	Maldeniya	688	22 ch	bro pek	2200	34
75		691	23 do	pek	2185	27
76		694	18 do	pek sou	1530	23
78	Dunbar	700	27 ch	pek	1992	30 bid
79	St. Heliers	703	32 hf ch	bro or pek	1760	39
80		706	20 ch	pek	1800	28
82	Patiagama	712	8 ch	pek	720	31 bid
86	Palmerston	724	13 hf ch	bro or pek	741	79
87		727	13 do	bro pek	741	47
88		730	10 ch	pek	870	47
91	Naseby	739	50 hf ch	bro or pek	3000	54 bid
92		742	29 do	or pek	1305	56
93		745	19 do	pek	950	54
94		748	10 do	fans	750	35
96	Mahayaya	754	7 ch	bro pek	[illegible]	30
97		757	10 do	pek	9[illegible]0	28
101	Sylvakandy	769	47 ch	bro or pek	4700	38
102		772	16 do	bro pek	1600	30
103		775	16 do	or pek	1440	33
104		778	14 do	pek	1530	28
106	Ardlaw and Wishford	784	33 hf-ch	bro or pek	1782	50
107		787	40 ch	bro pek	3520	32 bid
108		790	12 do	or pek	984	36
109		793	40 do	pek	3280	31
110	Coldstream Group	796	30 hf ch	bro pek	1650	41
111		799	13 ch	pek	1040	30 bid
112		802	9 do	pek sou	720	24 bid
113	Kalupahana	805	8 ch	bro pek	920	32
120	Chesterford	826	57 ch	bro pek	5700	31
121		829	54 do	pek	4860	25
122		832	48 do	pek sou	4320	23
125	Tellisford	841	12 ch	bro pek	1152	33
126		844	16 do	pek	1440	25
130	Penrhos	856	24 hf ch	bro or pek	1416	50
131		859	28 ch	or pek	1344	37 bid
132		862	30 do	pek	2790	31 bid
133		865	10 do	pek sou	800	22 bid
136	Hentleys	874	20 hf-ch	bro pek	1100	40
137		877	15 do	or pek	720	29
138		880	19 do	pek	1615	24
142	K P W	892	22 hf ch	bro or pek	1365	34
134		895	28 do	pek	1540	28 bid
145		901	52 do	pek	2600	25
146		904	18 do	pek sou	900	17
150	Stamford Hill	916	25 hf ch	bro pek	1500	54
151		919	23 do	or pek	1035	48
152		922	25 ch	pek	2250	42
155	Digdola	931	8 ch	bro or pek	880	36 bid
156		934	10 do	or pek	900	35
157		937	12 do	pek	1020	28 bid
164	Lucky Land	958	30 hf-ch	bro or pek	1800	52
165		961	35 do	pek	5175	38
168	Ganapalla	970	19 ch	or pek	1634	37
169		973	9 do	bro or pek	1026	32
170		976	14 do	bro pek fans	1568	24
171		979	16 do	pek No 1	1376	25
172		982	19 do	pek No 2	1596	23
173		985	14 do	pek sou	1120	20
176	Killarney	994	20 ch	pek	1800	34
177		997	10 do	bro mix	1000	18
178	Dunkeld	1000	62 hf ch	bro or pek	3596	43
179		1003	18 ch	or pek	1710	37
180		1006	24 do	pek	2160	34
181	Hanwella	1009	10 ch	young hyson	1000	39
185	High Forest	1021	62 hf ch	or pek No 1	3596	55
186		1024	55 do	or pek	3025	47
187		1027	23 do	or pek	1239	44
188		1030	52 do	pek	2496	41
189	Maha Uva	1033	31 hf ch	bro or pek	1860	33
190		1036	20 do	or pek	1120	32 bid
191		1039	38 ch	pek	3420	29
192		1042	21 do	pek sou	1680	23
193	St. Normans	1045	40 ch	bro pek	4400	30 bid
194		1048	22 do	pek	2178	31
195		1051	8 do	pek sou	800	29
197	Battawatte	1057	11 ch	or pek	1100	40
198		1060	22 do	bro or pek	2420	35 bid
199		1063	26 do	pek	2470	30 bid
202	Dea Ella	1072	24 hf ch	bro or pek	1320	34 bid
203		1075	33 do	or pek	1815	29 bid
204		1078	33 do	pek	1650	24 bid
205		1081	15 do	pek sou	750	21 bid
206	Pallagodda	1084	18 ch	bro or pek	1800	30
207		1087	31 do	bro pek	3100	39
208		1090	28 do	or pek	2380	30
209		1093	22 do	or pek	1977	29 bid
210		1096	19 do	pek	1520	25
211		1099	17 dc	pek sou	1530	24
212	Clunes	1102	16 ch	dust	1440	23
215	Theydon Bois	1111	13 ch	bro or pek	1235	50
216		1114	13 do	or pek	1170	35
217		1117	27 do	pek	2025	26
218		1120	10 do	pek sou	800	20
222	Monkswood	1132	25 hf-ch	bro pek	1500	53 bid
223		1135	34 do	or pek	1870	56
224		1138	33 do	pek	2970	47
225		1141	15 do	pek sou	1275	42
226	Tymawa	1144	18 do	bro or pek	1080	49

Lot.		Box.	Pkgs.	Name.	lb.	c.
227		1147	31 hf-ch	or pek	1705	39
228		1150	35 do	pek	1750	35
229		1153	28 do	pek sou	1400	29
230	Gonapatiya	1156	28 do	br pek	1596	52 bid
231		1159	30 do	or pek	1500	49 bid
232		1162	34 do	pek	1768	41
234	Agra Oya	1168	24 do	bro pek	1320	41
235		1171	22 do	or pek	990	26
236	Gallawatte	1174	31 ch	pek	2480	22
237	Gallaheria	1177	22 do	bro or pek	2200	38
238		1180	23 do	or pek	1955	33 bid
239		1183	33 do	pek	2805	28
240		1186	14 do	pek sou	1260	21
241	Mansfield	1189	57 hf ch	bro pek	3420	47
242		1192	24 ch	pek	2280	34
243		1195	10 do	pek sou	900	25
244	Vogan	1198	17 do	bro or pek	1700	45 bid
245		1201	25 do	or pek	2500	31 bid
246		1204	33 do	pek	2970	26 bid
249	Coombecourt	1213	25 hf-ch	bro or pek	1500	52 bid
250		1216	12 ch	pek	1080	38
251	Queensland	1219	7 do	bro pek	700	45
253		1215	9 do	pek	765	31
257	St. Heliers	1237	17 hf-ch	bro or pek	935	40
258		1240	13 ch	pek	1170	31
259	Amblakande	1243	10 do	or pek	1000	34
260		1246	14 do	or pek	1120	31
261		1249	10 do	pek	800	25
262		1252	10 do	pek sou	800	22
263	H G M	1255	20 ch	br pek	2000	39
264		1258	22 do	pek	2090	27
265	Yatadaria	1261	14 do	or pek	1456	26 bid
266		1264	52 do	pek No. 1	4836	22 bid
267		1267	32 do	pek	3040	19 bid
268		1270	11 do	pek sou	1034	15 bid
269	Drayton	1273	45 hf ch	or pek	2250	41
270		1276	24 ch	pek	2040	36
272	Nahalma	1282	29 do	bro pek	3074	31 bid
273		1285	36 do	pek	3528	23 bid
274		1288	26 do	pek sou	2496	21
275	Digalla	1291	15 do	bro or pek	1706	31 bid
276		1294	23 do	br pek	2317	31 bid
277		1297	33 do	pek	2994	26 bid
278		1300	17 do	pek sou	1508	22 bid
281	Marlborough	1309	44 hf-ch	bro or pek	2464	45
282		1312	14 ch	or pek	1400	36
283		1315	32 do	pek	2944	30
284		1318	11 do	pek son	990	22
285	Labookelle	1321	7 do	bro or pek	700	47
287		1327	12 do	pek	1140	36
290	Weyunga-watte	1336	21 do	br pek	2100	30
291		1339	20 do	pek	1800	24
292		1342	16 do	pek sou	1280	21
299	Maryland	1363	18 do	bro pek	1800	33 bid
300		1366	29 do	or pek	2610	29
301		1369	27 do	pek	2430	24 bid
302		1372	14 do	pek sou	1260	21
306	Lochiel	1384	33 hf-ch	bro or pek	2079	withd'n
307		1387	22 ch	br pek	2200	withd'n
308		1390	36 do	pek	3240	withd'n
309		1393	12 do	pek sou	1020	withd'n
310	Talgaswela	1396	13 do	or pek	1105	30
311		1399	15 do	pek	1200	23
312		1402	10 do	pek sou	750	19
313	Pine Hill	1405	46 hf-ch	bro or pek	2760	46
314		1408	56 do	or pek	3136	32
315		1411	32 ch	pek	3040	27
317		1417	13 hf-ch	dust	1105	23
319	Yelletenne	1423	40 do	pek sou	1997	withd'n
320	Glendon	1426	22 hf-ch	or pek	1210	47
321		1429	50 ch	br pek	5000	31
322		1432	36 do	pek	3240	27
323		1435	14 do	pek sou	1120	22
326	Tonacombe	1444	43 do	or pek	4085	37
327		1447	35 do	br pek	3500	44
328		1450	39 do	pek	3510	33
329		1453	13 do	pek sou	1170	31
330	Gampaha	1456	16 do	bro or pek	1760	43
331		1459	15 do	or pek	1425	42
332		1462	18 do	pek	1530	37
334	St. Normans	1468	49 do	br pek	5390	31 bid
335		1471	27 do	pek	2673	28 bid
336		1474	8 do	pek sou	800	24
338	Gampaha	1480	16 do	bro or pek	1700	47
339		1483	11 do	or pek	1045	43
340		1486	18 do	pek	1530	37
342	Akaroa	1492	59 do	bro pek	6313	33 bid
343		1495	61 do	pek	5185	24 bid
344		1498	32 do	pek sou	2368	16 bid
345	T C L in est. mark	1501	8 do	congou	800	14
347	L B K	1507	9 do	bro mixed	894	12
348	D in est. mark	1510	19 do	hyson	1995	24
349	Nakiadeniya	1513	13 do	bro or pek	1300	26
351		1519	12 do	pek	960	25
355	Elfindale	1531	7 hf-ch	sou	700	withdn,
356		1534	23 do	fans	3200	,,
359	Ninfield	1543	35 do	pek	3147	22
360		1546	11 do	pek sou	877	17
361	Passara Group	1549	11 do	br or pek	1100	40
362		1552	40 do	bro pek	3800	32
363		1555	32 do	pek	2880	30
364		1558	20 do	pek sou	1800	27
367	Lesmoir	1567	15 do	or pek	1350	29
368		1570	25 do	bro pek	2500	29
369		1573	32 do	pek	2880	24 bid
370		1576	15 do	pek sou	1200	20
372	Tunisgala	1582	45 hf-ch	bro pek	2700	35
373		1585	40 do	or pek	2200	34
374		1588	26 ch	pek	2340	30
375		1591	15 do	pek sou	1200	22
378	Eldalua	1600	35 do	br pek	3672	withd'n
379	X, Y Z	1603	8 do	br pek	874	out
380	Walpita	1606	12 do	pek sou	957	18 bid
381	Good Hope	1609	27 do	bro pek	2430	29 bid
382		1612	11 do	bro or pek	1100	36
383	Devonford	1615	12 do	or pek	1140	54 bid
384		1618	16 do	pek sou	1520	37
385	Anningkande	1621	15 do	bro pek	1500	33
386	Deaculla	1624	55 do	bro pek	3025	41
387		1627	43 do	pek	3010	33
388		1630	17 do	pek sou	1190	22
389		1633	10 do	dust	800	24
390	Kitulgalla	1636	9 do	pek	900	24
391		1639	9 do	pek sou	810	19
394		1648	12 hf ch	or pek	1080	28
395	H G M	1651	14 ch	pek	1254	27 bid

Messrs. Somerville & Co.—

[237,678 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Romania	1522	18 ch	bro pek	1890	out
4		1525	21 do	pek	1995	19
6	Raglan	1531	10 ch	bro pek	1000	24
7		1534	12 do	pek	1140	22
8		1537	9 do	pek sou	810	14
10	Hartfield	1543	19 ch	bro pek	1805	30 bid
11		1546	16 do	bro or pek	1680	24 bid
12		1549	30 do	pek	2550	24 bid
13		1552	30 do	pek sou	2250	20 bid
14	Polgahakande	1555	8 ch	bro pek	800	27
15		1558	9 do	or pek	774	33
16		1561	12 do	pek No 1	1032	24
17		1564	12 do	pek No 2	1056	20
20	R K P	1573	20 ch	pek	1700	25
24	Hangranoya	1585	9 ch	bro or pek	855	44
25		1588	30 do	bro pek	3000	30 bid
26		1591	24 do	pek	2160	25 bid
27		1594	18 do	pek sou	1440	22 bid
28	South Africa	1597	22 ch	or pek	2090	27 bid
29		1600	27 do	bro pek	2 00	24
30		1603	22 do	pek	1826	25
31		1606	30 do	pek sou	2190	19
32	Warakamure	1609	26 ch	bro pek	2548	29
33		1612	20 do	pek	1900	22 bid
34	Owilikande	1615	20 ch	bro pek	2000	25 bid
35		1618	16 do	pek	1520	19 bid
36	R, in estate mark	1621	21 ch	sou	1785	19 bid
37		1624	36 hf ch	dust	3132	24
38	Cooroondoo-watte	1627	7 ch	pek sou	700	16
39	Yarrow	1630	15 hf ch	flowery or pek	750	44
40		1633	28 do	or pek	1400	28
41		1636	14 do	bro or pek	770	34
42		1639	34 do	pek	1530	26 bid
43		1642	14 do	pek sou	700	22
46	Mahatenne	1651	15 ch	bro pek	1500	29 bid
47		1654	17 do	pek	1615	25
51	Ossington	1666	11 ch	pek	1030	15 bid
54	South Africa	1675	20 ch	or pek	1900	28 bid
55		1678	20 do	bro or pek	2000	25
56		1681	20 do	pek	1660	25
57		1684	25 do	pek No 2	1850	20 bid
58	Hapugasmulle	1687	9 ch	bro pek	990	30
59		1690	25 do	pek	2300	22
61	Kurulugalla	1696	25 ch	bro pek	2500	29
62		1699	25 do	pek	2250	24
63		1702	26 do	pek sou	2340	20
67	J S F	1714	23 hf ch	fans	1380	28
68	G C W	1717	19 hf ch	dust	1520	23
69	Doragalla	1720	15 ch	bro pek	1500	42
70		1723	17 do	or pek	1615	37 bid
71		1726	40 do	pek	3600	34
72		1729	11 do	pek sou	935	26 bid
73		1732	7 do	fans	875	30
74	D	1735	6 ch	bro mix	930	14
75	Dikmukalana	1738	22 hf ch	bro pek	1210	27 bid
76	Blinkbonnie	1741	11 hf ch	fans	770	31
77		1744	9 do	dust	810	25

Lot		Box.	Pkgs.		Name.	lb.	c.
78	Mousa Eliya	1747	22	ch	bro pek	2200	35 bid
79		1750	9	do	or pek	720	34 bid
80		1753	10	do	pek	950	29
81	Mt. Vernon	1756	34	ch	pek	2992	32 bid
83	Ingeiiya	1762	18	ch	bro pek	1800	26
85		1768	11	do	pek	1078	21 bid
86		1771	10	do	pek sou	1040	19
87	Ravenscraig	1774	19	hf ch	bro pek	1045	41
88		1777	20	ch	pek	1700	27
91	Citrus	1786	20	cb	bro pek	2000	26 bid
92		1789	22	do	pek	2200	18 bid
93		1792	8	do	pek sou	800	16
94	Hatdowa	1795	14	ch	bro pek	1470	26 bid
95		1798	8	do	or pek	721	28
97		1804	10	do	pek No 2	800	21
98		1807	14	do	pek sou	1120	19
100	Avisawella	1813	18	cb	bro pek	1800	30
101		1816	21	do	pek	1785	23
102		1819	10	do	pek sou	800	17
105	I P	1828	11	cb	pek sou	891	17
106		1831	9	hf ch	dust	810	21
107	Wiharagama	1834	23	hf-cb	bro pek	1495	28 bid
108		1837	10	cb	or pek	950	23 bid
109		1840	8	do	pek	720	21
111	Columbia	1846	22	hf ch	bro or pek	1144	46 bid
112		1849	29	do	or pek	1450	37
113		1852	45	do	or pek	2250	36 bid
114		1855	23	do	pek	1150	35
115	Rahatungoda	1858	20	hf ch	bro or pek	1080	52 bid
116		1861	20	do	or pek	1080	40 bid
117		1864	24	do	pek	1272	39
121	Aberfoyle	1876	14	hf cb	bro or pek	840	38
123		1882	15	do	or pek	750	30 bid
124		1885	28	do	pek	1652	27
136	Selvawatte	22	20	hf ch	bro pek	1100	31
137		25	10	ch	pek	800	21
140	Yspa	34	18	ch	pek sou	1530	24
141	Ravana	37	40	hf ch	bro pek	2200	with
142		40	37	do	pek	1665	drawn
144	New Valley	46	25	ch	bro or pek	2500	40 bid
145		49	23	do	or pek	2070	36 bid
146		52	15	do	pek	1500	30 bid
147		55	20	do	pek sou	1600	28 bid
148	Bodava	58	34	hf-ch	bro pek	1870	27 bid
149		61	10	do	pek	850	22
153	Alpitakande	73	24	hf ch	pek sou	1200	16 bid
154	G	76	41	ch	pek	3280	14 bid
155		79	29	do	fans	2320	10 bid
156		82	21	do	bro tea	1890	6 bid
160	A M	94	14	ch	fans	980	22 bid
161	Gangwarily	97	16	ch	bro pek	1520	30 bid
162		100	12	do	pek	1020	24 bid
163		103	20	do	pek sou	1700	19 bid
164		106	15	do	sou	1050	14
166		112	8	do	bro mix	800	22
168	Glenalla	118	11	cb	bro or pek	1100	29 bid
169		121	13	do	or pek	1105	30 bid
170		124	28	do	pek	2380	26
171		127	12	do	pek sou	1020	21
175	Havilland	139	18	ch	bro or pek	1800	33 bid
176		142	12	do	or pek	960	33
177		145	40	do	pek	3400	25
183	B	163	25	ch	fans	2375	20
184	Dryburgb	166	22	ch	pek sou	1804	24 bid
185	Cooroondoo-watte	169	12	ch	bro pek	1200	36
186		172	10	do	bro pek	1000	36
187		175	13	do	pek	1300	20 bid
188		178	15	do	pek	1500	20 bid
189	W B	181	38	ch	dust	3268	24
190	Murrayth-waite	184	22	ch	bro pek	2200	30
191		184a	19	do	pek	1520	23 bid
192	Ambalawa	187	16	ch	pek	1328	23
193	St. Catherine	190	24	hf ch	bro or pek	1203	45
194		193	8	cb	or pek	723	33
195		196	9	do	pek	768	27
198	Harangalla	205	12	cb	bro or pek	1140	39 bid
199		208	11	do	bro pek	1045	31 bid
200		211	20	do	or pek	1700	29 bid
201		214	42	do	pek	3360	25 bid
202		217	12	do	pek sou	960	21
203		220	9	do	bro pek fans	900	27
204		223	13	hf ch	dust	975	24
205	Cotswold	226	15	ch	bro or pek	1200	40
206		229	24	do	pek	2000	33
207		232	9	do	pek sou	765	29
211	Monte Christo	244	25	hf-cb	bro pek	1375	38 bid
212		247	18	ch	pek	1800	30 bid
213	Karangalla	250	21	cb	pek	1785	24 bid
214		253	20	do	pek sou	1600	20 bid

[Mr. E. John.—182,566 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
5	Wahagapitiya	43	19	cb	pek	1710	24
6	Higham	46	25	do	bro pek	2500	32 bid
7		49	15	do	pek	1350	25 bid
8		52	16	do	pek sou	1520	22
9	Elston	55	19	do	pek	1615	29 bid
10		58	22	do	pek sou	1980	22 bid
11		61	18	do	or pek	1620	34 bid
12		64	17	bf-ch	dust	1530	23
14	Glassaugh	70	29	do	or pek	1595	65
15		73	20	do	bro or pek	1300	58
16		76	17	cb	pek	1700	57
18	Cabin Ella	82	11	do	or pek	935	33 bid
19		85	18	hf ch	bro or pek	1008	38
20		88	9	ch	pek	810	31
21		91	8	do	pek sou	720	27
23	Natuwakella	97	12	do	bro or pek	1200	40
24		100	16	do	bro pek	1600	28 bid
25		103	18	do	pek	1620	27
26		106	9	do	pek sou	810	21
28	Mount Everest	112	22	do	pek sou	1980	32
29		115	12	hf-ch	bro pek fans	840	29
30		118	10	do	dust	900	26
31	Gingranoya	121	17	cb	bro or pek	1700	37
32		124	6	do	dust	840	22
33	St. John's	127	25	hf-ch	bro or pek	1500	51 bid
34		130	30	do	or pek	1500	63
35		133	35	do	pek	1890	48
36		136	22	do	pek fans	1540	36 bid
37	Mocha	139	13	do	or pek	1235	40 bid
38	Rookwood	142	42	do	bro or pek	2520	45 bid
39		145	40	do	bro or pek	2760	45 bid
40		148	23	ch	or pek	2208	43
41		151	42	do	pek	3780	33 bid
44	Vincit	160	12	do	pek	1080	22
45	Ettumaley	163	13	do	or pek	1105	29 bid
46		166	15	do	pek	1200	21 bid
47		169	10	do	pek sou	750	18
48	Glasgow	172	40	do	bro or pek	3080	54
49		175	30	do	or pek	2040	46
50		178	23	do	or pek	1610	45
51		181	15	do	pek	1350	43
52		184	8	do	pek sou	800	40
53	Ben Nevis	187	15	bf ch	bro pek	900	50
55		193	15	ch	pek	1350	41
58	Agra Ouvah	202	41	bf ch	bro or pek	2378	51
59		205	48	ch	or pek	4800	37 bid
60		208	26	do	pek	2392	35
61	Bowella	211	20	hf ch	or pek	1100	23 bid
62		214	11	ch	pek	922	21 bid
63	L E L	217	41	do	bro pek	4100	34 bid
64		220	21	do	or pek	1995	33 bid
65	Kelaneiya and Braemar	223	12	do	bro or pek	1200	52
66		226	13	do	or pek	1300	36
67		229	16	do	pek	1520	34
68	M N	232	13	do	or pek	1300	44
69		235	15	do	bro or pek	855	56
70		238	23	do	pek	2116	35 bid
77	Galloola	259	39	do	pek	3120	22 bid
78	Coundon	262	9	do	or pek	720	35 bid
79		265	23	hf ch	bro or pek	1105	38
80		268	14	ch	pek	1232	26 bid
81		271	9	do	pek sou	765	19
82		274	11	hf ch	bro pek	704	33
85	Eladuwa	283	26	ch	pek	2170	21
89	R W	295	10	hf ch	dust	700	17
91	K G	301	10	ch	dust	1510	17
92	Poilakande	304	66	do	bro pek	6600	25 bid
93		307	49	do	pek	4410	21 bid
96	Carendon	316	13	do	bro pek	1300	25 bid
97		319	10	do	pek	1000	20
98		322	7	do	pek sou	700	18
99	Ferndale	325	20	do	or pek	1730	36
100		328	23	do	pek	2005	33
101		331	13	do	pek sou	1070	27
102	Peru	334	10	do	bro pek	1100	33 bid
104	Mocha	340	23	do	bro or pek	2300	49
105		343	12	do	or pek	1140	42
106		346	18	do	pek	1710	38
108	R	352	24	do	bro pek	2400	23 bid
109		355	28	do	pek	2520	20 bid
110	Gonavy	358	17	hf ch	or pek	1445	36
111		361	27	do	bro pek	1485	48
112		364	31	ch	pek	2325	31
113		367	10	do	pek sou	950	26
115		373	12	bf cb	pek fans	720	28
116	Glentilt	376	24	cb	or pek	2280	33
117	Glassaugh	379	24	hf cb	or pek	1320	60
118		382	18	do	bro or pek	1170	56
119		385	14	ch	pek	1400	55
120	Gansarapolla	388	15	do	or pek	1425	23 bid
121		391	32	hf ch	bro pek	2080	23 bid
122		394	9	ch	pek	855	18 bid
123	Maskeliya	397	41	do	pek	4100	24 bid
124	Brownlow	400	26	hf-cb	bro or pek	1456	51
125		403	19	cb	or pek	1710	37
126		406	20	do	pek	1720	34
127		409	17	do	pek sou	1360	27

Lot.		Box.	Pkgs.	Name.	lb.	c.
132	New Tunisgalla	424	10 do	bro or pek	997	36 bid
133	Oonoogaloya	427	24 hf ch	bro or pek No. 2	1680	36
135		433	11 ch	pek sou	990	24 bid
136		436	10 hf-ch	dust	850	25

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Pooprassie	63	4 hf ch	young hyson	220	33 bid
2		66	7 do	hyson	385	29
3		69	5 do	do No 2	250	20 hid
15	S	5	1 hf ch	bro pek	59	21
16		8	2 do	pek	122	16
17		11	1 ch	pek sou	75	10
18		14	1 hf ch	dust	122	20

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	I K V	469	1 ch	bro mix	114	6
2		472	4 do	dust	480	18
3	Kosgalla	475	8 hf ch	bro pek	400	29
4		478	11 do	pek	440	24
5		481	2 do	pek sou	90	20
6		484	5 do	bro pek	250	30
7		487	11 do	pek	440	25
8		490	7 do	pek sou	280	17
9		493	1 do	hro pek fans	70	20
15	Yuillefield	511	1 hf ch	sou	50	19
19	Walton	523	2 ch	bro tea	160	19
28	Nillomally, O B E C, in estate mark	559	3 ch	bro pek fans	300	28
29		553	2 do	fans	200	25
32	Hatton	562	3 ch	pek sou	240	36
33	Galehela	565	7 hf ch	hro pek	365	30
34		568	13 ch	pek	610	20
35		571	13 do	pek sou	690	15
38	St. Martin	580	7 ch	pek sou	280	19
39		583	3 hf ch	fans	180	22
43	Irex	595	3 ch	fans	330	23
44		598	3 do	dust	255	21
48	K B	610	3 ch	sou	285	withdn.
50	Ismalle	616	5 ch	fans	575	21
59	Arapolakande	643	5 ch	pek sou	450	21
60		646	5 hf ch	dust	400	20
73	Pansalatenne	685	2 ch	dust	300	21
77	Maldeniya	697	4 ch	bro pek fans	440	25
81	Patiagama	709	10 hf ch	hro pek	550	32 hid
83		715	2 ch	pek sou	200	23 bid
84		718	5 do	fans	325	24
85		721	2 do	sou	200	out
89	Tennehena	733	2 ch	bro pek	184	25
90		736	3 do	pek	273	15
95	Mahayaya	751	5 ch	bro or pek	570	28
98		760	5 do	pek sou	445	18
99		763	2 do	sou	190	20
100		766	1 hf ch	dust	91	19
105	Sylvakandy	781	2 hf ch	dust	200	23
114	Kalupahana	808	3 ch	or pek	300	25
115		811	5 do	pek	500	18
116		814	2 do	pek No 2	200	17
117		817	2 do	pek sou	196	14
118		820	1 do	hro mix	121	14
119		823	1 do	dust	155	18
123	Chesterford	835	2 ch	congou	180	13
124		838	6 hf,ch	dust	480	22
127	Tillisford	847	4 ch	pek sou	340	19
128		850	1 do	dust	81	21
129		853	2 do	hro kpe fans	210	22
134	Penrhos	668	2 hf ch	fans	162	25
135		871	2 do	pek dust	108	21
139	Hentleys	883	8 ch	pek sou	632	18
140		886	3 hf ch	fans	225	22
141		889	1 do	pek dust	96	18
144	K P W	898	14 hf ch	or pek	630	32
147		907	2 do	bro pek fans	150	24
148		910	1 do	pek fans	75	24
149		913	2 do	dust	0	22
153	Stamford Hill	925	5 ch	pek sou	450	34
154		928	3 hf ch	dust	255	24
158	Digdola	940	2 ch	bro pek fans	200	26
159	U N	943	4 hf-ch	young hyson	220	34
160		946	6 do	hyson No 1	270	28
161		949	10 do	do No 2	450	25
162		952	7 do	hyson bro mix	350	13
163		955	4 do	hyson dust	260	13
166	Lucky Land	964	6 hf ch	pek sou	450	35
167		967	2 do	pek fans	180	24
174	Ganapalla	988	3 hf ch	dust	261	19
175	Killarney	991	6 ch	or pek	540	40
182	Hanwella	1012	6 ch	hyson No 1	600	30
183		1015	2 do	do No 2	200	20
184		1018	2 do	hyson siftings	260	12
196	St. Normans	1054	1 ch	dust	160	21
200	Battawatte	1066	8 ch	pek sou	640	25
201		1069	3 do	dust	300	22
113	Clunes	1105	7 ch	sou	560	15
214		1108	8 do	bro pek No 2	650	24
219	L	1123	2 ch	pek	154	18
220		1126	2 do	pek	172	16
221		1129	1 do	pek sou	82	12
233	B & D	1165	1 do	pek	100	23
247	Vogan	1207	5 do	pek sou	425	19
248		1210	4 hf ch	dust	340	24
252	Queensland	1222	1 ch	hr pk No. 2	97	36
254		1228	1 do	pek No. 2	100	20
255		1231	1 hf-ch	hro pek dust	75	27
256		1234	1 do	or pek dust	70	24
251	R D	1279	7 ch	sou	595	17
279	Digalla	1303	5 do	sou	473	16
280		1306	3 hf-ch	dust	272	21
286	Labookelle	1324	5 ch	or pek	450	37
288		1330	1 do	pek sou	99	25
289		1333	2 do	bro pek fans	240	32
293	Weyunga-watte	1345	1 hf ch	bro tea	100	15
294		1348	2 do	dust	170	22
295	M A	1351	3 ch	sou	285	14
296		1354	4 hf ch	dust	380	19
297	C in est mark	1357	2 do	or pek	104	34
298		1360	1 ch	pek	70	26
303	Maryland	1375	3 do	sou	270	13
304		1378	3 hf-ch	dust	240	20
305		1381	6 do	fans	390	26
316	Pine Hill	1414	7 ch	pek sou	630	21
318	Wewawatte	1420	7 hf-ch	pek sou	389	23
324	G	1438	8 ch	sou	640	18
325		1441	3 hf-ch	bro pek fans	195	24
333	Gampaha	1465	5 ch	pek sou	450	36
337	St. Normans	1477	2 do	dust	200	20
341	Gampaha G	1489	6 do	pek sou	540	34
346	T C L in est. mark	1504	5 do	pek fans	500	21
350	Nakiadeniya	1516	6 do	or pek	540	28
352	B Talawa in est mark	1522	5 do	bro or pek	500	36 bid
353		1525	5 do	pek No. 1	450	30 hid
354		1528	5 do	pek No 2	450	28 hid
357	S M	1537	8 hf ch	bro or pek	494	out
358		1540	1 do	pek dust	87	14
365	Passara Group	1561	3 hf ch	dust	270	21
366		1564	5 do	fans	350	24
371	Lesmoir	1579	6 ch	dust	480	19
376	Tunisgala	1594	12 hf-ch	bro or pek	660	57
377		1597	4 do	dust	360	23
392	Kitulgalla	1642	2 do	dust	170	19
393		1645	2 ch	br or pk fans	440	23

[Messrs. Somerville & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Lapa	1516	2 hf ch	bro mix	90	4
2	Romania	1519	5 hf ch 2 ch	bro or pek	344	29 bid
5		1528	4 hf ch	bro pek fans	287	24
9	Raglan	1540	2 ch	dust	260	18
18	R K P	1567	7 ch	bro or pek	630	30
19		1570	5 ch	or pek	450	28 bid
21		1576	3 do	pek sou	225	19
22		1579	3 do	pek fans	330	25
23		1582	1 do	dust	140	21
44	Yarrow	1945	4 hf ch	bro pek fans	280	22
45		1648	4 do	pek dust	340	23
48	Mahatenne	1657	3 ch	pek sou	270	17
49		1660	2 do	dust	200	18
50	Ossington	1663	7 ch	hro pek	690	24
52		1669	6 do	pek sou	565	13
53		1672	1 do	dust	150	17
60	Hapugas-mulle	1693	6 ch	unas	600	18
64	Kurulugalla	1705	1 ch	bro pek fans	120	20
65		1708	2 do	pek dust	260	20
66		1711	1 do	hro tea	100	6
82	Ingeriya	1759	5 ch	or pek	550	28
84		1765	5 do	hro or pek	580	26
89	Ravenscraig	1780	5 ch	pek sou	450	20
90		1783	3 hf ch	dust	240	24
96	Hatdowa	1801	6 ch	pek No 1	510	21 bid
99		1810	1 do	dust	150	21
103	Avisawella	1822	3 ch	dust	420	21
104	Allakolla	1825	2 ch	sou	170	14

Lot.	Box.	Pkgs.	Name.	lb.	c.
110 Dalukoya	1843	1 hf ch	Hyson	72	13
118 J, in estate mark	1867	2 ch	red leaf	200	6
119	1870	1 hf ch	dust	80	15
120	1873	1 do	pek fans	60	8
122 Aberfoyle	1879	1 hf ch	bro or pek fans	59	32
125	1888	1 do	pek No 2	56	20
126	1891	7 do	pek sou	394	18
127	1994	1 do	pek fans	69	23
128	1897	1 do	fans	72	22
129	1	2 do	dust	166	22
130 H R	4	1 hf ch	bro pek	55	32
131	7	2 do	pek	106	14
132	10	1 do	dust	57	20
133 M, in estate mark	13	5 ch	unas	487	10
134 G	16	1 ch	or pek	79	25
135 G G	19	1 ch	or pek	68	31
138 Selvawatte	28	1 hf ch	fans	80	22
139	31	1 do	dust	95	20
143 Ravana	43	8 hf ch	pek No 2	360	w'drawn
150 Rodava	64	6 ch	pek sou	430	16
151	67	2 do	fans	260	20
152	70	2 do	red leaf	190	7
157 St. Joseph s	85	2 hf ch	bro pek	115	20
153	88	1 do	pek	52	15
159	91	1 do	pek sou	50	10
169 Gangawarily	109	6 ch	fans	600	23
167	115	3 hf ch	dust	240	18
172 Glenalla	130	4 ch	sou	340	14
173	133	1 do	ust	145	18
174	136	1 do	fans	110	22
178 Havilland	148	4 ch	pek sou	320	17
179	151	1 hf ch	dust	95	20
180	154	7 do	fans	490	24
181	157	1 do	bro mix	50	5
182 E	166	5 ch	dust	500	20 bid
196 St. Catherine	199	5 ch	pek sou	498	22
		1 hf-ch			
197	202	2 ch	bro or pek fans	223	27
208 Cotswold	235	3 ch	bro pek fans	285	w drawn
209 St. Leonards-on sea	238	4 hf ch	dust No 1	320	14
210	241	3 ch	fans	300	11

[Mr. E. John.]

Lot.	Box.	Pkgs.	Name.	lb.	c.
1 P P P	31	3 ch	bro pek	294	25
2	34	4 do	pek	360	18
3	37	3 do	pek sou	225	14
4	40	1 do	dust	92	21
13 Ellakande	67	6 hf ch	dust	450	23
17 Glassaugh	79	7 do	dust	665	27
22 Cabin Ella	94	8 do	br or pe fans	528	29
27 Natuwakelle	109	4 ch	dust	400	22
42 Rookwood	154	7 hf ch	fans	490	35
43	157	9 do	fans	630	34
54 Ben Nevis	190	7 ch	or pek	602	49
56	196	4 do	pek sou	340	29 bid
57	199	2 hf ch	dust	162	23
71 M N	241	3 ch			
		1 hf ch	or pek No. 2	361	28
72	244	2 ch	bro pek No. 2	168	28
74	247	2 do	pek No. 2	174	20

Lot.	Box.	Pkgs.	Name.	lb	c.
74	250	3 ch	pek No. 2	280	18
75	253	6 do	pek sou	540	26
76	256	6 hf ch	fans	468	25
83 Counden	277	5 do	fans	320	26
84	280	3 do	dust	270	20
86 Anamallai	286	2 do	dust	170	20
87 Maryland	289	6 ch	bro pek	600	26
88	292	6 do	pek	600	19
90 R W	298	5 do	fans	500	7
94 A A	310	1 do	dust	115	18
95 N	313	2 do			
		1 hf ch	dust	321	19
103 Maskeliya	337	3 ch	pek	297	21
107 Mocha	349	9 hf ch	fans	693	30
114 Gonavy	370	8 ch	pek sou	660	20 bid
128 L'Espoir	412	10 hf ch	bro pek	540	29
129	415	7 ch	pek	630	28
130	418	5 do	pek sou	400	22
131	421	1 do	dust	114	22
134 Oonoogaloya	430	9 hf ch	fans	630	28

CEYLON COCOA SALES IN LONDON.

(From Our Commerical Correspondent.)

MINCING LANE, April. 18.

"Kanagawa Maru."—T, 2 bags sold at 60s 6d; 2 bags sold at 60s 6d.

"Statesman."—III, 5 bags sold at 40s; IIII, 15 bags sold at 47s; Marakona 3, 8 bags sold at 42s; IIII, 8 bags sold at 13s.

"Magecian."—B, 2 bags sold at 39s; D, 2 bags sold at 54s; E, 1 bag sold at 40s.

"Hitachi Maru."—North Matale, 17 bags sold at 57s 6d.

"Statesman."—R in estate mark, bags sold at 62s 6d.

"Logicean."—O DNA & Co. in estate mark, 1 bag sold at 53s; B ditto, 16 bags sold at 58s; D ditto, 1 bag sold at 53s.

"Wakasa Maru."—Broken, 2 bags sold at 64s 6d.

"City of Perth."—D, 3 bags sold at 58s 6d.

"Craftsman."—Kepetigalla, 4 bags sold at 58s 6d; 11 bags sold at 53s 6d.

"Wakasa Maru."—Lower Haloya, 10 bags sold at 70s; 3 bags sold at 58s; 10 bags sold 45s.

"Hitachi Maru."—Lower Haloya, 6 bags sold at 57s.

"City of Corinth."—CDG, 1 bag sold at 53s; Ross D 1, 8 bags sold at 78s; T, 9 bags sold at 52s 6d; B, 25 bags sold at 47s; Dynevor A, 2 bags sold at 56s 6d; B, 8 bags sold at 59s; C, 4 bags sold at 53s.

"City of Perth."—Moragahapitiya, 47 bags sold at 60s 6d; B, 1 bag sold at 25s.

"Hitachi Maru."—Katugastota, 47 bags sold at 73s; 16 bags sold at 56s.

"Kanagawa Maru."—Ratwatte, 20 bags sold at 73s; 2 bags sold at 45s.

[illegible]

TEA COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 19. COLOMBO, MAY 20, 1901. PRICE:—12½ cents each, 3 copies, 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. Forbes & Walker

[561,641 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	E D P	1654	13 ch	sou	975	17
3	Harri Smith	1660	20 hf ch	bro pek dust	1700	20
4		1663	15 ch	hro mix	1350	6
6	Puspone	1669	34 do	or pek	3400	27 bid
7		1672	35 do	hro pek	4200	34
8		1675	19 do	pek	1805	23 bid
9		1678	16 do	pek	1704	22 bid
10		1681	19 do	pek sou	1710	21
11	Galkanda	1684	25 hf ch	hro or pek	1500	37
12		1687	30 do	or pek	1500	34
13		1690	18 do	pek	1530	34
14	Munukettia Ceylon, in est. mark	1693	16 ch	or pek	1360	34
15		1696	45 hf ch	bro pek	2700	45
16		1699	31 ch	pek	2480	29
17		1702	9 do	pek sou	900	25
18	Glencorse	1705	27 ch	bro pek	2700	36
19		1708	16 do	or pek	1440	33
20		1711	49 do	pek	3920	24
21		1714	50 do	pek sou	3750	20
22		1717	6 do	dust	1050	20
23	St. Paul's	1720	35 hf ch	bro or pek	2310	45
24		1723	36 ch	or pek No 1	1980	40
25		1726	31 hf ch	or pek	1550	35
26		1729	28 do	pek	1540	31
27	Matale	1732	39 do	bro pek	2145	31
28		1735	12 ch	pek	1020	27
29		1738	18 do	pek sou	1530	22
34	Ireby	1753	20 ch	bro pek	2100	37 bid
35		1756	15 do	pek	1275	33 bid
38	Waratenne	1765	9 ch	bro or pek	990	28
39		1768	8 do	bro pek	720	25
40		1751	10 do	pek	850	22
41		1774	12 do	pek sou	960	19
45	Maha Eliya	1786	10 ch	pek sou	900	43
46		1789	23 do	pek fans	1840	30
47	Putupaula	1792	24 ch	bro pek	2280	35 hid
48		1795	27 do	or pek	2295	26 hid
49		1798	23 do	pek No. 1	1840	24 hid
50		1801	33 do	pek No. 2	2475	22
52	Bargany	1807	23 hf-ch	hro or pek	1380	34
53		1810	18 do	or pek	900	29 bid
54		1813	13 ch	pek	1235	25 bid
55		1816	15 do	pek sou	1275	20 hid
58	Lyegrove	1825	13 ch	bro pek	1365	35
9		1828	13 do	pek	1170	32
60		1831	12 do	pek sou	1020	30
61		1834	9 do	dust	720	23
63	Udabage	1840	47 hf ch	hro pek	2350	28 hid
64		1843	25 do	pek	1250	22
65		1846	17 do	pek sou	850	18
66	Coodham	1849	16 hf ch	bro pek	800	33
69	Panmure	1858	10 ch	sou	950	20
71	O B E C, in estate mark Sindumallay	1864	71 ch	hro pek	7239	33 hid
72		1867	38 ao	hro pek	3876	33
73		1870	11 do	pek	968	36 hid
74		1873	31 do	pek	2604	26 bid
75		1876	18 do	pek sou	1260	22 bid
76	O B E C, in estate mark Forest Creek	1879	27 ch	hro or pek	2700	57
77		1882	40 do	hro pek	4000	40
78		1885	16 do	or pek	1440	38 bid
79		1888	19 do	pek No 1	1710	36
80		1891	21 ch	pek No 2	1890	31
81	Ingrogalla	1894	19 ch	hro pek	1900	36
82		1897	18 do	pek	1530	25 bid
83	Clyde	1900	16 ch	bro or pek	1600	47
84		1903	29 do	hro pek	2755	30 hid
85		1906	13 do	pek No 1	1170	24 bid
86		1909	16 do	pek No 2	1440	22
88		1915	5 do	dust	750	22
90	St. Margerets	1921	11 ch	hro pek	1100	34
92		1724	9 do	pek sou	720	32
94	Tempo	1927	47 ch	bro pek	3035	32 hid
95		1936	15 do	or pek	1275	29
96		1939	21 do	pek No 1	1680	24
97		1942	17 do	pek No 2	1190	20
98	Penihos	1945	30 hf ch	hro or pek	1710	54
99		1948	33 do	cr pek	1584	37
100		1951	36 ch	pek	3312	30
101		1954	12 do	pek sou	960	23
105	Oodewelle	1966	9 ch	pek	810	21
109	Parsloes	1978	61 ch	bro pek	1600	26
110		1981	38 do	pek	3420	22
111		1984	9 do	pek sou	720	18
114	Passara Group	1993	11 ch	hro or pek	1100	37
115		1996	15 do	bro pek	1425	34
116		1999	20 do	pek	1800	29
117		2002	14 do	pek sou	1260	23
118	Purana	2005	12 ch	hro pek	1200	31
119		2008	33 do	pek	2640	22 bid
120		2011	12 do	pek sou	864	20
123	Coldstream Group	2020	30 hf ch	bro pek	1650	44
124		2023	13 ch	pek	1040	34
127	Erlsmere	2032	30 hf-ch	bro pek	1120	39
128		2035	18 ch	pek	1440	35
131	Errollwood	2044	20 hf ch	bro or pek	1200	56
132		2047	9 ch	or pek	945	37 hid
133		2050	13 do	or pek	1300	33 bid
134		2053	19 do	pek	1805	33
136		2059	8 do	pek sou	800	24
139	Middleton	2068	21 ch	hro pek	2100	42
140		2071	14 do	do	1400	withdn.
141		2074	19 do	pek	1615	34
142		2077	14 do	pek	1190	35
134	Ella Oya	2080	9 ch	bro or pek	1000	31
144		2083	15 do	or pek	1350	26
145		2086	33 do	pek	2640	23
146		2089	16 do	pek sou	1360	18
147	Rowley	2092	16 hf ch	bro or pek	800	40
148		2095	16 do	or pek	800	32
149		2098	20 do	hro pek	1000	27
150	Palm Garden	2101	11 ch	hro pek	1210	29
151		2104	11 do	pek	1100	18 bid
152		2107	7 do	pek sou	700	14
156	Dammeria	2119	12 ch	hro or pek	1200	40 bid
158		2125	31 do	hro pek	3100	39 bid
159		2128	19 do	or pek	1710	40
160		2131	34 do	pek	3060	36
161		2134	15 do	pek sou	1350	33
164	High Forest	2143	76 hf ch	or pek No 1	4408	48 hid
165		2146	47 do	or pek	2585	41
166		2149	64 do	pek	3072	35
168	Battawatte	2155	15 ch	hro or pek	1650	40
169		2158	15 do	pek	1425	32
172	Maha Uva	2167	30 hf-ch	hro or pek	1800	35
173		2170	24 do	or pek	1344	38
174		2173	42 ch	pek	3780	32
175		2176	32 do	pek sou	2560	23
176	Kirklees	2179	10 ch	hro or pek	1000	39
177		2182	21 do	or pek	1890	39
178		2185	24 do	pek	1920	27 hid
180	Erracht	2191	20 ch	hro pek	2000	30 hid
181		2194	19 do	or pek	1615	35
182		2197	40 do	pek	3400	24 hid
183		2200	14 do	pek sou	1190	21
184		2203	8 do	bro pek fans	960	21
185	Massena	2206	106 hf ch	hro pek	5300	33 hid
186		2209	55 do	pek	2750	24 hid
190	Widmore	2221	44 do	bro or pek	2640	47
191		2224	35 do	or pek	1610	41
192		2227	86 do	pek	4472	32
193		2230	40 do	pek sou	1800	24 bid
197	Galkadua	2242	36 ch	hro pek	3960	27
198		2245	30 do	pek	3000	15
199		2248	20 do	pek sou	2000	10
203	Seenagolla	2260	16 hf ch	bro or pek	960	67
204		2263	14 do	or pek	700	50
205		2266	16 do	pek	896	49
206		2269	14 do	pek sou	728	38
207	Pallagodda	2272	18 ch	bro or pek	1800	30
208		2275	33 do	hro pek	3300	36
209		2278	27 do	or pek	2430	31
210		2281	23 do	pek	1955	24 bid
211		2284	16 do	pek sou	1440	23
212		2287	8 do	sou	720	18
113	St. Normans	2290	41 ch	bro pek	4510	36
214		2293	22 do	pek	2090	30
215		2296	7 do	pek sou	700	23 bid
217	Corfu	2302	20 hf ch	bro pek	1100	42 hid
218		3205	20 do	or pek	1000	36
219		2308	37 do	pek	1850	30 hid
221	S H	2314	9 ch	bro or pek	900	40 hid
222		2317	12 do	or pek	1020	35 bid
223		2320	17 do	pek	1326	28 bid
224		2323	10 do	pek sou	900	22 bid.

Lot.		Box.	Pkgs.		Name.	lb.	c.
225	Woodend	2326	27	cb	bro pek	2700	30
226		2329	31	do	pek	2945	23
227		2332	11	do	pek sou	880	20
232	Good Hope	2347	4	ch	bro pek	3900	25 bid
233	Agra Oya	2350	12	do	pek	1020	24
234		2353	8	do	pek sou	720	18
235	Tymawr	2356	30	hf-ch	or pek	1650	withd'n
236	Delta	2359	29	cb	bro pek	2842	34 bid
237	Monkswood	2362	22	do	br pek	1320	45 bid
238	Gonapatiya	2365	35	hf-cb	br pek	1995	47
239	B D W P	2368	12	do	bro pek fans	720	28
242	Dunbar	2377	21	do	bro or pek	1092	67
243		2380	17	cb	or pek	1479	39
244		2383	25	do	pek	1950	40
249	St. Paul's	2398	42	hf-cb	or pk No. 1	2310	39
250		2401	36	do	or pek	1656	34
251		2404	29	do	pek	1537	28 bid
252	Harrow	2407	24	do	or pek	1248	32 bid
253		2410	31	do	bro or pek	1860	46
254		2413	29	ch	pek	2900	27 bid
255		2416	8	do	pek sou	760	24
257	Hopton	2422	23	do	br or pek	2300	41 bid
258		2425	28	do	or pek	2800	34
259		2428	24	do	pek	2160	28
260		2431	12	do	pek sou	1080	24
263	Kincora	2440	14	do	bro pek	1470	51
264		2443	10	do	or pek	800	39
265		2446	18	do	pek	1530	36
274	Dooroomadella	2473	25	do	pek sou	2000	21
275		2476	11	hf-ch	dust	814	24
276	Dehiowita	2479	35	ch	br pek	3500	31 bid
277		2482	51	do	pek sou	4590	22 bid
278		2485	12	do	pk sou No. 1	960	19 bid
281	Memorakande	2494	45	do	bro pek	4500	25 bid
282		2497	31	do	pek	2790	22
283	Cullen	2500	69	bf-ch	bro or pek	4140	40
284		2503	22	cb	or pek	2024	34
285		2506	31	do	pek	2728	27
286	Wallaba	2509	36	bf-ch	bro or pek	1842	54 bid
287		2512	56	ch	bro pek	5600	39 bid
288		2515	18	do	or pek	1476	38 bid
289		2518	22	do	pek	2090	36 bid
290	Dewalakande	2521	18	do	bro pek	1998	31 bid
291		2524	20	do	or pek	2020	28 bid
292		2527	30	do	pek	2880	22 bid
293		2530	16	do	pek sou	1584	18 bid
295	Marlborough	2536	62	hf-ch	bro or pek	3472	37 bid
296		2539	19	ch	or pek	1805	34
297		2542	56	do	pek	5264	28
297		2545	12	do	pek sou	1056	22
299	Castlereagh	2548	48	hf-ch	bro or pek	2400	55
300		2551	30	ch	br pek	3000	40
301		2554	26	do	or pek	2080	37
302		2557	20	do	pek	1700	32
303		2560	12	do	pek sou	960	25
305	Yataderia	2566	17	do	bro or pek	1836	32
306		2569	13	do	bro pek	1391	26 bid
307		2572	14	do	or pek	1470	22 bid
308		2575	32	do	pk No. 1	2976	20 bid
309		2578	16	do	pek	1520	17
311	T T	2584	15	do	sou	1395	9
311	C R D	2587	12	bf ch	dust	1200	24
315	Agra Oya	2596	8	ch	br pek	800	34
316		2599	9	do	or pek	720	28
317		2602	9	do	pek	765	24
318	Great Valley, Ceylon, in est. mark	2605	50	bf-ch	bro or pek	3000	44
319		2608	28	ch	or pek	2520	30 bid
320		2611	38	do	pek	3420	24 bid
321		2614	16	do	pek sou	1360	25
323		2620	25	hf-ch	dust	2125	24
324	Mousakellie	2623	38	ch	bro or pek	3800	39
325		2626	29	do	or pek	2610	29 bid
328		2635	8	do	bro mixed	720	14
334	Tismoda	2653	16	do	bro pek	1600	30
335		2656	18	do	pek	1620	22 bid
336		2659	12	do	pek sou	960	20
340	Bogabagodawatte	2671	7	do	br pek	700	27
341		2674	9	do	pek	855	21
342		2677	8	do	pek sou	730	16
343	Adisham	2680	15	do	bro or pek	1500	60
344		2683	22	do	br pek	2200	38
345		2686	28	do	pek	2520	33
346		2689	11	do	pek sou	935	27
347	Ardlaw and Wishford	2692	40	do	bro pek	3517	30 bid
348	Ruanwella	2695	29	do	or pek	2465	27 bid
349		2698	18	do	bro pek	1800	30 bid
350		2701	30	do	pek	2700	23 bid
351		2704	8	do	pek sou	720	18 bid
353	Hanwella	2710	8	do	young hyson	800	39
347	L G F in est. mark	2722	21	do	sou	2100	13
358		2725	26	do	dust	3770	19
360	Ettapolla	2731	19	hf-ch	pek	798	20 bid
364	Dunnottar	2743	21	do	bro or pek	1050	53
371	Penrhos	2764	28	do	or pek	1341	37
372		2767	30	cb	pek	2787	27 bid
373		2770	10	do	pek sou	797	23
374	Yogan	2773	25	do	or pek	2497	30
375		2776	33	do	pek	2967	25
378	Bandara Eliya	2785	33	bf-ch	or pek	1650	33 bid
379		2788	55	do	bro or pek	3410	40
380		2791	64	do	pek	2880	29 bid
381		2794	28	do	pek sou	1344	25 bid
384	Palmerston	2803	13	do	bro or pek	741	76
385		2806	14	ch	pek	1190	50
387	Theydon Bois	2812	20	do	pek	1500	22 bid
388	Ambragalla	2815	68	hf cb	or pek	3264	26 bid
389		2818	55	do	bro or pek	3300	31
390		2821	30	do	pek	2400	22 bid
391		2824	28	do	pek sou	2240	21
392	Bargany	2827	22	do	pek sou	1867	19 bid

[Mr. E. John.—269,167 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Balado	439	33	cb	bro or pek	3630	34 bid
3		445	29	do	pek	2610	19 bid
4		448	26	do	pek sou	2295	17 bid
10	Little Valley	466	12	do	bro pek	1200	33
11		469	10	do	pek No. 1	800	24 bid
12	Culloden	472	17	do	dust	2635	18
13	Mabapahagalla	475	19	do	or pek	1900	31
14		478	7	do	bro pek	770	27 bid
15		481	20	do	pek sou	1800	20
16		484	11	bf-ch	fans	825	26
17	Perth	487	33	ch	bro or pek	3300	28 bid
18		490	41	do	or pek	3485	27
19		493	22	do	or pek	1870	25 bid
20		496	14	do	pek	1050	22 bid
21		499	26	do	pek	1950	23 bid
22		502	12	do	pek sou	840	18
24	Gingranoya	508	9	do	or pek	855	32 bid
25		511	19	do	pek	1615	27 bid
26	L E L	514	21	do	bro or pek	2100	38
27		517	10	do	bro pek	1000	33
28		520	12	bf ch	or pek fans	780	24
30	Winwood	526	17	do	bro or pek	850	50
31		529	11	cb	or pek	990	31 bid
33		535	9	do	pek sou	810	22
34	Woodstock	538	24	do	bro or pek	2100	29 bid
35		541	8	do	pek (B)	760	26
36	Kolapatna	547	21	bf-ch	bro or pek	1134	65 bid
37		550	22	do	or pek	1150	44 bid
38		553	19	do	pek	950	42 bid
42	Eila	565	46	ch	bro pek	4140	27 bid
43		568	43	do	pek	4085	24 bid
44		571	43	do	pek sou	3440	17 bid
45		574	10	bf-ch	or pek fans	700	23
46		577	12	do	dust	1020	21
47	Glentilt	580	31	cb	bro pek	3100	46
48		583	23	do	or pek	2185	30 bid
49		586	17	do	pek	1445	26 bid
50		589	17	hf cb	fans	1360	25
51	St. John's	592	23	do	or pek No.1	1150	60 bid
52		595	32	do	or pek	1600	50 bid
53		598	33	do	pek	1782	43
54		601	16	do	pek sou	800	38
55	Kandaloya	604	31	do	bro pek	1395	35 bid
56		607	35	do	or pek	1400	33 bid
57		610	24	do	or pek	957	33 bid
58		613	58	do	pek	2320	31
60	Ottery	619	13	ch	bro or pek	1300	49
61		622	19	do	or pek	1520	32 bid
62		625	17	do	pek	1445	34 bid
68	Coslande	643	10	hf ch	bro pek	1100	withd'n
69	Gonavy	646	12	cb	or pek	1020	32
70		649	25	hf cb	bro pek	1375	39
71		652	37	ch	pek	2775	28
72		655	10	do	pek sou	900	24
74		661	8	hf-ch	dust	975	21
75	Temple towe	664	26	cb	bro or pek	2028	44
76		667	21	hf cb	bro pek	1470	37
77		670	29	do	or pek	1305	45
78		673	25	cb	pek	2250	39
79		676	11	do	pek sou	880	34
80	Rondura	679	20	do	bro pek	1900	29 bid
81		682	19	do	or pek	1615	33 bid
82		685	15	do	bro or pek	1500	27 bid
83		688	20	do	pek No 1	1600	26
84		691	18	do	pek No.2	1440	24
85		694	10	do	pek sou	800	20
87	Agra Ouvah	700	42	hf ch	bro or pek	2436	50
88		703	70	do	or pek	3780	34 bid
89		706	23	ch	pek	2116	38
90	Comar	709	34	hf ch	bro pek	1904	30 bid
91		712	22	ch	pek	2068	21 bid
96		727	27	do	pek	2430	24
97		730	19	do	pek sou	1520	19 bid

Lot.		Box.	Pkgs.		Name.	lb.	c.
95	Ratwatte	724	34	ch	bro pek	3570	30 bid
98	Elston	733	22	do	or pek	1980	38
99		736	31	do	pek	2635	25 bid
100		739	37	do	pek sou	3330	22 bid
101	Brownlow	742	34	hf ch	bro or pek	1938	52
102		745	16	ch	or pek	1456	37
103		748	25	do	pek	2225	34
107	Cresta	760	14	hf ch	or pek	700	34
108		763	13	ch	pek	1118	25
112	Morahela	775	25	do	pek	2150	22
113		778	28	do	bro or pek	2800	38
114		781	15	do	or pek No.2	1260	25 bid
119	S	796	14	do	pek sou	1260	14
124	Lameliere	811	34	do	or pek	3060	37
125		814	24	do	bro or pek	244	34 bid
126		817	44	do	pek	3960	32
127		820	7	do	sou	723	19
128	Mossend	823	40	hf-ch	pek	1800	49 bid
130	Doonevale	829	9	ch	bro or pek	1008	30
131		832	10	do	or pek	1000	19 bid
132		835	14	do	pek	1330	19 bid
133		838	14	do	pek sou	1260	14 bid
134	Eilandu	841	29	do	bro pek	2900	22
135		844	35	do	pek	3150	17 bid
133	Chapelton	853	8	hf ch	dust	720	24
140	Nahavilla	859	42	ch	or pek	3780	35
141		862	40	do	bro pek	4000	35
142		865	25	do	pek	2250	28
143		868	10	do	pek sou	800	22
144		871	9	hf ch	dust	720	23
145	Dalhousie	874	18	do	or pek	990	50
146		877	16	do	bro pek	960	67
147		880	28	do	pek	1250	37 bid
150	Glasgow	889	45	ch	bro or pek	3465	47
151		892	24	do	or pek	1632	39 bid
152		895	14	do	pek	1260	37
153		898	10	do	pek sou	1000	37
154		901	18	do	pek fans	1800	23
155	Warleigh	904	16	hf ch	bro or pek	960	67 bid
156		907	18	do	or pek	990	44 bid
157		910	30	ch	bro pek	2850	33 bid
150		913	27	do	pek	2295	28 bid
160	Rookwood	919	43	hf-ch	bro or pek	2580	50
161		922	19	ch	or pek	1824	37 bid
162		925	26	do	pek	2340	33
163	Cleveland	928	44	hf ch	flow or pek	2420	48 bid
164		931	42	do	pek	2226	35 bid
167	Bowella	940	8	ch	or pek	776	24
169	Ouvah	946	28	do	pek sou	2520	35 bid
170	D, in est. mark, Haputale	949	26	hf ch	or pek	1300	34 bid
171		952	54	do	bro or pek	3240	40 bid
172		955	65	do	pek	2925	28 bid
173		958	20	do	pek sou	960	23 bid
174	A O	961	17	hf ch	bro pek fans	1360	25
175	Rookwood	964	46	do	bro or pek	2757	49
176		967	42	ch	pek	3780	33
177	A S, in estate mark	970	9	do	bro pek	900	21
178		973	8	do	pek	800	14 bid
182	Natuwakelle	985	13	do	bro or pek	1300	40
183		988	20	do	bro pek	2006	27 bid
184		991	14	do	pek	1260	23 bid
185		994	10	do	pek sou	900	19 bid
192	Mossend	15	19	hf ch	bro or pek	1045	62 bid
193		18	40	do	or pek	2200	67
194		21	46	do	pek	2070	14 bid

Messrs. Somerville & Co.—

[336,449 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
4	D	265	12	ch	bro pek	1200	26
7	Wilpita	274	12	ch	bro pek	1200	24
8		277	16	do	or pek	1600	14 bid
9		280	12	do	pek	1200	13 bid
14	Dryburgh	295	18	ch	pek	1476	20 bid
15		298	12	do	pek sou	840	16 bid
19	Mawacara	310	19	hf ch	pek	950	22
22	Nyanza	319	17	hf ch	bro or pek	986	41
23		322	19	ch	bro pek	1900	34
24		325	14	do	pek	1400	30
29	Kelani	340	12	ch	bro pek	1200	35 bid
30		343	19	do	or pek	1615	31 bid
31		346	16	do	bro or pek	1600	27 bid
32		349	29	do	pek	2465	25 bid
33		352	10	do	pek sou	750	22
34		355	8	do	fans	760	24
42	Alpitakande	379	13	hf ch	or pek	715	30 bid
43		382	24	do	pek	1200	19 bid
44	Rothes	385	14	hf ch	bro or pek	910	30 bid
45		388	16	do	or pek	800	36
46		391	12	ch	pek	1080	29
50	Warakamure	403	22	ch	bro pek	2134	26 bid
51		406	15	do	pek	1350	22
52		409	11	ch	pek sou	935	17
53		412	19	hf ch	fans	1425	25
54	Dikmukalana	415	55	hf-ch	bro pek fans	3025	25
55	Mousakande	418	16	ch	bro pek	[illegible]	31
56		421	21	do	or pek	1[illegible]55	32
57		424	30	do	pek	2[illegible]90	23 bid
59	Forest Hill	430	14	ch	bro pek	1358	28
60		433	22	do	pek	1958	25 bid
63	Glenalla	442	8	ch	bro or pek	800	31
64		445	11	do	or pek	880	29 bid
65		448	24	do	pek	2040	20 bid
66		451	9	do	pek sou	765	16 bid
69	Gangwarily	460	31	ch	bro pek	2790	39 bid
70		463	28	do	pek	2100	21 bid
71		466	15	ch	pek sou	1200	17
72	Havilland	469	14	ch	bro or pek	1400	33
73		472	12	do	pek	960	30
47		475	23	do	pek	2970	24
76	Narangoda	481	18	ch	bro pek	1710	29
77		484	15	do	pek	1350	22 bid
79	Galphele	490	57	ch	bro pek	5700	28 bid
60		493	16	do	bro or pek	1600	36 bid
81		496	33	do	pek	2970	25 bid
85	Mora Ella	508	21	hf ch	or pek	1155	32
86		511	28	do	bro or pek	1680	39
87		514	25	ch	pek	2250	28
88		517	9	do	pek sou	720	25
89	Annandale	520	13	hf ch	bro or pek	754	71
90		523	21	do	or pek	1132	56
91		526	19	do	pek	1064	46
92		529	13	do	pek sou	715	38
94	Mousa	535	19	ch	bro pek	1900	23 bid
95		538	11	do	pek	990	18 bid
98	D M O G, in estate mark	547	19	ch	bro or pek	950	41
99		550	11	do	pek	880	24
100		553	23	do	pek sou	1725	20
104	Mary Hill	565	22	hf ch	bro pek	1210	28 bid
105		568	71	do	pek	3550	25 bid
106		571	38	do	pek sou	1710	19
108	Marigold	577	34	hf ch	bro or pek	1836	40
109		580	29	do	or pek	1450	40
110		583	21	do	pek	1029	35
111		586	18	do	pek sou	880	34
112		589	12	do	bro pek fans	780	31
114	Allacollawewa	595	28	hf ch	bro or pek	1512	40
115		598	24	do	or pek	1200	36
116		601	20	do	pek	980	34
117		604	19	do	pek sou	931	33
124	Avisawella	625	25	ch	bro pek	2500	30
125		628	31	do	pek	2635	23
126		631	18	do	pek sou	1440	16 bid
128		637	27	hf ch	bro or pek	1350	42
130	Glenalmond	643	23	hf ch	bro pek	1380	30
132		649	11	ch	pek	935	23
136	Mt. Vernon	661	41	ch	pek	3772	32 bid
137		664	34	do	pek sou	2822	37
142	Neboda	679	20	ch	bro or pek	2200	28
143		682	66	do	bro pek	6270	24 bid
146	Neuchatel	691	36	ch	bro or pek	3600	29 bid
147		694	45	do	or pek	3600	24 bid
148		697	21	do	pek sou	1680	20
149		700	5	do	dust	700	21
150	Southwark	703	41	ch	bro pek	4100	29 bid
151		706	25	do	pek	2250	24 bid
152		709	12	do	pek sou	960	23
153		712	14	hf-ch	fans	1050	26
154		715	9	do	dust	810	23
155	Ferriby	718	22	hf ch	bro or pek	1232	34
156		721	17	ch	bro pek	1615	26 bid
157		724	25	do	pek	2250	21
158		727	20	do	pek sou	1600	18 bid
159	Gangwarily	730	20	ch	pek	1500	23
160		733	28	do	pek	2240	22 bid
161	Forest Hill	736	21	ch	pek	1995	24
163	B Y	742	9	ch	bro pek	1008	28 bid
168	Elchico	757	20	hf ch	bro pek	1000	31 bid
170		763	15	do	pek No 2	750	23
171		766	15	do	pek sou	750	19
176	W S	781	9	ch	or pek	900	21 bid
177		784	8	do	pek	720	16 bid
180	Theberton	793	10	ch	bro or pek	1000	31 bid
181		796	8	do	or pek	720	29
182		799	20	do	pek	1700	24 bid
183		802	9	do	pek sou	765	19
186	Hangranoya	811	12	ch	bro or pek	1140	45
187		814	34	do	bro pek	3400	28 bid
188		817	29	do	pek	2610	21 bid
189		820	16	do	pek sou	1280	20 bid
190	Primrose Hill	823	17	ch	bro pek	1700	30 bid
191		826	18	do	pek	1530	22 bid
192		829	13	do	pek sou	1040	18
194	Ewadugama	835	19	ch	bro pek	1976	28 bid
195		838	12	do	pek	1200	24 bid
197	Rayigam	844	33	ch	bro pek	3300	27 bid

Lot.	Box.	Pkgs.	Name.	lb.	c.
198	847	33 ch	or pek	2805	25
199	850	33 do	pek	2610	23
200	853	27 do	pek sou	2565	20
201	856	10 do	bro pek fans	1000	24
203 Kurunegalle est. Co.	862	34 hf ch	bro or pek	2040	30 bid
204	865	25 do	or pek	1575	20
205	868	27 ch	pek	2430	22 bid
206	871	15 do	pek sou	1350	18
207 Deniyaya	874	48 ch	bro pek	4800	30 bid
208	877	14 do	pek	1400	22 bid
209	880	16 do	pek sou	1600	18 bid
212 Yarrow	889	20 hf ch	flowery or pek	1000	44
213	892	52 do	or pek	2496	28 bid
214	895	18 hf ch	bro or pek	990	32
215	898	55 do	pek	2475	25
216	901	18 do	pek sou	900	20
217	904	10 do	Flowery or pek fans	700	7
219 Romania	910	18 ch	bro pek	1890	18 bid
220 Harangalla	913	12 ch	bro or pek	1140	36
221	916	19 do	or pek	1615	26 bid
222	919	45 do	pek	3600	21 bid
223	922	14 do	pek sou	1120	17 bid
225	928	13 hf ch	bro pek dust	975	24
226	931	21 ch	sou	1680	16 bid
228 Calgary	937	21 ch	pek	2070	16
229	940	18 do	pek sou	2070	10 bid
230	943	24 do	pek sou	1800	8
231	946	10 do	fans	900	8 bid
232 L F	949	22 ch	pek sou	1980	13
235 Wilpita	958	12 ch	bro pek	1200	26
236	961	14 do	or pek	1400	22
237	964	8 do	pek 2 oz lead	760	12 bid
241 M	976	40 ch	or pek	3200	19 bid
242	979	34 do	pek	2482	out
243	982	36 do	pek sou	2808	12 bid
244 Ranasinghapatna	985	25 hf ch	or pek	1200	29 bid
245	988	18 do	bro or pek	1080	35 bid
246	991	13 ch	pek	1040	21 bid
247	994	10 do	pek sou	790	18 bid
249 M	1000	81 hf ch	or pek	3726	18 bid
250	1003	65 do	bro or pek	3630	23 bid
251	1006	45 ch	pek	3600	14 bid
252	1009	46 do	pek sou	4002	10 bid
253 Ambalawa	1012	23 hf ch	bro pek	1265	27
255	1018	9 ch 1 hf ch	pek	750	18 bid
259 Monrovia	1030	30 ch	bro pek	3000	24 bid
260	1033	23 do	pek	2185	21
261	1036	18 do	pek sou	1800	15
265 P	1048	11 ch	bro tea	1045	7 bid
266 K P	1051	9 ch	bro pek	988	24
268 Gangwarily	1057	12 ch	pek	1020	21 bid
269	1060	20 do	pek sou	1700	19
270 Glenalla	1063	11 ch	bro or pek	1100	w'drawn
271	1066	13 do	or pek	1105	32
272 Havilland	1069	18 ch	bro or pek	1800	30 bid
273	1072	40 do	pek	3400	25
274 R G	1075	31 ch	dust	3100	22
275 M T	1078	25 hf ch	fans	1500	16 bid

SMALL LOTS.

[Messrs. Forbes & Walker.]

Lot.	Box.	Pkgs.	Name.	lb.	c.
2 E D P	1657	6 hf ch	dust	480	22
5 Harrie Smith	1666	2 do	pek sou	100	29 bid
30 Matale	1741	3 do	dust	270	22
31 Hylton	1744	9 hf ch	bro pek	495	29
32	1747	4 ch	pek	340	20
33	1750	2 do	pek sou	170	19
36 Ireby	1759	2 ch	fans	260	29
37	1762	3 do	dust	450	24
42 Barrington	1777	6 hf ch	bro pek	300	22
43	1780	8 do	pek	400	15
44	1783	8 do	pek sou	320	14
51 Putupaula	1804	5 ch	pek sou	350	17
56 B N Y, in est. mark	1819	6 hf ch	bro pek fans	390	22
57	1822	1 do	dust	95	21
62 T, in estate mark	1837	3 ch	unas	306	13
67 Coodham	1852	12 hf ch	pek	600	24
68	1855	5 do	pek sou	250	19
70 Panmure	1861	do	dust	680	24
87 Clyde	1912	7 ch	pek sou	525	18
89	1918	2 do	pek fans	256	22
91 St. Margeret's	1924	6 ch	pek	510	34
93	1930	3 do	fans	336	25
102 Penrhos	1957	3 hf ch	fans	225	24
103	1960	1 do	pek dust	98	22
104 Oodewelle	1963	1 ch	bro pek	108	26
106 Yaba Ella	1969	4 ch	bro pek	400	30
107	1972	7 do	pek	630	21
108	1975	2 do	pek sou	180	14
112 Parsloes	1987	3 hf ch	dust	270	22
113 Passara Group	1990	8 ch	or pek	680	33
121 Purana	2014	4 hf ch	dust	320	21
122	2017	3 ch	fans	270	26
125 Erlsmere	2026	11 hf ch	bro or pek	572	50
126	2029	6 ch	or pek	480	42
129	2038	4 do	pek sou	332	28
130	2041	1 hf ch	dust	86	23
135 Errollwood	2056	6 ch	pek sou	630	23
137	2062	8 do	or pek fans	536	25
138	2065	4 hf ch	dust	340	24
153 Palm Garden	2110	1 ch	fans	110	14
154	2113	1 do	congou	100	out
155	2116	1 do	dust	150	16
157 Dammeria	2122	5 hf ch	bro or pek	350	32
162	2137	7 do	bro pek fans	560	25
163 D M	2140	6 ch	tippy bro pek	600	22
167 Battawatte	2152	6 ch	or pek	600	33
170	2161	7 do	pek sou	560	20
171	2164	1 hf ch	dust	100	21
179 Kirklees	2188	5 ch	pek fans	550	23
187 Massena	2212	13 hf ch	pek sou	650	14
188	2215	4 ch	dust No 1	280	21
189	2218	6 hf ch	dust No 2	510	20
194 Widmore	2233	5 do	pek fans	425	24
195 B W D	2236	6 hf-ch	dust	480	22
196 Galkadua	2239	2 ch	bro or pek	240	24
200	2251	2 do	fans	220	14
201	2254	1 do	congou	100	8
202	2257	2 do	dust	300	14
216 St. Martin's	2299	1 ch	dust	140	19
220 Corfu	2311	8 hf ch	pek fans dust	600	24
228 Woodend	2335	4 ch	bro pek fans	440	24
229	2338	3 do	dust	394	21
230 Ookoowatte	2341	3 ch	fans	390	24
231	2344	1 hf-ch	dust	105	91
240 B D W P	2371	1 ch	sou No 2	80	8
241	2374	1 hf-ch	dust	90	20
245 Dunbar	2386	9 do	br pek	513	41
246	2389	5 do	bro pek fans	310	35
247	2392	1 ch	pek sou	112	32
248	2395	1 do	dust	154	23
256 Harrow	2419	3 do	fans	396	22
261 Hopton	2434	1 do	fans	110	23
262	2437	2 do	dust	220	22
266 Kincora	2449	9 do	pek sou	675	29
267	2452	2 do	bro pek fans	260	29
268	2455	2 do	dust	3 0	24
269 Sherwood	2458	5 do	uuast	515	22
270 S	2461	5 do	bro pek	280	18
271	2464	3 do	pek	132	13
272	2467	1 do	pek sou	40	9
273	2470	2 do	dust	172	19
279 Debiowita	2488	7 do	pek sou	569	17
280	2491	3 do	dust	240	15
294 Dewalakande	2533	5 hf ch	dust	435	21
304 Castlereagh	2563	8 do	dust	640	23
310 Yataderia	2581	5 ch	pek sou	470	14
313 C R D	2590	6 do	sou	480	11
314	2593	1 do	bro mixed	100	8
322 Great Valley, Ceylon in est. mark	2617	1 do	unast	85	
326 Mousakellie	2629	7 do	pek sou	620	20
327	2632	6 do	dust	400	23
329 Caledonia	2638	12 hf ch	bro pek	600	out
330	2641	11 do	pek	550	8 bid
331	2644	9 do	sou	450	5
332	2647	3 do	br pek fans	195	18
333	2650	4 do	fans	260	11
337 Tismoda	2662	3 hf-ch	fans	210	23
338	2665	4 do	dust	320	19
339 Bogahagodawatte	2668	3 ch	bro or pek	330	30
352 Ruanwella	2707	8 do	dust	640	22
354 Hanwella	2713	5 do	hyson No. 1	500	26
355	2716	3 do	hyson No. 2	300	15 bid
356	2719	3 do	hyson siftings	390	12
359 Ettapolla	2728	11 hf-ch	or pek	605	29
361	2734	8 do	pek sou	400	16
362	2737	8 do	bro tea	400	14
363	2740	3 do	dust	168	20

Lot.		Box.	Pkgs.	Name.	lb.	c.
365	Dunnottar	2746	13 do	pek	650	34
366		2749	5 ch	sou	425	19
367	Augusta	2752	3 do	pek sou	270	16
368		2755	2 do	sou	200	10
369		2758	3 do	dust	359	19
370		2761	1 do	dust No. 2	132	14
376	C T L	2779	2 hf-ch	pek sou	150	18
377		2782	3 ch	congou	135	13
382	Bandara Eliya	2797	3 do	dust	276	20
383		2800	9 do	fans	630	27
386	Palmerston	2809	2 do	pek sou	156	41

[Messrs. Somerville & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	E E	256	1 ch	bro pek	101	21
2		259	2 do	pek	180	14
3		262	4 do	pek sou	320	11
5	D	268	7 ch	pek	665	14
6		271	6 do	pek sou	540	10
10	Wilpita	283	2 ch	bro mix	200	8
11		286	1 do	dust	160	18
12	Halloowella	289	6 ch	pek	510	out
13		292	8 hf ch	dust	672	22
14	Dryburgh	301	9 hf ch	fans	693	22
15	Mawatara	304	8 hf ch	bro or pek	520	28
16		307	12 do	bro pek	660	26
17		313	11 do	pek sou	550	14
28		316	1 do	dust	85	20
20	Nyanza	328	5 ch	pek sou	450	22
21		331	3 do	dust	300	23
25	V J S	334	5 hf ch	bro pek	250	24
26		337	7 do	pek	350	13
27	Kahatagalla	358	1 ch	bro pek	100	35
38		361	2 do	or pek	170	29
35		364	2 do	bro or pek	200	24
36		367	3 do	pek	255	23
37		370	1 do	pek sou	75	16
38		373	1 do	dust	100	19
49	G K	376	10 ch	Twanky	600	9
40	Rothes	394	3 ch	pek	255	18
41		397	4 hf ch	bro tea	240	21
47		400	2 do	dust	180	23
48	Forest Hill	427	8 hf ch	bro or pek	432	35
58		436	7 ch	pek sou	588	16
61		439	5 do	fans	360	23
62	Glenalla	454	5 ch	sou	425	13
67		457	1 do	dust	145	21
68	Havilland	478	4 ch	pek sou	340	18
75	Narangoda	487	7 ch	pek sou	630	18
78	G H	499	6 ch	pek sou	540	18
82		502	1 do	sou	90	13
83		505	4 do	fans	600	22
84	Annandale	532	6 hf ch	sou	306	27
93	Mousa	541	2 ch	pek sou	160	13
96		544	1 hf ch	dust	30	20
97						
101	D M O	556	6 ch	bro mix	510	6
102		559	4 hf ch	dust	340	23
103		562	6 do	fans	300	23
107	Mary Hill	574	7 hf ch	dust	560	25
113	Marigold	592	8 hf ch	pek dust	592	26
118	Allacollawewa	607	9 hf ch	bro pek fans	585	30
119		610	6 do	pek dust	444	26
120	N V G, in estate mark	613	12 hf-ch	bro pek	672	26
121		616	11 do	pek	616	23
122		619	11 do	pek sou	616	17
123		622	2 do	sou	112	10
127	Avisawella	634	4 ch	dust	560	18
129	A A	640	5 ch	sou	400	10
131	Glenalmond	646	7 hf-ch	or pek	350	31
133		652	2 do	pek sou	170	16
134		655	2 hf ch	dust	160	24
135	Carinton	658	1 hf-ch	bro pek dust	175	23
138	California	667	13 hf ch	bro pek	650	22
139		670	5 ch	pek	500	14
140		673	2 do	pek sou	253	11
141	St. Leys	676	1 ch	red-leaf	96	8
144	Neboda	685	7 ch	pek	630	19
145		688	5 hf ch	dust	450	22
162	Forest Hill	739	6 ch	pek sou	510	16
164	B Y	745	6 ch	pek	364	out
165		748	3 do	pek sou	264	out
166		751	2 hf ch	fans	144	23
167		754	1 do	pek dust	90	21
169	Elchico	760	13 do	pek No. 2	650	out
172		769	2 do	fans	150	20
173		772	3 do	congou	135	9
174		775	3 do	bro or pek	150	42
175	W S	778	5 ch	bro or pek	500	30
178		787	1 do	dust	126	19
179		790	1 hf ch	or pek dust	85	22
184	Theberton	805	5 ch	fans	500	23
185		808	2 do	dust	200	23
163	Primrose	832	4 do	pek sou	304	12
196	Ewadugama	841	8 do	pek sou	640	out
202	Rayigam	859	7 hf ch	dust	560	24
210	G Watte	883	2 ch	bro pek	190	23
211		886	3 do	pek sou	270	12
218	Romania	907	6 hf ch	bro or pek	344	38
224	Harangalla	925	3 do	br or pk No. 1	168	34
227	Calgary	934	5 ch	bro pek	363	25
233	S F	952	3 hf ch	young hyson	183	14 bid
234		956	3 do	hyson	189	3 bid
238	Walpita	967	2 ch	bro mix	200	7
239		970	2 do	fans	200	14
240		973	1 do	dust	160	19
248	Ranasinghapatna	997	2 hf ch	dust	138	24
254	Ambalawa	1015	8 do	pek fans	488	22
256		1021	7 ch			
			1 box	pek sou	545	16
257		1024	7 ch	sou	[illegible]	10
258		1027	3 hf-ch	dust	180	24
262	Monrovia	1039	4 ch	bro tea	400	6
263		1042	2 do	pek dust	300	20
264	Killarney	1045	5 hf-ch	bro or pek	295	33 bid
267	G	1054	5 ch	red leaf	325	7

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Balado	442	4 ch	or pek	380	29 bid
5	W H R	451	4 do	dust	400	21
6		454	1 do	fans	90	17
7	W H	457	6 hf ch	bro pek	340	30
8		460	10 do	pek	498	24
9	G K	463	1 ch	bro pek	82	24
23	Perth	505	6 hf ch	pek dust	450	23
29	L E L	523	8 do	dust	680	22
32	Winwood	532	7 ch	pek	630	28
39	Kolapatna	556	6 hf ch	pek sou	300	35
40		559	4 do	br or pek fans	240	33
41		562	5 do	fans	350	27
59	Kandaloya	616	8 do	pek sou	320	23
63	Ottery	628	6 ch	sou	480	25
64		631	3 hf ch	dust	255	23
65	H	634	1 do	bro pek	50	19
66		637	1 do	pek	45	15
67		640	2 do	pek sou	100	8
73	Gonavy	658	15 do	fans	640	23
86	Rondura	697	3 ch	dust	495	22
92	Comar	715	6 do	pek sou	570	out
93		718	1 do	fans	100	20
94		721	3 hf ch	dust	264	21
104	Brownlow	754	7 do	bro pek fans	539	26
105	M N	754	1 ch	pek No. 2	90	17
106	Cresta	757	4 hf ch	bro pek	240	29
109		766	8 ch	pek sou	680	18
110		769	4 hf ch	dust	300	22
111	L V	772	6 ch	pek	540	21 bid
115	Morahela	784	6 do	sou	540	16
116		787	4 hf ch	dust	336	23
117	S	790	3 ch	bro or pek	323	out
118		793	3 do			
			1 hf ch	pek	330	9 bid
120		799	4 ch	sou	280	6
121		802	5 hf ch	bro pek dust	375	19
122		805	3 do	pek dust	192	12
123	M N	808	2 ch	bro pek No. 2	168	withd'n
129	Gonavy	826	2 do	sou	180	10 bid
136	Eilandu	847	4 do	dust	530	18
137		850	5 do	bro mix	500	6
139	Chapelton	856	5 do	sou	450	23
148	Dalhousie	883	11 hf ch	pek sou	550	36
149		886	3 do	bro pek fans	195	26
159	Warleigh	916	5 ch	pek sou	400	26
165	Cleveland	934	13 hf ch	pek sou	650	37
166		937	3 do	fans	160	25
168	Bowella	943	8 ch			
			1 hf ch	pek	660	18
179	OAS, in estate mark	976	6 ch	pek sou	600	8 bid
180		979	3 do	fans	336	12
181		982	3 do	bro mix	300	7
186	Natuwakelle	997	3 do	dust	330	24
187	Ullandapitiya	1000	4 hf ch	bro or pek	220	36
188		3	5 do	or pek	250	29
189		6	6 do	pek	300	22
109		9	4 do	sou	180	16
191		12	1 do	fans	55	20
195	Mossend	24	10 do	fans	650	3
196		27	2 do	dust	140	27
197	K A S	30	2 ch	pek sou	200	8

CEYLON CARDAMOMS SALES IN LONDON.

(*From Our Commercial Correspondent.*)

MINCING LANE, April 26.

"City of Perth."—Kelvin, E X, 2 cases sold at 3s 3d; ditto AA, 4 cases sold at 2s 7d; ditto A, 1 case sold at 1s 9d; ditto B, 3 cases sold at 3s 8d; ditto C, 2 cases sold at 1s 5d; ditto D, 1 case sold at 2s 2d; Katooloya, EX, 1 case sold at 3s 3d; ditto AA, 5 cases sold at 2s 6d; ditto A, 2 cases sold at 1s 8d; ditto B, 2 cases sold at 1s 6d; ditto C, 1 case sold at 1s 5d; ditto D, 1 case sold at 2s 1d.

"Logician."—Cottaganga EX, 1 case sold at 3s 1d; ditto AA, 4 cases sold at 2s 6d; ditto A, 2 cases sold at 1s 8d; ditto B, 3 cases sold at 1s 5d; ditto D, 1 case sold at 2s; Gallaheria A, 3 cases sold at 1s 6d; ditto B, 1 case sold at 1s 4d.

"Kanagawa Maru."—Gallaheria 1, 2 cases sold at 2s 1d, 12 cases sold at 2s 2d; Midlands 2, 2 cases sold at 1s 7d, ditto B and S, 2 cases sold at 1s 5d; ditto O, 1 case sold at 2s 4d; ditto 1, 3 cases sold at 1s 8d; ditto 2, 1 case sold at 1s 4d; ditto B and S, 1 case sold at 1s 5d.

"Historian."—OBEC in estate mark, Dankande, 2 cases sold at 2s 1d, 12 cases sold at 2s 2d, 6 cases sold at 1s 5d; Nillomally seed, 1 bag sold at 1s 2d, 1 bag sold at 2s; ditto splits, 1 bag sold at 1s 5d; ditto OOO, 2 bags sold at 2s 10d; ditto OO, 3 bags sold at 2s 6d; ditto O, 1 bag sold at 1s 6d.

"Alcinous."—Nillomally 1, 8 cases sold at 2s 2d; ditto 2, 2 cases sold at 1s 6d; ditto B and S, 1 case sold at 1s 5d; ditto seed, 2 cases sold at 2s 1d.

"Clan Fraser."—Galaha C, 2 cases sold at 1s 5d, 3 cases sold at 1s 4d.

"Shropshire."—Hoolo Group 1, 7 cases sold at 2s 5d; ditto 2, 3 cases sold at 1s 9d.

"Sado Maru."—Delpotonoya, 3 cases sold at 3s 1d, 4 cases sold at 2s 6d, 3 cases sold at 2s 11d, 3 cases sold at 1s 8d, 1 case sold at 1s 5d.

"Kanagawa Maru."—Delpotonoya 1, 1 case sold at 2s 8d; ditto 2, 3 cases sold at 2s 5d; ditto 3, 3 cases sold at 1s 7d; ditto seed, 1 case sold at 2s 7d.

"Sado Maru."—Delpotonoya B, 1 case sold at 1s 6d; ditto S, 4 cases sold at 1s 5d; ditto seeds, 3 cases sold at 2s 2d.

"Gandiana."—Delpotonoya A, 10 cases sold at 3s 1d; ditto B, 9 cases sold at 2s 2d; ditto C, 1 case sold at 2s 4d; ditto D, 8 cases sold at 1s 7d.

"Alcinous."—Delpotonoya AA, 6 cases sold at 2s 9d; ditto A, 3 cases sold at 2s; ditto B, 2 cases sold at 1s 8d; ditto S, 2 cases sold at 1s 5d; ditto 2, 6 cases sold at 1s 5d; ditto 1, 1 case sold at 2s 1d.

"City of Perth."—Delpotonoya 2, 2 cases sold at 1s 11d; 1 case sold at 1s 10d. Altwood Ceylon cardamoms, 7 cases sold at 2s 4d; 8 cases sold at 2s 4 cases sold at 1s 6d 4 cases sold at 1s; 5d.

OBSERVER PRINTING WORKS.

No. 20. COLOMBO, MAY 27, 1901. PRICE :—12½ cents each, 3 copies 30 cents ; 9 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.

[34,880 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Mapitigama	64	18 ch	bro pek	1620	30
2		67	10 do	pek	850	22
3		70	13 do	pek sou	1105	17
6	Battalgalla	79	27 do	or pek	2565	39 bid
7		82	26 do	pek	2210	31
8		85	16 do	pek sou	1050	31
10	Hornsey	91	43 hf ch	bro pek	2365	46 bid
11		94	30 do	pek	2400	32
12		97	15 ch	pek sou	975	33
13		100	12 hf ch	bro pek fan	780	27
14	Battalgalla	3	25 ch	or pek	2375	35 bid
15		6	27 do	pek	2160	32
17	P in estate mark	12	11 do	pek sou	935	32
18	Torrington	15	37 do	or pek	3330	29 bid
19		18	26 do	or pek No 2	2080	24 bid
20		21	22 do	bro or pek	2200	31 bid
21		24	23 do	pek	2185	20 bid
22		27	21 do	pek sou	1680	18 bid

Messrs. Forbes & Walker

[684,894 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Palawatte	2830	35 hf ch	bro pek	1750	29
2		2833	21 do	pek	1050	21
6	Villehena	2845	37 ch	bro pek	3700	28
7		2848	23 do	pek	2300	19
8		2851	11 do	pek sou	990	15
16	Strathspey	2875	9 do	bro or pek	945	55
17		2878	21 do	or pek	2100	33 bid
18		2881	19 do	pek	1710	32
21	Pendle	2890	12 do	bro pek	1200	35
22		2893	12 do	pek	1080	29
27	New Peacock	2908	9 do	sou	810	21
29		2914	13 hf-ch	pek fn	975	24
30	Beverley	2917	35 do	bro pek	2100	38 bid
31		2920	18 do	or pek	900	34
33		2926	18 do	pek No 2	990	25
34		2929	14 do	pek sou	700	20
35	Lidupatna	2932	20 ch	bro or pek	2200	41 bid
36		2935	31 do	bro pek	3410	34 bid
37		2938	24 do	pek	2280	31 bid
38		2941	8 do	pek sou	800	32
39		2944	6 do	bro pek fn	810	24
43	Bramley	2956	54 hf ch	bro pek	3024	42 bid
44		2959	49 do	pek	2450	37 bid
45		2962	45 do	pek sou	2340	33
46	Maldeniya	2965	19 ch	bro pek	1900	29
47		2968	30 do	pek	2850	22
48		2971	28 do	pek sou	2380	17
49		2974	5 do	dust	700	20
51	Sylvakandy	2980	122 hf ch	bro or pek	6710	34
52		2983	28 ch	bro pek	2800	25
53		2986	44 hf ch	or pek	1980	28
54		2989	23 ch	pek	2070	23
55		2992	11 do	pek sou	1045	19
57	Maxim	2998	28 do	or pek	2660	28 bid
58		3001	23 do	bro or pek	2800	26
59		3004	22 do	pek	1760	22
60		3007	20 do	pek No 2	1480	18
61		3010	18 hf ch	pek fn	1224	22
62	Nillomally	3013	11 ch	bro or pek	1100	61
63		3016	41 do	or pek	3772	33 bid
64		3019	27 do	pek No 1	2160	35 bid
65		3022	29 do	pek No 2	2552	32 bid
66		3025	19 do	pek sou	1710	27 bid
70	Sirikandura	3037	13 do	bro pek	1300	27
71		3040	16 do	pek	1520	21
72		3043	15 do	pek sou	1300	17
79	Haputalewelle	3064	30 hf ch	bro or pek	1800	35
80		3067	23 do	pek	1150	30
84	P	3079	14 ch	pk sou No 2	1260	17
85		3082	20 hf ch	fan	1300	25
86		3085	11 do	dust	880	22
88	Dewalakande	3091	11 ch	hyson	990	25
92	I K V	3103	8 do	pek fn	960	22
93	Choisy	3106	44 hf ch	bro or pek	2420	39 bid
94		3109	26 ch	or pek	2470	34 bid
95		3112	38 do	pek	3230	20 bid
96	Drayton	3115	54 hf ch	or pek	2700	36 bid
97		3118	48 ch	pek	4080	36
98		3121	27 do	pek sou	2295	34
100	Roeberry	3127	50 ch	bro or pek	5000	42
101		3130	80 do	bro pek	8000	31
102		3133	61 do	pek	5490	26
103		3136	19 do	pek sou	1634	21
104		3139	10 do	fans	1000	23
105	St Heliers	3142	26 hf ch	bro or pek	1420	44
106		3145	19 ch	pek	1710	31
109	Coombecourt	3154	20 hf ch	bro or pek	1200	52
110		3157	23 do	bro pek	1380	38 bid
111		3160	11 ch	pek	990	31 bid
113	Palmerston	3166	14 hf ch	bro or pek	798	67
114		3169	12 ch	pek	1044	42
117	Theydon Bois	3178	15 do	or pek	1350	30
118		3181	21 do	pek	1575	25
119		3184	10 do	pek sou	800	17
120	Queensland	3187	14 hf ch	bro or pek	700	71
121		3190	7 ch	bro pek	700	45
122		3193	7 do	or pek	700	34
123		3196	11 do	pek	935	33
124		3199	9 do	pek sou	720	25
128	Knavesmire	3211	14 do	or pek	1190	25
129		3214	32 do	bro pek	3040	26
130		3217	38 do	pek	2850	21
131		3220	22 do	pek sou	1540	17
132	Galapitakande	3223	13 do	bro pek	1300	40 bid
133		3226	20 do	or pek	1800	33 bid
134		3229	35 do	pek	2975	26 bid
137	Weligoda	3238	10 do	bro pek	1000	22
142	Agra Oya	3253	14 do	bro pek	1400	39
143		3256	9 do	pek	765	25
144		3259	8 do	pek sou	720	20
147		3268	10 do	or pek	800	29
148		3271	10 hf ch	bro pek fns	750	23
151	Devonford	3280	17 do	bro or pek	1020	63
152		3283	12 ch	pek sou	1140	37
153	Monkswood	3286	28 hf ch	bro pek	1680	51 bid
154		3289	34 do	or pek	1870	52
155		3292	12 do	pek	1080	41
156	Middleton	3295	21 do	bro or pek	1176	61
157		3298	24 ch	bro pek	2400	37 bid
158		3301	27 do	pek	2295	35
159	Anningkande	3304	13 do	bro pek	1300	33
160		3307	22 do	pek	2090	23
161	Penrhos	3310	28 hf ch	bro or pek	1568	48
162		3318	25 do	or pek	1200	35
163		3316	33 ch	pek	2970	27
164		3319	10 do	pek sou	800	21
166	Tembiligalla	3325	45 do	bro or pek	4275	27
167		3328	34 do	pek	3060	23
172	H G M	3343	41 hf ch	bro or pek	2665	25 bid
173		3346	10 ch	bro pek	1000	27
174	Norton	3349	17 do	pek	1700	38
175		3352	14 do	pek sou	1162	35 bid
176	R K P	3355	20 do	pek	1700	24 bid
177	Vogan	3358	16 do	bro or pek	1600	45
178		3361	22 do	or pek	2200	27 bid
179		3364	30 do	pek	2700	22
182	Preston	3373	39 do	bro pek	3900	48
183		3376	13 do	pek	1066	46
184		3379	21 do	pek sou	1680	38
187	Stamford Hill	3388	27 hf ch	bro pek	1620	51
188		3391	23 do	or pek	1935	47
189		3394	25 ch	pek	2250	35
192	Shrubs Hill	3403	31 do	bro pek	3410	28 bid
193		3406	57 do	or pek	5016	23 bid
194		3409	26 do	pek	2288	20 bid
196		3415	11 do	bro pek fns	880	23
198	Naseby	3421	30 hf ch	bro or pek	1800	58
199		3424	25 do	pek	1250	50
200		3427	15 do	pek sou	750	46
201	Ella Oya	3430	50 do	bro or pek	3000	29
202		3433	12 ch	or pek	1080	23
203		3436	27 do	pek sou	2160	16
204	Yataderia	3439	12 do	bro or pek	1296	34
205		3442	11 do	bro pek	1177	25
206		3445	12 do	or pek	1260	25
207		3448	22 do	pek No. 1	2024	20
208		3451	15 do	pek	1425	17
210	Digalla	3457	22 hf ch	bro or pek	1666	withdn.
211		3460	28 do	bro pek	1813	withdn.
212		3463	43 do	pek	2612	withdn.
213		3466	29 do	pek sou	1674	withdn.
216	Weyungawatte	3475	20 ch	bro pek	2000	27
217		3478	26 do	pek	2340	[illegible]
218		3481	21 do	pek sou	1575	13
221	Dewalakande	3490	18 do	bro pek	1746	withdn.
222		3493	25 do	or pek	2200	withdn.
223		3496	44 do	pek	3300	withdn.
224		3499	18 do	pek sou	1368	withdn.
226	Maryland	3505	18 do	bro pek	1800	34
227		3508	30 do	or pek	2700	26
228		3511	22 do	pek	1980	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
229		3514	11 ch	pek sou	990	18
233	Sembawatte	3526	14 do	bro pek	1414	24
234		3529	20 do	pek	1620	21
235		3532	17 do	pek sou	1190	15
226	Carlabeck	3535	18 do	pek sou	1800	32
237		3538	10 do	bro pek fns	1400	25
238	Castlereagh	3541	21 hf ch	bro or pek	1050	55
239		3544	15 ch	bro pek	1500	37
240		3547	11 do	or pek	880	32
241		3550	9 do	pek	765	31
247	Oakham	3563	20 hf-ch	or pek	900	37
248		3571	18 ch	bro pek	1080	37
249		3574	17 do	pek	1530	29
252	Ireby	3583	20 do	bro pek	1997	35 bid
253		3586	15 do	pek	1272	30 bid
257	Kirklees	3598	15 do	bro pek	1725	36
258		1	17 do	or pek	1615	37
259		4	24 do	pek	2160	26
260		7	16 do	pek sou	1360	23
261	High Forest	10	64 hf-ch	or pk No. 1	3712	45
262		13	60 do	or pek	3300	40
263		16	33 do	pek	1584	35
264	Kirklees	19	22 do	bro or pek	1210	40
265		22	16 do	br pek	1040	35
266		25	22 do	or pek	1210	36
268	Maha Uva	31	54 do	bro or pek	3240	36
269		34	39 do	or pek	2184	31 bid
270		37	14 ch	pek sou	1120	withd'n
271		40	37 do	pek	3330	26
272	Hayes	43	13 do	bro or pek	1235	41
273		46	20 do	bro pek	2200	34
274		49	40 do	pek	3200	22 bid
275		52	12 do	pek sou	1050	15 bid
277	Gonapalla	58	22 do	bro or pek	2420	27
278		61	22 do	or pek	1826	28
279		64	24 do	pk No. 1	1968	21 bid
280		67	24 do	pk No. 2	1920	19 bid
281		70	20 do	pek sou	1600	16
283	Inverness	76	25 do	bro or pek	2500	50 bid
284		79	33 do	or pek	2970	54 bid
285		82	33 do	pek	2970	45
286	Oodoowerre	85	8 do	br pek	800	36
287		88	8 do	pek	704	31
290	Dunkeld	97	68 hf-ch	bro or pek	3944	38
291		100	19 ch	or pek	1805	30 bid
292		103	27 do	pek	2430	28
293	Monkswood	106	18 do	pek	1620	38
294		109	13 do	pek sou	1105	36
295		112	24 hf-ch	fans	1650	29
296		115	9 do	dust	810	25
297	Malvern	118	56 do	br pek	3190	33
298		121	49 do	pek	3430	25 bid
299		124	18 ch	pek sou	1260	19
300	Tymawr	127	17 hf-ch	bro or pek	1020	63
301		130	33 do	or pek	1815	44
302		133	34 do	pek	1700	33
303		136	41 do	pek sou	2050	30
308	Torwood	151	28 ch	bro or pek	2744	29
309		154	25 do	or pek	2000	24
310		157	38 do	pek	2888	19
311		160	24 do	pek sou	1680	15
312	Talgaswela	163	17 hf ch	bro or pek	1020	26
313		166	28 ch	or pek	2280	26
314		169	12 do	br pk No. 2	720	22
315		172	36 do	pek	2880	20
316		175	13 do	pek sou	975	16
317	Marlborough	178	62 hf-ch	bro or pek	3472	34 bid
318		181	73 do	br or pek	4088	35
319		184	32 ch	or pek	2976	32
320		187	44 do	pek	4048	27
321		190	11 do	pek sou	968	21
322	Arapolakande	193	64 do	pek	5760	27 bid
323		196	38 do	pek	3230	21
324		199	8 do	pek sou	720	16
326	Tillyrie	205	45 do	bro or pek	2700	47
327		208	52 do	bro pek	2860	36
328		211	66 do	pek	5610	36
329		214	34 do	pk No. 2	2890	29
330	Geragama	217	16 do	bro or pek	1760	27
331		220	20 do	bro pek	1800	27
332		223	28 do	pek	2380	20
333		226	22 do	pek sou	1760	16
334	Udapolla	229	12 do	bro pek	1200	24
335		232	13 do	pek	1170	18
340	Patiagama	247	37 hf-ch	bro or pek	2035	41 bid
341		250	12 ch	pek No. 1	900	27
342		253	10 do	pek No. 2	960	25 bid
343	Ambalangoda	256	10 do	bro or pek	1000	38
344		259	11 do	or pek	1100	33
345		262	9 do	pek	810	27
348	Hopton	271	22 do	bro or pek	2200	39
349		274	29 do	or pek	2900	28 bid
350		277	24 do	pek	2160	26
351		280	14 do	pek sou	1260	19
354	Bandara Eliya	289	20 hf-ch	or pek	960	36
355		292	12 do	bro pek	720	28
356		295	38 do	bro or pek	2356	43
357		298	32 hf ch	pek	1472	28 bid
358		301	34 do	pek sou	1632	25
360	Lesmoir	307	10 ch	or pek	900	24
361		310	19 do	bro pek	1900	24
362		313	27 do	pek	2430	19
363		316	9 do	pek sou	720	16
364	Upperliyegrove	319	23 hf-ch	or pek	1104	26 bid
365		322	18 do	bro or pek	1080	29 bid
366		325	11 ch	pek	880	24
367		328	10 do	pek sou	860	18 bid
368	Hayes	331	18 do	bro or pek	1710	40
369		334	19 do	bro pek	2090	34
370		337	23 do	or pek	1840	29 bid
371		340	58 do	pek	4480	20 bid
372		343	53 do	pek	4502	21 bid
373		346	23 do	pek sou	2070	17
374		349	15 hf-ch	fans	975	34
375	Yatiyana	352	10 ch	bro pek	960	20
378	Cornwall	361	16 hf-ch	bro or pek	896	out
379		362	21 do	pek	1260	out
380	Johannesburg	367	18 ch	br pek	1530	16 bid
381	Thedden	370	33 do	bro pek	3300	29
382		373	21 do	pek	1995	21
385	Summer Hill	382	45 do	br or pek	2565	46 bid
386		385	23 do	or pek	2024	45
387		388	35 do	pek	3150	43
388	Panawatte	391	16 do	br pek	1792	37
389		394	9 do	or pek	882	37
390		397	25 do	pek	2450	26
391		400	12 do	pek sou	1140	22
393	Freds Ruhe	406	46 do	br pek	5060	21 bid
394		409	37 do	pek	3330	18
395		412	17 do	pek sou	1700	15
396	Dewalakande	415	30 do	pek No. 2	2880	withd'n
397		418	16 do	pek sou	1584	"
398	Lesmoir	421	14 do	or pek	1260	25
399		424	24 do	bro pek	2400	24 bid
400		427	19 do	pek	1710	19 bid
401		430	14 do	pek sou	1120	16 bid
403	St. Normans	436	46 do	bro pek	5060	33 bid
404		439	25 do	pek No. 1	2475	31
405		442	7 do	pek sou	700	24
407	Fairlawn	448	16 hf-ch	bro or pek	880	46
408		451	17 do	or pek	765	37
409		454	25 ch	pek	2125	29 bid
412	Killarney	463	69 hf-ch	bro or pek	4140	35 bid
413		466	20 ch	pek	1900	31 bid
414		469	12 do	pek sou	1080	24 bid
416	F	475	39 do	pek	3312	out
417		478	10 do	pek sou	797	14 bid
418	Pine Hill	481	37 hf-ch	bro or pek	2220	38
419		484	53 do	or pek	2968	28 bid
420		487	43 ch	pek	4085	23
421		490	11 do	pek sou	990	19
422	Gallawatte	493	36 do	br pek	3240	24 bid
423		496	18 do	bro or pek	1800	29
424		496	46 do	pek	3680	18 bid
425		502	14 do	pek sou	1190	15 bid
427		508	15 hf-ch	pek fans	1500	23
429		514	27 do	bro tea	2295	7 bid
432	Passara Group	523	13 ch	or pek	1105	28
433		526	16 do	bro pek	1520	26 bid
434		529	26 do	pek	2340	25
436	U G	535	10 do	unast	960	withd'n
437	Glendon	538	19 do	bro pek	1900	42
438		541	44 do	or pek	4180	26
439		544	43 do	pek	3440	21
440		547	12 do	pek sou	960	18
441		550	10 do	br pek fans	700	24
442		553	10 do	dust	800	21
444	Vogan	559	26 do	bro or pek	2730	44
445		562	38 do	or pek	3800	26 bid
446		565	56 do	pek	5040	19 bid
447		568	33 do	pek	2965	18 bid
450	Macaldenia	577	25 hf-ch	br pek	1500	36
451		580	20 do	pek No. 1	1100	27
452		583	25 do	pek	1375	24
453		586	14 do	pek sou	770	17
456	Clyde	595	29 do	bro pek	2752	21 bid
457		598	13 do	pek No. 1	1167	22
459	Harrow	604	29 do	pek	2897	withd'n
461	Puspone	610	34 do	or pek	3397	25 bid
462		613	19 do	sou	1802	withd'n

Messrs. Somerville & Co.—

[210,567 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Kannatotta	1102	26 ch	bro pek	2340	22
9		1105	11 do	pek No 1	935	14
13	H J S	1117	13 hf ch	bro pek	780	29
14		1120	18 do	pek sou	1080	16
15	Derb	1123	22 ch	pek fans	3080	23
16	Theberton	1126	8 ch	Young Hyson	800	26 bid
17		1129	8 do	Hyson No 1	720	20 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
21	Dodantela	1141	9 ch	bro pek	900	26 bid
22		1144	21 do	pek	1890	18 bid
23		1147	9 do	pek sou	720	15
25	Agra Elbedde	1153	43 hf ch	bro or pek	2580	48
26		1156	23 do	or pek	1265	40
27		1159	52 do	pek	2600	41
28		1162	23 do	pek sou	1035	37
31	Siriniwasa	1171	28 ch	bro pek	2800	27
32		1174	37 do	pek	3515	19 bid
33		1177	22 do	pek sou	1980	17
36	Oonankande	1186	27 hf ch	bro pek	1350	37
37		1189	40 do	pek	2000	24
38		1192	13 ch	pek sou	910	16
40	South Africa	1198	17 ch	bro or pek	1700	23
41		1201	25 do	pek	1925	19
42		1204	14 hf ch	pek fans	924	24
43	Grange Gardens	1207	15 ch	bro or pek	1500	44
44		1210	12 do	or pek	1200	35
45		1213	15 do	pek	1500	32
49	Paradise	1225	9 ch	or pek	900	23
50		1228	13 do	bro pek	1430	27
51		1231	13 do	pek	1300	18
52		1234	13 do	pek sou	1235	14
54	Salawe	1240	12 ch	or pek	1140	28
55		1243	15 do	or pek	1575	27
56		1246	16 do	pek	1520	19
57		1249	11 do	pek sou	990	14
59	Lyndhurst	1255	18 hf ch	bro pek	900	27
60		1258	15 do	or pek	795	24
62		1264	39 do	pek	1677	19
65		1273	14 do	bro or pek	840	25
66	D C L	1276	48 hf-ch	pek fans	3456	23
67	Deniyagama	1279	21 ch	or pek	1590	29 bid
68		1282	15 do	pek	1000	25 bid
69		1285	17 do	pek sou	1190	18 bid
72	D M O G, in est. mark	1294	18 hf ch	bro or pek	900	41
73		1297	14 do	bro pek	770	33
74		1300	13 do	pek	1040	23 bid
75		1303	21 do	pek sou	1650	18
80	Karangalla	1318	26 ch	bro pek	2860	30
81		1321	27 do	pek	2295	20
82		1324	10 do	pek sou	850	17
90	S R K	1348	7 ch	pek sou	770	24
94	Valugama	1360	14 ch	Hyson No 1	1288	18 bid
95		1363	11 do	Hyson	1067	14 bid
96	Farnham	1366	25 hf ch	bro or pek	1400	31
97		1369	29 ch	or pek	2610	28
98		1372	15 do	pek	1350	20 bid
99		1375	23 do	pek sou	1955	17
100	Cotswold	1378	12 ch	or pek	900	32 bid
102	G T	1384	20 hf ch	bro pek fans	1300	24
103	Wiharagama	1387	23 hf ch	bro pek	1495	26 bid
104		1390	10 ch	or pek	950	24
105	Murraythwaite	1393	19 ch	pek	1520	19 bid
106	H	1396	23 hf ch	bro pek	1150	26
107		1399	31 do	pek	1550	18
108		1402	60 do	pek sou	3000	14
115	Glenanore	1423	8 ch	bro mix	840	24
116	Cooroondoowatte	1426	11 ch	bro pek	1100	36
117		1429	21 do	pek	2100	22
118		1432	15 do	pek	1500	21 bid
119		1435	13 do	pek	1300	22
120		1438	13 do	pek sou	1300	16
123	Damblagalla	1447	13 hf ch	bro pek	780	25 bid
124		1450	18 ch	pek	1530	19 bid
125		1453	42 do	pek	3570	23 bid
126		1456	13 do	pek sou	1040	17
127	Beausejour	1459	18 ch	bro or pek	1800	26 bid
128		1462	12 do	or pek	1080	24 bid
129		1465	13 do	pek sou	975	17
130		1468	14 do	pek	1120	21
133	G B	1477	21 hf ch	dust	1050	23
134	Jak Tree Hill	1480	15 ch	bro pek unbulked	1500	25 bid
136		1486	7 do 7 hf-ch	pek	1050	20
139	Blinkbonnie	1495	29 do	bro pek	1827	46
140		1498	13 ch	or pek	1235	38 bid
141		1501	12 do	pek No 1	960	37
142		1504	9 do	pek No 2	828	42
143		1507	9 do	pek sou	7[illegible]8	33
144	Polduwa	1510	16 do	bro pek	1600	22
145		1513	15 do	pek	1440	14
152	Maligatenne	1534	8 ch	pek sou	830	14
153		1537	7 do	bro tea	771	8 bid
154	P	1540	14 ch	unas	1530	8
156	Rahatungoda	1546	27 hf ch	bro or pek	1458	52 bid
157		1549	25 do	or pek	1350	39 bid
158		1552	44 do	pek	2420	36
159	Columbia	1555	21 hf ch	bro or pek	1092	46 bid
160		1558	36 do	or pek	1656	34 bid
161		1561	35 do	pek	1610	28 bid
162	H Gama	1564	18 ch	bro pek	1890	23
163		1567	22 ch	pek sou	1980	12
164		1570	10 do	fans	900	10
167	Dryburgh	1579	32 hf ch	bro or pek	1824	26
168		1582	19 ch	or pek	1577	25 bid
169		1585	21 do	pek	1743	18 bid
172	Moragalla	1594	12 ch	bro pek	1200	25
173		1597	13 do	pek	1300	14
180	Primston	1618	11 ch	bro or pek	1100	out
181		1621	17 do	bro pek	1700	out
182		1624	23 do	pek	2185	out
185	Alpitakande	1633	13 hf ch	or pek	715	32
186		1636	24 do	pek	1200	with'dn
187	Rayigam	1639	26 ch	bro pek	2600	27
188		1642	27 do	or pek	2430	23
189		1645	31 do	pek	2480	20 bid
190		1648	17 do	pek sou	1615	19
192	Roseneath	1654	21 ch	bro pek	2100	29 bid
193		1657	18 do	pek	1620	21 bid
194		1660	27 do	pek sou	2295	18 bid
195	Primrose	1663	17 ch	bro pek	1700	with dn
196		1666	18 do	pek	1530	23
197	Charlie Hill	1669	15 hf ch	bro pek	750	32
198		1672	21 do	pek	1050	21
201	Cairnton	1681	20 hf ch	fans	1200	23
202	Invery	1684	12 hf ch	dust	1080	23

[Mr. E. John.—272,085 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	C	42	30 hf-ch	pek fans	2160	24
5	Wadhurst	45	9 ch	or pek	900	36
6		48	8 do	pek	720	34
11	Dikbedde	63	12 do	bro pek	1200	27
12		66	15 do	pek	1500	16
14	Oonoogaloya	72	28 do	bro or pek	2800	43
15		75	29 do	or pek	2610	32 bid
16		78	29 do	pek	2900	27 bid
17	Vincit	81	18 do	or pek	1620	27 bid
18		84	15 do	pek	1350	18
19		87	13 do	pek sou	1170	17
20		90	9 do	pek fans	990	23
21	Lonach	93	50 hf ch	bro or pek	3000	29 bid
22		96	73 do	or pek	3650	32 bid
23		99	46 ch	pek	4140	26
24		102	23 do	pek sou	2070	18
25	Kandaloya	105	18 hf-ch	bro pek	810	37 bid
26		108	37 do	or pek	1480	32 bid
27		111	60 do	pek	2400	29 bid
31	E	123	24 ch	pek	2160	16
32		126	33 do	pek sou	2640	14
33	Mount Clare	129	15 do	bro or pek	1500	34
34		132	11 do	or pek	990	29
35		135	16 do	pek(not bulked)	1360	29 bid
36		138	9 do	pek sou do	720	18
39	Gangawatte	147	16 do	bro or pek	1600	52
40		150	15 do	bro pek	1500	33 bid
41		153	40 do	pek	3600	33
43		159	13 hf-ch	fans	910	28
45	K P	165	9 do	fans	720	21
46	M N	168	14 ch	or pek	1400	40
47		171	13 hf ch	bro or pek	741	54
48		174	14 ch	pek	1302	37
49		177	9 do 1 hf ch	pek	866	out
50	Higham	183	18 ch	bro or pek	1170	30 bid
51		186	20 do	bro pek	2000	31 bid
52		189	16 do	pek	1440	24 bid
53		192	14 do	pek sou	1330	19 bid
54		195	11 hf ch	bro pek fans	825	23
55	Glassaugh	198	25 do	or pek	1375	54 bid
56		201	20 do	bro or pek	1340	45 bid
57		204	15 ch	pek	1500	55
60	Kadienlena	213	55 hf-ch	pek fans	4125	23
62	Birnham	219	29 ch	pek sou	1972	29
63	S	222	17 hf ch	bro or pek	1020	40
64		225	56 do	bro pek	3080	32
65		228	10 ch	pek	800	20
66		231	27 do	pek	2160	18 bid
67		234	23 do	pek sou	1610	18
69	Little Valley	240	12 do	bro pek	1200	26 bid
70		243	10 do	pek No. 1	800	21
72	Wahagapitiya	249	15 do	bro or pek	1500	45
73		252	9 do	bro pek	900	32
74	Villa	255	17 do	sou	1530	16
75	Dickapittia	258	34 do	bro pek	3400	28 bid
76		261	39 do	pek	3900	20 bid
77		264	14 hf ch	fans	938	24
78	Shawlands	267	40 ch	or pek	3800	22 bid
79		270	39 do	bro pek	3900	26
80		273	31 do	pek	2790	21
81		276	14 do	pek sou	1190	17
82		279	6 do	dust	720	22
83	Gingranoya	282	13 do	bro or pek	1300	36
84		285	12 do	pek sou	1020	22
85	Bowhill	288	22 do	bro pek	2200	31 bid
86		291	20 do	pek	1800	20 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
87	Koslanda	294	24 hf ch	bro pek	1320	31 bid
88		297	21 ch	pek	1785	20 bid
92	S J	309	17 hf ch	bro or pek	1054	40 bid
93		312	26 do	or pek	1352	47
94		315	31 do	pek	1736	32 bid
95		318	18 do	dust	1620	20
96	Templestowe	321	31 ch	bro or pek	2418	43
97		324	28 hf-ch	or pek	1316	39 bid
98		327	28 ch	pek	2520	33 bid
99		330	11 do	fans	1045	26
100	Glentilt	333	34 do	bro pek	3400	45
101		336	23 do	or pek	2185	36
102		339	18 do	pek	1530	31
103	Coslanda	342	24 hf ch	bro pek	1320	31 bid
104		345	21 ch	pek	1785	20 bid
108	Cabin Ella	357	19 do	or pek	1615	34
109		360	35 hf ch	bro or pek	1960	36
110		363	18 ch	pek	1620	29 bid
111		366	10 do	pek sou	900	23
113	Perth	372	19 do	bro or pek	1900	28
114		375	18 do	or pek	1494	24 bid
115		378	10 do	pek	750	21
118	Galloola	387	35 do	bro pek	3500	27 bid
119		390	47 do	pek	4230	25 bid
120		393	26 do	pek sou	2080	18
123	H H	402	26 hf ch	bro pek fans	1690	24
124	Glasgow	405	45 ch	bro or pek	3465	50
125		408	24 do	or pek	1632	44
126		411	12 do	pek	1104	40
127		414	7 do	pek sou	700	36
129	Agra Ouvah	420	26 hf ch	pek fans	2080	26
131	Callander	426	23 do	bro or pek	1380	41 bid
132		429	17 do	or pek	1350	34 bid
133		432	48 do	pek	2304	33 bid
134	Kelaneiya and Braemar	435	11 ch	bro or pek	1100	46 bid
135		438	9 do	or pek	900	34
136		441	14 do	pek	1330	32
140	G L	453	12 do	dust	2040	21
141	Elemane	456	31 do	bro pek	3100	29 bid
142		459	25 do	pek	2250	22 bid
143		462	20 do	pek sou	1800	17 bid
145	Theresia	468	19 hf ch	pek sou	1615	32
148	Peru	477	11 ch	bro pek	1210	33 bid
149		480	20 do	pek	1800	22 bid
150		483	9 do	pek sou	810	18
152	Eladuwa	489	10 do	or pek	1000	29
153		492	10 do	bro pek	1200	23 bid
154		495	30 do	pek	2850	19
155		498	9 do	pek sou	810	15
158	Ferndale	507	14 do	bro pek	1470	41
159		510	10 do	or pek	850	28 bid
160		513	14 do	pek	1190	24 bid
168	New Tunisgalla	537	15 do	bro pek	1575	28
169		540	23 do	or pek	2070	26
170		543	18 do	pek sou	1620	21
173	Eila	552	43 do	pek	4035	out
180	Brownlow	573	27 hf ch	bro or pek	1512	53
181		576	19 ch	or pek	1729	34
182		579	22 do	pek	1826	31
183	Glassaugh	582	25 hf ch	or pek	1375	54 bid
184		585	17 do	bro or pek	1139	45 bid
185		588	15 ch	pek	1500	52
186	Suduganga	591	9 do	or pek	755	29
187		594	16 hf ch	bro or pek	880	44
188		597	13 ch	pek sou	975	18 bid
191	Lameliere	606	24 do	bro or pek	2418	32 bid
192	Elston	609	28 do	pek	2380	27
193		612	25 do	pek sou	2250	24
194		615	11 do	or pek	990	32 bid
195	Gangawatte	618	18 do	bro or pek	1800	47 bid
196		621	15 do	bro pek	1500	33 bid
197		624	28 do	pek	2520	32
202	Bittacy	639	17 do	bro pek	1700	38 bid
203		642	18 do	or pek	1710	36 bid
204		645	15 do	pek	1350	33 bid
212	A A	669	9 do	sou	900	7 bid

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Mapitigama	73	6 ch	sou	450	13
5		76	3 do	bro pek fans	330	25
9	Battalgalla	88	10 hf ch	fans	600	25
16		9	9 ch	pek sou	585	30

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Palawatte	2836	9 hf ch	pek sou	450	17
4		2839	2 do	sou	100	15
5		2842	2 do	dust	160	21
9	Villehena	2854	4 hf ch	sou	200	14
10		2857	4 do	pek dust	320	20
11	Mahalla	2860	9 hf ch	bro pek	540	38
12		2863	10 do	or pek	540	29
13		2866	6 ch	pek	570	21
14		2869	4 do	pek sou	344	17
15		2872	1 do	dust	86	20
19	Strathspey	2884	6 ch	pek sou	552	28
20		2887	3 do	dust	333	24
23	Pendle	2896	6 ch	pek sou	540	26
24		2899	1 do	sou	90	22
25		2902	1 do	bro mix	50	10
26		2905	2 do	pek fans	150	24
28	New Peacock	2911	3 hf ch	bro mix	150	12
32	Beverley	2923	11 do	pek No 1	605	26
40	B, Talawa	2947	5 ch	bro or pek	497	36
41		2950	5 do	pek No 1	447	31
42		2953	5 do	pek No. 2	447	29
50	Maldeniya	2977	1 ch	fans	100	22
56	Sylvakandy	2995	3 ch	dust	300	24
67	Nillomally	3028	2 ch	bro pek fans	200	25
68		3031	6 do	fans	600	23
69	Sirikandura	3034	3 ch	bro pek No 1	300	32
73		3046	2 do	bro pek fans	176	24
74		3049	1 do	pek fan	86	12
75		3052	2 do	congou	168	7
76		3055	1 do	bro pek dust	130	24
77		3058	1 do	dust	173	18
78		3061	1 do	fan	86	8
81	Haputele-wella	3070	13 hf ch	pek sou	585	18
82		3073	2 do	fans	140	24
83		3076	2 do	dust	160	22
87	Dewalakande	3088	5 ch	young hyson	500	33
89		3094	7 do	hyson No 2	581	out
90		3097	4 do	green fan	400	8
91		3100	3 hf ch	green dust	252	13
99	Drayton	3124	2 ch	sou	170	19
107	St. Heliers	3148	4 hf ch	bro or pek fan	288	24
108		3151	7 do	dust	581	24
112	Coombe-court	3163	3 ch	pek sou	285	20
115	Palmerston	3172	1 ch	pek sou	80	36
116		3175	1 hf ch	dust	90	25
125	Queensland	3202	1 hf ch	dust	78	24
126		3205	1 do	or pek dust	77	24
127		3208	1 ch	bro pek No 2	105	16
135	Galapita-kande	3232	5 ch	pek sou	425	22
136		3235	2 do	dust	200	23
138	Weligoda	3241	8 ch	pek	680	19
139		3244	8 do	pek sou	600	15
140		3247	6 do	dust	510	23
141		3250	3 do	bro tea	240	9
145	Agra Oya	3262	1 ch	unas	80	19
146		3265	4 hf ch	dust	360	20
149		3274	5 ch	bro pek	475	18
150		3277	5 do	mix pek	450	15
165	Penrhos	3322	2 hf ch	fans	150	20
168	Tembiligalla	3331	4 ch	pek sou	360	17
169		3334	1 do	bro pek fans	120	22
170		3337	1 do	fans	145	21
171		3340	2 do	dust	310	21
180	Vogan	3367	4 ch	pek sou	360	17
181		3370	3 do	dust	255	24
185	Preston	3382	4 ch	bro or pek fan	448	36
186		3385	3 do	unas	276	24
190	Stamford Hill	3397	6 ch	pek sou	540	30
191		3400	3 hf ch	dust	255	24
195	Shrubs Hill	3412	5 ch	pek sou	400	16
197	Strathspey	3418	4 ch	do	357	withdrn.
209	Yataderia	3454	5 ch	do	564	15
219	Weyunga-watte	3484	3 ch	bro tea	285	15
220		3487	3 hf ch	dust	240	22
230	Maryland	3517	3 ch	sou	270	14
231		3520	4 do	dust	360	23
232		3523	4 do	fans	360	26
242	Angramally	3553	2 ch	unast	236	14
243	W W	3556	1 do	bro or pek	99	28
244		3559	1 do	bro pek	104	26
245		3562	1 hf-ch	pek sou	59	14
246		3565	1 do	dust	96	20
250	Oakham	3577	6 ch	pek sou	570	22
251		3580	2 do	pek fans	150	22
254	R in est. mark	3589	1 do	bro pek	78	27
255		3592	1 do	pek sou	90	14
256		3595	1 hf-ch	dust	67	17
267	Kirklees	28	5 do	dust	400	24
276	Hayes	55	10 do	fans	650	23
282	Ganapalla	73	4 hf-ch	dust	464	20
288	Oodoowerre	91	5 ch	pek sou	430	26
289		94	1 do	dust	144	23
304	BB in est. mark	139	4 hf ch	bro pek	220	16
305		142	4 do	pek	180	10
306		145	3 ch	pek sou	225	9
307		148	6 hf ch	dust	540	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
325	Arapolakande	202	4 ch	dust	340	22
336	Udapolla	235	6 do	or pek	540	26
337		238	6 do	pek sou	480	16
338		241	2 hf ch	unast	114	14
339		244	2 do	dust	160	18
346	Ambalangoda	265	6 ch	pek sou	540	19
347		268	1 do	dust	110	23
352	Hopton	283	3 do	fans	330	24
353		286	2 do	dust	220	23
359	Bandara Eliya	304	2 hf ch	dust	180	23
376	Yatiyana	355	1 ch	pek	101	15
377		358	1 do	pek sou	97	14
383	Thedden	376	8 do	pek sou	640	17
384		379	1 do	dust	160	22
392	Panawatte	403	3 do	dust	450	23
402	Lesmoir	433	7 hf ch	dust	560	19
406	St. Normans	445	1 ch	dust	140	22
410	Fairlawn	457	7 do	pek sou	560	24 bid
411		460	2 hf ch	dust	160	23
415	Killarney	472	3 do	dust	270	24
426	Gallawatte	505	6 hf ch	sou	480	14
428		511	6 do	dust	600	22
430		517	6 do	br pk No. 2	540	20
431		520	5 do	pek No. 2	400	14
435	Passara Group	532	3 ch	fans	210	23
443	G	556	7 do	sou	560	14
448	Vogan	571	6 do	pek sou	540	17
449		574	6 hf ch	dust	510	23
454	Macaldeniya	589	4 do	dust	300	24
455		592	4 do	fans	260	24
458	Palm Garden	601	1 ch	congou	97	10
460	Caledonia	607	11 do	pek	547	9
463	Killarney	616	3 hf-ch	dust	270	24

[Messrs. Somerville & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Buona Vista	1081	6 ch	or pek	600	23 bid
2		1084	7 do	pek	570	18 bid
3	Meetiagoda	1087	5 ch	bro pek	520	17
4		1090	3 do	pek	300	12
5		1093	3 do	pek sou	300	8
6		1096	5 do	fans	525	8
7		1099	1 do	bro dust	140	12
10	Kannatutta	1108	7 ch	pek No 2	560	10
11		1111	4 do	fans	400	11
12		1114	2 do	dust	280	19
18	Theberton	1132	5 ch 1 hf ch	Hyson No 2	475	out
19		1135	1 ch	Hyson No 3	100	out
20		1138	3 do	Hyson fans	295	9
24	Dodantela	1150	2 hf ch	dust	150	21
29	X X	1165	3 hf ch	bro or pek fans	180	25
30		1168	6 do	dust	480	24
34	Siriniwasa	1180	5 ch	bro pek fans	525	24
35		1183	3 do	dust	450	21
39	Oonanakande	1195	4 hf ch	dust	280	22
46	Grange Gardens	1216	2 ch	pek sou	200	20
47		1219	1 do	fans	100	24
48		1222	2 hf ch	dust	170	23
53	Paradise	1237	2 ch	dust	330	19
58	Salawe	1252	2 ch	pek dust	324	22
61	Lyndhurst	1261	12 hf ch	pek No 1	552	23
63		1267	12 do	pek sou	504	14
64		1270	2 do	dust	174	22
70	Gavalamtenne	1288	14 hf ch	pek	630	33
71		1291	5 ch	pek sou	225	30
76	F, in estate mark	1306	3 ch	pek sou	312	40
77		1309	4 hf ch	dust	296	24
78	F A, in estate mark	1312	1 hf ch	pek sou	61	20
79		1315	5 do	dust	415	24
83	Karangalla	1327	1 ch	sou	100	12
84		1330	1 hf ch	dust	85	20
85	Primston	1333	12 hf ch	bro pek	660	25
86		1336	10 do	pek	500	18
87		1339	7 do	pek sou	350	14
88		1342	2 do	fans	120	16
89		1345	3 do	sou	140	8
91	S R K	1351	3 ch	dust	480	23
92		1354	1 do	bro mix	100	9
93	Valugama	1357	6 ch	Young Hyson	576	26
101	Cotswold	1381	2 ch	dust	220	24
109	H	1405	4 hf ch	pek dust	280	20
110	S	1408	7 hf ch	dust	560	24
111		1411	10 do	sou	500	13
112	A	1414	4 hf ch	dust	320	24
113		1417	6 do	sou	300	13
114	Glenanore	1420	8 hf ch	dust	640	24
121	Cooroondoowatte	1441	4 ch	con	400	7
122		1444	4 hf ch	pek fans	320	24
131	Beausejour	1471	1 ch	bro pek fans	110	22
132	G B	1474	5 hf ch	bro tea	250	12
135	Jak Tree Hill	1483	5 hf ch	bro pek bulked	300	25
137		1489	4 ch	pek sou	400	13
138		1492	4 do	sou	382	12
146	Polduwe	1516	6 ch	pek sou	540	10
147		1519	4 do	fans	384	11
148		1522	2 do	dust	[illegible]	17
149		1525	2 do	con	1[illegible]0	6
150	Maligatenne	1528	6 ch	bro pek	645	23
151		1531	6 do	pek	615	17
155	P	1543	1 ch	dust	124	16
165	S F	1573	3 hf-ch	Young Hyson	183	14 bid
166		1576	3 do	Hyson	189	9 bid
170	S L G	1588	6 ch	sou	540	15
171		1591	5 do	red leaf	500	6
174	Morogalla	1600	6 ch	pek sou	600	11
175		1603	1 do 1 hf ch	pek No 2	150	6
176		1606	1 do	bro pek fans	100	14
177		1609	2 ch	Young Hyson	160	28
178		1612	2 do	Hyson	200	18
179		1615	1 do	Hyson No 1	100	out
183	Primston	1627	5 ch	pek sou	450	15
184		1630	1 do	dust	100	22
191	Rayigam	1651	8 hf ch	dust	640	24
199	Charlie Hill	1675	12 hf ch	pek sou	540	16
200		1678	1 do	pek fans	640	14

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A A	33	1 ch	dust	115	19
2	Iona	36	4 hf-ch	dust	340	19
3		39	4 ch	bro or fans	300	25
7	Wadhurst	51	4 do	pek sou	360	25
8		54	1 do	dust	80	21
9		57	1 do	fans	65	23
10		60	1 do	bro mix	50	6
13	Dikbedde	69	3 do	sou	300	7 bid
28	Kandaloya	114	8 hf-ch	pek sou	320	29
29		117	9 do	fans	450	24
30		120	3 do	dust	150	22
37	Mount Clare	141	2 ch	fans	220	21
38		144	2 do	dust	200	22
42	Gangawatte	156	3 do	pek sou	300	21
44	K P	162	4 hf ch	dust	392	18
58	W H	207	7 do	pek sou	322	14
59		210	4 do	dust	340	19
61	N	216	6 do	dust	510	24
68	S	237	2 ch	sou	150	14
71	Little Valley	246	5 hf ch	dust	400	23
89	Koslanda	300	3 ch	pek sou	285	18
90		303	2 do	fans	220	23
91		306	3 hf ch	dust	240	23
105	Coslanda	348	3 ch	pek sou	285	17
106		351	2 do	fans	220	23
107		354	3 hf ch	dust	240	23
112	Cabin Ella	369	7 do	br or pek fans	462	25
116	Perth	381	4 ch	pek sou	280	17
117		384	3 hf-ch	pek dust	225	23
121	Galloola	396	3 ch	dust	300	23
122		399	3 do	fans	300	25
128	Agra Ouvah	417	7 do	pek sou	644	31
130		423	2 hf ch	dust	200	23
137	Kelaniya and Braemar	444	6 ch	fans	600	31
138		447	4 do	sou	380	20
139		450	5 hf ch	dust	400	24
144	Elemane	465	3 ch	fans	300	23
146	Theresia	471	7 hf ch	dust	560	22
147		474	1 ch	sou	60	20
151	Peru	486	1 do	dust	160	20
156	Eladuwa	501	4 do	mix	580	11
157	Farm	504	3 hf ch	dust	225	19
161	Ferndale	516	9 ch	pek sou	675	18 bid
162		519	1 do	bro pek fans	125	24
163		522	1 do	dust	137	23
164	Taunton	525	7 do	pek No. 2	560	16
165		528	2 do	pek sou	160	14
166		531	2 do	fans	220	22
167		534	1 hf ch	dust	95	17
171	New Tunisgalla	546	6 ch	pek sou	540	14
172		549	1 do	dust	115	18
174	Wendura	555	6 hf ch	or pek	288	27
175		558	5 ch	bro pek	500	28
176		561	6 do	pek	528	20
177		564	6 do	pek sou	528	16
178		567	3 do	sou No. 2	300	14
179		570	4 hf ch	dust	336	18
189	Suduganga	600	1 do	pek fans	70	25
196		603	6 ch	sou	420	16
198	Gangawatte	627	3 do	pek sou	300	23
199		630	6 hf ch	dust	480	23
200		633	7 do	fans	490	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
201	Hoonookotua	636	4 ch	bro mix	400	5
205	Bittacy	648	5 do	pek sou	450	31 bid
206		651	3 do	fans	300	27 bid
207		654	7 bf ch	bro or pek	350	66 bid
208		657	5 do	dust	400	23
209	S	660	2 ch	bro pek	180	18
210		663	2 do	pek	190	11
211	A'A	666	7 bf ch	pek sou	280	15
213		672	3 ch	dust	468	15

CEYLON COFFEE SALES IN LONDON

(From Our Commercial Correspondent.)

MINCING LANE, April. 26.

"Magician."—North Matale OO, 1 tierce sold at 72s; O, 1 cask sold at 66s; 1, 1 cask and 1 barrel sold at 50s; 2, 1 barrel sold at 35s; PB, 1 barrel sold at 55s; T, 1 barrel sold at 35s; Aluwihare OO, 1 barrel sold at 75s; O, 1 tierce sold at 70s; 1, 1 cask sold at 59s; PB, 1 barrel sold at 55s; T, 1 barrel sold at 35s; New Peradeniya, 2 bags sold at 28s 6d.

Without Reserve.

"Gaekwar."—PRM EP 2, 8 bags sold at 22s 6d.

"Karamania."—PW S, 2 casks and 1 barrel sold at 20s.

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, May 3.

"Logician."—Meeriabedde F, 1 barrel sold at 102s; ditto 1, 1 cask sold at 102s.

"Historian."—Blackwood O, 1 cask sold at 110s; ditto EF, 1 tierce sold at 90s.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, May 3.

"Logician."—Ratwatte, 10 bags sold at 40s.

No. 21. COLOMBO, JUNE 3, 1901. PRICE:—12½ cents each, 3 copies 30 cents; 9 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

E. Benham & Co.]

[9,497 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Coodoogalla	71	30 hf-ch	bro pek	1500	29 bid
4		74	19 do	pek	950	19 bid
5	Hornsey	77	41 hf ch	bro pek	2255	33 bid
6		80	27 do	pek	2160	34
9	C B	89	9 ch	bro pek	900	27 bid
10		92	10 do	pek sou	900	20 bid

Messrs. Forbes & Walker.

[744,445 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Yatiyana	628	10 ch	pek	980	16
5		631	10 do	pek sou	958	12
6	Yogama	634	26 ch	bro pek	2600	31
7		637	26 do	pek	2340	25
9	Palm Garden	643	10 ch	bro pek	1100	28
10		646	10 do	pek	1000	18
11		649	7 do	pek sou	700	14
13	Puspone	655	24 ch	or pek	2400	28 bid
14		658	31 do	bro pek	3565	30 bid
15		661	14 do	pek	1330	23 bid
16		664	9 do	pek sou	810	20 bid
18		670	21 hf ch	bro or pek	1470	34
19	Walton	673	15 ch	bro pek	1650	34
20		676	11 do	or pek	990	29
21		679	10 do	pek	900	27
24	Ouvahkelle	688	9 ch	pek sou	810	35
25		691	10 hf ch	dust	800	26
26	Palmerston	694	13 hf-ch	bro or pek	741	68
27		697	14 ch	bro pek	798	43
28		700	10 do	pek	870	41
29	Roeberry	703	34 ch	bro or pek	3400	45
30		706	47 do	bro pek	4700	33
31		709	64 do	pek	5760	28
32		712	20 do	pek sou	1720	23
33	Stafford	715	18 hf ch	bro pek fn	1170	52
34		718	19 ch	or pek	1900	38 bid
35		721	21 do	pek	1785	36 bid
37	S R, in estate mark	727	14 ch	congou	1400	15
38	Ardlaw and Wishford	730	48 ch	bro or pek	4416	37 bid
39		733	14 do	or pek	1134	33
40		736	35 do	pek	2800	31
41		739	11 do	fans	1353	25
42	Madulkelle	742	19 ch	bro pek	1805	29 bid
43		745	12 do	or pek	960	37
44		748	7 do	bro or pek	700	40
45		751	9 do	pek	765	32
47	Kukuloya	757	13 ch	bro pek	1235	25
50	Findlater	766	57 hf ch	bro pek	3192	36
51		769	34 ch	pek	3230	22
52		772	8 do	pek sou	736	18
55	Holton	781	13 ch	bro pek	1235	27
56		784	19 do	pek	1615	16
61	Halbarawe	799	22 ch	bro pek	2200	25
62		802	24 do	pek	2040	14
63		805	9 do	pek sou	720	12
66	Putupaula	814	13 ch	bro or pek	1560	28
67		817	22 do	bro pek	2090	34
68		820	22 do	or pek	1870	27
69		823	22 do	pek No 1	1760	23
70		826	28 do	pek No 2	2100	21
71	Clyde	829	16 ch	bro or pek	1600	33
72		832	42 do	bro pek	3906	29
73		835	16 do	pek No. 1	1392	23
74		838	18 do	pek No 2	1620	20
76	Dickbedde	844	60 hf ch	bro pek	2800	36
77		847	23 ch	pek	2185	25
78		850	8 do	pek sou	736	20
80	Tonacombe	856	58 ch	or pek	5220	33
81		859	55 do	bro pek	5000	42
82		862	40 do	pek	3600	29
83		865	9 do	pek sou	765	25
84		868	14 hf ch	dust	1260	25
85	Ileby	871	23 ch	bro pek	2415	36
86		874	23 do	pek	1955	33
87		877	13 do	pek sou	1105	24
88	St. Heliers	880	23 hf ch	bro or pek	1265	45
89		883	14 ch	pek	1260	34
92	Tempo	892	20 ch	bro pek	2000	31

Lot.		Box.	Pkgs.	Name.	lb.	c.
93		895	14 ch	or pek	1190	26
94		898	31 do	pek No 1	2325	21
96		904	11 do	pek sou	748	17
98	K P W	910	45 hf ch	bro pek	2475	27
99		913	22 do	or pek	990	27
100		916	33 do	bro or pek	2145	29
101		919	80 do	pek	4000	21
102		922	23 do	pek sou	1150	16
106	Yelverton	934	33 hf ch	bro pek	1848	35
107		937	21 ch	pek	1995	26
110	New Angamana	946	20 ch	bro pek	2000	31
111		949	15 do	pek	1350	22
112		952	12 do	pek No 2	1080	18
113		955	17 do	pek sou	1530	15
116	Cumbawella	964	8 ch	bro pek	800	27
119		973	8 do	pek sou	720	16
122	Great Valley Ceylon, in est. mark	982	40 hf ch	bro or pek	3400	45
123		985	25 do	or pek	2375	35
124		988	26 do	pek	2340	28
125		991	38 ch	pek	3420	27
126		994	15 do	pek sou	1350	22
127	Nakia Deniya	997	22 ch	bro or pek	2200	28
128		1000	8 do	or pek	720	25
130		1006	63 hf ch	pek sou 2 oz. lead line	2520	15 bid
131		1009	18 ch	bro mix	1670	19
134	Sirikandure	1018	16 ch	bro pek	1600	29
135		1021	13 do	pek	1235	20
136		1024	18 do	pek sou	1620	18
145	Yuillefield	1051	57 hf ch	or pek	2850	35
146		1054	61 ch	pek	5185	31
147	Galkande	1057	36 hf ch	or pek	1800	29
148		1060	13 ch	pek	1105	29
150	Kotagaloya	1066	18 ch	bro pek	1980	26
151		1069	39 do	pek	3315	19
154	St. Pauls	1078	26 hf ch	bro or pek	1716	42
155		1081	37 do	or pek No 1	2035	38
156		1084	33 do	or pek	1452	31
157		1087	31 do	pek	1643	27
158	Coldstream group	1090	50 hf ch	bro pek	2750	42
159		1093	12 ch	pek	1020	33
164	O B E C, in estate mark, Summerhill	1108	39 ch	bro or pek	2223	50 bid
165		1111	22 do	or pek No 1	1804	40 bid
166		1114	46 do	bro pek	2760	42 bid
167	O B E C, in estate mark Newmarket	1117	22 ch	bro or pek	1496	45
168		1120	19 do	bro pek	2052	37 bid
169		1123	26 do	or pek	2340	34 bid
170		1126	20 do	pek	1800	34
171		1129	9 do	pek sou	828	25
174	Weligoda	1138	16 ch	bro pek	1520	25
176		1144	13 do	pek sou	975	17
178	Queensland	1150	7 ch	bro pek	700	44
179		1153	8 do	pek	720	34 bid
188	H M	1180	31 hf ch	flowery or pek	1860	47
189		1183	25 ch	pek	2250	24
190		1186	12 hf ch	dust	1080	24
193	Ella Oya	1195	27 ch 1 hf-ch	pek	2348	18
194		1198	16 ch	pek sou	1314	14
197	Good Hope	1207	36 do	bro pek	3240	26
198		1210	40 do	do	3600	25 bid
199		1213	13 do	bro or pek	1300	33
200		1216	23 do	pek	2070	20
204	Middleton	1228	26 do	bro pek	2600	38 bid
205		1231	26 do	pek	2210	36
206	Kitulgalle	1234	21 hf ch	bro or pek	1260	31
207		1237	17 ch	or pek	1530	25
208		1240	24 do	pek	1800	19
209		1243	10 do	pek sou	900	16
213	Ardlaw and Wishford, Invoice No. 14	1255	39 ch	bro or pek	3783	43
214		1258	13 do	or pek	1105	33 bid
215		1261	19 do	pek	1577	32
216	Waratenne, Invoice No. 12	1264	13 ch	bro or pek	1430	30
217		1267	19 do	bro pek	1710	27
218		1270	31 do	pek	2635	21
219		1273	15 do	pek sou	1125	18
221	G	1279	8 do	green tea dust	1088	13

Lot.		Box.	Pkgs.		Name.	lb.	c.
222	I	1282	8	ch	green tea dust	1088	13
223	Chesterford	1285	80	do	bro pek	7600	32
224		1288	79	do	pek	7110	24
225		1291	49	do	pek sou	4410	19
226		1294	14	do	fans	1260	24
227	Ingrogalla	1297	20	ch	bro pek	2000	32
228		1300	16	do	pek	1440	28
229	Naseby	1303	30	hf ch	bro or pek	1800	60
230		1306	30	do	or pek	1380	44 bid
231		1309	10	do	fans	770	37
232		1312	8	do	dust	720	28
235	O B E C, in estate mark Forest Creek	1321	13	ch	bro or pek	1300	60
236		1324	40	do	bro pek	4000	37 bid
237		1327	19	do	or pek	1710	39 bid
238		1330	21	do	pek No 1	1890	35 bid
239		1333	31	do	do No 2	2790	32 bid
242	Nakiadeniya	1342	15	ch	pek	1200	22
243		1345	21	hf ch	pek sou	840	19
245	O K, in estate mark	1351	10	ch	bro pek una3	1042	12
253	Galkadua	1375	9	ch	bro pek	990	28
254		1378	8	do	pek	800	18
255		1381	7	do	pek sou	700	14
259	Nonpareil	1393	32	hf ch	bro or pek	1824	38
260		1396	16	do	or pek	910	35
261		1399	19	do	pek	1009	31
264	Lucky Land	1408	30	hf ch	bro or pek	1800	42
265		1411	25	do	or pek	1250	46
266		1414	35	do	pek	1575	36
269	Akaroa	1423	45	ch	bro pek	4950	35
270		1426	48	do	pek	4080	22 bid
271		1429	25	do	pek sou	1850	19
272	Aberdeen	1432	25	ch	bro pek	2500	33
273		1435	29	do	pek	2349	22
275	Morankande	1441	20	ch	bro pek	2000	29
276		1444	14	do	pek	1260	20
277		1447	11	do	pek sou	935	18
280	Widmore	1456	45	hf-ch	bro or pek	2700	48
281		1459	35	do	or pek	1610	41
282		1462	88	do	pek	4576	28
283		1465	38	do	pek sou	1710	22
285	Hanwela	1471	10	ch	young hyson	1090	36
290	Dunkeld	1486	65	hf-ch	br or pek	3770	37
291		1489	18	ch	or pek	1710	32
292		1492	23	do	pek	2070	27
293	Ganapalla	1495	15	do	or pk No. 1	1410	35
294		1498	29	do	or pk No. 2	2494	26
295		1501	19	do	bro or pek	2090	29
296		1504	29	do	pek No. 1	2465	22
297		1507	29	do	pek No. 2	2436	19
298		1510	25	do	pek sou	2000	17
300	B P C	1516	28	hf-ch	dust	2520	withd'n
301	Massena	1519	55	do	pek	2747	23
302	Bandarapola	1522	60	do	bro pek	3900	withd'n
303		1525	22	do	or pek	2310	
304		1528	21	ch	pek	2100	
305	Seenagolla	1531	18	hf-ch	bro or pek	1089	out
306		1534	18	do	pek	1044	43
307	Akaroa	1537	32	ch	bro pek	3520	35 bid
308		1540	45	do	pek	3915	23 bid
309		1543	20	do	pek sou	1480	18 bid
310		1546	10	hf ch	dust	800	24
311	High Forest	1549	60	do	or pek No 1	3480	41 bid
312		1552	40	do	or pek	2200	39 bid
313		1555	24	do	pek	1200	34 bid
314	Clunes	1558	15	ch	or pek	1200	29
315		1561	40	do	bro pek	4000	30
316		1564	25	do	pek No. 1	2000	22
317		1567	50	do	pek No 2	4000	19
318		1570	15	do	pek sou	1200	17
331	Battawatte	1579	8	do	or pek	800	35
322		1582	26	do	bro or pek	2860	26
323		1585	26	do	pek	2470	27
324		1588	9	do	pek sou	720	20 bid
325	High Forest	1594	57	hf-ch	bro or pek	3990	35
327		1597	76	do	or pk No. 1	4405	41 bid
328		1600	34	do	pek	1920	35
		1600a	33	do	pek sou	1485	31
329	Ruanwelle	1603	24	ch	or pek	2040	24
330		1606	14	do	br pek	1400	30
331		1609	30	do	pek	2700	19 bid
332		1612	8	do	pek sou	720	17
334	Erracht	1618	15	do	bro pek	1500	29
335		1621	10	do	or pek	850	28
336		1624	22	do	pek	1870	23
337		1627	10	do	pek sou	850	20
340	Pallagodda	1636	16	do	bro or pek	1600	29
341		1639	29	do	bro pek	2900	23
342		1642	22	do	or pek	1980	26
343		1645	22	do	pek	1870	22
344		1648	15	do	pek sou	1350	19
345		1651	15	do	dust	1350	24
350	Dea Ella	1666	34	hf ch	bro or pek	1700	36
351		1669	53	hf ch	or pek	2650	28
352		1672	49	do	pek	2450	25
353		1675	19	do	pek sou	950	18
354		1678	12	do	fans	720	26
356	Weyunga watte	1684	25	ch	bro or pek	2625	28
357		1687	43	do	pek	3870	21
358		1690	38	do	pek sou	2850	19
361	Ingoya	1699	34	do	bro pek	3740	28
362		1702	47	do	pek	4371	19
363		1705	18	do	pek sou	1476	18
364	Poonagalla	1708	38	do	or pek	3610	32 bid
365		1711	27	do	bro pek	2970	33 bid
366		1714	58	do	pek	4930	23 bid
367		1717	36	do	pek sou	2880	18
368		1720	16	do	sou	1184	16
369		1723	23	do	fans	1610	25
370		1726	27	hf-ch	dust	2430	24
373	Augusta	1735	8	ch	pek sou	720	16
375	Bargany	1741	24	hf ch	bro or pek	1440	37
377		1747	12	ch	pek	1080	24
378		1750	13	do	pek sou	1040	19
381	Loinorn	1759	22	do	or pek	1980	56 bid
382	Avoca	1762	34	do	bro pek	3638	43 bid
383		1765	25	do	bro or pek	2750	42
384		1768	29	do	pek	2668	34 bid
385		1771	9	do	pek sou	864	30 bid
386		1774	6	do	br pek fans	810	26
387	Pine Hill	1777	53	hf-ch	or pek	2965	26 bid
388	Castlereagh	1780	26	hf-ch	bro or pek	1300	49
389		1783	17	ch	bro pek	1700	41
390		1786	10	do	or pek	800	32
391		1789	10	do	pek	850	31
392		1792	10	do	pek sou	800	24
393		1795	10	hf-ch	fans	700	25
394	Arapolakande	1798	64	ch	bro pek	5757	27
395	C N	1801	24	do	bro tea	2040	19
396	Marlborough	1804	87	hf-ch	bro or pek	4870	34
397		1807	29	ch	or pek	2610	29 bid
398		1810	59	do	pek	5605	24 bid
399	Tillyrie	1813	8	do	fans	960	withd'n
401	Bellongalla	1819	22	hf-ch	br pek	1210	·9
402		1822	12	ch	pek	1020	21 bid
405	Yataderiya	1831	17	do	bro or pek	1836	31
406		1834	14	do	br pek	1512	28
407		1837	14	do	or pek	1484	23
408		1840	28	do	pek No. 1	2660	20
409		1843	13	do	pek	1274	16
411		1849	36	do	pek	3204	23
412	W V R	1852	23	hf ch	bro or pek	1265	51
413		1855	14	do	fans	1120	24
416	B D W P	1864	16	do	bro pek fans	1040	25
418	Kincora	1870	15	ch	bro pek	1575	44 bid
419		1873	12	do	or pek	1020	35 bid
420		1876	26	do	pek	2210	31 bid
421		1879	11	do	pek sou	825	24
422	O B E C in est. mark, Sinnamally	1882	44	do	bro pek	4400	31 bid
423		1885	15	do	or pek	1275	32 bid
424		1888	34	do	pek	2822	29 bid
425		1891	13	do	pek sou	910	23 bid
426		1894	10	do	dust	800	24
427	Munukattia, Ceylon, in est mark	1897	10	do	or pek	900	31 bid
428		1900	32	hf-ch	bro pek	1920	37 bid
429		1903	23	do	pek	1840	24
430		1906	7	cb	pek sou	700	22
432		1912	9	hf-ch	dust	730	25
433	Pendle	1915	26	do	bro or pek	1508	38 bid
434		1918	22	ch	or pek	2090	33 bid
438	Yatiyaua	1930	10	do	bro pek	994	28
440	Pine Hill	1936	21	hf-ch	bro pek	1260	44
441		1939	29	do	or pek	1624	29
442		1942	14	ch	pek	1330	22
444		1945	10	hf-ch	dust	850	24
444	Maxim	1948	28	ch	bro or pek	2800	24 bid
445		1951	19	do	or pek	1805	25 bid
446		1954	26	do	pek	2880	18 bid
447		1957	20	do	pk No. 2	1520	16
448		1960	18	do	pek sou	1260	15
450	Erlsmere	1966	9	do	or pek	720	34 bid
451		1969	35	hf-ch	bro pek	1960	39
452		1972	23	ch	pek	1840	35
455	Norton	1981	27	hf-ch	bro or pek	1566	46
456		1984	10	ch	pek	1000	36
457		1987	10	do	or pek	800	37 bid
458		1990	10	do	pek sou	820	28 bid
461	Glengariffe	1999	40	hf ch	br pek	2200	44
462		2002	9	do	or pek	810	30
463		2005	36	do	pek	3240	24
464		2008	9	do	pek sou	703	19
465		2011	11	do	pek fans	715	26
466		2014	11	do	dust	880	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
467	Udabage	2017	28 ch	bro or pek	1540	withd'n
468		2020	33 do	or pek	1650	
469		2023	23 hf-ch	pek	1350	
470	Coombe Court	2026	18 do	bro or pek	1080	
471		2029	9 do	or pek	765	
472		2032	10 do	pek	900	
473	Upper Lyegrove	2035	28 do	or pek	1344	26
474		2038	29 do	bro or pek	1740	32
475		2041	13 ch	pek	1092	22
476		2044	10 do	pek sou	820	18
477	Lesmoir	2047	19 do	pek	1707	21
478		2050	14 do	pek sou	1117	16
479	Penrhos	2053	25 hf-ch	bro or pek	1425	48
480		2056	26 do	or pek	1248	32
481		2059	34 ch	pek	3094	23
483		2062	10 do	pek sou	800	21
485	Fairlawn	2971	25 do	pek	2122	26 bid
487	Killarney	2077	20 do	pek	1897	32
490	Baddegama	2086	8 do	bro or pek	800	33 bid
491		2089	9 do	br pek	900	26
492		2092	8 do	pek	720	22
498	Agra Oya	2110	11 do	bro pek	1100	33
499		2113	9 do	or pek	720	25
500		2116	11 do	pek	935	24
501	St. Pauls	2119	44 do	or pek No 1	2420	38
502		2122	44 do	or pek	2068	31
503		2125	40 do	pek	2120	29
504	Galapitakande	2128	20 do	or pk	1797	34
505		2131	35 do	pek	2972	27
506	Hopton	2134	24 do	pek	2157	27 bid
507	Amblakande	2137	11 do	bro or pek	1100	28
510		2146	9 do	pek	720	18 bid
511		2149	9 do	pek sou	720	17
512		2152	7 do	dust	700	24
513	Gallaheria	2155	24 do	bro or pek	2100	39
514		2158	28 do	or pek	2380	31
515		2161	32 do	pek	2720	25
516		2164	20 do	pek sou	1800	18
517	Maha Eliya	2167	26 hf ch	bro or pek	1430	54 bid
518		2170	23 ch	or pek	2300	38 bid
519		2173	31 do	pek	3100	36 bid

Messrs. Somerville & Co.—
[239,231 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Owilikande	1693	40 ch	bro pek	4000	26 bid
4		1696	14 do	pek	1330	16 bid
5		1699	10 do	pek sou	900	5 bid
6		1702	13 hf ch	dust	1040	20
7	Mousa Eliya	1705	26 ch	bro pek	2600	with
8		1708	16 do	pek	1520	drawn
9	Nyanza	1711	14 ch	or pek	1400	30
10		1714	16 hf ch	bro or pek	960	35 bid
11		1717	14 ch	pek	1330	30
17	Kallebokke	1735	11 do	bro or pek	1100	49 bid
18		1738	23 do	bro pek	2415	32 bid
19		1741	12 do	or pek	1056	31 bid
20		1744	25 do	pek	2200	32
24	Hartfield	1756	20 ch	bro pek	1900	27
25		1759	12 do	bro or pek	1260	23
26		1762	21 do	pek	1743	19 bid
27		1765	13 do	pek sou	949	16 bid
28	Horagoda	1768	8 ch	bro or pek	800	29
29		1771	9 do	or pek	810	24
30		1774	15 do	pek	1425	16 bid
31		1777	8 ch	pek sou	720	14
34	Old Maddegama	1786	13 ch	bro or pek	1040	41 bid
35		1789	9 do	or pek	700	36
36		1792	1 box 15 ch	pek slack packed	1275	33
37		1795	9 ch	pek sou	765	29
40	Kudaganga	1804	11 ch	bro pek	1100	28
41		1807	13 do	pek	1235	19
46	Dartry	1822	13 hf ch	fans	1014	24
48	Yspa	1828	21 ch	pek sou	2040	26
49		1831	11 do	dust	1540	23
50	Warakamure	1834	48 ch	bro pek	4800	27 bid
51		1837	32 do	pek	3040	20
52		1840	14 do	pek sou	1260	14
53	Hangranoya	1843	12 ch	bro or pek	1140	48
54		1846	35 do	bro pek	3500	34
55		1849	33 do	pek	2970	22
56		1852	18 do	pek sou	1440	18
57	Ravenscraig	1855	18 hf ch	bro pek	990	39
58		1858	24 ch	pek	2160	26
62	Avisawella	1870	21 ch	bro or pek	1050	42
63		1873	18 do	bro pek	1800	30
64		1876	22 do	pek	1870	20
65		1879	18 do	pek sou	1440	16
71	Doragalla	1897	23 ch	bro pek	2300	37

Lot.		Box.	Pkgs.	Name.	lb.	c.
72		1	18 ch	or pek	1620	31
73		4	37 do	pek	3145	30
74		7	12 do	pek sou	960	24
75		10	12 do	fans	1560	24
76	Murraythwaite	13	22 ch	bro pek	2200	30
77		16	17 do	pek	1360	19 bid
78		19	9 do	pek sou	720	15
81	R K P	28	16 ch	bro or pek	1600	29
82		31	9 do	or pek	885	27
83		34	24 do	pek	2160	20
84	Kurulugalla	37	17 ch	bro pek	1700	29
85		40	14 do	pek	1260	20
89	K G A, in estate mark	52	10 ch	bro pek	1000	28
95	Hanagama	70	21 ch	pek sou	1890	7 bid
96		73	12 do	sou	960	7 bid
98	Waganilla	79	20 ch	bro pek	2000	21
99		82	21 do	or pek	1890	28
100		85	8 do	pek	720	29
102	Rambodde	91	28 hf ch	bro pek	1680	45
103		94	44 do	pek	2200	32
104		97	27 do	pek sou	1350	26
117	Selvawatte	136	27 hf ch	bro pek	1485	28
118		139	10 ch	pek	800	19
120	D M O G, in estate mark	145	18 hf ch	bro or pek	900	40
121		148	12 ch	pek	960	25
122		151	14 do	pek sou	1050	19
125	W S	160	7 ch	or pek	700	19 bid
126	New Valley	163	25 ch	bro or pek	2500	40
127		166	23 do	or pek	2070	31 bid
128		169	14 do	pek sou	1400	30
129		172	17 do	pek sou	1360	28
131	Alpitakande	178	24 hf ch	pek	1200	16 bid
132		181	18 do	or pek	990	28 bid
133	Rayigam	184	19 ch	bro pek	1900	30
134		187	21 do	or pek	1890	23 bid
136		190	21 do	pek	1785	21
137		193	12 hf ch	pek sou	1140	20
138	Annandale	199	13 hf ch	bro or pek	767	65 bid
139		202	21 do	or pek	1113	44 bid
140		205	22 do	pek	1276	42
141		208	20 do	pek sou	1000	35 bid
143	Meddegodde	214	31 hf ch	bro or pek	1550	30
144		217	37 do	or pek	1480	29 bid
145		220	42 do	pek	1470	24
148	Pindeni	229	10 ch	bro or pek	900	30
149		232	11 do	pek	935	22
154	Neboda	247	33 ch	bro or pek	3300	28
155		250	41 do	or pek	3690	21 bid
156		253	13 do	pek	1170	19
157		256	35 do	pek sou	2660	15
160	Neuchatel	265	44 ch	bro or pek	4400	29 bid
161		268	40 ch	or pek	3200	20 bid
162		271	25 do	pek sou	2000	17
163		274	5 do	dust	700	23
164	K G	277	9 ch	sou	927	9 bid
165	Suriawatte	280	26 ch	bro pek	2522	16 bid
166		283	37 do	sou	2960	6 bid
169	Jak Tree Hill	292	10 ch	pek sou	1000	16
172	Kurunegalle est. Co.	301	27 ch	pek	2430	20 bid
173	Columbia	304	19 hf ch	pek sou	1045	20 bid
174	Rahatungoda	307	19 hf ch	bro or pek	1335	30
175		310	22 do	pek sou	1100	28
177	B E	316	21 hf ch	or pek	1008	41
182	A	331	12 hf ch	dust	1020	20
183		334	9 do	red leaf	765	with dn
184	Gangwarily	337	12 ch	pek	1020	19 bid
185		340	28 do	pek	2240	17 bid
186		343	28 do	pek	2100	17 bid
187	Havilland	346	12 ch	or pek	960	28 bid
188		349	10 do	pek	900	21
189	Glenalla	352	11 ch	or pek	880	27
190		355	24 do	pek	2040	20 bid
191	Forest Hill	358	21 ch	pek	1995	21
192		361	22 do	pek	1958	22
193	R P	364	16 ch	bro or pek	1792	34 bid
194		367	10 do	bro pek	1000	20 bid
195		370	31 do	pek	2728	24 bid
196	Monrovia	373	30 ch	bro pek	3000	28
197	Hatdowa	376	16 ch	bro pek	1600	29
198		379	9 do	or pek	810	26
199		382	18 do	pek	1530	18
200		385	10 do	pek sou	800	16
202	S A	391	20 ch	bro pek No 2	2000	25 bid
203	S L	394	19 hf ch	pek fans	1235	24
204	Bodava	397	46 hf ch	bro pek	2530	28
205		400	15 ch	pek	1350	19
206		403	11 do	pek sou	935	16
209	B D	412	31 hf ch	bro pek fans	1860	24
210	V A	415	29 hf-ch	fans	2523	23 bid

[Mr. E. John.—189,572 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	St. Andrew's	675	15 hf ch	dust	1275	23
2	Allington	678	7 ch	bro pek	700	withd'n
3		681	8 do	pek	720	withd'n
9	T	699	22 do	pek sou	1700	29 bid
12	Winwood	708	16 hf-ch	bro or pek	800	47
13		711	18 ch	or pek	1620	33
14		714	11 do	pek	990	30
15		717	12 do	pek sou	1080	23
16	Manickwatte	720	47 hf ch	or pek	2256	23
17		723	52 do	bro or pek	3120	33 bid
18		726	43 do	bro or pek	2580	31 bid
19		729	23 ch	pek	2001	22 bid
20		732	23 do	pek	1840	23
21		735	18 do	pek sou	1386	19
23	Poilakande	741	60 do	bro pek	5400	28
24		744	33 do	pek	2640	19
25	P K T	747	11 hf-ch	dust	880	21
26	Ottery	750	13 ch	bro or pek	1300	44
27		753	20 do	or pek	1600	36
28		756	19 do	pek	1615	24
36	Little Valley	780	9 do	or pek	720	30
37		783	8 do	bro pek	840	32
38		786	9 do	pek No 1	720	24
39		789	10 do	pek No. 2	850	19
41	S	795	39 hf ch	bro pek	2145	withd'n
42		798	23 ch	pek	1955	withd'n
44	Ohiya	804	8 do	pek sou	760	25
45		807	13 hf-ch	fans	780	26
46	Whyddon	810	10 ch	bro or pek	1100	41
47		813	14 do	bro pek	1540	32
48		816	15 do	or pek	1350	30
49		819	12 do	pek	1080	27
53	Glentilt	831	26 do	bro pek	2600	44
54		834	18 do	or pek	1710	34
55		837	14 do	pek	1190	32
57	Loughton	843	33 hf ch	bro pek	1650	30
58		846	60 do	pek	3000	20 bid
59		849	52 do	pek sou	2600	17
61		855	16 do	bro pek fans	800	25
62	A W	858	15 do	pek dust	1275	21 bid
63		861	5 ch			
			1 hf ch	fans	705	18 bid
67	G B	873	16 do	fans	1120	24
69	Newham	879	11 ch	bro pek	1045	28
70		882	15 do	pek	1412	19
71		885	22 do	pek sou	1930	15
73	Koslande	981	18 hf ch	bro pek	990	31
74		894	22 ch	pek	1870	21 bid
78	M C	906	21 do	pek	1995	14
81	Galpotta	915	47 hf-ch	hyson No. 1	2115	out
82	O F E	918	12 ch	bro pek	1200	31
83		921	10 do	pek	1000	22
84		924	8 do	pek sou	800	17
88	Glasgow	936	44 do	bro or pek	3388	50
89		939	26 do	or pek	1768	39 bid
90		942	13 do	pek	1196	38
91		945	7 do	pek sou	700	35
92	Agra Ouvah	948	44 hf ch	bro or pek	2464	51
93		951	71 do	or pek	3834	37 bid
94		954	27 ch	pek	2538	36 bid
95	Ben Nevis	957	15 hf ch	bro pek	900	49
97		963	14 ch	pek	1260	34 bid
101	Callander	975	11 hf ch	bro pek fans	770	26
103	Bowhill	981	22 ch	bro pek	2200	32
104		984	20 do	pek	1800	withd'n
105	Oonoogaloya	987	24 do	bro or pek	2400	46
106		990	20 do	pek	2000	28
107		993	25 do	or pek	2250	32
108		996	20 hf ch	bro or pek No. 2	1400	31
109	Poilakande	999	60 ch	bro pek	5400	28
110		2	44 do	pek	3520	20
111	Mocha	5	26 do	bro or pek	2600	50
112		8	14 do	or pek	1330	36 bid
113		11	18 do	pek	1746	35 bid
114		14	14 do	pek sou	1232	34 bid
115	Coslande	17	18 hf ch	bro pek	990	32
116		20	22 ch	pek	1870	21
120	Gonavy	32	13 do	or pek	1040	30 bid
121		35	21 hf ch	bro pek	1155	38
122		38	24 ch	pek	1800	27
123	N F	41	9 do	br pek fans	1080	23 bid
124	Brownlow	44	20 hf ch	bro or pek	1117	49
125		47	22 ch	pek	1911	30 bid
126	Perth	50	22 do	bro or pek	2200	29
127		53	29 do	or pek	2407	23 bid
128	Glassaugh	56	26 hf-ch	or pek	1482	56 bid
129		59	22 ch	bro or pek	1562	50
130		62	18 do	pek	1800	52
131	B D	65	11 do	pek sou	1043	05 bid
232		68	12 do	sou	975	05
134	H O	74	12 hf ch	pek fans	960	23
135	Elston	77	19 ch	pek	1615	26
136		80	35 do	pek sou	3150	22
137		83	16 do	or pek	1440	29 bid
138		86	12 hf ch	dust	1080	25
139	L E L	89	63 ch	pek	5355	out
140	Gingranoya	92	15 do	bro or pek	1500	35
141		95	11 do	or pek	990	30
142		98	25 do	pek	2125	28
143	Brownlow	101	34 hf ch	bro or pek	1972	50
144		104	24 ch	or pek	2002	35
145		107	25 do	pek	2300	
146		110	11 do	pek sou	935	28
147	G K	113	7 do			
			1 hf ch	pek fans	1073	23

SMALL LOTS.

E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	S	65	1 ch	bro pek	85	20
2		68	2 do	pek	144	18
7	Hittuwellen-tenne	83	3 ch	bro pek	300	38
8		86	3 do	pek	300	24

[Messrs. Forbes & Walker.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	S K M	619	1 ch	bro pek	100	26
2		622	1 do	pek	100	17
3		625	1 hf ch	pek sou	60	11
8	Yogama	640	3 ch	pek sou	240	21
12	Palm Garden	652	1 do	fans	120	19
17	Puspone	667	7 hf ch	dust	644	24
22	Walton	682	3 ch	bro tea	240	17
23		685	1 do	dust	150	23
36	Stafford	724	2 hf ch	fans	160	25
46	Madulkelle	754	3 ch	dust	330	23
48	Kukuloya	760	8 ch	or pek	640	30
49		763	2 do	fans	210	23
53	Findlater	775	4 hf ch	dust	392	24
54	Sylvakandy	778	3 ch	dust	300	23
57	Holton	787	8 ch	pek sou	680	18
58	K D A	790	3 ch	bro pek	330	24
59		793	3 do	pek	300	17
60		796	2 do	pek sou	200	11
64	Halbarawe	808	3 ch	fans	372	24
65		811	1 do	dust	164	22
75	Clyde	841	9 do	pek sou	657	17
79	Dickbedde	853	6 hf ch	dust	[illegible]	24
90	U G	886	6 ch	unas	540	9
91		889	4 do	unas	420	9
95	Tempo	901	10 ch	pek No. 2	660	19
97		907	5 do	bro pek fans	500	26
103	K P W	925	4 hf ch	bro pek fans	300	25
104		928	2 do	pek fans	150	24
105		931	3 do	dust	255	23
108	Yelverton	940	5 ch	pek sou	[illegible]	19
109		943	4 hf ch	dust	336	24
114	New Anga-mana	958	5 ch	fans	500	18
115		961	1 do	dust	130	22
117	Cumbawella	967	6 do	pek	540	19
118		970	6 do	pek No 2	540	18
120		976	3 do	fans	300	19
121		979	1 do	dust	130	21
129	Nakia Deni-ya	1003	1 ch	pek	80	19
132		1012	4 do	bro pek fans	440	24
133		1015	4 do	dust	480	22
137	Sirikandura	1027	1 do	pek fans	91	17
138		1030	1 do	congou	92	8
139		1033	2 do	bro pek dust	260	24
140		1036	1 do	dust	161	20
141	St. Clive	1039	12 hf ch	young hyson	600	33
142		1042	13 do	hyson	585	22
143		1045	14 do	hyson No 2	560	17
145		1048	0 do	hyson fans	300	9
149	Galkande	1063	7 ch	pek sou	630	20
152	Kotagaloya	1072	5 do	pek sou	450	18
153		1075	8 hf ch	dust	640	24
160	Coldstream Group	1096	7 ch	pek sou	595	24
161		1099	6 hf ch	fans	390	24
162		1102	8 do	dust	640	23
163		1105	2 do	bro mix	200	12
172	O B E C, in estate mark Newmarket	1132	2 ch	dust	300	24
173	A G	1135	2 do	red leaf	160	6
175	Weligoda	1141	3 do	pek	240	19
177		1147	8 hf ch	dust	640	24
180	Queensland	1156	3 ch	pek No 2	270	15
181	Kalupahana	1159	6 do	bro pek	672	34
182		1162	3 do	or pek	300	23
183		1165	3 do	pek	288	17
184		1168	3 do	pek No 2	288	16

Lot.		Box.	Pkgs.	Name.	lb.	c.
185		1171	3 do	pek sou	270	13
186		1174	2 do	bro mix	230	10
187		1177	1 do	dust	152	20
191	Ella Oya	1189	2 ch 1 hf ch	or pek	230	23
192		1192	5 do	bro or pek	314	26
195		1201	4 do	dust	336	24
196		1204	4 do	fans	300	24
201	Good Hope	1219	7 ch	pek sou	630	18
220		1222	6 hf ch	dust	510	23
203		1225	3 do	bro pek fans	330	25
210	Kitulgalle	1246	2 ch	dust	260	23
211		1249	1 do	bro or pek fans	105	24
212	K G L	1252	4 ch	sou	340	10
220	Waratenne, Invoice No. 12	1276	7 ch	dust	560	23
233	Rockside	1315	8 do	sou	640	18
234		1318	5 do	dust	675	24
240	Nakiadeniya	1336	10 hf ch	bro or pek	600	30
241		1339	4 do	or pek	360	29
244		1348	2 do	bro pek fans	220	24
246	J A I	1354	1 ch	bro pek	100	15
247		1357	2 do	pek	180	14
248		2360	2 do	pek sou	160	12
249		1363	3 hf ch	pek	150	14
250		1366	2 do	bro pek fan	120	18
251		1369	3 do	sou	135	9
252	Galkadua	1372	2 ch	bro or pek	240	27
256		1384	1 do	congou	100	8
257		1337	1 do	fans	120	21
258		1390	1 do	dust	180	20
262	Nonpariel	1402	2 hf ch	bro pek fans	152	25
263		1405	2 do	bro pek dust	155	23
267	Lucky Land	1417	12 hf ch	pek sou	540	31
268		1420	2 do	pek fans	180	24
274	Aberdeen	1438	9 ch	bro pek fans	675	23
278	Morankande	1450	3 hf ch	fans	210	24
279		1453	2 do	dust	170	23
284	Widmore	1468	5 hf-ch	pek fans	425	24
286	Hanwella	1474	6 ch	hyson No 1	600	23
287		1477	2 do	hyson No 2	200	16
288		1480	3 do	hyson No 2	297	16
289		1483	2 do	hyson siftings	260	9
299	Ganapalla	1513	4 do	dust	464	23
319	Clunes	1573	6 do	sou	480	13
320		1576	4 do	dust	360	22
325	Battawatte	1591	2 do	dust	200	24
333	Ruanwella	1615	4 do	dust	320	24
338	Erracht	1630	4 do	br pk fans	480	25
339		1633	1 do	dust	175	23
346	Malwasawa	1654	2 do	bro pek	200	28
347		1657	3 do	or pek	255	23
348		1660	4 do	pek	340	20
349		1663	3 do	pek sou	255	16
355	Dea Ella	1681	8 hf-ch	dust	640	23
359	Weyunga-watte	1693	4 ch	sou	360	14
360		1696	6 hf ch	dust	480	23
371	P G A	1729	2 ch	pek	186	19
372		1732	1 do	sou	92	17
374	Augusta	1738	2 do	dust	290	20
376	Bargany	1744	10 hf-ch	or pek	550	26
379	B Y in est. mark	1753	4 ch	bro pek fans	230	24
380		1756	2 do	dust	190	21
400	Tillyrie	1816	2 do	dust	282	24
403	Bellangolla	1825	8 do	pek sou	640	17
404		1828	3 hf-ch	dust	240	22
410	Yataderia	1846	5 ch	pek sou	490	14
414	B F B	1858	7 do	unast	630	11
414	B	1861	2 hf-ch	pek	115	18
417	B D W P	1867	2 do	dust	180	23
431	Munukattia, Ceylon, in est mark	1909	1 ch	sou	100	17
435	Pendle	1921	6 do	pek	504	20 bid
436		1924	1 do	pek sou	85	18
437		1927	4 hf ch	dust	332	24
439	Yatiyana	1933	1 ch	dust	166	22
449	Erlsmere	1963	13 hf ch	bro or pek	696	56
453		1975	5 ch	pek sou	410	24
454		1978	4 hf ch	dust	320	24
459	Norton	1993	8 do	br or pk fans	576	25
460		1996	5 ch	dust	455	23
483	Penrhos	2065	3 hf ch	fans	225	24
484		2068	2 do	pek dust	190	22
486	Fairlawn	2074	7 ch	pek sou	557	21 bid
488	B B B in est mark	2080	4 do	dust	340	23
489	Dewalakande	2083	7 do	hyson No 2	578	13 bid
493	Baddegama	2095	7 do	pek sou	560	18
494	B G	2098	1 do	bro pk fans	100	23
495		2101	1 hf ch	bro pek	50	29
496		2104	1 do	pek	45	19
497		2107	1 do	pek sou	45	17
508	Amblakande	2140	1 do	bro or pek	60	21
509		2143	8 ch	or pek	640	22

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	
1	St. Josephs Land	1687	3 hf ch	bro pek	170	21
2		1690	2 do	pek	108	14
12	Nyanza	1720	5 ch	pek sou	450	19
13		1723	3 hf ch	dust	285	23
14	G O L G	1726	3 ch	bro pek	300	22
15		1729	3 do	pek	255	17
16		1732	2 hf ch	dust	160	17
21	Kallebokke	1747	2 ch	pek sou	210	21
22		1750	2 do	fans	250	24
23		1753	2 hf ch	dust	180	22
32	Horagoda	1780	1 ch	dust	100	19
33		1783	1 do	con	95	6
38	Old Meddegama	1798	5 ch	pek fans	450	24
39		1801	1 do	dust	110	23
42	Kudaganga	1810	6 ch	pek sou	540	17
43		1813	3 do	bro pek fans	225	23
45		1816	4 do	bro or pek dust	500	23
45	Dartry	1819	5 hf ch	dust	480	24
47		1825	1 ch	sou	107	14
59	Ravenscraig	1861	5 ch	pek sou	475	18
60		1864	3 do	pek sou	270	17
61		1867	4 hf ch	dust	320	22
66	Avisawella	1882	2 ch	dust	280	23
67	P B D	1885	1 ch	bro pek	100	14 bid
68		1888	2 do 1 hf-ch	pek	230	12 bid
69		1891	1 ch	pek sou	80	9 bid
70		1894	1 hf-ch	sou	45	7
79	Murraythwoite	22	5 ch	bro pek fans	600	24
80		25	1 do	dust	180	21
86	Kurulugalla	43	6 ch	pek sou	570	15
87		46	2 do	bro tea	180	7
88		49	4 do	pek dust	520	21
90	K G A, in estmark	55	7 ch	pek	630	20
91		58	2 do	pek sou	190	12
92		61	4 do	bro tea	400	6
93		64	1 do	bro pek fans	100	21
94		67	2 do	dust	260	21
97	Hanagama	76	4 hf ch	dust 2 oz lead	328	16
101	Waganilla	88	7 hf-ch	pek fans	490	25
105	R, in estate mark	100	5 hf ch	bro pek dust	375	23
106		103	3 do	con	150	17
107	Mukuloway	106	8 hf ch	bro pek	424	28
108		109	12 do	pek	540	18
109		112	13 do	sou	611	10
110		115	4 do	fans not hooped	240	13
111	X L T	118	10 box	bro or pek	200	23
112		121	2 hf ch	bro or pek	114	20
113	Donside	124	6 hf ch	dust	540	23
114	Black Pearl	127	6 hf ch 2 boxes	bro pek	370	23
115		130	5 hf ch 1 box	pek	303	17
116		133	2 ch 6 hf ch 1 box	pek sou	518	9
119	Selvawatte	142	2 hf ch	fans	160	19
123	Allakolla	154	6 hf ch	dust	540	21
†124	W S	157	6 ch	pek	540	14 bid
130	New Valley	175	2 hf ch	dust	150	21
137	Rayigam	196	5 hf ch	dust	400	23
142	Annandale	211	4 hf ch	fans	288	25
146	Meddegodde	223	12 hf ch	pek sou	480	19
147		226	4 do	dust	240	21
150	Pindeni Oya	235	8 ch	pek sou	680	16
151		238	5 do	sou	450	16
152		241	5 do	bro pek fans	500	24
153		244	1 do	dust	155	21
158	Neboda	259	1 ch	sou	110	14
159		262	4 hf ch	dust	360	20
167	Jak Tree Hill	286	7 hf ch	bro pek	420	25
168		289	2 do	pek	100	19
170		295	1 ch	sou	100	9
171		298	3 hf ch	dust	270	21
176	Rahatungoda	313	8 hf ch	pek dust	696	25
178	B E	319	12 hf ch	pek	672	38
179		322	8 do	pek sou	400	29
180		325	9 do	pek fans	585	31
181		328	3 do	dust	276	23
201	Hatdowa	388	1 ch	dust	150	19
207	Bodava	406	4 ch	fans	520	24
208		409	3 do	red leaf	285	7
211	Merton	418	11 hf ch	pek fans	605	20
212	M, in estate mark	421	1 ch	bro pek fans	95	18

[Mr. E. John.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Allington	684	4 ch	pek sou	360	withd'n
5		687	1 do	congou	90	withd'n
6		690	2 do	dust	240	withd'n
7	A W T	693	2 do	dust	240	23
8		696	2 do	congou	180	7
10	T	702	6 do	bro pek sou	608	20 bid
11		705	1 hf ch	fans	60	16 bid
22	Manickwatte	738	5 do	dust	370	24
29	Ottery	759	6 ch	sou	480	21
30		762	2 hf ch	dust	180	24
31	R S	765	5 ch	bro or pek	525	26
32		768	7 do	or pek	560	29
33		771	5 do	pek	425	22
34		774	2 do	sou	180	16
35		777	1 hf ch	dust	90	20
40	Little Valley	792	2 do	dust	160	24
43	S	801	5 do	fans	350	withd'n
50	Whyddon	822	5 ch	pek sou	460	27
51		825	2 do	fans	260	26
52		828	1 do	dust	160	24
56	Glentilt	840	10 hf ch	bro mix	600	22
60	Loughton	852	6 do	dust	300	22
64	G B	864	4 ch	bro pek	420	24
65		867	5 do	pek	425	16
66		870	6 hf ch	dust	540	24
68		876	2 ch	bro mix	180	14
72	Newham	888	7 do	pek sou A	595	17
75	Koslande	897	5 do	pek sou	450	17
76		900	2 do	fans	220	24
77		903	3 hf ch	dust	240	24
79	Galpotta	909	8 do 1 do	young hyson	455	21 bid
80		912	3 do	hyson	180	20 bid
85	O F E	927	6 ch	sou	600	16
86		930	2 do	bro pek fans	220	23
87	Y K	933	8 do	sou	640	6
96	Ben Nevis	960	6 do	or pek	510	43
98		966	3 do	pek sou	270	27
99		969	2 hf ch	dust	166	25
100	Callander	972	11 do	pek sou	462	23
102	C L	978	3 hf ch	bro mix	153	7
117	Coslande	23	5 ch	pek sou	500	18
118		26	2 do	fans	220	24
119		29	3 hf ch	dust	240	24
133	Galpotta	71	1 ch	young hyson (pan fired)	55	20 bid

CEYLON COFFEE SALES IN LONDON.

(From Our Commercial Correspondent.)

Mincing Lane, May 10th.

"Kanagawa Maru."—Gonamatava F, 1 barrel sold at 103s; ditto 1, 1 tierce sold at 98; ditto 2, 3 casks sold at 60s; Tillicoultry O, 1 tierce, 1 oask and 1 barrel sold at 104s; ditto 1, 1 cask and 1 tierce sold at 71s.

CEYLON COCOA SALES IN LONDON.

"Jumna."—North Matale, 20 bags sold at 68s 6d; 46 bags sold at 69s; 37 bags sold at 57s 6d; 7 bags sold at 55s; 31 bags sold at 28s 6d.

"Glaucus."—GW, 9 bags sold at 80s.

"Kawachi Maru."—Handrogama London, OBEC in estate mark, 2 bags sold at 32s; 8 bags sold at 61s.

"Ixion."—Mahaberia Ceylon O F, 2 bags sold at 59s 6d; ditto O C, 2 bags sold at 68s; ditto I C, 1 bag sold at 59s 6d; ditto 1, 3 bags sold at 61s 6d; ditto 2 G, 5 bags sold at 46s 6d; ditto D, 3 bags sold at 66s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Ixion."—Wattakelly No. 1, 3 cases sold at 2s 6d; ditto No. 2, 4 cases sold at 2s; ditto No. 3, 2 cases sold at 1s 7d; 4 cases seld at 1s 10d; ditto No. 4, 1 case sold at 1s 4d; ditto Seeds, 1 case sold at 2s; Gavatenne Mysore Cardamoms O. 8 cases sold at 2s 5d; ditto 2, 3 cases sold at 1s 5d; ditto B, 4 cases sold at 1s 6d.

"Alcinous."—Wariagalla Cardamoms Mysore C, 1 case sold at 1s 5d; ditto D, 5 cases sold at 1s 5d.

"Musician."—Metta Olla 1, 2 cases sold at 1s 8d; ditto 2, 1 case sold at 1s 8d; ditto B & S, 1 case sold at 2s.

"Kanagawa Maru."—Duckwari A 1, 1 case sold at 3s 3d; ditto B 1, 2 cases sold at 3s 3d; ditto B 1, 1 case sold at 3s 2d; ditto C 1, 4 cases sold at 2s 5d; ditto D 1, 1 case sold at 2s 6d; ditto A Splits, 1 case sold at 3s 4d; 2 cases sold at 3s 3d; ditto B Splits, 4 cases sold at 2s 7d; ditto C Splits, 4 cases sold at 1s 10d; ditto D Splits, 1 case sold at 1s 4d; ditto E Splits, 3 cases sold at 1s 6d.

"Ixion."—Kellie AA, 1 case sold at 4s 3d; ditto A, 1 case sold at 3s 3d; ditto C, 4 cases sold at 2s 3d; ditto D, 1 case sold at 1s 6d; ditto S, 1 case sold at 2s 1d; St. Martins O, 4 cases sold at 2s 6d; ditto 1, 12 cases sold at 1s 11d; 4 cases sold at 2s.

"Kanagawa Maru."—Vicarton B, 3 cases sold at 1s 7d; ditto C, 1 case sold at 1s 6d; ditto D, 1 case sold at 1s 5d.

"Deucalion."—WP in estate mark, 9 cases sold at 1s 6d.

"Ixion."—Ditto A, 2 cases sold at 1s 9d; ditto B, 2 cases sold at 1s 6d; ditto C, 1 case sold at 1s 8d.

"Deucalion."—OBEC in estate mark, Naranghena AAAA, 2 cases sold at 3s 2d; ditto AAA, 16 cases sold at 2s 10d; ditto AA, 12 cases sold at 2s; ditto A, 4 cases sold at 1s 7d; ditto BB, 7 cases sold at 1s 5d; ditto B, 2 cases sold at 1s 5d; ditto B Seed, 1 case sold at 2s 1d.

"Duke of Devonshire."—Midlands O, 6 cases sold at 2s 10d; ditto 1, 12 cases sold at 2s 1d; 6 cases sold at 1s 10d; ditto 2, 2 cases sold at 1s 7d; 2 cases sold at 1s 6d; ditto B & S, 2 cases sold at 2s 5d; ditto Seed, 1 bag sold at 1s 10d.

CEYLON VANILLA SALES IN LONDON.

"Kawachi Maru."—Kondesalle, 1 tin sold at 15s

BRITISH MUSEUM NAT. HIST.

OBSERVER PRINTING WORKS.